

India is particularly challenged by a high disaster risk, due to its geo-climatic and socio-political constellation. Whether disasters, such as earthquakes, floods and droughts or community riots, are naturally, technologically and/or socio-politically induced, the consequences for low-income households is particularly hard felt. The studies presented in this volume address poverty reduction and risk management aspects related to such disasters in both urban and rural communities in India.

India has taken big steps to improve disaster risk management. Government and non-governmental agencies have been established and links to international disaster management resource networks made. There remains, however, a strong need to learn more about the strategies implemented by local communities to adapt to disasters in view of assisting their capacities to manage and mitigate the associated risks.

Particular emphasis is given herein to approaches of local communities and households to become involved in the co-management of disaster mitigation. The different sub-projects carried out in the states of Gujarat and Tamil Nadu, India, address questions pertaining to

- livelihood security strategies in the informal sector of disaster affected areas
- mitigation of disaster impact: effectiveness, problems and potentials of selected technical approaches and
- microcredit impact and effectiveness in livelihood security.

This report, then, is about poor people, farmers, fishermen and women and their livelihood strategies, how they secure resources, how knowledge is being used and how investments are being made in a common effort to sustain livelihoods. This report is also about local NGOs and their creativity, commitment and initiatives in coping with disaster.

The studies presented herein confirm and encourage different kinds of community-based development cooperation but emphasise, nevertheless, the need for analysis of the local context before selection and application of supportive tools and methods.



Local Adaptive Capacities and Co-Management in Disaster Risk Reduction

Targeted Analyses in Local Communities of Gujarat and Tamil Nadu

Rita Schneider-Sliwa (Ed.)
with Claudia Saalfrank
in cooperation with Mihir Bhatt



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with Claudia Saalfrank, Department of Geography, University of Basel
in cooperation with M. Bhatt, All India Disaster Mitigation Institute Ahmedabad 2009
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1 Fostering new professional interests in disaster risk reduction

Rita Schneider-Sliwa

1.1 Introduction

Human capital and education are major tools of empowerment contributing to the well being of individuals and economic development, both in developing and developed countries. Investing in human capital yields both social returns and higher income gains. The human capital approach, therefore, has influenced governmental and non governmental actors in the field of development. This has also been at the core of the Indo-Swiss Internship and Social Science Studies' Project of Basel University's Department of Geography/Urban and Regional Studies which was funded by the Commission for Research Partnerships with Developing Countries (KFPE) of the Swiss Agency for Development and Cooperation.

In this project, three partners cooperated to bring young Swiss professionals and members of local Indian communities together on specific research questions. These generally related to the way local communities react to disasters and how they can be better assisted in their adaptive capacities. The three partners were Basel University's Department of Geography/Urban and Regional Studies, responsible for the cooperative conceptualization and design of relevant research questions, the All India Disaster Mitigation Institute of Ahmedabad, responsible for providing internship opportunities, organizing and supervising local field work, and the KFPE of the Swiss Agency for Development and Cooperation which funded this cooperation.

For the KFPE, the enhancement of young professionals' understanding of local knowledge, local communities and local community-based NGO work through hands-on experience was of priority. Thus, young professionals who are likely to either work in the development field in the future or disseminate knowledge on approaches to development are target groups of the KFPE's Young Researchers' Program. Stated differently, KFPE assists in the training of young Swiss decision makers in community-based development in developing countries. As such, local communities are also at the centre of KFPE-funded studies, in particular women, farmers, fishermen and entrepreneurs of the unorganized/informal

sector. Although these groups make up the majority of India's economy, their experience and knowledge in dealing with disasters, rebuilding of livelihoods and building up resilience towards the recurrence of disasters has only recently been the focus of attention of external development agencies.

Basel University's Geography/Urban and Regional Studies program selected participants through a competitive process and provided intensive individual teaching support. The aim of the program was to assist young professionals in developing expertise in conceptualizing and designing fundable small scale research projects of relevance for community based NGO work on risk and poverty reduction. Also, by carrying out such projects during the internships, it was hoped that existing institutional links and partnerships with Indian community-based NGOs could be strengthened. All India Disaster Mitigation Institute assessed the feasibility of the projects before actual implementation. Through their involvement in the Program, they hoped to expand their internship program into new avenues of research with the potential of creating pilot studies for large scale research projects generating major international funding. For all three institutions involved, the combination of research in local communities and young professionals working with local community members appeared to be ideal in terms of fostering both human capital and the creative use of resources in development, as well as enhancing institutional and community capacities. One of the eight studies reported in this issue (cf. Claudia Saalfrank on micro finance) has since generated a large follow-up project under the auspices of All India Disaster Mitigation Institute and ProVention Consortium. The project utilizes largely the same survey instrument as the pilot project and involves studies in several countries (<http://www.iiasa.ac.at/Research/RAV/Projects/micro-insurance.html>). The expansion of the geographical base of the project is expected to shed further light on the results from the pilot study concerning the reduction of risk and poverty at an international scale through microfinance. Last but not least, for the young professionals involved in this joint program, the expertise developed has been a central element in their understanding of approaches towards risk reduction and disaster preparedness, and in fostering their professionalization and professional careers.

This issue presents some results of the joint research venture. The studies deal with local adaptive capacities towards risk, with the ways local communities activate their disaster preparedness in cooperation with local NGOs, and how households build up resilience towards the occurrence of disasters that individual stakeholders normally could not cope with. The studies focus on:

- Livelihood security strategies in the informal sector of disaster affected areas
- Mitigating disaster impact – effectiveness, problems and potentials of selected technical approaches
- Microcredit impact and effectiveness in livelihood security
- Different responses to disaster and adaptability of disaster mitigation strategies

All studies used a target analysis approach. Target analysis which is being utilized in market research and economic development studies, but also in military intelligence, smaller surveys are done on a population segment or subgroup. In essence, a small sample of people who should be the final beneficiaries of development efforts (in the military subgroups targeted for special military action, in market research the „beneficiaries“ would be potential customers targeted for aggressive marketing¹) are addressed in order to determine how to most effectively meet their needs, level of knowledge and own capacities.

Such „customer surveys“, even if they are brief, reveal much about the needs, preferences, capacities, habits, knowledge etc. of the target population such as the vulnerable, the disaster affected, the entrepreneurs of the unorganized sector, and this allows to zoom in on ways development efforts can be better targeted in the future. This survey of „customers“ targeted for large-scale initiatives and related allocation of funds serves as a test run or pilot study before arriving at recommendations for assistance pertaining to them.

Thus, target analysis pitches into niches, directly concerns itself with the target of development and identifies development tactics that are working or not. Target analysis allows for even more efficient and direct assistance, to learn more about the target, to develop more solid plans addressing their needs, capacities and preferences, and to integrate the target better in the development process. Of course, target analysis also allows to maximize development efforts with minimum costs and to still achieve better results in terms of measurable indicators. By contrast to sampling in the statistical sense, the concept of a target is based upon the notion that target populations are socially constructed, and this has implications for politics and policy. So, for example, does one not find too much concern with the target population of „the vulnerable“ before the late 1980s. This group, although existing for ages, needed to be socially constructed or put on the mental map of societies, governments, development agencies before they could be targeted for special development efforts. As a concept, then, target analysis is related to targeted development which is a focused approach diametrically opposed to the unfocused approach to provide development to all and to many. Target economic development is a process of determining which persons, businesses, entrepreneurs are best fit for achieving the goals of local/community economic development and social integration. It identifies the profiles of persons, businesses/entrepreneurs of the unorganized sector, personal survival strategies are apt to design appropriate community-focused development strategies.

¹ See for example also target analysis in other regional and thematic contexts: www.uky.edu/Ag/CEA/pubs/industry_target.html [14th January 2009] of the Department of Agricultural Economics of the University of Kentucky, or www.allegenyplaces.com/docs/ECDevResPan3.pdf or, in the context of Ethiopia: ethiopia.pdf.usaid.gov/pdf_docs/PAACK604.pdf [14th January 2009].

1.2

Overview of the individual projects

Impact of climate change on livelihoods of the poor among disaster victims in coastal areas of Tamil Nadu (Silja Ramseier)

Climate change heavily affects India. India's poverty, in turn, makes the country more vulnerable to the changing climatic patterns because poverty reduces capacities to deal with the impact of climate change. This study focuses on the impact of climate change on livelihoods of the poor and the long-term impact such as reduced agricultural production. Also, it focuses on adaptation to the changing climate at the micro-level of the household – its awareness of climate change and strategies to reduce vulnerability. Do poor people know anything about climate change? Have they already developed response mechanisms to enhance their resilience to climate change? To collect data, two districts of Tamil Nadu were visited. In Cuddalore a fishermen and an agricultural community were surveyed in a Focus Group Discussion by applying participatory tools such as the problem tree of the Participatory Risk Appraisal (PRA). In Nagappattinam, three agricultural communities were visited to view organic farming in the context of the changing climate. Besides documenting the impact, awareness about climate change and strategies of the communities visited, the study gave a recommendation for community-based adaptation to climate change.

Disaster recovery of small businesses in India's informal sector: difficulties and chances (Esther Gloor)

This paper is about disaster recovery of small businesses in the informal sector of India. It is an empirical study based on a survey among 40 owners of small businesses in Kheda/Gujarat (flood-affected), Bhuj/Gujarat (earthquake-affected) and Ahmedabad/Gujarat (riot-affected). These business owners were interviewed by the aid of a questionnaire. The survey centred around three main questions:

- What factors contribute to facilitating disaster recovery of small businesses?
- Are there differences in disaster recovery among small businesses affected by different disasters, namely floods, riots and earthquakes?
- Did measures designed to build up livelihoods contribute to disaster resilience of small businesses?

Distinct differences in disaster recovery exist among businesses that had experienced different disasters and that had received aid from the Livelihood Relief Fund, and those businesses which had not received such funds. Riot-affected businesses take longer to recover from a disaster, whereas small

businesses affected by earthquakes or floods recover faster. Given the rather small sample, however, these findings were interpreted in a qualitative rather than in a quantitative way.

Setting up an emergency response guideline for local organizations (Christoph Schlumpf, Esther Gloor)

Global change has increased the frequency and the impact of natural disasters. The way how local, national or international organizations and the government respond to such events is decisive. Good planning and preparedness can improve and speed up the emergency response. The objective of the study was to set up a guideline for local organizations, based on the emergency response strategies of international organizations. The guideline worked out is divided into two parts: one focuses on the preparation for a disaster event and the other one on the time during and after the disaster. It is important for local organizations to adapt the concept of how to prepare for a disaster to their own geographical and emergency related context. There are several aspects that should be considered by local organizations while dealing with emergencies. These are, for example, training for the establishment of a response team, setting up cooperation between local organizations, aid agencies and the government, establishing early warning systems, saving goods and money, creating a risk map and providing insurance. The period during and after the disaster must address aspects like the speed of the response to assess the most pressing needs, to provide goods, first aid and psychological support, to support the local market, to focus on livelihood and to reduce the future vulnerability. In addition, there are several aspects that need to be considered especially by national and international organizations: inclusion of all parties concerned, independent work, coordination with local organizations, consideration of the local circumstances and integration of the affected population in the planning. Finally, the organization should emphasize minimum standards in disaster response like food or health standards. The short guideline developed addressed these aspects.

The flood of 2005 compared to the flood of 2007 in two communities of Kheda and Bhuj (Daniel Rufener)

The study uses socio-economic indicators to compare the impact and consequences of a flood on poor households. The study area comprises four flood-affected communities in the Cities of Kheda and Bhuj that were affected by floods in 2005 and 2007.

Data indicate that the flood of 2005 had for all communities less impact in terms of water levels measured, whereas the flood impact of 2007 was considerably higher. Despite the heavier impact one of the slum communities could manage to reduce the damage to business and households for the 2007 flood: After the floods of 2005, AIDMI launched a cash for work programme in the Indiranagar slum community of Bhuj. The community received construction materials for houses, streets and a community work place, whereas the household members provided the work. This programme was conducted on a communal basis with communal benefit.

In the other two communities a more individual approach was taken. The inhabitants of the slum communities of Ashapur Nagar and Shantinagar near Kheda City tried to establish solutions to their flood problem on their own. An actual community approach to solve problems could not be found. Instead, individuals raised the level of their plinth or foundation before or after every flood. However, neither the impact on business nor the physical damage to the household was reduced between 2005 and 2007. This paper, then, makes a case for assisted self-help.

The impact of AIDMI's microfinance schemes – case studies of beneficiaries in Bhuj, Ahmedabad and Kheda (Claudia Wipf, Basil Gilliéron)

An important target of the eight UN Millennium Development Goals (MDGs) is to reduce extreme poverty by 2015. Microcredit and microfinance in general are strategies to achieve this target. All India Disaster Mitigation Institute (AIDMI) has several programs, which are based on microfinance elements. AIDMI's Revolving Fund in Bhuj and Kheda and Building Peace and Protection program in Ahmedabad provide small loans to poor people collateral-free and without interest rates. AIDMI's microinsurance scheme Afat Vimo was established in 2004 and provides insurance for poor households against 19 risks, among them are natural risks such as storms, cyclones, floods as well as human-made risks such as riots. Presently, Afat Vimo exists in several districts of India. The loans aim at economic recovery and economic development and improving the beneficiaries' livelihood situation. The report about the impacts of these AIDMI microcredit schemes is based on several case studies.

The selected cases represent various communities in Bhuj, Ahmedabad and Kheda. The cities were affected by three different disasters - earthquakes, riots and floods. In order to find out about the impact of microinsurance, two questions were addressed; first, what is the impact of Afat Vimo on beneficiaries, second, is Afat Vimo a successful tool in mitigating disasters for poor people? In order to identify the impact of Afat Vimo people were surveyed who had been suffering from a disaster and had received an insurance claim for their damage. In general the microcredit schemes of AIDMI are an efficient and effective tool, not only to reduce poverty, but also to mitigate different kinds of disasters. The income and assets of all beneficiaries doubled or even tripled since they started participating. The beneficiaries mentioned an increase in social status and some of them started to send their children to school after beginning to get involved in the micro credit schemes. Most beneficiaries have no access to formal loans, apart from AIDMI's microcredit scheme. Even if they have access to other kinds of loans, the interest rates are generally very high (up to 50 percent). For all the people interviewed, Afat Vimo made a positive impact on their lives. The beneficiaries were able to recover from the disasters and could rebuild their own livelihoods. All of them were able to help themselves and did not need to depend on humanitarian aid provided by others. Afat Vimo was effective in preventing the beneficiaries from falling even deeper into poverty. However, insurance alone was not sufficient and also other forms of coping with risks were necessary to overcome the impact of

a disaster. A huge challenge Afat Vimo has to face is that many beneficiaries are illiterate and do not understand the functioning of insurance schemes and why one should pay when nothing happens. Therefore, it is crucial to provide enough information about how insurance works. Afat Vimo is an important disaster mitigation tool but it can only protect people from a few disasters. Illness, one of the major risks for poor people, is not insured.

2 Impact of climate change on livelihoods of the poor among disaster victims in coastal areas of Tamil Nadu

Silja Ramseier

2.1 Introduction

2.1.1 Background and objective

Climate change heavily affects India. India's poverty, in turn, makes the country more vulnerable to changing climatic patterns because poverty reduces the capacity to deal with the impact of climate change. This study focuses on the impact of climate change on livelihoods of the poor, and long-term impacts such as reduced agricultural production. The question is whether the people concerned have already developed adaptation strategies as climate change forces people to change their livelihood activities. Also, the focus is on adaption to the changing climate and related fatal disasters at the micro-level of the household – its awareness of climate change and strategies to reduce vulnerability. Do poor people know anything about climate change? Have they already developed response mechanisms to enhance their resilience to disasters?

The study gives an insight into the climate-induced impact on livelihoods of the poor in disaster-affected areas. It also shows people's reactions to these impacts. Whether or not people are aware of climate change as a long-term phenomenon, they have recognized that the climate is changing and have adjusted in some ways. The results of this research may help to develop adaptation strategies.

2.1.2 Relevance

This study is important for two reasons. Firstly, since research concerning climate change has mainly focussed on the macro-perspective and the importance of micro-dimensions has been only recently recognized, there are few studies of the impact of climate change as perceived by individual human beings. This study is

of relevance because the people who are most affected by climate change in India are the poor, in disaster-affected coastal and rural areas. Studies in developing countries have shown that extreme events and change in climate have greater consequences than the change in the average temperature and the acceleration of change (VAN DRUNEN ET AL. 2006: 164). This fact reflects the importance of disaster mitigation and why this study was conducted in disaster-affected areas.

Secondly, as climate change is an important dimension of poverty, the government must help people to adapt to climate change. In order to develop appropriate adaptation strategies for the poor, the government must understand the impact of climate change on poor people. This study should show the possibilities that even poor people have to reduce their vulnerability to the changing climate. As such, the study contributes to understanding how the impact of official governmental policies towards building up resilience can be and are enhanced by local, endogenous efforts.

2.1.3

Case study approach

In order to collect data, two districts of Tamil Nadu were visited. In Cuddalore, a fishing and agricultural community, residents were surveyed in a Focus Group Discussion by applying participatory tools such as the problem tree of the Participatory Risk Appraisal (PRA). In Nagappattinam, three agricultural communities were visited to view organic farming in the context of the changing climate. In addition to documenting the impact, awareness of climate change and strategies of the communities visited, the study gave a recommendation for community-based adaptation to climate change.

In Tamil Nadu, AIDMI has been working in the two districts Cuddalore and Nagappattinam since the Tsunami of 2004. The study took place in both districts so one could compare the livelihood trends in these two different districts. There were two selection criteria for the communities: coastal communities (geographical location) and fishing and farming communities (occupation), because fishermen and farmers are dependent on climatically sensitive resources. Therefore, Singarathoppu as a fishing community and Kandakadu as an agricultural community were selected in Cuddalore. The meeting consisted of about 10 to 15 women from Pengal Pannokku Iyukkam (PPI), a women's development organization. There were only women because AIDMI works with these communities through PPI. People who do good work in the communities and are therefore good examples to other members of the community were selected to attend the meeting. Before examining in detail how local people and communities respond, this study looks at the wider context of the impact of climate change.

2.1.4

Impact of climate change on coastal areas and the agricultural sector

Coastal areas and the impact of climate change. Coastal areas are important and critical regions for India. The coastline stretches over 7,500 km. More than 100 million people live in nine coastal states. The density of the population in coastal areas - 455 people per km² - is 1.5 times higher than the average (MINISTRY OF ENVIRONMENT AND FORESTS 2004: 108). In coastal areas, climate change is seen in the rise of the sea level. Records on coastal tide gauges in the North Indian Ocean dating more than 40 years show that there has been a rise of the sea level of 1.06-1.75 mm per year (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 13). The consequences of sea level rise are on the one hand seawater entering aquifers and on the other hand increased flooding of low-lying areas (O'NEILL ET AL. 2001: 26) and salinization of groundwater and soil. Coastal ecosystems (coral reefs, mangroves, estuaries and deltas) play an important part in the fishery production in addition to protecting the coastal zones from erosion by wave action. The activities in many coastal areas tend to exceed the capacity for the natural coastal ecosystem to absorb them, making these regions vulnerable to the increased frequency and intensity of natural and man-made hazards. Future climate change will worsen existing problems like erosion, flooding, subsidence, salinization and deterioration of coastal ecosystems such as mangroves. For the middle of the 21st century, the sea level has been predicted to rise by 15-38 cm; by the end of this century it may have risen by 46-59 cm. Projections show that a sea level rise of one meter would result in approximately 7.1 million people in India being displaced and about 5,764 km² of land area being lost (MINISTRY OF ENVIRONMENT AND FORESTS 2004: 108). Coastal areas are threatened not only by sea level rise, but also by an above-average growth of population due to greater employment opportunities and an increase of the intensity of cyclones by 15% (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 15). There are a number of climate change-related impacts on coastal biodiversity affecting all levels, from the ecosystem level down to species level. The most obvious impact is that flooding, sea level rise and temperature change alter the boundaries of the ecosystem. Some ecosystems may be extended, others diminished in size. Another impact is the change in natural habitat that affects species' survival. Thus, climate change may lead to increasing extinction rates. Most vulnerable ecosystems and species consist of small populations and species restricted to small areas. As an example, coral reefs are endangered because they suffer from high water temperatures. They are of great importance to the large and growing coastal population because they have the highest biodiversity of any marine ecosystem. Therefore they provide many ecosystem services which result in direct economic benefits. There is a high probability that climate change will cause further degradation of coral reef communities. This process will be strengthened by non-climatic stresses (REID 2006 ONLINE: 38). In this context it has to be mentioned that it is difficult to separate global climatic and non-climatic influences.

The agricultural sector and the impact of climate change. The agricultural sector which still employs about 600 million people, i.e. 56.4% of India's population and contributes 21% to the Gross Domestic Product (GDP) and 11% to the total exports (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 31), is severely affected by the changing climate (MÜLLER ET AL. 2007: 234). Additionally, the greater frequency of extreme climate events, the warming in high latitudes, the possible change in monsoon rainfall and the reduced soil availability aggravate farming conditions (O'NEILL ET AL. 2001: 16). Farming is strongly dependent on the regular occurrence of the monsoon. This, in turn, implies a strong dependency on changes of monsoon seasons. The monsoon contributes a large part of the annual rainfall, up to 90%. Every major change has a strong impact on agricultural output (WISSENSCHAFTLICHER BEIRAT DER BUNDESREGIERUNG,



Fig. 2.1 Women working in a rice field.

GLOBALE UMWELT-VERÄNDERUNGEN WBGU 2008: 79). Data on the monsoon does not show any significant national trend in monsoon rainfall, but there are regional variations which show that some regions tend to get more and some less monsoon rainfall (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 13). Water-related impacts in general are expected to be greater in regions which are already under stress (O'NEILL ET AL. 2001: 147f). Small changes in temperature and precipitation already have impacts on the quality of vegetables and fruits. An impact on pathogens and insects which heavily depend on temperature and humidity is also to be expected. Other changes are a decline in fish breeding and harvests. Global reports predict a decline in India's crop production

of 10-40% by 2100 (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 14). One effect of climate change on agriculture is the shifting of reproductive cycles and growing seasons of certain crops. This climate-related issue may or may not affect agricultural communities. Monocultures have negative impacts on biodiversity and agricultural production. They are less sustainable than agro-ecologically diversified land and more endangered by extreme weather events and pests. Thus, they worsen the economic vulnerability of the poor.

2.1.5

Governmental response to climate change in India

The National Action Plan on Climate Change (NAPCC) seeks measures that facilitate India's development, specifically to improve living standards as well as to have co-benefits for addressing climate change effectively. This means

that India is looking for a sustainable development path with climate-related objectives regarding adaptation and mitigation. One of the seven principles of this plan, and in first place, is the protection of the poor and vulnerable sections of society by means of an inclusive and sustainable development strategy that is sensitive to climate change (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 2). The NAPCC contains eight national missions. Most important to this study are the following three missions.

- **National water mission.** Water resource management should help to conserve water, minimize wastage and ensure a more equitable distribution both across and within the state. Measures like rain water harvesting are planned (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 4). There is a great need for this water resource management because many parts are already water-stressed and India is likely to be water-scarce by 2050. The problem may worsen due to climate change (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 30f).
- **National mission for sustainable agriculture.** Goal of this mission is to make Indian agriculture more resilient to climate change. One stress is on the development of new crops, especially heat-resistant crops, and on alternative cropping patterns which are capable of withstanding extremes of weather such as droughts, flooding and variable moisture availability. Focus of this mission is to improve productivity of rain-fed agriculture. India will make an effort to work towards an ecologically sustainable green revolution (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 5).
- **National mission on strategic knowledge for climate change.** To gain more knowledge and collect data on the challenges of and the responses to climate change, India needs local scientists to study national trends. The research will include the impacts of climate change on livelihoods of coastal communities (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 5).

2.1.6

Current actions for adaption and mitigation

Due to the present impact of climate change and prediction of future changes, the government of India has established several actions to reduce India's vulnerability. Most important for this study are the actions taken for coastal and agricultural areas and extreme weather-related issues.

- **Coastal regions.** Restrictions have been imposed on areas between 200 m and 500 m from the high tide line. Special restrictions have been imposed on areas up to 200 m, which comprise the sensitive coastal ecosystems. These measures also protect the coastal population and their livelihood. They include the construction of coastal protection infrastructure and cyclone shelters and plantation of coastal forests and mangroves (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 16).

- **Crop improvement.** Current programs involve the development of crops for arid land and pest management. Another important measure is the capacity building, e.g. of NGOs, to support practices which reduce vulnerability (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 15).
- **Drought proofing.** Programs aim to minimize the negative effects of drought on crop production, livestock, and productivity of the land, water and human resources. Overall economic development and improvement of the socio-economic conditions and the resources of poor and disadvantaged sections of society are another aim (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 15).
- **Water and rain harvesting.** To increase the utilizable water resources, the National Water Policy (2002) put its main emphasis on nonconventional methods for water utilization. These methods include artificial recharge of groundwater and desalination of brackish or sea water, as well as traditional water conservation practices such as rainwater harvesting (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 16).
- **Risk financing.** There are two risk-financing programs that support adaptation to climate impacts. Insurance against climate risks is supported by the Crop Insurance Scheme. The Credit Support Mechanism makes the extension of credit possible to farmers, especially in the event of crop failures due to climate change (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 16).
- **Disaster management.** The National Disaster Management program provides aid to victims of weather-related disasters. It also manages disaster relief operations and supports disaster prevention programs with information and training of disaster management staff (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 16).

Despite all of these efforts it is clear that the impact of such major programs is a long-term one. In the meantime, it is important that local NGOs and local people help themselves, which is the focus of this study.

2.2 Study areas and methods

2.2.1 Tamil Nadu

Tamil Nadu is one of India's nine coastal states located on the southern tip of the Indian Subcontinent. It is bordered by Kerala, Karnataka, Andhra Pradesh and the Bay of Bengal. Tamil Nadu is located on the East Coast of India which is flat, deltaic and rich in mangrove forests. Mangroves, coral reefs, estuaries and deltas as ecosystems are rich in biodiversity. These ecosystems play a major role in fishery production and the protection of coastal zones against erosion (MINISTRY OF ENVIRONMENT AND FORESTS 2004: 108). Summer monsoon (South-

West-Monsoon) from June until August does not bring a lot of precipitation to Tamil Nadu. From November until February, Tamil Nadu experiences winter, but temperatures do not drop below 20 degrees. Winter monsoon (South-East-Monsoon) is between October and December. During these times the state is prone to floods due to heavy rainfall. It is also the time of cyclone warnings (TAMIL NADU PROFILE 2008a ONLINE). The average precipitation per year in Tamil Nadu is 961.8 mm (TAMIL NADU PROFILE 2008c ONLINE).

Tamil Nadu is one of the most industrialized states in the country due to its geographical position and resources. It is known for its many heavy engineering and vehicle manufacturing companies like Ford, and its textile industries. Currently, Tamil Nadu has the fifth largest economy in India. The economy depends heavily on industry and agriculture. 21% of economic activity is in the agricultural sector as Tamil Nadu is the second largest producer of rice in India, 34% is in manufacturing and 45% in the service sector (TAMIL NADU

Tab. 2.1 Damage in ha to crop land for the Cuddalore District of Tamil Nadu, ordered by disaster and year (data source: <http://www.indisdata-tn.gov.in/DesInventar/statistics.jsp>; 17.11.2008).

Event	Year	Damage to crops ha
Cyclone	2000	6.068
Draught	2002	16.030
	2003	7.500
	2004	7.700
Floods	2000	2.436
	2002	47.501
	2004	4.413
	2005	27.899
Rains	2004	18.888
Tsunami	2004	54.605
TOTAL		193.040

Tab. 2.2 Damage in ha to crop land for the Nagappattinam District of Tamil Nadu, ordered by disaster and year (data source: <http://www.indisdata-tn.gov.in/DesInventar/statistics.jsp>; 17.11.2008).

Event	Year	Damage to crops ha
Draught	2003	18.000
	2004	14.100
Floods	2005	5.635
Rains	1984	20.242
	1995	3.000
	2000	3.196
	2004	111.292
TOTAL		175.465

PROFILE 2008b ONLINE). As tables 2.1 and 2.2 show, the two coastal districts of Cuddalore and Nagappattinam alone suffered damage to 193.040 ha and 175.465 ha of crop land over only four years (2000 to 2004) due to natural disasters. This reflects the great degree of vulnerability in the agricultural sector.

2.2.2

Local communities

Singarathoppu – fishing community

Singarathoppu is a fishing community in the Cuddalore block of Cuddalore district. The main economic activity is fishing. Women have various small businesses such as selling dry fish, rice, snacks or sarees. The community has good working opportunities since they have resources and good access to the fish market. Big boats anchor just nearby and there is a large supply and demand for fish in the region. The community is located about 200 m from the seashore and it is almost surrounded by backwater. Due to its geographical location Singarathoppu is prone to cyclones. It is also affected by heavy rain and floods. The community was affected by the 2004 Tsunami when the seawater and backwater damaged the community from different sides. There is a mix of kachcha and pacca houses. The reason that so many people still live in kachcha houses is that people do not have the capacity to build the more durable pacca houses, because they suffer e.g. loss of livelihood or shelter due to the impact of weather extremes. The community has concrete paths, which means in the case of heavy rain, paths are usable on foot and do not get muddy and damaged as natural paths do.

Kandakadu – agricultural community

This agricultural community is also located in the Cuddalore block of Cuddalore district. To reach this village a big bridge has to be crossed, which is of great importance to the community and will be discussed later. Main livelihoods are agricultural activities such as growing vegetables, grain cultivation and milk sales. The average wage for routine work is 30-50 Rs per day. People get 50 Rs and more per day for crops such as vegetables and sugarcane. The village experiences problems with floods every year and was also affected by the 2004 Tsunami. There is a mix of kachcha and pacca houses as in Singarathoppu. But in contrast to Singarathoppu, Kandakadu has no concrete paths. In the event of heavy rain, it becomes muddy and diseases can spread easily. The natural paths could be an indicator that agricultural communities did not get as much attention as fishing communities after the 2004 Tsunami.

Tetti, Nagoor, Vadakuda – organic farming communities

These three small agricultural communities are in the Nagappattinam block of Nagappattinam district. The roads are small concrete or natural paths. The community members have different livelihoods in organic farming. All the

communities are frequently affected by cyclones. On average they get three cyclone warnings per year. Twice a year they are seriously affected by cyclones. The communities were not primarily affected by the 2004 Tsunami, but they suffered from secondary impacts such as salinization of land and groundwater.

Organic farming. All of these three villages are members of Sneha, an organization that has existed since 1996, which teaches its members organic farming. Although scientists predicted no crops for five years due to salinization from the Tsunami of 2004, these communities have better crops now than before 2004. Crops are not only better in quality, but also the cost of production is lower, the production is higher and of better quality and the land is improving as well. The organic farmers use traditional methods to produce, for example, non-chemical pesticide made of waste fish and sugar, from which the groundwater level and quality benefit considerably, or they breed earthworms which they distribute on the agricultural land. The organization is not only teaching organic farming but also organizing farmers into groups. Within these groups, farmers are more powerful than as individuals. As another part of their work, Sneha diversifies livelihoods. Some members do agricultural labour; others are responsible for marketing and selling. Thus, communities can save resources such as money and time.

2.2.3

Participatory methods - tools

This survey used participatory methods in Cuddalore to study livelihood trends in the context of climate change and climate adaptation. Instead of conducting interviews with individual members of the community, which takes a considerable amount of time, participatory tools can be used to gain much information in a short time about the common understanding of the community regarding climate change. The selected tools are part of the Participatory Risk Appraisal (PRA).

- **Seasonal calendar (fig. 2.2).** A seasonal calendar is a table with the twelve months in the top row. Communities can decide for themselves with which month they wish to start. In the case of this study, people started with April because their local traditional calendar year starts then. Community members can choose their most important activities during a year, such as livelihood, expenditure, borrowing of money, social/religious festivals, and write them down on the left (vertical column). The community was asked about the time, duration and circumstances of the chosen activities. The seasonal calendar identifies seasonal features. It indicates critical times in crop production or fishing time with regard to e.g. cropping and fishing patterns, labour access, food procurement strategies, diet or health problems. Periods of stress, hazards, disease, hunger, debt and vulnerability can become clear also. In terms of livelihood, the diversification of sources and coping strategies can be seen.

- **Venn diagram (fig. 2.3).** Livelihood as a key issue is written down in a circle in the middle of the sheet of paper. The communities must decide to what extent governmental and non-governmental organizations give support to their livelihood. Circles are drawn, relating to the extent of support. Thus the Venn diagram shows which organisation gives support, and to what extent, to the livelihood of the communities.
- **Problem tree (fig. 2.4).** Communities must identify their major problem. This problem is written in the trunk (e.g. disasters, changing monsoon, water availability). Then they discuss the causes and impacts of this problem. The roots of the tree represent the causes, the branches and leaves represent the impacts of the problem. The problem tree therefore represents the major problem, with its roots the causes, and its branches the impacts of the problem. It shows the level of the community's awareness concerning the impact of climate change and disasters on livelihoods.
- **Action planning (fig. 2.5).** Action planning is a table containing major problems of the community, the reasons for and solutions to these problems, a ranking of the solutions, difficulties the community faces in implementing the solutions, partners such as the government or NGOs, the responsible person and the expected time needed to implement the solutions. The communities choose their most important problems. Then they consider possible solutions and how they could implement them. This tool shows the possible strategies and capacities of the communities. It also indicates the strength and resilience of people's livelihood with respect to hazards.
- **Direct observation.** Physical facts such as demographic information, infrastructure, health, sanitation and other essential services, daily activities, visible vulnerabilities and capacities can be observed, and observations during interaction with the community are documented. Direct observation involves documenting physical aspects, behaviour and activities. It supports observations and conclusions drawn while using other tools. Problems such as socio-economic status or ethnicity can be better understood by direct observation.

2.2.4 Empirical approaches

One empirical approach used in this study was Focus Group Discussion (FGD). "A Focus Group Discussion is a group discussion of approximately 6-12 persons guided by a facilitator, during which group members talk freely and spontaneously about a certain topic. This is a qualitative method. Its purpose is to obtain in-depth information on concepts, perceptions and ideas of a group. A FGD aims to be more than a question-answer interaction. The idea is that group members discuss the topic among themselves, with guidance from the facilitator (INTERNATIONAL DEVELOPMENT RESEARCH CENTER IDRC 2008 ONLINE)".

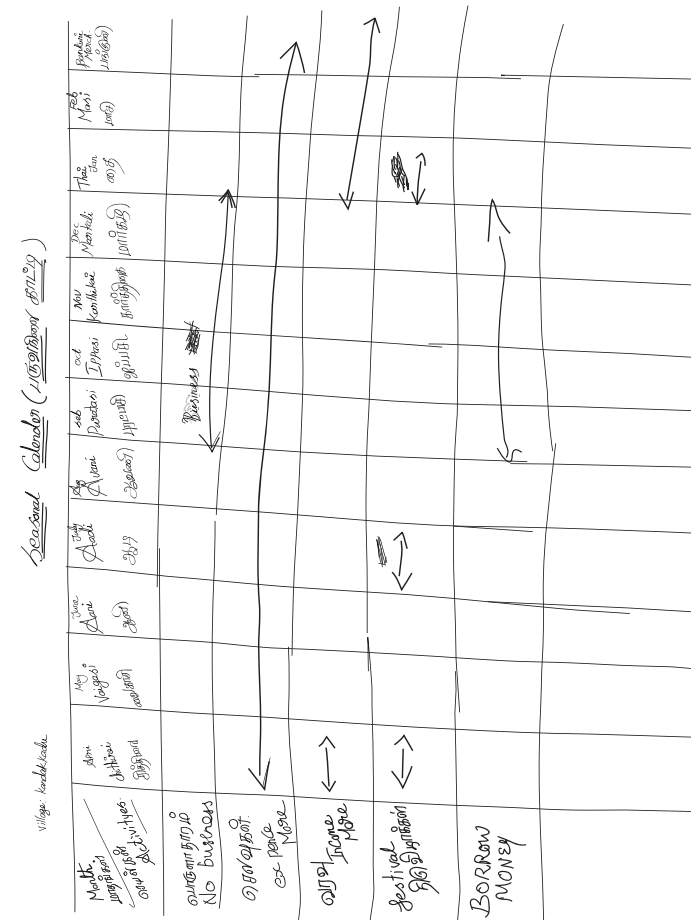


Fig. 2.2 Seasonal calendar in Kandakadu.

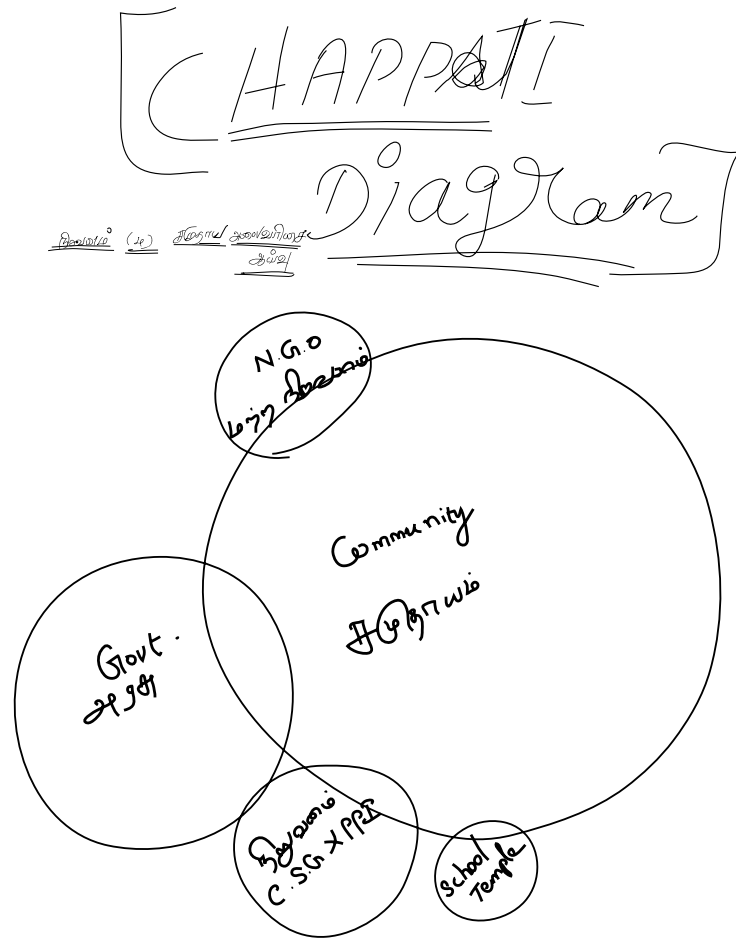


Fig. 2.3 Venn diagram in Singarathoppu.

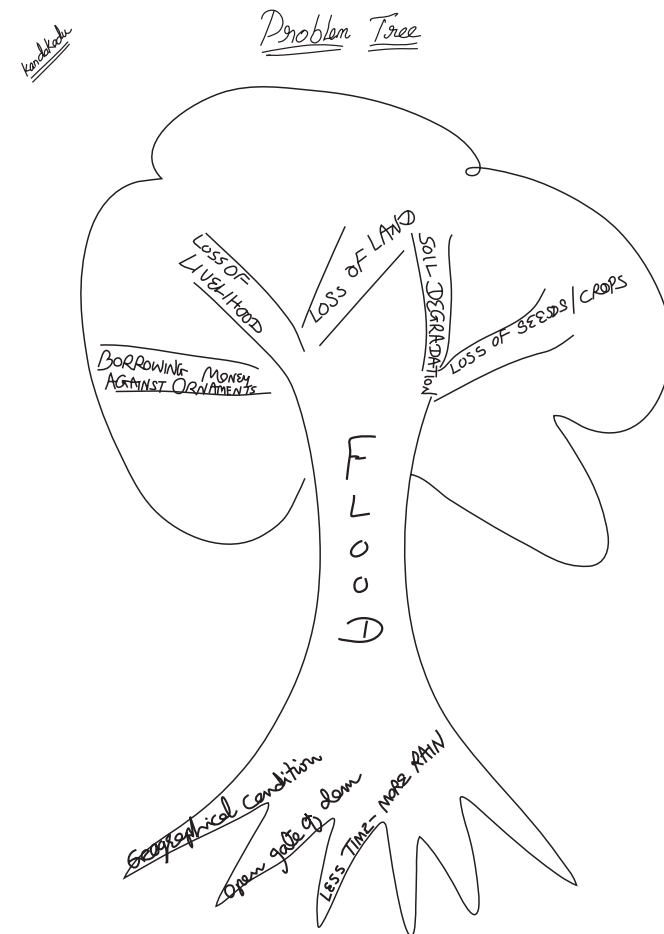


Fig. 2.4 Problem tree in Kandakadu.

Fig. 2.5 Village action plan in Singarathoppu.

Fig. 2.6 Focus Group Discussion in Singarathoppu.

them in a fixed order. A new tool was used when related issues were mentioned. When the members were no longer interested in thinking about a particular issue, the tool had to be changed so people would not get bored and leave. The member of AIDMI also had to ask the same questions again and again or change them because people did not understand the purpose of the question.

Language – coding and decoding. The survey was done through an interpreter from English to Tamil. The questions were asked in English by a member of AIDMI who speaks some Tamil. The local fieldworker translated them into Tamil and retranslated the answers. The advantage of this method is that the member of AIDMI, and in particular the local fieldworker, knows the local context, conditions and the way people think. A disadvantage is the problem of exact translation.

Another difficulty is the process of coding and decoding meanings. In a one-to-one interview the interviewer codes a question that will be decoded by the recipient to understand its meaning, recoded in the answer and decoded by the interviewer to understand the meaning of the answer. Through this process, misunderstandings may happen because everybody has their own understanding of the meanings of their environment. Coding and decoding in an interview are one of many issues that have to be considered by collecting and analysing data to get information that is as close to reality as possible.

Meeting – members, time and focus. In Singarathoppu and Kandakadu, there were only women at the Focus Group Discussion. Thus, only the views of

women, who are known to be more aware of changes in the environment than others, were represented. Another issue that influenced data collection was the time and duration of the meeting. In Singarathoppu, the meeting was delayed for two hours so that a lady from PPI could take part in the FGD. Coincidentally there was a festival in the afternoon. Women could not concentrate properly on the questions because they were looking forward to the festival and they were in a hurry to do final preparations for it. Thus, the different tools were worked through in a hurry and people had to be persuaded several times not to run away. The meeting was finished after approximately 90 minutes after some women had



Fig. 2.7 Focus Group Discussion in Kandakadu.

already left. In Kandakadu, the meeting went on for about three hours without a break. One effect was that women could not concentrate all the time and some of them did not stay for the whole meeting. The main problem in this meeting was that the members did not understand the purpose of the meeting. They thought the meeting was to present the problems of the community and therefore they

expected to get some relief. They did not realize that the purpose of the meeting was to collect data for a study of climate change and its impacts.

2.3

Analysis and interpretation

2.3.1

Singarathoppu

Impact of disasters. Singarathoppu is prone to cyclones. A community member observed that in the last few years the number of cyclone warnings had increased to four warnings a year. A decade ago, they received only one or two warnings. Cyclones destroy the community's livelihood assets which are kept in unsafe kachcha houses. In the event of a cyclone warning, people save their lives but they do not consider storing their livelihood assets in a safe place. The food stock of the community is affected as well. This has two consequences for the members of the community. On one hand, it means a loss of livelihood assets. Many women have small businesses, selling food such as dried fish or rice. On the other hand, the scarcity of food affects the working capacity of people, resulting in a loss of income for the family. Hungry people are more affected by illnesses because their immune system is weakened. Family members with illnesses are a burden on the family because they cannot earn money and there may be additional expenditures for health services. Another problem the community faces is the salinization of

groundwater due to seawater. Saline groundwater reduces harvests and inhibits the production of drinking water. The community is aware that cyclones destroy their livelihood assets and they suffer from food and water problems. But they do not consider secondary impacts such as being unable to continue their livelihood activities while the houses are being reconstructed. However, they are well aware that after disasters they face problems restarting their businesses. They know that they do not have sustainable businesses. Insurance would help them to re-start livelihood activities after disasters.

Impact of changing environment. None of the community members mentioned the two problems of the change in fish availability and of the unpredictability of the fish catch. Due to climate change and overfishing, some fish populations that live in shallow waters are exhausted or no longer available in sufficient quantities. For instance, Votamparai, Sudai and Tattaikavalai are some of the exhausted fish types in the area of Tamil Nadu, possibly due to warming of the sea temperature, decrease in occurrence of oxygen, impacts of the 2004 Tsunami and cyclones, change in supply of nutrition, or new or established types of fish dominating by taking away food or space from the now exhausted fish types. As a consequence of the non-availability of fish in shallow waters, fishermen have to catch fish farther away from the coast. This means that fishermen need bigger boats and more petrol. Thus, they have more expenditure for their livelihood tools.

It is no longer possible for fishermen to predict fish catch. Previously, they knew the wind direction for a specific time and which specific type of fish and its amount they could catch at a specific depth. Therefore, they also knew how much expenditure, work, food and income they would have at a specific time. Nowadays, wind direction changes even during a single day. It is possible for fishermen to catch no fish over several days. In this case, for several reasons, there is a great loss of income due to expenditure for fuel and lack of fish to sell.

Adaptation and risk reduction strategies: awareness and adaption strategies.

The women are aware of the risks and the impact of the disasters they face. They know the community is prone to cyclones and floods because of its geographical situation near the coast and the backwater. In this regard, they mentioned that vegetation reduces the impact of cyclones and floods on the coast. For this reason, an organization planted trees on the coast after the Tsunami in 2004. But they did not realize that the frequency of cyclones and their intensity are increasing. Since they are not aware of the changes in their environment, they did not mention either a relation between disasters and climate or the reasons for the changes. Livelihood is a problem for Singarathoppu. Therefore, people consider developing their businesses by getting insurance for their businesses. A problem they face, however, is financial debt.

2.3.2 Kandakadu

Impact of disasters. Kandakadu suffers from the impact of floods every year. These days, even the monsoon is a risk for people because there is more precipitation in a shorter period. The floods are caused by heavy rainfall, the open gate of the dam nearby and geographical conditions. In times of flooding, the bridge which was supported by the government in the recent past and connects the community to the market is flooded and no longer passable on foot. Some men still go to the market but women feel ashamed because of their clothes. In these times people suffer from loss of income. They did not mention this issue which means that they are not aware that a loss of transportation and communication means a loss of livelihood, no access to market, less availability of food, and increased debt. To overcome difficulties, they have to borrow money in exchange for ornaments. When their situation has improved after the floods, they buy their ornaments back. The person who lends them money is the one who sells them agricultural products like seeds and fertilizer. The participants agreed that the floods and changing rainfall patterns are causing erosion which means loss of land, soil degradation and loss of fertility. Therefore, Kandakadu suffers from the loss of seeds and harvests, which mean loss of livelihood and income. As a reason for the lack of improvement in agricultural production, members mentioned that Kandakadu is a very small community, meaning that people think their village is too small in capacity for effective agricultural improvement. They think that only bigger villages are able to make improvements.

Adaptation and risk reduction strategies: awareness and adaption strategies. Community members are aware of the changing rainfall patterns. They have noticed that heavier rainfalls within a shorter period of time are becoming more common, which has a negative effect on their land in the sense of floods. On one hand, they have noticed that nowadays rainfall is more often lost as run-off, which means a lack of water which affects their harvest. Thus, they suffer from loss of livelihood. Although members recognise the negative impact of the changing rainfall patterns, they do not make a connection between the climate and the lack of improvements in their village. As a reason they mention that their village is very small. Members of Kandakadu see some of their problems but they are not acutely aware of them. Livelihood does not seem to be a key in their lives. Maybe the Tsunami in 2004 blinded them to their problems because they got too much aid. Now they are quite demanding and not self-reliant. They think that if any problems occur, the government or NGOs will help them. To improve Kandakadu's situation during floods, members would like the government to build a higher bridge over the river so that transportation and communication would still be possible. The problem is that no efforts have been made by the government so far. If the government does not build the bridge, they are thinking of shifting from agriculture to another activity. They realize that livelihood is affected by floods, and therefore shifting to another livelihood should be considered. At the same time, they do not want to do hard work. This evokes the

thought that they might be a little too reliant on external help. The Tsunami in 2004 could be a reason for this attitude.

2.3.3 Tetti, Nagoor and Vadakadu – organic farming communities

Impact of disasters. The organic farmers of Tetti, Nagoor and Vadakuda received, on average, three cyclone warnings a year in the past. Twice they were affected by cyclones. In the last five years the members have noted an increase in warnings. They are now confronted with at least four warnings per year. To reduce the impacts of extreme weather events, Sneha has trained people in disaster management. Therefore, people are prepared for disasters. They know what to do in the event of a cyclone. In addition, the communities now have a communal disaster warning. Previously, they just received warnings on television and by radio. Since a disaster management plan has been established in the villages, people reported that the impact of disasters on livelihoods has been reduced enormously.

Impact of changing environment. Since people have made such progress in agricultural production despite the predictions of scientists regarding the salinization of agricultural land, it is impossible for them to see the negative impact of changing climate on the ecosystem. They also do not see a change in the months in which farming is possible. January and February are called “rough months”. In these months there is maximum chance of cyclones and they receive two till three warnings. It is also the season of the second small monsoon. Hence after these two months they start cultivating land and sowing of grain. August is the beginning of actual monsoon and their main farming season for rice (paddy), sugarcane and others. Growing vegetables is possible throughout the year.

Adaptation and risk reduction strategies: awareness and adaption strategies. The communities are aware of disasters and therefore well prepared. Since they do not see climate change impacts on the ecosystem and are dependent on agriculture, they have not realized the impact of climate change on livelihoods. Tetti, Nagoor and Vadakuda are already reducing the impact of cyclones with the aid of disaster management. As an example, members have made their livelihood more resilient with savings and insurance. This means that members now have sustainable livelihoods in contrast to the unsustainable livelihoods of the past. Thus, the livelihood situation has been greatly improved. Apart from disaster management, organic farming is used to improve agricultural production. Community members seem to be very satisfied with their current situation, but they are quite eager to get more training from Sneha e.g. in marketing strategies to improve their livelihoods even further.

2.3.4 Interpretation

Impact of climate change on livelihoods

Impact of disasters. The organic farming communities suffer less from the impact of disasters because they have disaster management plans. Livelihoods of members of Singarathoppu and Kandakadu are severely affected in the event of disasters because they mainly save only their lives. Thus, they suffer from a loss of livelihood. Water, food and shelter also are affected, all of which are factors that reduce livelihood activities. Livelihood does not seem to be a concern in these people's lives. One reason could be that they received too much attention and aid after the Tsunami in 2004. Therefore, they may think that it is unnecessary take care of their livelihoods and goods because the government or NGOs will help them after a disaster. They do not seem to be self-reliant and therefore are dependent on external help. Concerning the current situation of the communities with regard to future impact of climate related disasters, it is predictable that these communities of Cuddalore will suffer from a greater loss of livelihood than those in Nagappattinam.

Impact of changing environment. Neither organic farmers nor communities in Cuddalore noticed a relationship between changing climate patterns and livelihood income. It is not surprising that the organic farmers did not notice this connection because they now have better crops than before the 2004 Tsunami. However, the organic farmers have a greater capacity to adapt to the changing climatic patterns due to the previous improvement of their situation and their attitude towards work.

Adaptation and risk reduction strategies

Awareness. There is no awareness concerning climate change among any of the communities. This is not surprising as climate change is an issue which has been in national and international discourse for only a few years. Moreover, climate change is quite a new phenomenon and its impact is increasing rapidly. At least communities are aware of the changing rainfall patterns and the impact of disasters.

The NGO 'Practical Action', Sri Lanka, identified some reasons for why climate change is not yet in the local consciousness. "Climate change issues are being introduced by foreign sources in the West; disasters have existed for centuries, and evidence that current climatic anomalies are part of a larger trend is not visible in the short term; and many communities are so focused on immediate survival issues – on finding their next meal – that the comparatively abstract issue of climate change does not appear on their agenda" (COMMONWEALTH FOUNDATION 2008: 4).

Adaptation strategies. In contrast to the organic farmers, the communities of Cuddalore have neither disaster management nor organic farming activities to improve the ecosystem services. However satisfactory the current situation of

the organic farmers is, there will be a need to adapt to further climate change impact. Concerning the strategies of the other communities, it is not clear if they really want to take the initiative and make an effort to change their situation. It is possible that they only wrote down these solutions to their problems on the Action Plan and are simply waiting until AIDMI or another NGO helps them.



Fig. 2.8 Mr. Ragendran showing a field with rice seeds.

As Mrs. Bhuvaneshwari, an adviser, confirmed, poor people see the changes but do not have the capacity to adapt as fast as the changes are happening. To improve their adaptation capacities, they need external help from the government or NGOs.

When all communities are compared, it becomes obvious that the organic farmers in Nagappattinam are a positive example of community empowerment. These communities are really proud to be organic farmers and they are full of energy. They seem to do more on their own initiative. This reflects a successful bottom-up approach that is essential for adaptation. These villages have win-win solutions. Farmers profit in the present due to good agricultural production and they will profit in the future because they will have better conditions to mitigate climate change impact due to restored ecosystem services and disaster management.

2.4 Conclusions and recommendations

The keystones for a community's adaptation to the impacts of climate change should be based on reducing vulnerability by generating awareness, establishing disaster mitigation and ecosystem management and by sustaining and enhancing livelihoods. These issues are linked. For example, communities with disaster and/or ecosystem management have more sustainable livelihoods. Further, there must be a bottom-up approach to adaptation, focussing on the individual and household. Therefore, it must be noted that an approach to climate change always needs win-win solutions focusing on short-term mitigation, long-term sustainability and resilience strengthening.

2.4.1 Recommendations related to awareness

Successful adaptation is possible if communities are aware of climate change and its impacts, which was not the case in this study. Especially poor people living in

coastal areas who are most prone to the changing climate must be informed of the fact that climate change exists and that its impact will increase. Only awareness of the increase of changing rainfall patterns, average temperature, sea-level rise and frequency and intensity of extreme weather events will help them to develop appropriate adaptation strategies to lessen the impact. Poor people do not have the capacity or knowledge to gain information on their changing environment. Thus, it is the government's and local government's responsibility to teach poor communities about climate change. Local NGOs should educate the communities with whom they are working also. Through integrating climate-related issues in the National School Safety Program on which AIDMI is working, knowledge about climate change could be spread easily. Teachers should be informed about climate change and this issue should be part of the curriculum. Since children talk with parents and relatives about what they learned at school, there will be sharing of knowledge. Media also plays an important part in building awareness. Many people could be informed by media, especially by television, since even poor households in slum communities have access to television. Politicians could instruct film directors to produce a documentary on climate change which informs people about the impact of climate change in a simple way. Media can reflect the importance of climate change as well. Thus, it may influence politics and force the government to take action on this pressing political issue.

2.4.2

Recommendations related to disaster mitigation

Poor people in coastal areas are most prone to disasters and extreme weather events. In Tamil Nadu, the population is severely affected by cyclones, floods and droughts. As an example, Kandakadu faces flood problems every year. Since intensity and frequency of such extreme weather events will increase due to climate change, it is imperative that these already vulnerable communities develop their own disaster management schemes to mitigate the impact of disasters, in cooperation with the local government and NGOs. The organic farming communities of Sneha are a good example of how disaster management can reduce the negative impact of extreme weather events. In contrast, the communities in Cuddalore, without disaster management, suffer badly from multiple losses such as loss of livelihood and shelter. Of several factors involving disaster management, only the most obvious factors observed in the study will be discussed. First of all, it is important to make a safer environment for communities. One possibility is to develop coastal protection such as planting vegetation to protect coastal areas from the impact of cyclones and floods. The local government should be responsible for establishing protection for extremely exposed communities. If communities have the capacity to act independently or with the help of NGOs, they should be empowered to do so. As the women of Singarathoppu stated, they are able to save only their lives in the event of a cyclone warning. Communities should have a safe place where they can store their livelihood tools and food stock. The panchayat, leading unit of one big or

a few small communities, could collect money from each member to build such a safe place, either independently or with external aid. Another objective should be improvement of water management as many communities in coastal areas suffer from salinization of groundwater.

2.4.3

Recommendations related to ecosystem management

Environmental sustainability, which is UN Millennium Development Goal no. 7, should be ensured. Thus, ecosystem services have to be restored, mainly by sustaining biodiversity, appropriate use of natural resources and ecological practices. Farming and fishing with traditional methods sustain biodiversity. This traditional knowledge which was lost in many communities due to the first green revolution must be taught by governmental and nongovernmental organisations. Fishermen should not overfish the sea and farmers should not overstrain the capacity of the soil. Concerning fishing, it must be mentioned that poor people who fish with traditional methods do not overfish. The problem is that there are too many fishermen, big fishing boats and boats from other states. For example, fishermen from Kerala who have boats which are equipped with GPS come to Tamil Nadu every year. Farmers have almost the same problems. Instead of big fishing boats, they are threatened by big farms. Due to poverty, low capacities and bad environmental conditions such as soil with low mineral deposits, poor farmers are also forced to overuse nature. India's government and local governments have to pass laws against overuse of natural resources and review them to protect the environment and livelihood of the poor. Ecological practices are most important, as India suffers from multiple pressures. In the case of agriculture, some of these pressures are the impact of climate change, the first green revolution, high economic dependence on agriculture and India's fast-growing population. In fisheries there is the impact of climate change, overfishing and above-average growth of population in coastal areas. The incredible progress in agricultural production achieved by the organic farmers in Nagappattinam shows the importance of ecological practices. As residents of Tetti noted, organic methods are also possible in fisheries, such as by breeding fish. Ecological practices help to reduce long-term impacts of climate change such as higher average temperatures and changing rainfall patterns, and reduce impacts of disasters such as loss of land and erosion. However successful organic farming with traditional knowledge is, it will be necessary to shift to different crops that are more resistant to extreme weather and salinization and can cope with the severe impact of climate change. India's government is trying to enhance ecological sustainability as outlined in the National Mission for Sustainable Agriculture in the NAPCC (PRIME MINISTER'S COUNCIL ON CLIMATE CHANGE 2008: 5). Hopefully, this mission will affect small and poor farms as well. Farmers can use traditional knowledge and new crops to cope with the changing ecosystem, but there is the open question of what fishermen can do if several fish types become extinct due to climate change or overfishing. There might be

the possibility of fish breeding in fish ponds. One community in Nagappattinam is receiving training on this issue. The market for bio products and slow food is also growing in India. The government and economy should support this market with higher prices for such products. Communities can market their bio and slow food products as higher quality food. NGOs can advertise for the products that are produced in the communities they are working with, in India but also overseas, where awareness and appreciation for high quality food already exist and people can afford it.

2.4.4

Recommendations regarding sustaining and enhancing livelihoods

Sustainable livelihoods are a key to reducing poverty and enhancing resilience towards climate change. The study produced three means of sustaining and enhancing livelihoods: diversifying livelihoods, savings and insurance, and organizing people in groups.

Diversifying livelihoods. Diversifying livelihoods in cooperation with an NGO is a good way to improve the capabilities of a community. Instead of many single people catching fish, employing some people to sell fish and repair nets and boats diversifies livelihoods. For example, some people will be responsible for catching fish, some for selling them and others for building fishing boats. This way a lot of money, resources and time can be saved. An example of this can be seen in organic farming communities or in the attempt to diversify fishery livelihoods in the 2004 Tsunami regions (UNITED NATIONS 2007 ONLINE: 2). Maybe there is also a need to shift to other livelihoods or to have incomes from other sources which are not climatically sensitive.

Savings, microinsurance and microcredit. Many poor people do not know how to manage money. When they get a lot of money one month then they spend more. In other months when there is no livelihood, they will be short of money. As an example, many fishermen in Pondicherry, the Union Territory next to Tamil Nadu, spend much money on alcohol. Communities should be taught how to deal with money. They should learn how they can extend their capacity by savings, microinsurance and credit. These possibilities make livelihoods more sustainable during the whole year and are particularly important after disasters. Once again the organic farming communities are a good example. The Afat Vimo scheme, a microinsurance scheme provided by AIDMI, is another successful example.

Organizing groups. Groups are more powerful than individual people. For example, the interests of a group receive more attention in political issues. A success story of an organized group is the resolution of a dispute between the organic farmers of Nagappattinam and fishermen who were stealing their vegetables. Thus, NGOs or communities on their own initiative should organize groups.

2.5 Summary

Climate change is affecting the whole world. India is suffering heavily due to the huge numbers and high concentration of poor people in disaster-affected coastal areas. The study “Impact of climate change on livelihoods of the poor among disaster victims in coastal areas of Tamil Nadu” is a case study that documents the impact of changing climatic patterns on the micro-level. To study livelihood trends in the context of climate change, participatory methods in Cuddalore and a visit to a demonstration of organic farming in Nagappattinam were used. For this study, the main thesis “poor people in disaster-affected coastal areas of Tamil Nadu suffer from a great loss of livelihood due to the impact of climate change” was put forward. The results show that livelihoods of the poor are severely affected by climate change.

The main thesis was supported by five additional theses. The first thesis that livelihoods of poor people are not resilient to disasters can be only partly accepted. Livelihoods of the communities in Cuddalore are severely affected by disasters. Since they are able to save only their lives, they suffer a considerable loss of livelihood. The organic farmers appeared not to suffer major impacts from weather extremes thanks to their disaster management and their organic farming methods, which enhance the resilience of their ecosystem. Since frequency and intensity of disasters are increasing due to climate change, communities will be more affected by extreme weather events in the future. Currently the organic farmers are in a better position to withstand future impacts because of their disaster preparedness and organic farming.

The second thesis, that they experience a loss of livelihood due to the impact of climate variability on natural resources, cannot be answered with the collected information. Communities recognize the changing climate patterns but they do not link them with an improvement or stagnation of their income. Therefore, it is not obvious what impacts the changing climate have on their livelihoods. To explain why the impact of climate change on livelihoods is so great, the third thesis concerning the lack of awareness, “people are not aware of climate change as a long-term phenomenon although they have recognised that the climate is changing”, was put forward. This thesis could be proved. People are aware of some changes, such as unpredictable monsoon rainfall or higher frequency of disasters. However, awareness is not as high as it should be considering their vulnerability to climate change. An important fact for this study is that they do not see these changes in the context of a long-term change. Thus communities are not at all aware of climate change. Since communities are aware of changing climate patterns such as changing rainfall, the thesis that these people have developed adaptation strategies was verified. It has to be mentioned that the organic farmers have established somehow intuitive adaptation strategies such as disaster and ecosystem management but they are neither doing this because

they are aware of climate change. The reason why wilful adaptation strategies are missing must be due to the lack of awareness and knowledge about climate change.

The last thesis predicted that climate change has forced people to change their livelihood activities because people have to adapt to climate change. This thesis cannot be confirmed with regard to the visited communities. One reason may be that poor people are not aware of the impacts of climate change on their livelihoods. The reason for this lack of awareness may be that these people have always suffered from the impacts of disasters. Thus they do not see the new climate-related impacts. But with regard to the fact that many poor people migrate from their rural communities to the cities because it is no longer possible to generate enough income, the thesis can be accepted. Certainly it can be predicted that many people will have to change their livelihood due to climate change in the future.

It is obvious that communities have to adapt to future impacts of climate change. Therefore, first of all, communities must be made aware of climate change. Then it is necessary for the vulnerability of communities to be reduced and resilience to the changing climate enhanced through disaster mitigation, ecosystem management and sustaining and enhancing livelihoods.

Concerning climate change, India faces a great challenge. It is already known that mitigation alone is not sufficient to reduce the impacts of climate change. Adaptation is necessary as well - adaptation as a bottom-up approach. Everybody has to make an effort to adapt. Poor communities therefore need help from the government and NGOs because they do not have the capacity to adapt on their own. It should be in the interest of the Government of India to improve the conditions of poor communities in coastal and rural areas. If the conditions of these communities deteriorate, they will move to urban areas that are already overcrowded. Furthermore, almost 60% of India's population are working in the agricultural sector which is highly sensitive to climate change. On one hand this mass of people need an income – either, as in the past, in the field of agriculture or in another field – on the other hand the nutrition of India's population must be ensured. Apart from climate change, the growing population will be a problem for India's food security. Not only agricultural communities are suffering from the impacts of climate change, but also fishing communities. Coastal areas are overpopulated and many poor people try to gain their income in the fishing sector. There are too many fishermen and the sea is already providing fewer fish than in the past due to overfishing and climate change. As in the agricultural sector, an effort to sustain and enhance livelihoods must be made, either by diversifying them or shifting to other livelihoods.

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2.6.3

Further information

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3 Disaster recovery and business continuity strategies of small businesses in disaster-affected areas in Gujarat, India

Esther Gloor

3.1 Introduction

3.1.1 Background and objective

India is a country that is regularly affected by disasters: not only the sheer dimension of its area but also its geographical location make India prone to natural disasters such as earthquakes, tsunamis, monsoon-caused floods, cyclones and droughts. Poverty, lack of infrastructure and social disparities in a caste society, moreover, frequently lead to man-made disasters such as urban riots. The question is how vulnerability and negative effects of disasters can be reduced to a minimum. As society works on different social and functional levels, there is no basic cure that would offer a solution to this complex issue of natural and man-made disasters and their effects. However, one can try to analyse pre-, in- and post-disaster factors of a previous disaster event and therewith try to learn lessons from it – in order to minimize damage from a next possible disaster. This paper discusses how disasters affect small businesses and how they manage to adjust themselves to risk and the repeated occurrence of disasters. The focus is on business recovery, business planning and continuity strategies adapted by disaster-affected small businesses in the informal sector in India. Particular research questions are:

- What factors contribute to facilitate disaster recovery of small businesses as experienced by small-scale entrepreneurs?
- Are there differences in disaster recovery among small businesses that are affected by different kinds of disasters, namely floods, riots and earthquakes? If yes, how do they differ?
- How does AIDMI contribute to sustainable disaster resilience of small businesses?

3.1.2

Relevance

In India, the informal “unorganized” small-scale enterprise sector covers a major part of the total workforce. In 2002, 93% of the total workforce in India was employed in the informal sector; 52% of the total workforce was self-employed. In 1991, the informal sector made a contribution of 45% to the national Gross Domestic Product (GDP). The importance of the informal sector for India and its economy is massive. It provides livelihood to millions of people by providing income-earning opportunities for a large number of workers (INTERNATIONAL LABOUR ORGANIZATION ILO 2002: 33–36). Post-disaster recovery is a critical stage in the disaster management cycle. Micro and small businesses and the social life and welfare within a community are closely related. If a disaster affects the economic life of a community, this influences not only the businesses themselves but also the economic and social dimensions of their social fabric. Thus, disaster recovery, disaster mitigation and risk reduction of micro and small businesses, if effectively integrated, can lead to safer and more sustainable communities. This could make them increasingly resilient during future disasters and would also facilitate and support economic growth and sustainable development (REGO ET AL. 2005: 3). To create an ongoing process of economic improvement, the plan for post-disaster recovery and reconstruction should include both processes of restoration and components of sustainable resistance in the face of future hardships. Thus, objectives for post-disaster recovery policy should concern not just the objective of restoring normal economic activity, but also that of making it more resistant to disruptions caused by future events (SCHWAB ET AL. 1998: 55). Too little planning in disaster recovery, or lack of a disaster recovery plan, can create problems for general recovery by increasing the number of businesses likely to require disaster aid and increasing the disruption of services to the local population (FLYNN 2007: 508). It is in this context that the survey of small-scale enterprises regarding their handling of business recovery, and their efforts to provide for future risk, becomes important.

3.1.3

Data and methods

40 owners of small businesses provided the central information of this survey. It is an empirical study with a questionnaire as a survey instrument.

As this number of observations is large enough for a statistical analysis, but too small to be representative of the thousands of small-scale enterprises, the results should be understood as allowing useful insights only. As disaster recovery of small businesses and business continuity do not work the same way in locations that have been hit by different disasters, three different cities were chosen in order to carry out the survey among the owners of small businesses. One location is the flood-affected area of Kheda, Gujarat, where repeatedly floods have had a major impact on the livelihood of mostly poor communities. A second location

is the city of Bhuj, Gujarat, which was hit by an enormous earthquake in 2001. As a third target group, small business owners were interviewed in riot-affected communities in Ahmedabad, Gujarat. 30 of these out of a total of 40 affected business owners received livelihood relief after the disaster, provided by AIDMI's Livelihood Relief Fund (LRF). In order to find out more about the difference in disaster recovery of LRF beneficiaries and LRF non-beneficiaries, ten of the 40 questionnaires were given to non-beneficiaries selected in Ahmedabad, which



Fig. 3.1 Handing out questionnaires in Gujarati to local volunteers in Hanumannagar, Kheda.

was affected by the 2002 riots. The collected information was analysed by SPSS in order to get some broad insights into the way enterprises adjust their business strategies to be more prepared for disasters, and to determine in what way these adaptive strategies vary. The aim of AIDMI's Livelihood Relief Fund is to build livelihood security and to reduce economic risks through sustainable long-term

recovery in India. It focuses on poor people affected by disasters, especially on the most vulnerable among the poor: home-based workers, daily wage earners, small farmers and landless labourers. At present, about 13,460 beneficiaries are covered by AIDMI's Livelihood Relief Fund. Among the locations where AIDMI provided livelihood relief through the LRF are Kheda (flood-affected), Bhuj (earthquake-affected) and Ahmedabad (riot-affected). In urban communities, focus of livelihood relief is on small businessmen (e.g. cabins for grocery, confectionaries, snacks), on small vendors (e.g. hand carts, vegetables, fruits, plastic utensils), on home-based workers (e.g. sewing machines, cloth, 'Bandhani' weaving materials) and on landless labourers (plumber, carpenter and barber kits). LRF beneficiaries receive additional means to secure livelihoods: they join a microinsurance scheme (called Afat Vimo) which covers the following events: loss of life of the main wage earner, loss of house, shop or valuables due to disaster, including man-made disasters.

3.1.4

Structure of the paper

This paper is structured as follows. First, background information on the informal business sector in India and on All India Disaster Mitigation Institute's Livelihood Relief Fund (LRF) as a disaster response tool is given. Second, the three different study areas where fieldwork took place are portrayed, including a description of the main disasters. Third, analyses of the 40 surveyed entrepreneurs are discussed, identifying factors and indicators related to disaster recovery of

small businesses. Fourth, some general conclusions are drawn from the analysis. A summary, closing remarks and references conclude this research paper.

3.2 Study areas and methods

3.2.1 Communities studied

Kheda. Kheda is a small city situated southeast of Ahmedabad, Gujarat. It spreads over an area of approximately one km² and has a population of 24,000 inhabitants. Due to its location as a city surrounded by the Shedhi and the Vatrak rivers on the west, the south and the east side, it has repeatedly been heavily hit by floods, thus also in the past few years (2004, 2005, 2006 and 2007). During monsoon season, water levels of these two main rivers not only rise because of heavy rainfalls, but also because many small rivers are feeding them with water. Consequently, the rising water levels of the tributaries have the same effect as a dam downstream, and rivers get out of control. Even if there is no heavy rainfall in Kheda itself, rivers can become a threat to the city. Low-lying areas on the riverbank and one extremely low-lying area in the West of Kheda are flooded very easily. Kheda is afflicted almost every year by smaller and larger floods, depending on the amount of rainfall. Intensity and frequency of these floods are different every year; in 2005, there was one big flood with a very high magnitude, whereas in 2006, six much smaller floods occurred and astonishingly caused more havoc and damage than the 2005 flood. One big problem during floods is accessibility to affected areas, as roads are often flooded and destroyed. Rubble and especially mud is transported into the city and left behind when the water level falls, sometimes reaching 2-3 ft in thickness. Water falling from houses and terraces is another destructive factor: it can destroy cement fillings between road tiles. When roads are damaged, clay and sand under the road become damp and thus destroy the roads. In these flood situations, the drainage system does not have sufficient capacity. Furthermore, the high pressure that is caused by floodwaters reaching several meters causes destruction of the infrastructure. As there is a lack of funds, there is no fire brigade in Kheda and no other emergency response tools such as boats for rescue operations during floods, so Kheda must rely on help from neighbouring cities. The recurring floods also take their toll on people who suffer from diseases and psychosocial effects or traumas (SOUTHASIADISASTERS.NET 2007: 9-14). Two Kheda communities were chosen for the survey. They are presented next.

Indiranagar community. Indiranagar is a low-lying slum community in the small town of Kheda. It has repeatedly been affected by floods, especially by the heavy floods in 2004 and 2005 that brought massive damage to the community. Indiranagar is mainly a Muslim community. It was founded in 1985. AIDMI has been at work in this community since 2005. One of the main investments

in Livelihood Relief by AIDMI was the construction of concrete streets and walls for the houses. Thanks to this project there is now water drainage, whereas streets regularly turned into mud during the monsoon season. This had negative consequences for the inhabitants of the community, as holes in the street got bigger after every heavy rainfall and water was dammed up and thus became a source of disease, especially skin diseases. Further, people often hurt their feet or were injured. Due to the new concrete streets (pacca streets) which were built after the floods in 2005, hygiene conditions regarding diseases have improved. The new street built in 2006 successfully withstood the 2007 floods. One of the main reasons why Indiranagar's flood problem increased during the last few years is the construction of a nearby highway. The highway



Fig. 3.2 Sanchit Oza, member of AIDMI, showing the water level of the flood in 2005 in Indiranagar, Kheda.

is 6-10 ft above ground. As it is a concrete construction, it is a barrier to the water that gathers in the flat area during the monsoon season. The water spreads over a wide area and farmers especially are very flood-affected. Now water is more or less canalized in the communities. Another problem is a dam, from which water was released without warning at one time in 2005, flooding the community. Yet another problem is the poor early warning system in Kheda. The former district headquarters of Kheda is situated in Nadiad. Since the district was divided there has been no more early warning system or support by the government.

Hanumannagar community. Hanumannagar is a small Hindu community outside of Kheda. Its inhabitants belong to the Dalit caste (so-called untouchables); its population consists of 125 people living in 34 houses. People work as labourers, vendors, cloth vendors, casual workers. Most of them work in nearby Kheda (1-2 km). The Hanumannagar Community is basically more vulnerable to floods than Indiranagar, as it is situated outside of Kheda on a hill surrounded by river basins that are filled very quickly during the monsoon season. The problem is that in the event of a flood, there is no access to the village and help cannot be provided in any way. Additionally the community is warned only 12 hours before the flood occurs. There is no further assistance by the government. Like Indiranagar community, Hanumannagar received livelihood relief after the heavy floods of 2005. One of the projects guided by AIDMI was the construction of a concrete main road (pacca road) with the same positive consequences as in Indiranagar. Further, AIDMI provided sanitary infrastructure, a bathroom, toilets and shelters as livelihood relief.

The city of Bhuj. Bhuj, a city situated in Kutch district in Western Gujarat close to the Pakistani border, has been occasionally flood-affected. In addition, on the 26th January 2001, Bhuj was hit by a strong earthquake that destroyed not only infrastructure in the whole region of western Gujarat, but also affected the livelihoods of thousands of people. The earthquake of magnitude 6.9 on the Richter-Scale caused extensive damage both to life and property. The epicentre was situated about 20 km northeast of Bhuj and about 23 km below the surface and generated vast devastation in different cities and communities in the region. The Ashapuranagar community situated in Bhuj where field work took place is presented next.

Ashapuranagar community. After the very strong earthquake of 26th January 2001, AIDMI supported 14 communities in Bhuj with livelihood relief. Among these communities is the Ashapuranagar Community. AIDMI provided shelter



Fig. 3.3 A woman in Bhuj owning a small shop.

for the population in the form of concrete constructions (pacca shelters), each with a kitchen plus one bedroom. In addition, AIDMI provided livelihood relief for different small businesses. One family received rope raw material and out of this material could start a small business in rope production. Today, they make 50-75 Rs every day. As it is a family enterprise, they do not

have any further expenses. Another example is a man who received livelihood relief and could start a small business in manufacturing shoes. His business ran successfully. Lately, he could even open a second shop on a main road. To give another example, one elderly woman received livelihood relief and could start a small kiosk as a small business together with her husband. Through the aid of AIDMI, they could purchase material to sell sweets, crisps and other daily needs. Nowadays, their daily income is about 100-150 Rs and they make about 30-40 Rs of profit every day.

3.2.2

The target group of the survey

In order to be able to make a comparison between disaster recovery capacities of small businesses affected by different disasters, this basic target group of 40 owners of small businesses was split up into three parts. Three different localities were selected: Bhuj as an earthquake-affected area, Kheda as a flood-affected area and Ahmedabad as a riot-affected area. In Bhuj, ten surveys were responded to. In Kheda, seven cases were interviewed. Thirteen beneficiaries

in Ahmedabad were questioned. A fourth group consists of ten owners of small businesses in Ahmedabad who were affected by the 2002 riots, but did not get any livelihood relief from AIDMI. In every locality, there were Muslim communities as well as Hindu communities. The objective of the questionnaires was to find out more about how small businesses were affected in different disaster areas, how small business owners and their businesses managed to survive, and what their situation is today. Further, open questions included in the questionnaire allowed a personal insight into each of these 40 small businesses. This allows a comparison of LRF beneficiaries and LRF non-beneficiaries and thus to find arguments for the benefits of the livelihood relief support provided by AIDMI.

Of the 40 individuals surveyed, 25 were male and 15 were female. 16 of them consider their households to be below the poverty line. They are engaged in different kinds of activities, mainly selling various goods and items (22 people), doing labour work (ten people), sewing work (three people) and other activities such as handcraft production (three people). Specific examples are confectionary items and Pan Masala (a mixture of nuts, seeds, herbs, and spices which is served after meals) vendors, vegetable vendors, snack vendors, vendors of seasonal items and decorations, casual labour workers, pedal rickshaw drivers and more. 20 of the businesses are situated in a fixed place, nineteen are mobile. 30 of the 40 businesses have existed for more than six years. All of these businesses have been affected by different disasters, depending on the city or location. Often mentioned disasters are the Gujarat earthquake of 2001, floods in Kheda in 2004, 2005, 2006 and in Bhuj in 2007, riots in Ahmedabad in 2002 and a cyclone in Ahmedabad in 2006. 30 of the businesses received livelihood relief from AIDMI after the respective disaster, ten did not. Either with or without livelihood relief, all of them managed to restart their business after several months. The following tables 3.1-3.4 show an analysis of the different subgroups that were investigated.

Tab. 3.1 Characteristics of the 40 owners of small businesses, according to the statistical computer program SPSS: characteristics of the target group.

City and communities	Target group	
	Size of target group (people)	AIDMI LRF beneficiaries
Bhuj - Ashapuranagar - Jayprakashnagar - Sanjognagar - Shantinagar	10	yes
Kheda - Indiranagar - Hanumannagar	7	yes
Ahmedabad - Bherampura - Gomtipur - Ramol - Shahalam	13	yes
- Baherampura - Gomtipur - Ramol	10	no

Tab. 3.2 Characteristics of the 40 owners of small businesses, according to the statistical computer program SPSS: personal information.

City and communities	Personal information						
	Sex	Average age	Household size	Education	Own house or flat	Households below Poverty Line of 1 US Dollar a day	Average monthly household income
Bhuj - Ashapuramagar - Jayprakashnagar - Sanjognagar - Shantinagar	4 male 6 female	42 years Most of them between 32-55 years old	7 have 3-4 members 3 have 5-7 members	6 uneducated 3 primary school 1 middle school	9	5	4555 Rs Between 3000-6000 Rs
Kheda - Indiranagar - Hanumamnagar	6 male 1 female	28-50 years old	3 have 5 members 4 have < 4 members	2 uneducated 3 primary school 2 middle school	6	7	1500 Rs Between 1000-2800 Rs
Ahmedabad - Bherampura - Gomtipur - Ramol - Shahalam	8 male 5 female	46 years Most of them between 37-55	2-10 members	4 uneducated 3 primary school 2 middle school 4 secondary school	8	1	3481 Rs
- Bherampura - Gomtipur - Ramol	7 male 3 female	-	2-8 members	3 uneducated 3 primary school 2 middle school 2 secondary school	5	3	3030 Rs

Tab. 3.3 Characteristics of the 40 owners of small businesses, according to the statistical computer program SPSS: business information.

City and communities	Types of businesses	Business information				Main disaster(s) that affected businesses
		Business in a fix place or mobile	Daily income from business activities	Daily walking or driving activity (hours) in order to maintain business	Age of businesses	
Bhuj - Ashapuramagar - Jayprakashnagar - Sanjognagar - Shantinagar	- animal husbandry - labour work - confectionary stall - ready made garments - sewing work - snack vendors	7 mobile 3 fix	< 50-250 Rs	6 need < 3h 3 need > 6h	8 businesses > 5 years old	Gujarat earthquake 2001 Floods 2007
Kheda - Indiranagar - Hanumamnagar	- labour work - handcart labour - mason work - music band - pan shop - cutlery, cups and saucers	5 mobile 2 fix	< 100 Rs	6 need > 4h	4 businesses are > 4 years old	Floods in 2005 and 2007
Ahmedabad - Bherampura - Gomtipur - Ramol - Shahalam	- confectionary vendors - Pan Masala vendors - vegetable vendors - chapati vendor - artificial flower vendor - decoration items and crockery - cutlery items - provision items - plumbing - pedal rickshaw driver - sewing work	4 mobile 9 fix	-	11 need > 6h	12 businesses are > 12 years old	Gujarat riots in 2002 Earthquake in 2001 Cyclone in 2007
- Bherampura - Gomtipur - Ramol	- scattered work for households - sewing work - vendors (seasonal items, artificial flowers, decoration, cloth material, Pan Masala, confectionary, hosiery, vegetables, Chappals)	4 mobile 6 fix	-	6 need > 6h	8 businesses are > 10 years old	Gujarat riots in 2002 Earthquake in 2001 Cyclone in 2007

Tab. 3.4 Characteristics of the 40 owners of small businesses, according to the statistical computer program SPSS: businesses and disasters.

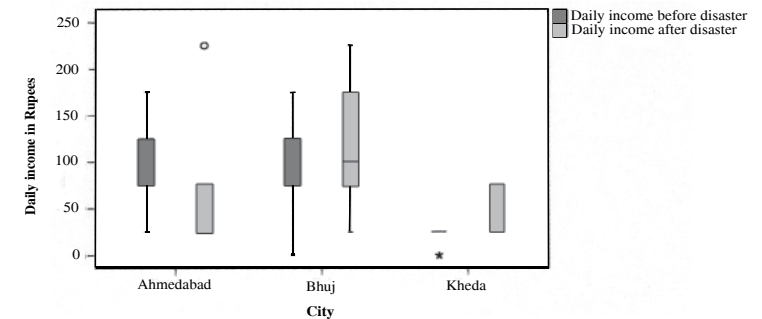
City and communities	Short-term impact of disaster on businesses	Time of business activities' interruption	Business information	
			Consequences of disaster for businesses and owners of businesses	
Bhuj - Ashapurangar - Jayprakashnagar - Sanjognagar - Shantinagar	- 3 houses destroyed, goods inside perished - 9 total losses of business	Up to 1 year	- Financial difficulties - Not able to cover basic household or education expenses - Loss of clientele - Need to borrow money - Unemployment - Struggle to survive	
Kheda - Indiranagar - Hanumannagar	- 4 indirectly affected: village surrounded by water, therefore no way to go to work to nearby Kheda - 3 directly affected: business destroyed or had to move to a safer place within Kheda	Mostly several months	- Livelihood stopped - Health problems - Struggle to survive	
Ahmedabad - Bherampura - Gomtipur - Ramol - Shahalam	- Livelihood material looted or burned (e.g. lorry, sewing machine, goods) - House/hut looted or burned	Mostly several months	- Had to move to safer place or to relief camp - Interruption of business activities, unemployment - Loss of clientele - More competition today as more businesses are doing the same activity - Longer way to work (walking in case of mobile vendors) in order to sell the same amount of goods - Psychological consequences (traumas), loss of trust in neighbours	
- Bherampura - Gomtipur - Ramol	- Livelihood material looted or burned (e.g. lorry, sewing machine, goods) - House/hut looted or burned	Mostly several months	- Had to move to safer place or to relief camp - Interruption of business activities, unemployment - Loss of clientele - More competition today as more businesses are doing the same activity - Longer way to work (walking in case of mobile vendors) in order to sell the same amount of goods - Psychological consequences (traumas), loss of trust in neighbours - Did not get livelihood relief, therefore had to borrow money from private moneylenders or relatives	

3.3 Factors of disaster recovery of small businesses

Following the explanations below, it is always important to keep in mind that the number of people interviewed is too small to be considered as statistically significant. Still, they should give an idea about certain tendencies.

Disaster recovery of LRF beneficiaries. One of the most obvious indicators for disaster recovery of small businesses is the daily income of the owners of small businesses. For the 30 beneficiaries, a graph of the daily income in Rupees before the disaster and today, sorted by localities in which fieldwork was carried out, is shown in fig. 3.4. Whereas in Ahmedabad a large part of the target group was earning between 75 and 125 Rs each day before the 2002 riots, this number decreased as a consequence of the disaster, and with one exception, the same people are earning only between 25 and 75 Rs today. In Bhuj, the impact of the disaster was obviously different. Before the 2001 earthquake, a larger part of the target group was earning between 75 and 125 Rs. This number increased up until the present day, so that most business owners are earning between 75 and 175 Rs today. As in Bhuj, there is also an improvement in the daily income in Kheda when comparing daily incomes of small businesses before the 2005 floods and today. While before the floods, with one exception, all owners of small businesses were earning around 25 Rs a day, this number has increased to 75 Rs today.

This observation needs further explanation. It can be concluded from fig. 3.4 that the impacts of the different disasters seem to be different. In Ahmedabad, disaster recovery from the 2002 riots has progressed very slowly and is possibly still going on. In Bhuj, businesses seem to have recovered from the 2001 earthquake

**Fig. 3.4** Box plots of daily incomes in Rupees counting LRF beneficiaries, immediately before the disaster and today in Ahmedabad, Bhuj and Kheda.

until the present time and even show a trend of having had an advantage from the LRF support after the disaster; the same can be said for Kheda. It seems that the first months after a disaster are decisive for business continuity. The faster business owners can restart their business after a disaster, the faster recovery progresses, and the faster daily income can be back to normal or even be higher than before the disaster. Tab. 3.5 shows how much the same business owners as in fig. 3.4 were earning one month after the disaster. The number of business owners in Ahmedabad who did not have any income one month after the disaster is striking (12 people). In Bhuj, only two people did not have any income and in Kheda nobody was left without income. Six people in Kheda, six people in Bhuj and one person in Ahmedabad had a minimum income; in total three people were earning even more than 50 Rs. This means that while disaster recovery in Kheda and Bhuj worked quite quickly, there must have been a longer interruption of business activities in Ahmedabad which would make it extremely difficult for business owners to restart their business activities and reach the income they had had before the 2002 riots.

Tab. 3.5 Average daily income (in Rupees, classified) of business owners in Ahmedabad, Bhuj and Kheda one month after the disaster, including only LRF beneficiaries.

City	Daily income 1 month after disaster, classified			
	No income	< 50 Rs	51-100 Rs	101-150 Rs
Ahmedabad	12	1	0	0
Kheda	2	6	1	1
Bhuj	0	6	1	0
TOTAL	14	13	2	1

There is a relationship between how businesses and their owners were affected, how long their business activity was interrupted, and how disaster recovery of small businesses in general occurred. Taking into consideration how businesses were affected by the disaster in the short-term is quite informative: in Ahmedabad, almost all of the 13 business owners had to relocate to a relief camp for several months after the 2002 riots. Thus, their business activities were interrupted for several months. That is why there was no income for most small business owners in Ahmedabad for several weeks after the 2002 riots. But this does not explain the low income today – disaster recovery of small businesses does not seem to have worked properly. Therefore, there must be long-term components to the impact of the 2002 riots on small businesses in Ahmedabad. Some business owners mentioned an interesting phenomenon they observed. During the time of the riots, their livelihood material was looted or even set on fire. Most of them suffered from a total loss of their businesses. During the months of business interruption after the riots, when most of the business owners were living in relief camps or at relatives' houses, there was no opportunity to continue earlier business activities. Therefore, for example in the case of vendors, either the clientele moved to other or safer places, or looked for other suppliers. Thus, after

returning to their homes after several months, business owners were faced with fatal problems. Firstly, there was no livelihood material with which to restart their business. Secondly, there was no clientele; some even mentioned that more people were doing the same activities after returning home which led to high competition in some business activities.

It appears that people who are uneducated remain at a low level of income after the disaster. Seven people out of twelve who are uneducated earn less than 50 Rs each day, four of them earn between 50 and 100 Rs and only one uneducated person earns more than 100 Rs daily. In order to draw a definitive conclusion though, it would be necessary to investigate a large number of people.

Tab. 3.6 Average daily income today (in Rupees, classified) of business owners and its correlation with education.

Level of education	Daily income today, classified				
	< 50 Rs	51-100 Rs	101-150 Rs	151-200 Rs	201-250 Rs
Uneducated	7	4	0	0	1
Primary school	1	5	1	2	0
Middle school	1	2	1	0	1
Secondary school	2	2	0	0	0
TOTAL	11	13	2	2	2

Regarding male and female business owners, daily incomes do not show distinct differences. For a statistically significant statement, one would have to question a large number of business owners. Further, it would be interesting to find differences between the daily income and disaster recovery of the different types of businesses, namely food vendors, vendors of household items and clothing, labour workers, sewing workers and others. However, due to the small number of investigated business owners (30 LRF beneficiaries), it is impossible to make a statistically significant statement within this small report.

As a conclusion of this first passage on disaster recovery of LRF beneficiaries it can be said that the daily income seems to be the most important indicator for disaster recovery of small businesses.

Impact of LRF on disaster recovery and business resilience; comparison of 13 LRF beneficiaries and ten LRF non-beneficiaries in Ahmedabad. Next, a comparison of owners of small businesses who were beneficiaries and non-beneficiaries is made. The target group of LRF beneficiaries consists of 13 owners of small businesses who were affected by the 2002 riots in Ahmedabad. The group of LRF non-beneficiaries consists of ten owners of small businesses who were affected by the 2002 Ahmedabad riots, but did not get any livelihood relief from AIDMI.

Looking at the average daily income before and immediately after the disaster and today in table 3.7 there is hardly any difference between LRF beneficiaries and LRF non-beneficiaries. While LRF beneficiaries had an average daily

income of 105.77 Rs, the income of LRF non-beneficiaries was only a little lower with 102.27 Rs. One month after the 2002 riots, both groups hardly earned any money. Today, the average daily income of LRF beneficiaries is lower than the income of LRF non-beneficiaries (63.46 Rs compared with 75.00 Rs). In fact, this table shows that there was hardly any impact of LRF. However, it is impossible to make a statistically significant statement given the small number of observations.

Tab. 3.7 Average daily income of business owners in Ahmedabad, immediately before the 2002 riots, one month after the riots and today, divided into LRF beneficiaries and LRF non-beneficiaries.

	Average daily income		
	Before disaster	1 month after disaster	Today
LRF beneficiaries	105.77	1.92	63.46
LRF non-beneficiaries	102.27	9.09	75.00

It is interesting to know what kind of strategies LRF non-beneficiaries followed after the disaster in order to get money to restart their businesses. LRF beneficiaries as well as LRF non-beneficiaries took loans after the disaster. The difference between the two groups, according to the information from the survey, is that LRF beneficiaries were familiar with AIDMI and the Self Employed Women's Association (SEWA) and their offers and therefore took loans and microcredit from AIDMI or from SEWA (mentioned three times). Only one beneficiary took a loan from a bank or financial institution. By comparison, LRF non-beneficiaries borrowed money in other places. Their sources were mostly private moneylenders (mentioned four times) and only once a bank or financial institution was mentioned. As a conclusion, it can be said that the only difference between LRF beneficiaries and non-beneficiaries in taking loans after a disaster is the source of the money.

Table 3.8 shows whether owners of small businesses feel prepared and resistant to the impacts of future disasters. It is a personal estimation as to whether owners of small businesses think their business will survive a future disaster or not. Answers are very clear: LRF beneficiaries seem to feel very prepared and aware of future disasters, as eleven of thirteen think their business will survive a future disaster, perhaps with only minor damage. Only two beneficiaries think their

Tab. 3.8 Target group in Ahmedabad: difference between LRF beneficiaries (13) and LRF non-beneficiaries (10) in business preparedness for a future disaster.

	Do you think your business will survive a future disaster?			
	yes, without damage	yes, but with light damage	no	TOTAL
LRF beneficiaries	0	11	2	13
LRF non-beneficiaries	1	0	9	10
TOTAL	1	11	11	23

business will not survive, without specifying the reasons. LRF non-beneficiaries do not seem to be prepared for future disasters. Nine out of ten think their business will not survive a future disaster. Only one person believed that his business will survive a future disaster without damage. It appears that LRF beneficiaries are better prepared and aware of future disasters. More about the reasons for surviving or not surviving a disaster will be found in the next passage 'disaster preparedness'.

Disaster preparedness. Based on all 40 business owners surveyed, it can be said that there are several factors that can lead to disaster preparedness and thus also to disaster resilience of the businesses. These are insurance, number of family members working in a household (more sources of income mean less vulnerability for each single source of income), personal disaster recovery strategies, high standards for building construction, personal savings as financial security, disaster awareness and disaster preparedness.

Regarding the question of whether their own business is prepared for a future disaster or not, exactly 20 owners did not think so. 14 thought that their business will survive a future disaster with light damage, four thought even without damage. People who think their business is resistant to the effects of a future disaster find the explanation in having insurance. The new building standards and sufficient personal savings were also mentioned as reasons for confidence. In the case of people who think their business will not survive a future disaster, the most frequently mentioned explanation is lack of money or insurance or both. Only a few mentioned that there is only a lack of financial security or only a lack of insurance.

In terms of personal disaster recovery strategies, there was an open question included in the questionnaire asking for personal disaster recovery strategies.

Tab. 3.9 Owners of small businesses (including LRF beneficiaries and non-beneficiaries) and their demand for an information meeting about disaster preparedness, divided by city and community.

City	Community	Would you attend an information meeting?			
		yes	no	not applicable	TOTAL
Ahmedabad	Ramol	9	0	0	9
	Baherampura	6	0	0	6
	Gomtipur	3	1	0	4
	Shahalam	3	0	1	4
Bhuj	Sanjognagar	1	0	4	5
	Ashapuranagar	1	0	1	2
	Shantinagar	1	0	1	2
	Jayprakashnagar	0	0	1	1
Kheda	Hanumannagar	4	0	1	5
	Indiranagar	0	1	1	2
TOTAL		28	2	10	40

Most of the LRF beneficiaries mentioned livelihood relief as the only reason they were able to restart their business, no matter which disaster had affected them. One person mentioned that an earthquake-proof construction, savings, insurance and information on disasters would be his personal disaster recovery strategy. Another strategy is a change in work activity. Some mentioned that they started doing labour work or work with a rented rickshaw in order to earn some money. Some got money from their children who continued with their work. Other factors work against a fast recovery, for instance if family members are killed, injured or fall ill. In addition, psychological effects of disasters should not be underestimated; they have a big negative impact on disaster recovery. As these owners of small businesses lose everything in a disaster, the idea of a disaster recovery plan is difficult for them, as first priority after a disaster is to survive and restarting the business is a secondary consideration.

Regarding information as a means of disaster preparedness, there clearly is a demand. It was mentioned that this knowledge would not only help oneself, but that it could also be transferred to neighbours, relatives and other people affected by disaster. The total number of interested people in all the communities was 28. Ahmedabad was affected by a slow disaster recovery of small businesses for different reasons. That is probably why the demand for information on disaster awareness and preparedness is very high. It would be worth providing information meetings in all of the four investigated communities, namely Ramol, Baherampura, Gomtipur and Shahalam. In Bhuj, the demand for information is not very high. This might be because seven years had passed since the earthquake. Another reason is probably that most owners of small businesses are doing quite well, and in some cases even better than they did before the earthquake. LRF seemed to be an appropriate disaster response tool in this case. In Kheda, the demand for more information on disaster awareness and preparedness is concentrated in the Hanumannagar community.

3.4

Conclusions and perspectives

Rapid disaster recovery of small businesses is one of several factors that can be turned into sustainable development, poverty reduction and community resilience to the next disaster. However, various factors contribute to or impede disaster recovery of small businesses. Several statements can be made from the survey of 40 owners of small businesses. They address the three initial questions:

- What factors contribute to facilitate disaster recovery of small businesses?
- Are there differences in disaster recovery among small businesses that are affected by different kinds of disasters, namely floods, riots and earthquakes? If yes, how do they differ and why?
- Does AIDMI contribute to sustainable disaster resilience of small businesses?

Factors facilitating disaster recovery. Factors contributing to, or being a hindrance to disaster recovery of small businesses vary, daily income being a main indicator. Other factors are financial security, namely insurance (including personal and business insurance), personal savings as far as it is possible, as well as having different sources of income within one household. This makes each single source of income less vulnerable to disasters. Another type of security might be building safety; earthquake-proof buildings or houses that are in a safe place, for example not too close to a river bank. A third factor contributing to disaster resilience is information. Disaster awareness leads to disaster preparedness and thus, the impact of a disaster on a household, a business or a community can be reduced.

Differences in disaster recovery. Concerning the second question, it is obvious that there are major differences in disaster recovery of small businesses affected by different disasters. Here, the duration of business interruption immediately after a disaster seems to be decisive. Thus, flood-affected businesses in Kheda and earthquake-affected businesses in Bhuj managed to recover faster after the main disaster than did riot-affected businesses in Ahmedabad. There are several reasons for this. First of all, livelihood materials were destroyed in all the cases, no matter what type of disaster occurred. There seem to be two main factors for why disaster recovery of riot-affected businesses is weak and slow. One is, as mentioned, the time of interruption of business activities. Two parties are affected by the riots, one being the business owners themselves and the other being the clients of such businesses. Concerning the business owners, they had to relocate to safer places during and for several months after the riots. Most of them moved to relief camps, some moved to a safe place outside of Ahmedabad such as a relative's house. This led to an interruption of business activities for several months or even up to more than one year. During this time, livelihood material required to maintain the business was looted or burned; this led to a total loss of the business. Concerning the clientele, many people also moved to safer places. Some stayed there or looked for a new home after returning. Those who returned to the same home early often looked for new suppliers. In addition, many people started new businesses after the riots, which led to increased competition between businesses engaged in the same activities. A second but very important factor that hinders disaster recovery of riot-affected businesses is caused by psychological elements. As riots are human-made disasters, it is very difficult to find trust and to build up relationships between people after the disaster. Many people are highly traumatized during the disaster, which leads to mistrust towards clients, neighbours and neighbouring communities. Thus, they are afraid of reopening the business, even if they had the means necessary to do so. In comparison to this, business owners affected by natural disasters (earthquakes or floods) are less affected by psychological or inter-personal problems such as mistrust. Also, they could restart business activities faster after the disaster, as they could return to their homes (if they had left at all) after a few days. Thus, business activities were not interrupted for a very long time. In fact, it might be considered astonishing that both in Kheda and in Bhuj, some businessmen

earn more money at present than they did before the disaster. This implies that in the case of natural disasters, livelihood relief provided by AIDMI worked effectively and a disaster situation could be turned into sustainable development and even into poverty reduction.

AIDMI and its contribution to disaster recovery of small businesses. Giving an answer to the third research question is more difficult. While comparing LRF beneficiaries and LRF non-beneficiaries, it is most difficult and not advisable to base statements on such a small target group. The information gained from this survey implies that LRF beneficiaries are not doing better than LRF non-beneficiaries at the present time, based on the average daily income as a main indicator for disaster recovery. The numbers show that the two groups behave in the same way. One distinctive difference between the two investigated groups is in the adoption of insurance or not: people who were provided with livelihood relief from AIDMI were informed about insurance; a lot of them bought one. That is why, in general, they feel more prepared for a future disaster than LRF non-beneficiaries. Almost all of them think that their business will survive a future disaster, mostly due to insurance, whereas LRF non-beneficiaries generally think that their business will not survive a future disaster due to lack of insurance and of savings. However, LRF non-beneficiaries seemed to have other strategies to restart their businesses. Some of them changed business activities to do labour work, some took loans in order to buy livelihood materials according to their needs. Thus, LRF seems to have an impact on disaster recovery of small businesses, though not in a financial way, but rather in terms of providing beneficiaries information on disaster preparedness on the one hand, and on the other hand giving them the possibility of joining the Afat Vimo insurance scheme. Thus, the impact of future disasters on these businesses is truly reduced.

Importance of disaster awareness and disaster preparedness. A last but very important statement relating to disaster relief concerns providing information, disaster awareness and disaster preparedness. It is striking how great the demand for information on disaster awareness and disaster preparedness is. Especially in Ahmedabad, but also in Kheda and even in Bhuj, where business owners seem to do quite well nowadays, businesses owners are most interested in an information meeting dealing with these topics. Communities with a high demand are Ramol, Baherampura, Gomtipur and Shahalam community in Ahmedabad and Hanu Man Nagar community in Kheda, as these are the communities where even today the impact of the disaster on small businesses was most visible.

Final statement. If any result of this survey is prominent, it is the importance of information and microinsurance. It would possibly be very successful to organize information meetings in different communities, talking about disaster awareness, disaster preparedness, possibilities of insurance and more. It was often mentioned that the knowledge that could be gained in an information meeting could be transferred to others, namely to neighbours or relatives and thus help others in getting prepared and becoming more resilient in the face of

future disasters. With small expenditures, disaster resilience can be built through the acquisition of knowledge and insurance.

3.5 References

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4 Setting up an emergency response guideline for local organizations

Christoph Schlumpf, Esther Gloor

4.1 Introduction

Background. The number and frequency of disasters are steadily increasing while the capacity to deal with them is not. The way that local, national or international organizations and governments respond to a disaster has an influence on its impact. Good planning and preparedness before the disaster can speed up the response, make it more efficient and in general much easier. Therefore, disaster response has the ability to save many lives, a fact that illustrates the importance of efficient disaster management. Local organizations work under different circumstances than large organizations. Their financial and personal background is weaker and they often do not have any concept of emergency response. A few simple guidelines with suggestions could assist in enhancing their capacity to deal with future disasters.

Objective. The goal of this investigation is to review different emergency response systems, and to set up guidelines for local organizations on the basis of different emergency response strategies for how to deal with a disaster. The guidelines are divided into two parts: the first focuses on preparation and preparedness, which are very important to reduce the impacts of a disaster. The second focuses on the time during and after the disaster. The guidelines are not meant as ‘the perfect solutions’, but suggest ideas based on best practice examples.

Relevance. Setting up a strategy of how to organize short- and long-term support after a disaster can enhance the effectiveness of the response and therefore reduce the impact of a disaster. Emergency response is not only a task for large international organizations, but also for small local organizations. Good cooperation between all organizations dealing with emergency response helps the disaster-affected population. Many local organizations are not informed about possible threats and do not have any emergency response strategies. Therefore, guidelines for small local organizations based on comparison of different systems might lead to new ideas.

Procedure. The review is based on the emergency response systems of five different organizations: the United Nations (UN), the International Federation of Red Cross and Red Crescent Societies (IFRC), Oxfam, the Self Employed Women's Association (SEWA) and the All India Disaster Mitigation Institute (AIDMI). Information sources are the websites of the five organizations, a visit to a SEWA office in Nakhatrana (Gujarat, India) and interviews with responsible AIDMI people. After reviewing the different approaches to emergency response, guidelines for local organizations containing several important aspects were compiled. The following paragraphs present some fundamental principles including the minimum standards of emergency response systems as identified by large international organizations.

Box 4.1 Interview with the Self Employed Women's Association (SEWA) concerning their Emergency Response Plans/Units.

Experiences

- With what kind of emergencies have you been confronted?
- Can you tell me something about one particular disaster that occurred in the past?
- What happened?
- In your opinion, what are the most important aspects when dealing with a disaster?

Plans

- Do you have any concrete plans for emergency response or do you act spontaneously in every situation?
- If yes: SWOT-Analysis (Strengths, Weaknesses, Opportunities, Threats)
- Do you include the communities while you create the plan? Do you use their experiences and do you show consideration for the local conditions (clothing, food)?

Emergency Response Units

- Do you have any emergency response units?
- Do you have different emergency response services?
- How did you construct them?
- Have you already gained any experiences? Were they successful/not successful? Why?

Warning

- Do you have early warning systems?
- If yes: How do these programs work? How many people do they reach?
- Does the population know what they have to do in case of emergency?
- If yes, how did you inform the population about the possible threats?
- Are there any authorities that warn the population of dangerous weather situations like storms or strong precipitation?
- If yes: How do they warn the population?

Communication before a disaster

- Do you have programs in order to strengthen the disaster awareness among the population?
- How do you prepare the communities? Is there any preparedness plan?

Communication during a disaster

- Immediate informing of the population is very important. How do you inform the population right after a disaster?
- Structure of information system?
- Means/infrastructure you need in order to inform the population?
- Time you need in order to inform the population: How much time after a disaster? How long does it take you to cover a big part of the population?

Communication after a disaster

- How do you support the population? How do you inform them?

Services and resource

- Infrastructure: Do places of refuge exist (e.g. big buildings, hills) and is the population informed about these places? If yes, how did you inform the population?
- Cooperation: Do you cooperate with local, national or international organizations? If yes, how do you choose your partners? What are the important aspects?
- Is there any cooperation with the police, the health service or other governmental institutions after a disaster?
- Goods: Are there stored goods like food, water, medicine, tents or blankets in the village / town or the surroundings?

Personnel

- Pre-trained, prepared and well-informed personnel are important. Are there any personnel?
- Do you have emergency response training programs in order to train your personnel or people you're cooperating with?
- If yes, what is the content of these training programs?
- Communication: Is it possible to set up a communication system after a disaster?
- If yes, how?
- Transport: Is fast aid possible?
- How is it possible to reach the disaster-affected area?
- Money: Is it possible to get money within a short period of time to buy necessary goods in order to support the affected population?
- If yes, how?
- Request: Which inputs could improve your emergency response system (e.g. training, equipment)?

4.2

Basic emergency response standards

4.2.1

Code of Conduct

The Code of Conduct was the first approach to setting up new standards in the process of disaster relief. It was drawn up in 1994 by IFRC, Caritas International, Oxfam and five other large disaster response agencies. Such standards are important because many organizations make mistakes that can interfere with an efficient relief effort. It often happens that local customs and conditions are not taken into consideration. The Code contains ten points of principles. It would be optimal if every NGO considered them (IFRC 2008a ONLINE).

The Code of Conduct contains the following ten principles:

1. The humanitarian imperative comes first.
2. Aid is given regardless of the race, creed or nationality of the recipients and without adverse distinction of any kind. Aid priorities are calculated on the basis of need alone.
3. Aid will not be used to further a particular political or religious standpoint.
4. We shall endeavor not to act as instruments of government foreign policy.
5. We shall respect culture and custom.
6. We shall attempt to build disaster response on local capacities.
7. Ways shall be found to involve program beneficiaries in the management of relief aid.
8. Relief aid must strive to reduce future vulnerabilities to disaster as well as meeting basic needs.
9. We hold ourselves accountable to both those we seek to assist and those from whom we accept resources.
10. In our information, publicity and advertising activities, we shall recognize disaster victims as dignified human beings, not hopeless objects (IFRC 2008a ONLINE).

4.2.2

The SPHERE project – humanitarian charter and minimum standards in disaster response

SPHERE is a project with the objectives of improving the quality of support for disaster-affected people and improving states' and humanitarian agencies' responsibility towards their constituents, donors and the victims of natural or man-made disasters. It is a unique project initiated in 1997 by several NGOs, the IFRC, the UN agencies, donor agencies, host governments and representatives of affected people. There are two basic beliefs behind SPHERE: The first core belief is that everything possible should be done to alleviate human suffering resulting from calamity and conflict. The second one is that all affected people can live with dignity and receive assistance. The core of the SPHERE project is the Humanitarian Charter. It has three fundamental principles including the right to live with dignity, the distinction between combatants and non-combatants and the principle of non-refoulement. The Humanitarian Charter is based on the international humanitarian law, the international human rights law, the refugee law and the Code of Conduct. SPHERE is not only a handbook but also a process of collaboration and an expression of commitment to quality and accountability. The first SPHERE handbook, designed for use in disaster response anywhere in the world, was released in 2000, the second revised edition in 2004. The handbook provides a set of Minimum Standards, whereby the first chapter contains guidelines which are applicable for the other four technical chapters:

- standards common to all sectors
- water supply, sanitation and hygiene promotion
- food security, nutrition and food aid
- shelter, settlement and non-food items
- health services

The minimum standards, based on the two core beliefs have been developed with the help of many people using existing knowledge as well as new experience from practice (THE SPHERE PROJECT 2004: 4-17). They will be presented briefly on the following pages¹.

Common standards. The following eight common standards should be considered while working with the four technical standards:

- The affected population should participate in every phase of the program.
- An initial assessment providing an overview of the disaster and an analysis of the threat should be carried out shortly after the disaster.
- Humanitarian response to a disaster is necessary when the local authorities are unable and/or unwilling to deal with the disaster on their own.

¹ For further information regarding the SPHERE Project, for example for more minimum standards or checklists, please read SPHERE's handbook that is available online free of charge under www.sphereproject.org [15.07.2008].

- The aim of targeting is to identify the most vulnerable and to meet their needs.
- Each program should be monitored to identify components that could be improved during the action.
- At the end of an aid action, the whole process should be evaluated. Existing problems can be analyzed to improve the system for the next emergency.
- Aid workers need appropriate qualification because they take a lot of responsibility for the disaster-affected population.

To ensure an effective implementation of several programs, aid workers receive supervision and support (THE SPHERE PROJECT 2004: 21-42).

Minimum standards in water supply, sanitation and hygiene promotion.

This technical chapter is divided in six sub-chapters, which all contain minimum standards, key indicators and guidance notes. The sub-chapters are: hygiene promotion, water supply, excreta disposal, vector control, solid waste management and drainage. Water is essential for a human being to survive and it is closely connected to the other three technical chapters. Examples of minimum standards are that every person should be able to use 15 liters of water per day, the maximum distance of any household to the nearest water point is no more than 500 meters or that a maximum of 20 people have to share one toilet (THE SPHERE PROJECT 2004: 51-99).

Minimum standards in food security, nutrition and food aid. Everyone should have access to enough food of adequate quality that is acceptable within his culture to be able to live free of hunger. How people have access to food can vary from case to case. Food should only be distributed if necessary and the distribution should be stopped as soon as possible. Sometimes it might be the best strategy not to distribute food but to re-establish economic activities as fast as possible. Furthermore, access to a market and to income-earning opportunities should be re-established. For example, every supported person should receive 2.100 kcals, but this is only an average value and is influenced by many other factors. To ensure efficient food aid, good management and planning are important as well as the fact that the food is stored, prepared and consumed under appropriate health conditions (THE SPHERE PROJECT 2004: 103-199).

Minimum standards in shelter, settlement and non-food items. If possible, existing shelters and settlements should be repaired instead of constructing new buildings. Solutions in accordance with local building practices can be short or long-term. If it is not possible to provide individual solutions, collective shelter can be provided. From experience it can be said that affected people usually prefer to stay in their communities with their family. The shelter should protect them from the weather to ensure dignity and health. The non-food item component includes the offer of enough and adequate clothing, bedding and household items. For example, every person should have at least one full set of clothing and children up to two years should receive a blanket. Other necessary

items are soaps for bathing and laundry, cooking and eating utensils as well as tools and equipment to repair the shelter if the population is responsible for this work (THE SPHERE PROJECT 2004: 203-246).

Minimum standards in health services. This technical chapter is divided into health systems and infrastructure, control of communicable diseases and control of non-communicable diseases. Basically, all people should have access to health services. They can be provided by existing health systems or by additional health services. To prevent the spread of communicable diseases, people must be informed about how to behave. A concrete minimum standard is that every person between six months and 15 years must have immunity to measles (THE SPHERE PROJECT 2004: 249-308).

4.3

Guidelines for emergency response

As a result of the research, many aspects have proved to be very important while dealing with a disaster. Firstly, guidelines that are important for local organizations as well as other organizations shall be presented, and secondly, additional aspects that are especially important for national and international organizations will be discussed. Local organizations work under different conditions; therefore, they are confronted with specific problems.

How local organizations deal with disasters

In the following passage, there are several pieces of advice on how local organizations could deal with emergencies and what aspects might be important for them. Most of them are also relevant for national and international organizations. Unfortunately, there is no optimal solution of how to act in the case of emergency. Every disaster is different and therefore the response has to be adequate and tailored to each situation. Thus, these are simply suggestions.

Preparation

- **Training and well-prepared personnel.** Training is important for members of the organization as well as for the population. Campaigns should inform the population on how to react in different kinds of emergencies, such as earthquakes, floods or cyclones. Good training can save many lives, because a well-informed population can deal with a disaster better than an uninformed population. If, for example, safe places like big buildings are available, people should know these places. In addition, the staff of the organization should be well-trained. If possible, some members should attend training sessions, possibly organized by other organizations to provide their own team with new information.
- **Response team.** It might be useful to set up a small response team which is well-organized and able to be deployed at all times. The response team

should have some basic equipment like first aid kits, mobile phones and snacks for their own use at their disposal. This material should be stored in a central place and always be ready for use.

- **Cooperation.** To provide an efficient relief that reaches all affected people after a disaster, good cooperation between various local organizations, aid agencies and the government is important. Planning the cooperation in advance enhances the speed of response. Presumably a local organization does not have the possibility to provide enough relief items during a disaster. Therefore, it is useful to link up with larger organizations that could offer support.
- **Risk map.** Identifying the most vulnerable places in advance allows a more detailed emergency response preparation. This allows an immediate and purposeful evacuation if an emergency is expected.
- **Early warning.** Effective early warning systems can save many lives. However, it is probably impossible and unnecessary for local organizations to set up their own warning system in every case. Local organizations have the task of raising the awareness of the people. They should train the population to listen to the radio and to take governmental warnings seriously concerning expected disasters like strong cyclones. This way, people have enough time to take refuge in safer places and to save their belongings.
- **Stored goods.** If a safe place and a certain amount of money are available, it would be a good idea to store some goods. In case of emergency, goods like medicine against epidemics, food that can be stored over a certain period of time without spoiling, drinking water or blankets are very important to have ready.
- **Emergency response fund.** In case of emergency, it is important to have some money available within a short period of time. This enables local organizations to purchase relief goods like food, water, blankets or tents. Therefore, it is important to look for donors and to set up connections before an emergency occurs. In addition, it is important to prove legitimate use of the donations by publishing bulletins which explain how the received money is used.
- **Insurance.** Insured people are less vulnerable. A possibility is to set up cooperation with an insurance agency to insure as many people as possible in the community. Thanks to financial aid received from insurance after a disaster, it is much easier to rebuild people's existence.

During and after the disaster

- **Fast response.** The speed of the response is very important. Every hour of delay can claim the lives of hundreds of people. This shows the immense importance of good preparation.
- **Survey.** To organize an efficient relief effort, it is important to have an overview of the extent of the disaster. A survey seems to be very useful in this case. It helps to analyze the damage and to categorize the affected people to find out who needs assistance first and what the most important needs are. The faster this is done, the sooner it is possible to select the exact response strategy and begin the relief work.

- **Goods.** It is important to provide the affected population with adequate goods like food, water, sanitary items, blankets, tents or first aid. Providing food is essential, but it should only be provided for as long as it is really necessary. As soon as the population is able to supply itself with food, it should no longer be provided by organizations.
- **Health care.** Whether the response to a disaster was successful or not is strongly dependant on the number of people injured or fatalities. Thus, first aid is essential. It is helpful if an organization can set up something like a small field hospital to satisfy the most important needs. Otherwise, the local organization has to establish cooperation with other organizations that are able to support the local population's medical needs or it has to organize access to a nearby hospital for injured people.
- **Psychological support.** In addition to health-related problems, many disaster-affected people must deal with mental problems and are often traumatized. People lose their relatives, their friends and their belongings. Therefore, it is necessary to organize psychologists who are used to dealing with such situations.
- **Local market.** Every disaster affects the local market and therefore many livelihoods are directly involved. Thus, it is important to support and re-establish the local market as soon as possible. In general, purchasing goods on the local market is cheaper, supports many people and does not waste a lot of money on transportation.
- **Focus on livelihood.** Setting a strong focus on livelihood helps the sustainability of the disaster response. During past emergencies, it has happened that the affected population requested relief work to be stopped after several days. Instead, they asked for help to build up livelihoods. Rather than simply providing food, it should be considered whether cash for work or food for work programs are preferable under the local circumstances.
- **Long-term support.** It makes sense to support the affected population not only in the short-term but also long-term. This way, there is the chance to really improve their standard of living.
- **Reduce future vulnerability.** While considering the long-term aspect, it is also important to reduce future vulnerability. There are many possible ways to do this. Constructing safer houses, for example earthquake-resistant houses, or providing insurances can enhance the resistance of the affected population.
- **Chance for a better future.** Even if emergencies are awful situations, in the past they have proved to be a chance for a change. There is an opportunity to improve the infrastructure or to strengthen the awareness of the population regarding the possible threats they are confronted with.

General aspects to be considered while dealing with a disaster

In the following passage some additional aspects will be pointed out. They should be considered especially by national or international organizations which are not familiar with the local conditions and which do not know the affected people.

- **No exclusion.** Everyone has the right to be supported after a disaster. Aid agencies are not allowed to discriminate between people of different religions, nationalities, genders, etc.
- **Independent work.** The work should be independent from interests of other organizations, people or governments that could influence the work of the organization. A conflict of interest could occur if organizations cannot work independently.
- **Coordination.** Coordination with local organizations allows a fast response. Thanks to their local knowledge, it is not necessary to study the area because local people know the population, their urgent needs and the different locations.
- **Respect the local circumstances.** Depending on the location of the disaster, people have different needs. Their clothes, their food or their housing depend on the local culture. Therefore, the organization has to do some research before starting field work.
- **Integration.** The affected population should be integrated in every step of the relief work planning. They know their urgent needs and what has to be re-established in order to restart their communal life. In addition, the affected population usually prefers to stay in their communities with their families. Therefore, it makes more sense to re-establish damaged buildings rather than to construct new buildings in a new place.
- **Minimum standards.** Finally, it is important not to forget the minimum standards in disaster response such as food standards, water standards, sanitation standards and shelter or health standards provided by the SPHERE Project.

4.4 Overview of the different emergency response characteristics

The possibilities of the five organizations are completely different. A local NGO with few staff members has different prerequisites than an organization like the UN or IFRC with hundreds of employees and a network all over the world. Therefore, it is very difficult to compare the different emergency response systems and to discuss characteristics such as strengths or weaknesses. In addition, the available information varies greatly. In the following tables 4.1-4.2, there is an overview of the emergency response systems of the five different organizations².

² As time for this research is limited and information on this topic is massive, it is possible that aspects of the single organizations are missing or incomplete. Therefore, all information is supplied without liability.

Tab. 4.1 Comparison of emergency response systems of five different NGOs, part I.

	UN (United Nations) ¹	IFRC (International Federation of Red Cross and Red Crescent Societies) ²
Organization and purpose	<ul style="list-style-type: none"> - International organization with the objective to maintain international peace and security; to develop friendly relations among nations; to cooperate in solving international economic, social, cultural and humanitarian problems and in promoting respect for human rights and fundamental freedoms; and to be a centre for harmonizing the actions of nations in attaining these ends 	<ul style="list-style-type: none"> - Vision: to improve the lives of vulnerable people by mobilizing the power of humanity - Goal: to strengthen the most vulnerable people's capacities for situations that threaten their survival or their capacity to live with an acceptable level of social and economic security and human dignity - Carrying out relief operations to assist victims of disasters; to combine this with development work to strengthen the capacities of its member national societies - Core areas: promoting humanitarian values, disaster response, disaster preparedness, health and community care
Principles of emergency response	<ul style="list-style-type: none"> - Right- and community-based - Taking into consideration local knowledge and social structures 	<ul style="list-style-type: none"> - Within their Code of Conduct (see chapter 4.2.1) - Fast response - Stabilize physical and emotional condition of affected people - Prevent further loss of life
Response strategy		<ul style="list-style-type: none"> - Combination of emergency response elements and emergency response tools - International and regional network
Elements of emergency response	<ul style="list-style-type: none"> - Quick, agile and flexible emergency response capacity - Early warning systems - Population estimation and registration - Community based approach and community services - Site selection, planning and shelter - Commodity distribution - Water, sanitation, food and nutrition, health - Sexual and gender-based violence - HIV/AIDS - Education - Supplies and transport - Voluntary repatriation support - Support of people with special needs (women, children, elderly people or disabled people) 	<ul style="list-style-type: none"> - Relief: delivery of a specific quantity and quality of essential, appropriate goods (food, shelter and non-food items) within a short period of time - Emergency shelter and settlements with disaster-resilient building technology - Emergency health: short-time relief for physical and psychological injuries - Water and sanitation (drinking-, cooking- or washing water) - Tracing and restoring family links: preventing humanitarian problems by restoring family links

Oxfam ³	AIDMI (All India Disaster Mitigation Institute) ⁴	SEWA (Self Employed Women's Association) ⁵
<ul style="list-style-type: none"> - Confederation of 13 like-minded organizations working together and with partners and allies around the world to bring about lasting change - Direct work with communities by seeking to influence the powerful to ensure that poor people can improve their lives and livelihoods and have a say in decisions that affect them 	<ul style="list-style-type: none"> - Community-based action research, action planning and action advocacy organization that works towards bridging the gap between policy, practice and research related to disaster risk mitigation and reduction - Operational as well as learning organization that is trying to link local communities with national and international policies of relief and long-term recovery 	<ul style="list-style-type: none"> - Member-based organization of poor, selfemployed female workers - Main goals are to organize female workers for full employment in order to achieve work security, income security, food security and social security - Empowering and organizing women to ensure that every family obtains full employment - Concept of self-reliance: women should be autonomous and self-reliant, individually and collectively, both economically and in terms of their decision-making ability
<ul style="list-style-type: none"> - Involve affected people in all aspects of planning, implementation and evaluation of relief programs - Taking into consideration local customs and culture - Reduce incidences of death and disease 	<ul style="list-style-type: none"> - Responding to natural and man-made disasters - Disaster mitigation as an important action for risk reduction before, during and after a disaster - Long-term support of the population 	<ul style="list-style-type: none"> - Health related services as one of the most important aspects after a disaster
<ul style="list-style-type: none"> - Use of the suffering population or the beneficiaries of several programs - Setting up recovery plans to become familiar with the most urgent needs - Integrating affected people into all aspects of the response programs - Reducing vulnerability of civilians, reducing possible threats 	<ul style="list-style-type: none"> - Research the possibly affected areas - Immediate contact with local organizations - Cooperation between field team and office team - Setting up long-term relationship with the affected population through local volunteers 	<ul style="list-style-type: none"> - Visiting or contacting the communities where members live - Survey and analysis, identification of needs
<ul style="list-style-type: none"> - Water and sanitation: prevention of epidemics, provision of drinking water - Health promotion: teaching good hygiene practices to health promoters, distribution of hygiene kits, prevention of diseases and epidemics - Protection: reduction of vulnerability of civilians and reduction of threats affected people are facing - Food security and nutrition: providing affected population e.g. with nutrition from a local market, cash for work programs, provision of seeds, tools, vaccinations and fodder to keep livestock - Disaster risk reduction: prevention, mitigation and preparedness programs for disaster-affected people - Gender: elimination of inequalities between men and women 	<ul style="list-style-type: none"> - Livelihood - School safety - Microinsurance - Microfinance - Shelter 	<ul style="list-style-type: none"> - Livelihood

Tab. 4.2 Comparison of emergency response systems of five different NGOs, part II.

	UN (United Nations) ¹	IFRC (International Federation of Red Cross and Red Crescent Societies) ²
Emergency response tools	<ul style="list-style-type: none"> - Multifunctional teams with national and international staff - International Strategy for Disaster Reduction (ISDR): enhancing disaster resilience of communities - Early warning and contingency planning: deployment of staff from the Early Warning Unit (EWU) to assist in contingency and preparedness planning in support of humanitarian coordination activities - UN Disaster Assessment and Coordination (UNDAC): deployment of teams for emergency assessment and field coordination during initial relief phase - International Search and Rescue Advisory Group (INSARAG): global network of disaster response organizations and countries - Different tools for information management - Different tools, e.g. for survey 	<ul style="list-style-type: none"> - Information management: appeals, information bulletins and operations' updates and Disaster Management Information System (DMIS): pursuing the need for informed decisions, speed and efficient operational readiness - Regional Disaster Response Units support of national societies in different geographical regions in their disaster response and disaster preparedness by providing operational support and services - Regional Disaster Response Teams (RDRT): support for building of regional capacities and their use to respond to disasters with standardized training programs for both professionals and volunteers - Field Assessment and Coordination Teams (FACT): support for national societies - Emergency Response Units (ERU): immediate high quality support during a disaster with qualified and trained personnel and adequate standardized equipment; different kinds of ERUs: water and sanitation, basic health care, referral hospital facilities, logistics, base camp, relief, information, technology and telecommunication
Guidelines for emergency response	- 'Handbook for Emergencies'	- Internal emergency response plans
Place of action	- Worldwide, in cooperation with different sub-organizations	- Worldwide largest humanitarian organization
Cooperation	- Different sub-organizations	- With different local and global organizations
Finances and funding	- Central Emergency Response Fund (CERF): providing a large amount of money within a short period of time	- Disaster Relief Emergency Fund (DREF)
Special	<ul style="list-style-type: none"> - Large organization - Other focuses, e.g. ISDR to enhance the resilience of communities - Advantage of being a large organization and therefore more possibilities than local or national organizations - Network of many sub-organizations 	<ul style="list-style-type: none"> - ERUs speed up the response - When needed, setting up regional disaster response units and teams - Only organization that focuses on tracing and restoring family links - Code of Conduct - Huge network - First organization to set up ERUs

Oxfam ³	AIDMI (All India Disaster Mitigation Institute) ⁴	SEWA (Self Employed Women's Association) ⁵
<ul style="list-style-type: none"> - Multifunctional teams consisting of engineers and educators - Different training programs based on 'Building Trust in Diverse Teams: The Toolkit for Emergency Response', 'Impact Measurement and Accountability in Emergencies: The Good Enough Guide' and other guidelines 	<ul style="list-style-type: none"> - Disaster Mitigation Committee: preparation for future disasters, analysis of possibly affected areas, mapping of possible impacts - Action Learning Emergency Response Unit (ALERU): better planning, quality emergency response at community level and development of strategies for calling on other stakeholders to allocate resources which allow rapid response and recovery. - Field team - Office team in Ahmedabad - Different training programs - An Emergency Response Unit 	<ul style="list-style-type: none"> - Training programs for community-based disaster risk reduction and community-based disaster relief and response - Teams of local volunteers
<ul style="list-style-type: none"> - Manuals and guidelines for professional disaster response - E.g. 'Building Trust in Diverse Teams: The Toolkit for Emergency Response', 'Impact Measurements and Accountability in Emergencies: The Good Enough Guide', 'Guideline for Registration and Distribution' 	- Several guidelines and papers, no general plan	- Own concepts, but generally not emergency response orientated
- Worldwide in selected countries	- National: different disaster-affected areas, mainly in India - Gujarat, India	- Local: mainly Uttar Pradesh and Gujarat, India
- Consists of 13 organizations	- Cooperation with local and international organizations	
	- Emergency Response Fund	
<ul style="list-style-type: none"> - Main focus on water and sanitation - Integration of affected population 	- Knowledge of the local context	- Strong connection to their members

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4.5 Conclusion

The goal of this report was to present the emergency response strategies of five organizations and to set up guidelines for small local nongovernmental or communal organizations. It showed that different organizations have different approaches. SEWA and AIDMI are quite small organizations compared to others. Their work is focused on India and they work with communities in a direct way. While dealing with disasters, they first focus on their members and only later they support other people. They know their communities, know the needs of their inhabitants and focus on long-term recovery through specific programs. On the other hand, UN, IFRC and Oxfam are large organizations. They act world-wide and respond to almost every large disaster. All of them are well-known and respected for their work.

All organizations have realized that it is very important to work directly with the affected population, to know and respect the local context and to have well-trained staff at their disposal. In addition, it is important to educate the population in order to enhance awareness about disasters. For example training in good hygiene practices or generally how to behave after a disaster have the capacity to save many lives. During the first relief phase, the organizations primarily focus on the same topics, like water and sanitation, health promotion, protection and food security. Especially AIDMI and SEWA focus on long-term recovery. They support the population long-term, for example through providing insurance or financial support.

IFRC's Emergency Response Units seems to be a very efficient system. They have proved their value by speeding up response activities. Unfortunately, these units require a lot of money and equipment. Therefore, it seems to be almost impossible for local organizations to set up and maintain such an emergency response system. However, ERUs contain many good approaches that can inspire the work of local organizations. Another big advantage of IFRC is the large network of national societies that enables the organization to work directly with the population.

As a final conclusion, it can be said that a lot of planning and preparation is necessary to achieve an efficient and effective emergency response system. Many organizations deal with disasters and improve their systems continuously. It is important for local organizations to consider possible threats in advance, to establish precise emergency plans and to inform the communities. Thanks to cooperation between local, national and international organizations, which all have their strengths and weaknesses, emergency response can be improved and more lives can be saved during future disasters.

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5 The flood of 2005 compared to the flood of 2007 in two communities of Kheda and Bhuj

Daniel Rufener

5.1 Introduction and conceptual background

The following project and its description were inspired by a simple but none the less very important thought which has been formulated repeatedly since the 1990's, but has still not found adequate recognition: Of course „disaster recovery is a multi-tier, multi-actor, multi-dimensional affair“ and therefore disaster recovery has become a „partnership with the governments, international aid agencies, corporate, non-governmental agencies and communities“, but the „community partnership and role dimension (...) is often neglected“ (SHAH 2007: 3).

And further: „In the cacophony of noises that follow a disaster (...) it is often forgotten that the communities and people are the key actors in disaster relief, reconstruction, rehabilitation and recovery“ (SHAH 2007: 3). Kirtee Shah sees the community's contribution potential as formidable regarding flood disaster mitigation: “If we use a community's information and knowledge base on water behaviour, we would not make catastrophic mistakes of ignoring contours, levels and natural water ways in planning and building roads, infrastructure and settlements” (SHAH 2007: 3). This statement perfectly suits in the context of what happened in the Indiranagar slum in Kheda, about 40 km southeast of Ahmedabad City, Gujarat. After the construction of a highway route which included a drainage system that only insufficiently drained water accumulations during the monsoon, the water became canalized, concentrated and accelerated on its way to Indiranagar slum, where it unfolded its devastating power and the endangered inhabitants suffered the consequences.

The project described in the following report tries to determine precisely these consequences of a flood that occurred in 2005 by comparing it to a flood situation in 2007 in the same slum. Further, the floods in 2005 and 2007 are to be analysed for three other communities in Bhuj to see how they dealt with the disaster. The four communities surveyed not only underwent severe flooding in the last few years, but they also were a target of AIDMI's community relief work. The following paper will therefore also take notice of the change that AIDMI's

work has brought to the communities, which of the enhancements have been successful and sustainable and which other factors may have been improving the situation in the communities regarding the flood situation. The paper therefore also focuses on the preparedness of the communities and the households before the flood disaster occurred, the actions taken and changes made after the severe 2005 flood and which steps were successful in the mitigation of the flood in 2007.

5.1.1

Targeting flood-affected slum communities

The project and this report focus on slum communities which must cope with regular flooding. The frequency of such floods can vary tremendously depending on the geographical, institutional and organisational context. The direct damage that a flood impact produces can be related to frequency of occurrence and magnitude. After a flood occurs, other factors determine how a community deals with the situation and how its inhabitants prepare for the next flood. Therefore, this report documents not only the frequency and magnitude of flooding, but also the socio-economic consequences which always accompany a (flood) disaster.

5.1.2

Focusing on the socio-economic consequences and the learning potential

A disaster is followed by socio-economic consequences that vastly determine the life of the affected communities. Disaster is a difficult situation to handle, but it always implies a certain potential for learning: through a detailed damage assessment, measures can be taken that help to mitigate the impact of the disaster or develop resilience and preparedness for future disasters. This is the concern of this paper. It aims to identify factors that strengthen capacities to deal with the impact of disasters, be it at the household or the community level. In order to demonstrate this, a case study involving four disaster-affected communities in the Indian State of Gujarat addressed the following questions:

- What damage was caused in the flood of 2005?
- What was done after the 2005 flood to prepare for future floods?
- What damage was caused in the flood of 2007?
- Which measures were really effective in mitigating the impact?

The report portrays the change that was realised between the two floods, which approaches were successful and what measures could be taken to improve the situation of the flood-prone communities.

5.1.3

Relevance

The flood-prone communities chosen for the case studies in the State of Gujarat not only suffered from serious floods in the past: due to global climate change it is expected that future floods will be even more dangerous because of their increased frequency and magnitude. This is due to the characteristic dynamics of the monsoon, which is responsible for many floods in India.

5.1.4

Data and approach

Local communities and people are severely impacted by disasters. In order to prepare for the next disaster and reduce risks, it is important for local communities to undertake effective measures themselves. Understanding how communities deal with disasters can assist NGOs and the government in their efforts to provide risk reduction measures. Therefore, the data for this report was gathered from the affected communities by means of filling in a questionnaire about their experiences in the 2005 and 2007 flood events. The questionnaires allowed for open questions and individual information from the flood victims. Selected aspects will be highlighted by small and representative case studies. To provide a wide-angled perspective of the flood problem, the survey includes four different communities from two districts: Shantinagar and Ashapuram in Bhuj, Indiranagar and Hanumannagar in Kheda. The four communities and their geographical context will be introduced, followed by descriptions of the 2005 and 2007 floods in the State of Gujarat, where all of the communities are located. This is followed by the analysis of the data collected and the case studies.

5.2

Floods in India

5.2.1

Typology of floods in India

Basically, a flood is an inundation or an overflow of a certain amount of water from any body of water, which overtops any natural or artificial confinement and is measured either by its discharge quantity or gauge height. Floods in India mainly occur during the monsoon season from June to September. Most parts of India receive over 75% of their annual rainfall during these four months. Potentially flood-endangered areas in India cover an area of 40 million hectares, while eight million hectares are actually flooded every year (AIDMI 2007a: 4).

There are various types of floods which sometimes feed on each other: a river flood can cause urban flooding, a flash flood can be the consequence of a storm

surge. Floods are therefore always a mixture of different causes and consequences, which make them a difficult disaster complex that comes in different forms and manifestations in different places. People who are actually affected by floods define them differently: for the slum community members, an amount of water becomes a flood when it enters the house through the door. A flood is considered heavy when the water-line reaches the roof level. It should be noted that this definition is on the level of a single household and not on the community level, where a definition could be when a communal road is flooded.

5.2.2

Flood preparedness and response on national level

The Ministry of Home Affairs in all flood-prone states of India has initiated the National Disaster Risk Management Programme in 2002. Assistance is given to the states to set up disaster management plans at the various organisational and institutional levels. The disaster management policy was developed with the goal of creating procedures, resources and structures in order to reduce disaster impacts on property, livelihood and development. The Gujarat State Disaster Management Authority (GSDMA) was established with an aim to try to understand the physics of hazards as well as the social reaction to them. Disaster Management is therefore divided into three phases: pre-disaster phase, disaster/impact phase and the post-disaster phase (AIDMI 2007a: 10).

- Pre-disaster phase includes various mitigation, prevention, preparedness and awareness activities, which consist of the collection of information, planning, training as well as creating and maintaining resources.
- Disaster/Impact phase contains all immediate actions that are taken after a disaster impact. Effectiveness and speed of search and rescue operations conducted during this phase help to save lives and property.
- Post-disaster phase includes a detailed damage assessment and the reconstruction of damaged shelters, communication and road networks. Risk reducing measures should be included in this phase of rebuilding and rehabilitation to mitigate future impacts and to avoid the repetition of similar disaster scenarios.

5.2.3

Flood disaster prevention and mitigation on the city level

AIDMI's interview with the chief minister of Kheda revealed several ideas to mitigate a flood: diverting the water to non-populated areas, protection measures on riverbanks as well as road improvements were mentioned, but until the present day have still not been realized. It is not possible to shift people from low-lying areas to safer places on higher ground, because they are already occupied or too far away (AIDMI 2007a: 10).

There are a number of vehicles maintained by the local government prepared to evacuate endangered people in case of emergency (AIDMI 2007a: 10). However, it is doubtful that these vehicles could access the communities during a flood, when roads are inundated. Further, slum community inhabitants are informed of the dangers of floods by leaflets. People who can swim are asked to be ready in case of emergency. In the event of a flood, non-professional lifeguards will probably not even be able to rescue themselves. Governmental phone numbers are distributed among community members to enhance communication during a disaster and emergency lights have been placed on houses to provide light. However, considering the power failures that often accompany floods, it is doubtful that these measures would be sufficient to ensure communication in case of emergency. Additionally, slum community inhabitants can deposit ideas at the municipal offices. Whether these ideas are ever translated into public policy and put into action is questionable.

Because cities are different, problems of flooding in each city vary. A few main determinants of a flood scenario on the city level are (AIDMI 2007a: 14):

- Heavy rain from thunderstorms, monsoon precipitation and others
- Geography and topography: the slope gradient of Kheda district
- Hydrological aspects: the flow of smaller rivers is blocked by bigger rivers; when small rivers feed into a river, cities can become flooded without a drop of rain falling on them. Also heavy rainfall combined with high tide in the Arabian Sea can result in flooding
- Uncollected trash in city streets blocks drainage channels, resulting in conditions for flooding. This is also a social problem; trash is thrown on streets and often not collected and processed in a proper way
- Technical aspects: absence of protection measures, water falling from terraces causing considerable damage, insufficient quality of roads, absence of pumps and equipment
- Mismanagement of infrastructure e.g. dams. Very old structures are easily damaged or destroyed by floodwaters, e.g. a bridge in Kheda, killing two women

5.2.4

Flood impact consequences on community level

Slum community inhabitants whose house is completely destroyed in a flood lose between 20.000 Rs and 50.000 Rs. Often family assets such as household utensils, equipment and furniture are destroyed by floods. The affected people interviewed by AIDMI all started again with the same livelihood, but their income dropped by around 30%. This is a decisive impact on the slum community, because incomes before the flood were just enough to cover basic needs. All the interviewed victims returned to their communities and now live at the same location as before. Moreover, there are unpaid loans ranging between 4.000 Rs and 50.000 Rs owed by inhabitants of the Kheda slums, because many people

needed instant money to pay for daily needs, to repair their houses and to buy new equipment to continue their livelihood. About half of the people interviewed in Kheda have opted for micro-insurance to be better protected against flood-related damage to their households. Asked about the most pressing needs, raw materials such as grain or basics for livelihood continuation were mentioned. In the event of future floods, most of the interviewed people answered that next time they would go to a safer place and take their important documents with them. At home, they will keep household items in a higher place. Also, they intended to save money to bridge the financial gap after a flood, or to take out insurance (AIDMI 2007a: 10).

5.3

Areas of study: Kheda and Bhuj

The following chapter provides some brief information on the areas that were the target of the questionnaire survey, as well as their flood-related situation and problems. In Kheda, two slum communities took part in the data collection: Indiranagar and Hanumannagar. In Bhuj, Shantinagar and Ashapuranagar were involved.

5.3.1

Kheda – a surrounded city



Fig. 5.1 Kachcha houses in Hanumannagar, Kheda.

Kheda's 24,000 inhabitants are surrounded by the Vatrak and the Shedi Rivers on the west, south and east side. During the monsoon, smaller rivers downstream feed water into both rivers, which causes the flow of water to accumulate upstream and therefore flood Kheda without the need of a single raindrop falling on the city. Most endangered are the low-lying areas by the riverside. Floods are very different: in 2005 there was only one flood, which was of high magnitude, whereas one year later, several smaller floods occurred. This illustrates two crucial determinants of floods: frequency and magnitude (AIDMI 2007b: 9). Inundated roads reduce accessibility during a flood, while mud and rubble are deposited everywhere the water masses strike. Layers of deposition were reported to be 2 to 3 feet thick in many places after the 2005 flood. Drainage systems become

inoperative when water levels rise to several feet. Kheda does not even have boats or a fire brigade due to a lack of funds. Therefore help from other nearby cities is required in the event of a flood. Accessibility then becomes essential. Damage is not only to objects of material value. Especially the recurring nature of floods causes psychosocial problems (AIDMI 2007b: 9). Further, people lose memories in the form of photographs and belongings, which have an emotional value to the victims.

Indiranagar – a western Kheda slum community. Indiranagar is named after former Prime Minister Indira Ghandi and is situated to the west of Kheda in a low lying area. Here AIDMI provided support in the form of livelihood, shelter, paccaroad construction as well as a work-shed and drainage building construction in 2005 (AIDMI 2007b: 9).

The concrete road resisted the flood of 2007. Further, the water drained faster, which resulted in less skin disease and foot injury problems. Because of the paccaroad, residents now have a safer path to walk on. The majority of houses are of the solid paccatype, constructed with cement and bricks. Therefore these households are not



Fig. 5.2 Paccaroad and houses in Indiranagar, Kheda.

completely destroyed in a flood, unlike those of kachcha-type construction. These households are especially endangered during floods, because their loose mud foundations and walls are simply washed away during heavy rainfalls and floods, or are severely affected by moisture at the very least. The flood problem in this community is mainly related to a nearby dam, from which water is released by local authorities when there is too much water behind it. Normally the slum inhabitants are informed. However since a change in administration structure, which re-assigned Indiranagar to another district, the inhabitants are informed only a few hours before the dam opens. Under the former administration, Indiranagar slum community members were informed earlier and could therefore manage the situation in a much more orderly way than at present. As soon as the water enters a house, the inhabitants move to a nearby school or municipality building where food is provided by a local temple community and the authorities. This procedure takes place three to four times a year. The most severe flooding happened in 2005, when large quantities of water were released suddenly from the dam based on a last-minute decision.

Hanumannagar – a hill elevated, but flood-prone slum community. As a slum community situated on an elevated spot next to a temple complex (Hanuman

Mandir) in the north of Kheda, Hanumannagar has been struggling with floods related to heavy rainfall for years. Most of the inhabitants are casual agricultural workers, who earn 30 Rs for half a day of work. Around 35 families and 135 community members live in Hanumannagar. AIDMI started work there in 2005 and provided cutlery and imitation jewellery as start-up aid for sales businesses. In addition, shelter material, communal toilets for men and women, a washing place, a community water tank, as well as road construction materials and trees were provided. Further, a community resource centre (CRC) and an insurance scheme have been established (AIDMI 2007b: 10). Hanumannagar is especially flood-prone because most of the houses are of the kachcha-type, which means they are very vulnerable to rain, moisture and floods because dried mud is used for walls and foundation construction. The mud soaks up moisture and loses its solid structure. Flooding occurs on an annual basis.

5.3.2

Bhuj – a multiple disaster-experienced city

Located in the northwest of India, Bhuj is the capital of the Kutch District. It has a semiarid climate and is prone to various hazards such as cyclones, droughts, earthquakes and floods. One of the most severe disasters was in 2001: around 10% of Bhuj's 150,000 inhabitants were killed by an earthquake, and vast parts of its rich cultural heritage were damaged or destroyed.

Shantinagar – affected by a monsoon-swollen basin. Shantinagar is a slum community situated about 3 km from Bhuj Airforce Training Centre and is flood-prone due to heavy rainfall and a normally dry riverbed, which becomes a mighty river when there is a high rain input upstream. The dry soil cannot absorb the vast quantities of water. Therefore the low-lying situation of Shantinagar results in severe flooding of the community.

Ashapuranagar – threatened by a blocked channel. The slum community of Ashapuranagar has similar problems to Shantinagar: During the monsoon, normally dry riverbeds or lakes swell because of heavy rainfall and therefore flood the households situated near the basins in the low-lying areas.

The floods of 2005 and 2007. The following paragraph briefly describes the flood situations in 2005 and 2007. After the flood of 2005, the government of Gujarat launched immediate help in the flooded cities: local and state administrations organised the removal of debris and waste transported into the cities by the flood, and drinking water was chlorinated to prevent the outbreak of disease. Moreover, financial assistance for the affected population was provided, and special packages to support affected industries were announced.

The 2007 floods were different in many aspects. In most areas, the magnitude was not as high as in 2005, but the floods came at a higher frequency and hit several communities repeatedly. Flood impact varies with the geographical

context. This was especially true for the 2007 floods, where different situations simultaneously occurred all over the affected areas.

5.4

Data collection and methods – a concept

The questions to be answered mainly rely on a comparison between the flood situations in 2005 and in 2007 for each community: how were the communities prepared in 2005? How did communities cope with the aftermath situation and what steps were taken to mitigate a future flood? Which of these measures succeeded in preventing severe flood damage in 2007 and which did not?

To answer the questions formulated above, the questionnaire was designed to collect information on:

- data related to the measurements of the 2005 and 2007 floods in terms of their physical impact as well as of their socio-economic consequences,
- data describing the communities' overall and flood preparedness situation in 2005 and 2007,
- data revealing the socio-economic and flood preparedness situation of each household in 2005 and 2007.

Since a comparison of the two floods and the approaches to dealing with them are at the centre of this study, the questionnaire was divided into two parts, of which the first dealt with the 2005 situation and the second focused on 2007. Apart from this dual character of questioning, wherein the two parts for 2005 and 2007 were nearly identical, the questionnaire made a general assessment of the household situation in both 2005 and 2007.

Data collection procedure. The data collection was conducted by distributing questionnaires to the four communities which were the target of the survey. The four communities were mainly chosen on the basis of a proposition made by Mr. Hasmhuk Sadhu of AIDMI. In both areas of study (Bhuj and Kheda), 15 questionnaires each were distributed. Accordingly, every community received either seven or eight questionnaires, which were filled in by selected household members in the communities surveyed. The affected households were selected by AIDMI's local volunteers to guarantee a well-balanced insight into the communities' situation and household composition.

5.5

Results and documentation

This chapter will present selected results on aspects of socio-economic change in communities between the floods of 2005 and 2007. Firstly, individual communities will be discussed to give a brief overview of what happened during

the two floods. Secondly, a comparison of the four communities will be made to find out how they dealt with the floods and if there were differences in their ways of handling the floods. If there were differences, the objective was to find out which approach in dealing with floods can be regarded as useful in terms of disaster mitigation.

5.5.1

Selected findings

Indiranagar, Kheda, suffered from the most severe flooding in terms of water levels both in 2005 and 2007. The business losses were tremendous in 2005, but lower in 2007. A complete destruction of the kachcha-type of buildings was indicated for all the households that participated in the survey. After the reconstruction and the improvement of the building structures to solid pacca-houses, the damage was less in the flood of 2007.

The data collected for Hanumannagar, Kheda, shows essential gaps for crucial parameters like water levels for both the 2005 and the 2007 floods. This is due to the elevation of the village as described earlier. Floods in Hanumannagar are released through heavy monsoon rainfall, where a heavy surface run-off damages buildings (see the plinth), but generally does not remain for hours. Instead, the water drains progressively to lower areas. Therefore, water level data is missing, which makes it difficult to estimate the physical impact. In terms of economic consequences of the floods, Hanumannagar inhabitants suffered from lost wages (around 1.000 Rs). The financial situation was very similar to the case of Shantinagar after the floods, where the lost wages due to the floods did not change from 2005 to 2007. Nevertheless, Hanumannagar suffered from almost complete destruction in 2005, whereas in 2007 almost no destruction occurred. Similarly, the total losses to these slum inhabitants in 2005 were widespread, but were decisively smaller for the year 2007.

In Bhuj, Shantinagar's inhabitants experienced the least severe impact of flooding in 2005 and 2007 in terms of water level indicated by the households. Accordingly, the impact on businesses measured by the loss of wages due to the flood was the lowest for all the communities surveyed. Generally, no decisive change could be observed between the 2005 flood and the situation in 2007.

Ashapuranagar, Bhuj, suffered more than Shantinagar in terms of the amount of water which entered the houses during the flood in 2005, but the differences are not very significant. As in Shantinagar, there was generally no change between the situation in 2005 and 2007 in terms of flood impact or socio-economic consequences.

5.5.2

Comparison of the cases

This chapter compares the three communities surveyed. The comparison is conducted on selected indicators.

Water levels and impact on businesses. Comparing the water levels of the 2005 and the 2007 floods in the three communities revealed an interesting aspect, namely that whereas the median for the water levels for Shantinagar and Ashapuranagar lies within 2 to 4 ft for the flood in 2005, Indiranagar's median lies at 6 feet. Furthermore, the Indiranagar inhabitants suffered from wider and higher flooding (fig. 5.3). Indiranagar households suffered the biggest losses (median value at 1.500 Rs with a considerable number of cases above that value, reaching up to 6.000 Rs of lost wages). Ashapuranagar people suffered from a median loss of about 2.000 Rs. The losses here concentrate around this value. Shantinagar's people suffered a loss of around 1.000 Rs (fig. 5.4). The higher the water level – which is an indicator for the physical impact of a flood – the higher the value of wages lost.

A look at the corresponding values for 2007 shows a decisive change. As in 2005, Indiranagar suffers from the highest water levels measured. Accordingly, one would expect the highest loss in wages for this community. But a different picture emerges from the statistical analysis: Indiranagar suffers from the fewest business losses for 2007 when compared to Shantinagar and Ashapuranagar slum communities. Whereas the analysis for water levels in Indiranagar shows a wide-spread field of values from two feet to over ten feet with a median at nearly ten feet (fig. 5.5), its inhabitants suffered from wage losses at a median value of

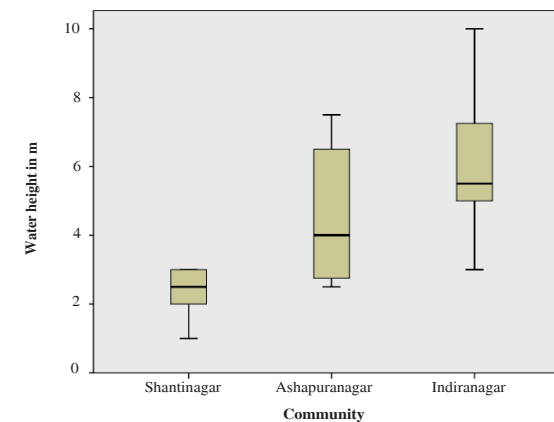


Fig. 5.3 Business impact – water levels in the communities for 2005.

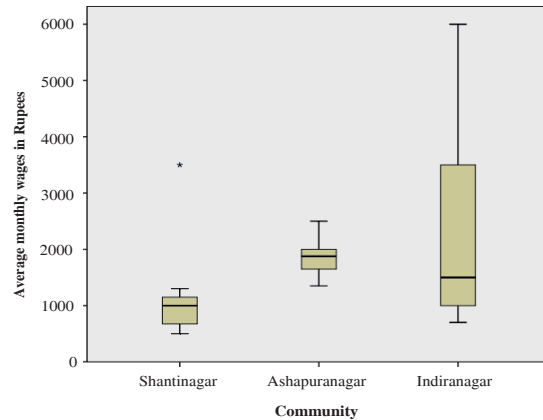


Fig. 5.4 Business impact – Loss of wages in the communities in 2005.

around only 1.000 Rs (fig. 5.6). Shantinagar has the same median for lost wages, while suffering from far less severe flooding with a water level median at only 2 ft. As in 2005, Ashapuranagar suffered from a higher water level median value than Shantinagar in 2007 and accordingly had higher losses due to the flood.

Indiranagar was able to mitigate the damage caused by the flood in 2007 more successfully compared to the damage in 2005. The fact that Shantinagar and Ashapuranagar basically remained the same can be explained by the different approaches the communities took to deal with the floods. These approaches will be analysed case study-like in the following section.

Different approaches to the flood problem. Fieldwork in the communities revealed two distinctly different approaches to dealing with the recurring flood problem: Ashapuranagar and Shantinagar in Bhuj took individual approaches to dealing with flooding, whereas Indiranagar in Kheda relied on a communal approach. This can be seen most clearly in the aftermath of the 2005 flood. The kachcha-type houses of Indiranagar were completely destroyed (fig. 5.7). Subsequently, AIDMI launched a cash for work programme, during which basic materials for house construction were provided; the members of the community did the construction work themselves. Further, a communal road was built, as well as a community work centre where the villagers do their daily handicraft. The roads are a safe pathway on which the slum inhabitants can safely move to other places in the event of flood. Fewer foot injuries and skin diseases therefore occur; the water drains faster and livelihood is interrupted to a lesser extent, which leads to a communal profit. The community work centre forces the community members to work together as a cohesive unit and to share information: a true community approach can be found here.

In contrast to this approach, Ashapuranagar and Shantinagar slum community members have a different way of dealing with floods. An example is provided

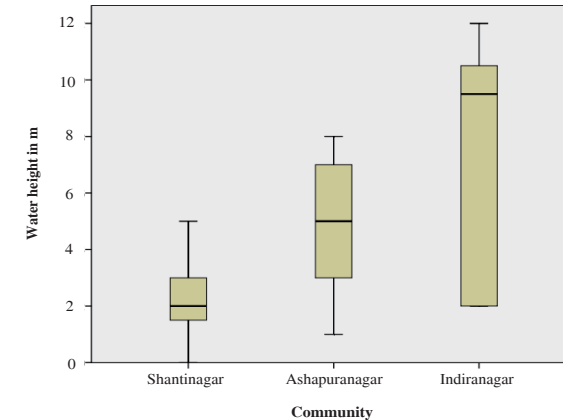


Fig. 5.5 Flood impact – water levels in the communities for 2007.

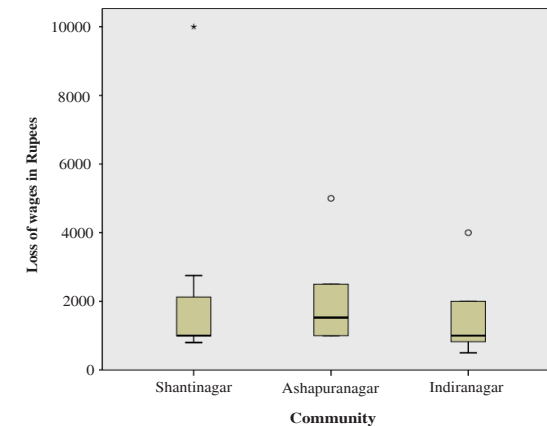


Fig. 5.6 Business impact – loss of wages in the communities in 2007.

by the case of Mr. Gabhubhai Dimpleben, an Asha-puranagar slum inhabitant. Year after year he uses the construction material provided to him to elevate the surrounding plinth of his house. However, he stores his household items in a higher place. This approach is neither necessarily sustainable nor useful in terms of disaster mitigation: floods recur every year and may even increase in magnitude and frequency due to climate change. Here one can clearly observe a predominantly individual approach to dealing with floods.

The consequences of an individual approach. As has been shown earlier in this report, people suffer not only from the physical impact of a flood, but foremost from its socio-economic consequences. Hence it can be concluded that there can be a change in the economic damage (e.g. the loss of wages) which comes with a flood by intervention on a communal level. But what are the consequences of an individual approach as chosen by Ashapuranagar and Shantinagar slum community members? To clarify this aspect and to broaden the brief case study of Mr. Gabhu Dimpleben, who was introduced in the above chapter, some

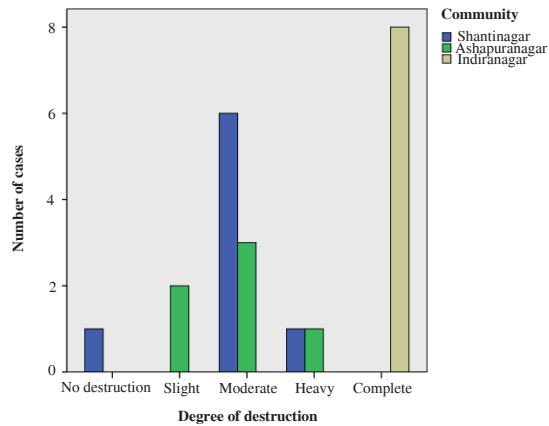


Fig. 5.7 Degree of destruction of the communities in 2005.

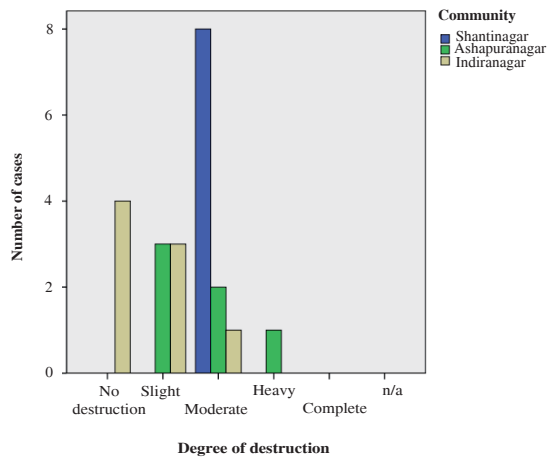


Fig. 5.8 Degree of destruction of the communities in 2007.

additional statistical data must be analysed. The analysis clearly shows that the direct and physical damage caused by floods was reduced decisively in the case of the communal approach applied in Indiranagar (complete destruction in 2005, only slight damage as a result of the 2007 floods, whereas Ashapuranagar and Shantinagar obviously failed to mitigate the damage (fig. 5.7-5.8). Further, the communal approach of Indiranagar slum reduced the amount of wages lost due to the flood. Ashapuranagar and Shantinagar failed to reduce the loss of wages and remained at about the same level (fig. 5.10-5.11). Another example of how the individual approach failed to deal with the flood-related problems is a case observed



Fig. 5.9 Waste in a community in Bhuj blocking the drainage system.

in Ashapuranagar: People complained about a channel that was supposedly poorly constructed by the government. Other slum inhabitants pointed out that it was blocked by waste (fig. 5.9). This waste clearly does not come from the government, but from the slum members themselves. This problem could easily be solved in a community meeting, where the problem would be discussed and resolved by the simple agreement to throw no more waste into the channel. Further, manpower and finances could be mobilized to widen the channel or to simply maintain it by cleaning out the waste and the sediments. Instead of this very simple but powerful communal approach, people individually complain about the problems and keep on solving them on their own. Here a simple solution could prove very productive: a community work place or resource centre just like the

one in Indiranagar could be established by a cash for work programme instead of providing construction material only on the individual level. On a community level, these materials could provide a much greater and more sustained benefit. Besides, communal work creates a communal feeling of responsibility. Through the community, claims (for instance regarding the supposed misconstruction of the channel) could also be formulated and forwarded more efficiently to the responsible authorities, rather than many unheard complaints about the situation on an individual basis leading to inaction.

Indiranagar community inhabitants generally expressed a feeling of comfort with their situation and feel more confident regarding their future, whereas the Ashapuranagar and Indiranagar inhabitants predominantly expressed concern. Psychological effects of floods should not be underestimated. The recurring floods create an atmosphere of fear, in which surviving becomes more and more difficult. Further, the fieldtrips showed that the community members often mention the loss of personal belongings and items, which have a decisive emotional value to them (e.g. marriage pictures or images of a deceased husband).

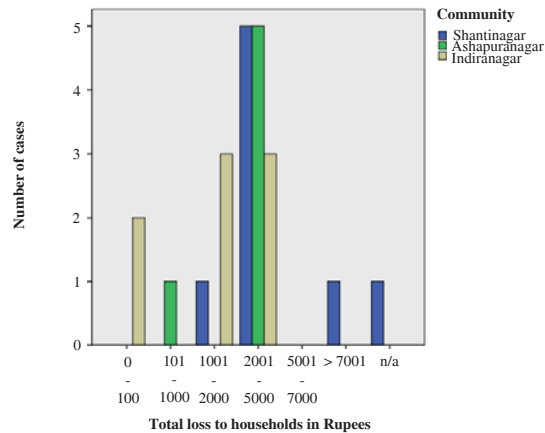


Fig. 5.10 Total loss to the communities due to the flood of 2005.

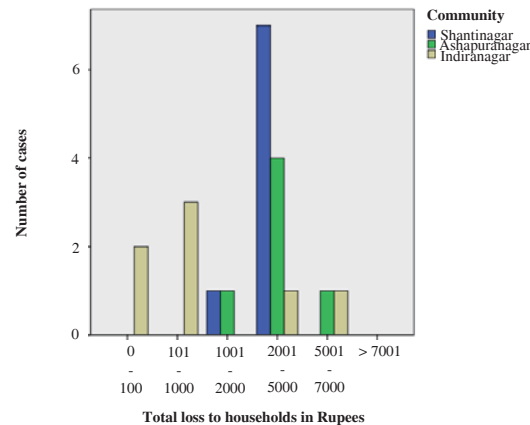


Fig. 5.11 Total loss to the communities due to the flood of 2007.

5.6

Abstract and conclusions

The comparison between the two floods has shown that there were only slight differences regarding the physical aspects of the impact. The flood in 2005 had less impact for all communities in terms of water levels measured, whereas the

flood impact of 2007 was considerably higher. Nevertheless, one of the slum communities surveyed managed to reduce the damage to business and households from the 2007 flood: after the flood in 2005, AIDMI launched a cash for work programme in Indiranagar. The community received construction materials for pacca-type houses and a street, and the community provided the labour. The communal benefit could be seen: the Indiranagar slum community inhabitants not only achieved a reduction of the economic consequences of the impact of the flood, but also of the damage that occurred to their newly-built houses. The community approach becomes clear when observing the slum inhabitants working together at the Community Work Centre provided by an NGO, where information is shared and where problems are discussed.

In the other two communities, a more individual approach was observed. The slum community inhabitants of Ashapurānagar and Shantinagar formulate complaints and try to establish solutions to their flood problem as individuals. A community approach to solving problems was not observed. Instead, individuals raise the level of their plinth or foundation before or after every flood. However, neither the impact on the business nor the physical damage to the household was reduced between 2005 and 2007. Concomitantly, Ashapurānagar and Shantinagar inhabitants expressed concern for their safety, whereas Indiranagar inhabitants expressed a feeling of safety.

It therefore seems that the Indiranagar slum communities have found a suitable way of dealing with the recurring floods by working together. This communal approach is more efficient than the individual approaches in Ashapurānagar and Shantinagar. It is nevertheless important to know that floods can vary drastically from case to case within the geographical context.

This paper tried to include various factors influencing the impact of a flood but it was not possible to exclude all variables that may have interfered with the results. Further, this report focused on the relief AIDMI provided after 2005. All the other training and assessments that were conducted by AIDMI were not included in the survey. Therefore, this paper cannot estimate the effects that these other measures may have had on the various communities. Also, since other NGOs and the government assist in those areas, one cannot write a conclusion on the specific role of AIDMI. However, the paper showed the superiority of assisted self-help versus unassisted self-help.

5.7

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5.7.1

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5.7.2

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6 The impact of AIDMI's microfinance schemes – case studies of beneficiaries in Bhuj, Ahmedabad and Kheda

Claudia Wipf, Basil Gilliéron

6.1 Introduction

Introduction. One important target of the eight UN Millennium Development Goals (MDG) is to reduce extreme poverty by 2015 (UNO 2008: <http://www.un.org/millenniumgoals>; 20.11.2008). Microfinance directly supports the achieving of the MDG regarding poverty reduction. These days there are many different microfinance schemes all over the world. The variation of governmental and non-governmental microfinance-schemes is large. Most of them are presented as successful and as an efficient approach to develop local economies and to reduce poverty.

There is a variety of reasons why poor people do not have insurance. In developing countries, most people work in the informal sector. These informal workers are mostly self-employed and have no access to benefits provided directly or indirectly by governments through employers. Furthermore, the governments of many developing countries do not have the resources to provide social protection schemes. Often the poor cannot afford to pay the full costs of social security schemes. Because of low wages and irregular cash flow, common insurances are not interested in poor informal workers as customers. Another reason for the aversion of common insurances to informal workers is the fact that they are not considered to be able to pay the premium rates (CHURCHIL 2006: 13-21). Without any insurance, poor people have only informal means to manage risks.

Even though poor people are the most vulnerable to many risks, they are the least able to cope with them. As a result, poor households are often hit by the next crisis before they can fully recover from the last (CHURCHIL 2006: 12).

Microinsurance schemes are a relatively new development concept and are an important addition to microcredit systems. Similar to the microcredit scheme, microinsurance is focused on low-income people. In 2006 more than one million people in India, Bangladesh and Uganda were covered by microinsurance. This increase in the number of microinsurance clients shows the need and potential of microinsurance schemes (REINHARD 2006 ONLINE).

Objective. This report focuses on the impact of microcredit and microinsurance schemes on beneficiaries' livelihood by All India Disaster Mitigation Institute's (AIDMI) microfinance system and Afat Vimo microinsurance system. The impact will be shown on the basis of several case studies. The selected case studies represent various communities in three different disaster contexts of earthquake and flood-affected Bhuj, riot-affected Ahmedabad and flood-affected Kheda. The selection criteria for the target group were to include both genders and to compare different disaster contexts. The aim of these case studies is to make an in-depth analysis by means of qualitative research of the beneficiaries and their situation now and before participating in AIDMI's microfinance programs. The leading research questions are the following:

1. In which way do microcredits help the poor to raise their standard of living?
2. What impact did Afat Vimo insurance have on its beneficiaries' lives?
3. Is Afat Vimo successful in mitigating disasters for poor people in disaster affected areas?
4. What are the potentials and the challenges of Afat Vimo?

The first section of this report contains background information on the informal or 'unorganized' sector of India, the informal credit market in general, microinsurance schemes and their potentials and challenges and AIDMI, as well as the research methodology. The second and main part of this study focuses on the case studies themselves that are the result of fieldwork in Bhuj, Ahmedabad and Kheda. In addition, some background information on these study areas is given for a better understanding of the context. The last main chapter then contains a conclusion with some recommendations.

6.2 Background information

The idea of microfinance is to support poor women's and men's entrepreneurship through (a) business development services for micro, small and medium enterprises, (b) financial services, and (c) microinsurance and housing loans (NARAYAN 2002: 51). Poor people are often excluded from equal access to economic opportunity because they lack information, connections, skills, credit and formal organization. Thus, they are kept out of the formal market and suffer discrimination. Microfinance or microcredit as an element of empowering can help to overcome many of these barriers that prevent poor people's entry into new markets and limit their productivity (NARAYAN 2002: 50).

It is also important to understand how the informal credit market works. Informal economies are mostly located in urban areas of less developed countries. The next section introduces the urban informal credit market and shows the different types of credits in informal economies, followed by some general information about AIDMI and its philosophy in the context of disaster mitigation.

6.2.1 Urban informal credit markets

Informal credit markets in less developed countries flourish because they offer the borrower what the formal market does not: access to money. To understand how the informal credit market serves the urban poor, Supriti et al. (2002) explain the characters of an informal economy: According to the UN the informal sector in any economic is characterised by: reliance on indigenous resources, family ownership, small scale operations, use of labour-intensive and local technology, unregulated and competitive market (SUPRITI ET AL. 2002: 70). The informal credit services can be distinguished between "User-owned devices" and "Private lender" (SUPRITI ET AL. 2002: 70ff).

User-owned devices

- Borrowing from friends and neighbours: An individual takes a loan from a person with whom they are involved in some type of social relationship. The loan may be interest-free or may not have to be repaid immediately. However, the social ties bind the borrower to reciprocate some day, for example when today's lender needs a loan.
- Rotation of Savings and Credit Associations (ROSCAs): Each member makes a deposit to the group and receives the whole money in turn based on a pre-arranged method. For example ten people come together and deposit 500 Rs each, which makes a total of 5000 Rs. The first member who was chosen by lottery will borrow the whole amount of the fund and return it within one month. Afterwards, the next member borrows the full amount. The cycle is repeated ten times until each member has had use of 5000 Rs for one month. This method is called the lottery-method. There are also other methods to fix the order in which participants borrow the money.
- Saving clubs: There are many varieties of saving clubs, where the participants save their money and withdraw it on a fixed date (e.g. holiday, Christmas) without interest. Another variety of saving club are organized around festivals, where women save together to meet expenditures such as meat for religious festivals or for marriages.

Private lender

- Borrowing from moneylender: Loans taken from local moneylenders are convenient but expensive. The lender or an agent lives in the borrowers' community and understands the borrowers' financial situations and constraints. The interest rates explode as the following example shows: Street hawkers and vendors in Bangalore take one-day loans. They borrow 90 Rs in the morning, use the loan to buy goods to resell and return 100 Rs. Hence, the borrower has to pay 11.1% interest in a day, which is equal to an annual percentage rate of 4.056% using simple interest calculations (SUPRITI ET AL. 2002: 72). High interest rates attempt to recover lenders' transaction

costs and the high-risk premium (high average default rate). Apart from that there are monopoly profits, because the local moneylender often exercises monopoly power in the slum.

- Chits: In India, ROSCAs (see above) which are run for a profit by a manager (who organizes it), are known as chits.
- Pawnbrokers: The pawnbroker enters into an agreement to allow a borrower to deposit an item of value (pledge) in return for less money (from a moneylender) than the market value of the pledged asset. If the borrower repays the loan he retains the right to retrieve his pledged asset from the pawnbroker. In case of default, the borrower loses the right to retrieve his pledged asset, but no debt remains.

6.2.2

Microinsurance schemes

According to Churchil (CHURCHIL 2006: 13), microinsurance can be defined as the protection of low-income people against specific perils in exchange for regular premium payments proportional to the likelihood and cost of the risk involved. The approach of microinsurance is basically the same as procedures of common insurances. By paying a regular insurance premium, clients can insure themselves against a series of risks. If they suffer a loss, they can demand a claim from the insurer. Indirectly, people who do not suffer a loss are paying for the others. In contrast to common insurances, microinsurances have a different client profile. Like all microfinance schemes they focus on low-income people. Of course the definition of poor people varies from country to country. Clients of microinsurance schemes can be defined as “persons ignored by mainstream commercial and social insurance schemes [and] persons who have not had access to appropriate products.” The word “micro” in “microinsurance” refers to the sum of the premium, which is very low compared to common insurances. “Micro” does not refer to the size of the microinsurance provider, which can vary significantly. Furthermore, the risks the clients can insure themselves against are not “micro” either. The potentials of microinsurance schemes are in development.

Further, Churchil (CHURCHIL 2006: 14-15, 20-21) points out that social protection for workers in the informal economy includes unemployment and disability benefits, universal healthcare, maternity benefits, old-age pensions or protection for children and the disabled. By insuring against various risks, microinsurance schemes can help to overcome poverty, promote gender equality and empower women. Among the challenges microinsurance providers have to deal with, is how to reach their clients. The target group is not only poor people but also the illiterate and people without a general understanding of the function of insurance schemes. Why should they pay for a product they might not need? And why are premium rates not reimbursed if not needed? Microinsurance providers not only have to build up confidence but also have to create awareness of the value of insurance.

In addition, microinsurance has to be adapted to the needs of a special clientele. The premium payments have to be affordable for poor people, premium payments must be spread over time to correspond with the household's cash flow and premiums must be subsidised by governments. Moreover, microinsurance schemes must be as simple as possible, otherwise they will not succeed. The products must be easily understood by people who might never have heard of insurances before. Therefore, insurances must be explainable in a few sentences. Microinsurance is simply one of several tools to manage risks. For risks that result in small losses, for risks with high predictability or high frequency of occurrence, savings and emergency loans would be more appropriate risk-managing financial services. For larger losses microinsurances are better suited than microcredit schemes. Knowing the best option for each risk is very important (CHURCHIL 2006: 5, 14, 22).

Insurance provision in India. Although a nationalized insurance industry has existed since 1947, it was not until 2007 that the Indian government enacted laws that obliged insurers to maintain a certain number of rural low-income clients. In the first year, 7% of the insurance clients have to be low-income people. Within five years, the number of low-income clients has to increase to 16%. However, only insurance companies entering the market after 2002 have to observe the new law. A problem with the new law is that it does not specify the income of the policyholder.

Currently only a small percentage of the Indian population carries insurance, mainly because awareness of the importance of insurance is lacking (ALL INDIA DISASTER MITIGATION INSTITUTE AIDMI 2008b: 5). Nevertheless, the number of insurance providers in India is growing, especially the number of microinsurance providers. According to a report by the International Labour Organization in 2005, there were 51 different microinsurance schemes offered by microfinance institutions and NGOs in India. Most of them were covering life and health care services. The total coverage of microinsurance clients was 5.2 million people (INTERNATIONAL LABOUR ORGANIZATION ILO 2005: 1-8). As the microinsurance market is growing fast, the number of beneficiaries is presumed to be much higher today.

6.2.3

AIDMI microfinance schemes

AIDMI has several programs, which are based on microfinance elements. These programs, called Revolving Fund, Building Peace and Protection (BPP) and Afat Vimo, help the beneficiaries to raise their economic level. The Revolving Fund and BPP provide a small loan to poor people without interest and collateral free. Afat Vimo is a life and non-life insurance for AIDMI's beneficiaries of Livelihood Relief Fund, a fund for disaster recovery. Thus, all three programs are based on the idea of microfinance.

Fig. 6.1 shows schematically how it is possible to achieve development and a

higher (acceptable) economic level after a disaster. Livelihood Relief, financed through Livelihood Relief Fund (LRF) is provided by AIDMI in a first step to victims of a disaster. The LRF aims to stabilize the economical situation of the victims and can be understood as a first relief given by AIDMI. Normally AIDMI provides assets like hand lorries, raw materials, sewing machines, animals, etc. Rarely do the beneficiaries get cash from LRF. The beneficiaries do not have to pay back the assets which they get from LRF. Livelihood Relief is only one part of disaster relief provided by AIDMI. The affected communities get other support from programs like shelter relief or cash for work etc. Later, the beneficiaries or small businesses are supported by microfinance tools (microcredit and microinsurance). This kind of support covers the secondary needs of the small businesses and helps them to expand. Every credit has to be repaid. The conditions of the credit, such as the duration and the amount of the instalments, are prearranged with the beneficiaries individually. In the long term, the microfinance tools help the disaster-affected households and businesses to develop and to achieve a higher economic level, which is also shown in fig. 6.1.

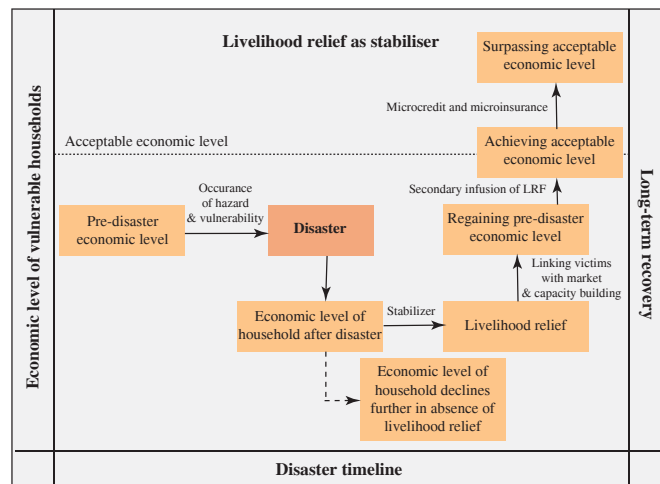


Fig. 6.1 Long-term recovery model (AIDMI 2008c).

AIDMI and microcredits. Up to the present day more than 13,500 people have received Livelihood Relief from the LRF. Approximately 5,000 of them have become members of CCISB (Chamber of Commerce and Industries for Small Business) (THORSTENSEN 2007: 8). The CCISB membership costs ten Rupees per year. The members of CCISB can benefit from different services, one of them being the microcredit scheme. Today about 400 people who are CCISB members have applied and received a microcredit. 240 of the microcredit recipients are from Bhuj and 53 live in Ahmedabad; the remainder of the beneficiaries live in

Nakhatrana (Kutch), Kheda, Radhanpur (Patan), Santalpur (Patan) and Vadodara. In Ahmedabad, the microcredit scheme is included in the Building Peace and Protection Program, which AIDMI started after the riots in 2002. In all other cities AIDMI's microcredit scheme is called Revolving Fund. The microcredit provided by AIDMI is always collateral and interest free.

The starting amount of the Revolving Fund in 2003 was about 400,000 Rs and has multiplied since. The exact amount could not be named. According to AIDMI, the default rate is between one and two percent. The reasons why the credit could not be repaid were death or sudden illness in all cases. Fig. 6.2 shows the total number of Livelihood Relief beneficiaries subdivided into the different disasters by which the people were initially affected.

Total number of beneficiaries (3rd July 2008): 13,541

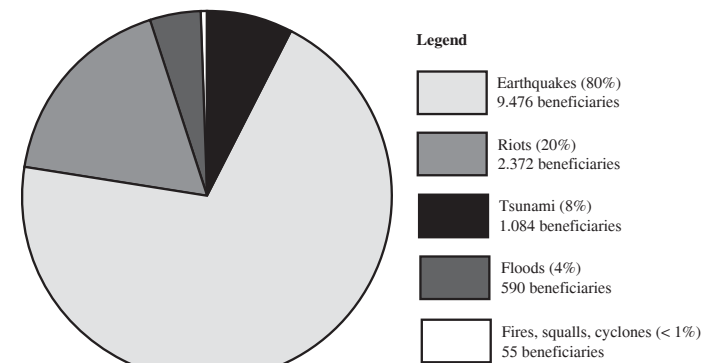


Fig. 6.2 Disaster-wise distribution of Livelihood Relief by disaster (source: AIDMI 2008: unpublished presentation).

AIDMI and microinsurance. Since 2004 AIDMI has offered Afat Vimo, the Gujarati word for “disaster insurance” to its Livelihood Relief beneficiaries. The first Afat Vimo microinsurance scheme was launched in Bhuj, Gujarat. Today AIDMI is operating in several districts in Gujarat, Jammu and Kashmir, Tamil Nadu and Pondicherry (fig. 6.3).

The initial number of clients with Afat Vimo membership was 829 in August 2004 and had increased to 5,054 by May 2008, of which 39% were women. It is striking that 94% of the clients did not have any other insurance prior to Afat Vimo, and today 98% have no other insurance besides Afat Vimo (AIDMI 2006b ONLINE). AIDMI's experiences with Afat Vimo are very positive and Afat Vimo has a renewal rate of 88% (AIDMI 2006a ONLINE).

Insurance is targeted at men and women from low-income families who typically work in the informal sector. Most of the policy holders are small vendors or laborers while 14% are home-based workers and 2% are small business

people (AIDMI 2006b ONLINE). Both men and women can be microinsurance clients. Usually the annual income of the client is between 12,000-18,000 Rs (300-450 US\$). Often, a single member of the family is responsible for the whole income (VETTERLI 2007: 23). Even if there are several sources of income, the family cannot afford to lose one of them. In the event of a natural disaster, illness or death, the economic situation of a family is severely endangered. Therefore, the insurance spreads risks across disaster-prone communities, occupational groups and geographical areas to reduce premiums, making insurance affordable for everyone.

The annual premium costs less than four US\$ (7 Fr = 204 Rs which is approximately a three-day wage). Because poor people are often not able to pay the whole premium at once, they have the possibility of paying it by monthly installments. The insurance Afat Vimo is an efficient tool in disaster mitigation: poor and vulnerable people can insure themselves against 19 eventualities. It is a truly unique idea to insure individuals against so many contingencies with a single insurance. Damage due to natural disasters such as cyclones, hurricanes, typhoons, tornados, floods, earthquakes, lightening, storms and landslides are covered by the insurance, but also damage due to man-made disasters such as strikes, explosions, riots, aircraft damages or malicious damage. The most important and most devastating events are therefore covered. "This not only makes the policy more attractive to clients, but also makes investment in the policy more efficient in economic terms" (AIDMI 2006b ONLINE).

The Afat Vimo beneficiaries can contract both life and non-life contingencies. The most important non-life risks that Afat Vimo covers are damage or loss of the house, house contents and business assets. For loss or damage to the house the insurance pays a maximum of 20,000 Rs. House contents are insured up to 20,000 Rs. Afat Vimo also covers accidents and the loss of life. In case of an accident of the insured person, medical expenses and the loss of wages are covered up to an amount of 25,000 Rs. If the insured person loses his life, a nominated person, in most cases one family member receives the amount of 20,000 Rs. If the death of the insured person is due to an accident, the nominee receives a total amount of 45,000 Rs. Afat Vimo is valid for one year. Each year the beneficiary needs to renew his policy in August. If he loses his life before the insurance period ends, his nominee not only receives the insurance claim for the loss of life, but he can also take over the beneficiary's insurance. Until May 2008 a total of 204 claims were made and out of them, 75% of the claims were successfully settled. The total payout of these claims was 21,940 US\$ (AIDMI 2008a).

AIDMI acts as a facilitator and an intermediary in the Afat Vimo scheme. Unlike other organizations, AIDMI is not involved in only one fragment of the process, but "AIDMI's community-based approach ensures that they are actively involved with the beneficiaries at every stage" which also includes "capacity building provided [...] in the form of training sessions with the community. These involve comprehensive explanations of how insurance works, why it is beneficial and how to be a good policyholder [...]. Through these [trainings] beneficiaries come to understand what to do in the event of a disaster" (REUTERS



Fig. 6.3 Outreach of AIDMI's microinsurance scheme Afat Vimo in India (AIDMI 2008a).

FOUNDATION 2008 ONLINE). Besides this, AIDMI collects the premiums and supports disaster-affected people in legal cases. AIDMI tries to implement its integrative approach to change the lives of the involved people in a sustainable way (REUTERS FOUNDATION 2008 ONLINE). In the event of a disaster, the beneficiary informs the Afat Vimo team, which helps them with the claim settlement. Often, the beneficiaries are illiterate and need assistance in filling out the forms for the insurance claim.

AIDMI cooperates with Prevention Consortium, a network for disaster mitigation founded by the World Bank. Other key partners are the Chamber of Commerce and Industry of Small Businesses CCISB, a newly established subsidiary NGO set up by AIDMI for the major purpose of Small Businesses, the International Federation of Red Cross and Red Crescent Societies, the World Bank, the Asian Development Bank and the Department for International Development. The insurance is provided by two insurance companies. Non-life losses or damages are covered by the United Insurance Company whereas the Life Insurance Cooperation of India covers only loss of life.

Besides Afat Vimo, AIDMI offers school insurance for both school students and staff. So far 1,700 people carry school insurance. The annual premium of the school insurance is only 15 to 18 Rs, a sum which is affordable to everyone. The School Insurance covers medical expenses due to accidents up to the amount of 2,500 Rs. Furthermore, loss of life is also insured for 20,000 Rs. Due to the fact that school insurance covers fewer risks than Afat Vimo and its policyholders are less likely to lose their lives, the premium is much lower than the premium of Afat Vimo.

6.3

Data and methods

This report is based on several case studies. Case studies as a research method involve an in-depth examination of a limited number of objects or events. Case studies have been used across a variety of disciplines for many years. Social scientists in particular have made wide use of this qualitative research method to investigate a phenomenon within its real-life context (Soy 1997). The interviews in this research were open-ended and the focus was on multiple real-life case studies. The techniques used for these case studies included conversations augmented by impressions and observations. Every case study was taken as unique. During the fieldwork one person from AIDMI translated the questions from English to Gujarati and the answer from Gujarati to English. Thus, the communication between the beneficiaries and the interviewing person was indirect. All case studies together gave a rough overview of the impacts of the Revolving Fund and the Building Peace and Protection microcredit schemes and portrayed Afat Vimo beneficiaries in order to illustrate the impact of Afat Vimo on the beneficiary's life.

Target group. Different clients of Afat Vimo and microcredit beneficiaries were interviewed, both men and women. As the research aims at finding out the impact and efficiency of Afat Vimo and of microcredit schemes, only people who suffered a disaster since they had been carrying insurance were interviewed. The other criterion for selecting the interview partners was that they had already successfully settled an insurance claim. In addition, beneficiaries who had made an insurance claim for life and non-life assets were interviewed. One case study concerns a woman who received insurance compensation due to the death of her husband, another deals with the accident of an Afat Vimo beneficiary. Other case studies focus on beneficiaries who suffered losses both of business and of household assets, in most cases due to floods.

Method of enquiry. A questionnaire which mainly consisted of open questions was developed for the interviews. The first section of the questionnaire focused on personal questions such as the beneficiary's name, age and family. Secondly, questions concerning the work and financial situation of the beneficiary were asked. The main part of the interview was based on questions concerning disasters. It was crucial to know what disasters the beneficiaries had suffered since they had been carrying insurance and how they were able to cope with the disasters. The results helped to assess whether Afat Vimo was an effective disaster mitigation tool. Not only natural or man-made hazards can have a disastrous effect on poor households, but also illness involves a certain danger. Therefore, questions concerning illness of the beneficiary and their family members were also asked. The last section of the questionnaire focused on microinsurance.

The questionnaire only served as a guideline and other questions were discussed as well, depending on the answers of the beneficiary. During the interview there were often other community members present who also provided information.

Study areas. The interviews took place in areas which were affected by three different types of initial disasters. Some of the interviews took place in Ahmedabad, in a community affected by riots. In Bhuj the initial disaster was the earthquake in 2001. Afat Vimo beneficiaries interviewed were all affected by floods, which happen almost every year in Bhuj. Some interviews took place in Kheda, in a flood-affected area. Seeing different communities affected by different initial disasters provided a good insight into the beneficiaries' living circumstances. It was also crucial for the researchers to visit the communities and the beneficiaries in their homes to gain a better idea of their way of living.

Limitation of the method. The selected method is based on qualitative and not on quantitative research. In total only very few AIDMI microcredit and Afat Vimo beneficiaries were interviewed. Therefore, the outputs of the research are limited. It is not possible to make general statements for all beneficiaries from the interviews presented. Nevertheless, the case studies can serve as examples of the impact of microcredit schemes and Afat Vimo on the interviewed people's lives.

6.4

Case studies of microcredit and Afat Vimo beneficiaries

The selected cases consist of eleven microcredit and Afat Vimo beneficiaries from Bhuj, Ahmedabad and Kheda. In these three cities AIDMI works closely with local communities. All three cities are located in Gujarat, India. The cities have been affected by different natural and man-made disasters throughout the last few years. The initial disaster in Bhuj was the Gujarat earthquake in 2001. In Ahmedabad, AIDMI started various programs after the riots in 2002 and in Kheda after the heavy flood of 2005.

6.4.1

Work in the City of Bhuj

AIDMI started its work in Bhuj one day after the earthquake of the 26th January 2001 with a magnitude of 6.9 on the Richter Scale hit the Kutch District of Gujarat and left more than 20,000 dead, 5,000 of them in the city of Bhuj. The poor were especially affected by the earthquake because of the loss of their livelihoods, the loss of their shelters and the lack of access to relief. Because the poor did not have legal documents for their land, ration cards or voter's cards, they were often neglected by relief providers (KROPAC 2002: 2-6). As the city received enough relief material, AIDMI's job after the earthquake was to connect

the relief providers with people who needed the relief. Besides the government and the military, over 300 national and international organizations were involved in the earthquake recovery. Even though there was a great deal of assistance, several slum communities were not included in the recovery programs. A survey from AIDMI covering 37 slum areas revealed that only 65% of the slum areas were provided with relief and only 60% of the slums were provided with compensation payments. Moreover, most of the communities were not included in the new town plan (KROPAC 2002: 14). Therefore, AIDMI decided to become active in the slum areas and started the Bhuj Reconstruction Project one year after the earthquake, with three objectives:

1. to build and increase livelihood security,
2. to improve and promote shelter security,
3. to give poor victims a voice in the new town planning process of Bhuj.

AIDMI is active in 18 of 37 slums with the help of local volunteers who live in the communities and therefore know them very well. The aim of the activities is to provide food, water, habitat and livelihood among poor disaster victims. AIDMI is eager to spread information among the slum dwellers. Publication plays an important part, so almost everything is translated into the local languages. Still, as 90% of the people are illiterate, other means of communication are needed. During training programs for both volunteers and the whole community, important topics are discussed, such as first aid, water harvesting, safer schools, disaster preparedness, and many more (KROPAC 2002: 26-30). AIDMI intends to provide long term relief – a reason why it is still working in 18 communities. The work consists of training programs, education, and secondary shelter support. Another very important task is the provision of microcredit and microinsurance. The following case studies portray people from the communities of Ashapuranagar, Mustafanagar and Sanjognagar. The interviews were held during a field visit on July 18th to 20th 2008.

Case study 1: Karimaben, Ashapuranagar

(Interview with Karimaben & Junusbhai)

We meet Karimaben at her home located in the slum area of Ashapuranagar in Bhuj. Most of the family members were at home when we arrived because Friday is the worship day for them as Moslems. Usually on working days she gets up at 6 a.m. to start her daily housework and to prepare her children for school. After this she begins her work as a hawker, selling biscuits, dried snacks, cigarettes and other small articles from her movable cabin on four wheels – a business in which she has been engaged for the last eight years. Sometimes she is assisted by one of her daughters. Karimaben and her elder daughter wear beautiful traditional jewellery. Karimaben is about 45 years old; the exact year of her birth is unknown. She has two daughters and seven sons and at present is pregnant with another child. Two sons are already married and are living with

their wives at the same place. Thus, a total of 13 people share the four rooms of their home. It can be seen as a success that three of her younger children go to the education centre which in their opinion is a much better than the government school.

After the earthquake in 2001 Karimaben got shelter relief and livelihood relief from AIDMI. With the money from the Livelihood Relief Fund she bought a small cabin shop on wheels. In her shop she sells goods like dry snacks, local cigarettes and biscuits. She buys the articles at a main market or from a wholesaler, and sells them at her cabin shop, situated in a good location in Bhuj. Even though



Fig. 6.4 Karimaben and Junusbhai with five children.

she is illiterate she knows her business very well, and ever since she got her first credit in 2005 her business has flourished. Her monthly income from the cabin business is about 2,500 to 3,000 Rs. She contributes a crucial amount to the household income, which is about 10,000 Rs. Normally the household income covers exactly the monthly costs and sometimes they are

even able to save up to 500 Rs. Karimaben's husband Junusbhai, two sons and one daughter-in-law also contribute to the household budget. Junusbhai owns a tractor that he can use for transportation work. Sometimes he is engaged in municipal work such as road construction. Both elder sons do labour work. The daughter-in-law does sewing work from time to time. One daughter helps Karimaben in the cabin shop and three other children still go to school. They go to the education centre which has been founded by AIDMI. Before the education centre was built, she sent her children to the government school. It was very crowded and there was no check of whether the students really went to school or not. At this moment one son laughs and explains that often the teacher came into the class, told them to make a circle and left. Karimaben says that in the government school the children did not learn sufficiently. However, now she is really happy and satisfied with the education centre.

Karimaben came in contact with AIDMI several years ago, when her husband suffered from a disease. Somebody told her about AIDMI and the Chamber of Commerce for Industries and Small Business (CCISB) which AIDMI has set up. So she became a CCISB member and since 2004 she has also been an Afat Vimo beneficiary. Karimaben received the first credit of the Revolving Fund in 2005. The amount was 3,000 Rs, which she repaid within 6 months. She used the small loan to purchase goods for the cabin shop. She could enlarge her cabin shop and is now better recognised by the people and customers. Today she has a better network and regular customers. Karimaben is happy to always have a few commodities in stock.

One can see that Karimaben really thinks like a well-educated businesswoman. Since she was able to enlarge her cabin shop with the credit, her income has increased. A second credit of 7,000 Rs which she received in 2007 was used to share the expenses for the tractor bought by her husband. She completely repaid this credit by 8 monthly instalments. Karimaben had applied for a third credit for about 20,000 Rs which she was to receive in three weeks from the time of our visit. Karimaben will invest her third credit in a three-wheel vehicle with a loading area. The vehicle will be used to transport commodities for her cabin shop and to offer transport services. Karimaben is also a member of a self-organized saving group. Twenty women from the neighbourhood are participating in this group. Karimaben got 20,000 Rs from this saving group five years ago. Soon it will be her turn again to receive 20,000 Rs. Then, including the amount from the Revolving Fund, she will have a total of 40,000 Rs to invest. This should be enough to buy a three-wheel vehicle.

Not only the microcredit has helped Karimaben to improve her social situation, but also the Livelihood Relief Fund and the microinsurance scheme Afat Vimo. In addition to the 2001 Gujarat earthquake, the household also suffered losses during the floods in 2006 and 2007. Both times, material from her cabin and domestic items were destroyed. The insurance covered both losses. In 2006 she received a payment of 1,850 Rs; in 2007 the payment was 1,750 Rs. According to her, the insurance compensation only covered 30% of the loss. Most likely it was more than that. Still, she sees a benefit in the insurance she carries: "Before I did not have any kind of protection against disasters."

The improvement of her economic and social situation due to microfinance schemes includes several dimensions: She now has a better network and is recognised by many people. Also, the credit helped to raise her social status. "Nowadays, many more people respect my family than before", she says. She is proud of what she has achieved. Not only has her social status improved but also her income and assets. Before participating, they only had one room and no animals. Today they are living in a home with four rooms and own two cows, a tractor and a cabin shop.

Case study 2: Jarinaben, Ashapuranager

(Interview with Jarinaben & Kasambhai)

Jarinaben makes her living with various small jobs: cutting grass in the surrounding land for her cattle, collecting old cloth, old iron items and old newspapers to sell for a small profit. Her husband supports her in the business. He also does labour work with the help of a newly bought donkey wagon. We met Jarinaben at her neighbour's house, Karimaben Junushbhai Sama. The two families have a good relationship. It was Karimaben who informed Jarinaben about the possibilities of microcredit. Jarinaben and Kasambhai received a cow and sheep from the Livelihood Relief Fund after the earthquake in 2001. Further assistance from AIDMI was shelter relief. Later, Jarinaben became a member of CCISB Afat Vimo. She was given information about CCISB from her neighbour Karimaben



Fig. 6.5 Jarinaben.

with whom she has a good relationship. The two women also participate in the same saving group.

Jarinaben and Kasambhai have four sons and one daughter. Even though Jarinaben is illiterate she sends all her children to school because she is convinced that education is important for their future. The seven members of the family live in a house with only one room. Every day Jarinaben wakes up at 6 o'clock to prepare Chai for her husband and children. Jarinaben takes care of her children until nine o'clock and does the housework. Afterwards she cuts grass for the animals. At lunchtime she returns to her house to prepare dinner for the family. In the afternoon she collects e.g. old clothes, newspaper, used iron items. That is her business: she goes from household to household buying recyclable

items which she sells to factories and big businessmen. For more than ten years she has been doing this kind of work. Her husband does labour work. Often he is engaged in stone breaking. The monthly income fluctuates, but normally it is about 4,000 Rs. If the family has any money remaining at the end of the month Jarinaben pays it into the fund of the credit group. Therefore they do not have any savings.

In 2006 Jarinaben received her first credit of 5,000 Rs from the Revolving Fund. With the loan, which she repaid after six months, she bought a donkey-vehicle. This year she got a second credit of 10,000 Rs, which is still ongoing. Jarinaben sold the old donkey-vehicle and bought a new one with the new credit. Before she became a beneficiary of the Revolving Fund, Jarinaben rented the equipment. She had to pay 50 Rs every day to rent a donkey-vehicle. Thus, with a daily income of 100 Rs she only made a profit of 50 Rs. Sometimes she earned less than 50 Rs and in this case she worked at a loss. Today Jarinaben does not make losses anymore even if she only has time to go collecting for two hours. Jarinaben and her husband also use the donkey-vehicle for other transportation work. If a rent of 50 Rs per day is calculated, the investment is amortized in 100 days (5,000 Rs) or 200 days (10,000 Rs).

Jarinaben and her family have no access to other organizations. That is why she is pleased with AIDMI's engagement in the community. For the future Jarinaben wishes to obtain legal ownership of her land and house. Ashapuranager is an informal settlement. Many people who live in this community have no legal documents but wish to have legal property documents. Without legal ownership they are constantly uncertain of how government plans for the area will affect them. Jarinaben has been an Afat Vimo beneficiary since 2004. She has already benefitted from her insurance. During the floods in 2007 a lot of Jarinaben's

household's goods were destroyed – mainly food items. She estimates that her loss was about 5,000 Rs, which is more than her monthly income. The insurance compensation she received covered 40% of the damage. To cover the rest of the damage Jarinaben had to buy her food on credit for a certain period. Jarinaben is convinced of the value of her insurance: "Not only did I receive an insurance payment once, but the insurance will even pay if I die."

Case study 3: Laljibhai, Ashapuranager

(Interview with Laljibhai Damjibhai Jogi)

Laljibhai's house still looks like it did after the earthquake seven years ago. Much of it is damaged and needs to be repaired. As Laljibhai and his family were not living in their house when the earthquake hit Bhuj they did not benefit from AIDMI's shelter relief program. Laljibhai could not afford to repair his house on his own and rented a house just opposite. The rent cost him about one fifth of his and his wife's income. Only now, seven years after the earthquake, Laljibhai is able to repair his house due to a loan from CCISB. Laljibhai's new home is still in a very provisional state, the family has moved in only a few days ago. They do not have electricity or water in the house but they intend to apply for it as soon as possible. Most houses in the community are supplied with electricity and water by the municipality and pay taxes for the service.



Fig. 6.6 Laljibhai, his wife and one of his daughters.

However the land on which the families built their houses does not belong to them. Therefore they must expect that the real owner of the land (in most cases the government) will one day take back their property and remove them from the land, even though they might have been living there for a long period. Laljibhai and his wife have three children, all of whom go to school. Their son is in 6th grade and the two daughters are in 3rd and 4th grade. Laljibhai left school after the 5th standard and his wife is illiterate.

Laljibhai does labour work. Every morning he wakes up at six o'clock and stays at home until nine o'clock. From nine o'clock in the morning until five o'clock in afternoon he is out in search of labour work with his hand lorry. He received the hand lorry from AIDMI Livelihood Relief Fund after the earthquake. There is a place in Bhuj where labour workers and clients meet. At five o'clock he usually comes back home to have dinner with the family. From six o'clock until ten o'clock in the evening he goes out again to look for labour work. Normally

he has no problem finding work but sometimes he does not find any. Especially during the monsoon season it is difficult to find work for a hand lorry. In this case he often helps to unload trucks. Before he received the hand lorry from the LRF he rented one. He had to pay about 10 Rs per day for the rent.

His wife also works sometimes. Like many women she goes to a businessman in town who sells ropes. The businessman gives the women raw material and they produce ropes which they return to the businessman. She only works about 20 days each month because the businessman does not need her to work every day. If he has enough ropes in stock he has no work for the women. Her income is between 30 and 60 Rs per day depending on how many ropes she produces. Even though the salary seems to be too low, she and the other women never thought about organizing themselves to buy raw material and to manage the sales of the finished ropes themselves. This year, Laljibhai got a credit from the Revolving Fund for the first time. The credit is about 8,000 Rs and is still ongoing. With this credit he started to repair the house and to build a toilet. Thanks to the credit, the budget of the household will increase because they do not have to live in a rented house. The rent of the house they lived in before was 500 Rs per month. Now they save 500 Rs, a decisive amount compared to their income, which is about 2,500 Rs (Laljibhai and his wife together). Further, the housing conditions of the family will improve. The family will have their own toilet which is an important aspect in hygiene and sustainability. There is also the social aspect. A family's reputation within the society and the community increases when it owns a house.

Laljibhai has been an Avat Vimo beneficiary since 2004. Due to heavy rain in 2007 his household items were damaged. The loss of vessels, cloth and food items was a severe blow to the family. Thanks to Afat Vimo he was able to cover half of the loss. Because of this experience Laljibhai saw that insurance is important. His house stands in a very risky area, about 20 m away from the riverbed. Most of the year it is dry but it fills with water during the monsoon and floods his house. During this period, Laljibhai and his family have to leave their house until the rain has stopped. The migration of the family during this time is a problem, but the damage to the house and household items is an even greater problem. Therefore, Afat Vimo is a worthwhile investment for Laljibhai and he intends to continue it.

Case study 4: Sumitraben, Ashapuranager

(Interview with Sumitraben & Maujibhai)

We meet Sumitraben on the first evening of our fieldtrip to Bhuj. Sumitraben is 32 years old and lives together with her mother-in-law, her husband and her husband's two brothers. One brother is already married and father of one child. Sumitraben and her husband have two children. The elder son works in a medical store and the younger one still goes to school. So a total of nine people live together at Sumitraben's home. Sumitraben and her family came to this area after the earthquake and started to build the house. Before they moved to the

Ashapuragar area, they lived in another earthquake-affected slum area. After the earthquake in 2001 they received shelter relief and livelihood relief from AIDMI. Sumitraben received a hand lorry from the livelihood relief fund. In 2005



Fig. 6.7 Sumitraben.

Sumitraben's husband had an accident. To treat the fractures they went to the civil hospital. Because of bad medical treatment they had to go to a private doctor. They were charged 7,000 Rs for the treatment. To pay this amount, they sold some of Sumitraben's mother's jewellery and borrowed money from relatives. Only two years later, in 2007, they were affected by a flood and lost household equipment and their food stock. Fortunately, Sumitraben was an Afat Vimo member at this time, so they received 2,200 Rs in compensation. This amount did not cover the whole damage caused by the flood but Sumitraben was lucky to have some money saved for the first reinvestment. Sumitraben's daily

business is labour work and selling vegetables. For both businesses she uses her hand lorry which she got from the Livelihood Relief Fund. Sumitraben is happy to have her own hand lorry, because doing business with a hand lorry and selling vegetables are her skills. Her husband is a shopkeeper and sells vegetables too. The brother-in-law is a casual worker and sometimes helps selling vegetables with the hand lorry. The monthly income with the hand lorry is about 2,500-3,000 Rs, the husband's profit from the shop is about the same amount and the eldest son earns 1,500 Rs. Thus, altogether they earn about 7,000 Rs.

Sumitraben is a member of CCISB and received her first loan from Revolving Fund last year. The amount was 5,000 Rs and she repaid it in ten instalments, the last one she paid in June 2008. The credit was used to build a second kitchen. Now Sumitraben has her own kitchen where she can stay and cook. Previously she had to share the kitchen with her brother-in-law's family. Sumitraben emphasises that the investment in the house leads to an improvement of the family's social status and that she is happy that they now have more space to live. Before, she always had to veil herself when she was in the same room with the elder brother-in-law. In some Hindi communities it is tradition that a wife be veiled when an older member of her husband's family is in the same room. Altogether the reputation and social status of the family within the community has risen. Sumitraben is interested in another loan which she will invest in their home. So they invest the loan not in a business but in their house to fulfil their requirement of shelter.

Sumitraben received her first Afat Vimo insurance payment during the flood of 2007, which damaged household items. According to her, the insurance covered more than three quarters of the damage. The family was also affected by the flood in 2005, but the loss was too small to make an insurance claim. Sumitraben

is the only insured person in her household. Therefore, the accident of her brother-in-law three years ago was not covered by any insurance. Even though he had surgery on his broken leg three times, he has still not fully recovered. The expenses for the medical treatments were very high.

Case study 5: Niyametben, Mustafanagar



Fig. 6.8 Niyametben in front of coloured cloth.

(Interview with Niyametben)

The second area we visited during our fieldwork in Bhuj was the slum Mustafanagar. As the name indicates, it is a Muslim area. Out of approximately 250 families, only three families are Hindus. Twelve years ago the area was used as farming land. Later, people started to buy land and to build houses. Thus, today the land is their legal property and all families in Mustafanagar possess property documents.

A beneficiary we met in this area was Niyametben, who is 38 years old. We visited her and her family in the afternoon at their home. She and her husband have four children. The two elder sons are 16 and 18 years old and stopped their education after the 7th and the 10th grade to help with home craftwork. The two younger children were playing and running around in front

of the house when we visited. Niyametben, her husband and the elder two sons were busy working. They were sitting on the floor in front of the house and were untying the knots of the cloth they had been dyeing. They were producing cloth for traditional women's dresses, which can be found all over India in all different colours and designs.

Niyametben received a sewing machine from the Livelihood Relief Fund. After some years of sewing work, the competition became fierce as many households were doing sewing work. Thus, she decided to dye cloth with special patterns. Niyametben had had this idea to produce coloured cloth for a long time. Thanks to a loan of 3,000 Rs from CCISB she could realize her dream. With this money she started her home-based business. Later she received a second credit of 7,000 Rs. The day we met her she had just paid the last instalment of her third credit of about 10,000 Rs. Every loan of whatever amount Niyametben repaid within six months. She always wants to repay the money as soon as possible, because it is not hers. "If you wait too long with the repayment, you will forget that it is not your money. And that is not good", Niyametben explained. She used all three credits to expand her business and to buy raw materials. She buys

white cloth and ties knots to make patterns of different colours. After colouring, the knots have to be opened and the cloth has to be dried. Then she sells it to a shopkeeper who makes dresses. The monthly profit for doing this craftwork is between 4,000 and 5,000 Rs. The high season for their business is during May and June, because then many couples get married. The business also flourishes during the Diwali-Festival in October, because many women buy new clothes and dresses then. However, they don't have so much work all the time. The monsoon is low season for her business. At the time of our fieldtrip the family still had a lot of work. Niyametben was hoping to find some additional sewing work for when the business slows down at the beginning of the monsoon. They sell the coloured cloth to a shopkeeper in Bhuj. The family gets 250 Rs per piece. The market price in Bhuj is approximately 350 Rs, and outside of Bhuj in other places in Gujarat, even higher. Niyametben doesn't have time to sell the dresses directly at the market to get a higher price. When she gets more credit she will buy more raw materials to once again expand her business. Her dream is to be able to employ other people. Maybe if her business does well, she will be able to have her own shop.

CCISB is her only possible source of credit. Niyametben remembers that she heard about a government scheme to encourage small businesses. But she didn't believe that this scheme still exists and had no idea about its conditions. Niyametben has no relatives who have enough money to lend, and there is no local moneylender in the community. Thus, she can only access credit through the CCISB. Niyametben is all smiles and explains: "Every credit I get, I will invest in the craftwork to expand my business!"

Case study 6: Ramjanbhai, Sanjognagar

(Interview with Ramjanbhai)

We met Ramjanbhai at his cleaning and service station in the area Sanjognagar in Bhuj. As we arrived, his son was cleaning an auto rickshaw and a motorbike. Ramjanbhai is of East African descent. His ancestors were brought to India as slaves about 150 years ago. Ramjanbhai and his wife have four children. One son helps him at the service station and three daughters do sewing work at home. All children left school after 3rd or 4th grade.

Ramjanbhai opened a cleaning station including a water-pumping machine thanks to the Livelihood Relief Fund. He started his business with this cleaning station. Before LRF he repaired bicycles, but the business with the cleaning station is doing better and his income has increased. Everyday he is at the cleaning station from nine o'clock in the morning until eight o'clock in the evening. He does not even leave to have lunch. Ramjanbhai cleans about ten vehicles per day, usually auto rickshaw and motorbikes. For servicing an auto rickshaw he gets 150 Rs, for a motorbike 40 Rs. His son and two other young men sometimes help him. Ramjanbhai is very proud of his son who works hard. He is sure that his son will take over this business after his retirement. His monthly income is about 10,000 Rs.

He used the first two credits of 3,000 and 5,000 Rs to buy a new water-pumping machine and to update his cleaning station. He repaid both credits in six monthly

instalments. The volunteer Kherunishben who accompanied us mentioned that Ramjanbhai is a very honest person. Normally Kherunishben goes to the beneficiaries to collect the repayments. However, Ramjanbhai always comes to her house to repay the money so that she doesn't need to go to him to collect the money. Ramjanbhai explains that he is very lucky to have the opportunity to get credit and AIDMI is the only insurance organization that he ever came in contact with. Ramjanbhai is lucky to have somebody who helps him, his business and family to manage disasters and problems.

Two years ago his wife suffered from heart problems. The treatment was very expensive and Ramjanbhai had to borrow money from relatives and friends. In total he borrowed 10,000 Rs at an interest rate of 1,000 Rs per year. This money was not enough and so he also asked CCISB for a third credit of 10,000 Rs. He agreed with CCISB to repay the credit within 24 months, which is longer than the normal duration for a credit, due to the special circumstances. Ramjanbhai met the deadline without any problems.

Ramjanbhai has been a beneficiary of Afat Vimo since 2004. During the flood in 2007 his service station was affected because it is situated very close to a riverbed. His family's house which is on a higher level was not flooded. Ramjanbhai was cleaning up his station and doing reparation work for one week. However he could not repair the water pump by himself and had to give it in for repairs. He also had to buy a new stock of oil. Altogether he estimates that the damage was around 4,000 Rs; 1,700 Rs of it were covered by the insurance. This financial damage was minor compared to the costs of his wife's illness.



Fig. 6.9 Ramjanbhai.

6.4.2 Work in the City of Ahmedabad

Ahmedabad is the biggest town of Gujarat and has more than 4.5 million inhabitants. In the past there have been many communal riots between Muslims and Hindus in Ahmedabad, but never before in such a dimension as in 2002, when Ahmedabad was the city worst affected by violence between Muslims and Hindus in Gujarat. According to official estimates, 1,044 people were killed throughout Gujarat in the riots of 2002. 790 were Muslims, 254 were Hindus and 223 are still officially reported missing. More than 2,500 people were injured, more than 900 women widowed and over 600 children orphaned (BBC

2005a). However, several NGOs, such as Amnesty International and Human Rights Watch, estimate the number of deaths as up to 2,000 people, which is much higher than the official death toll (HUMAN RIGHTS WATCH 2002: 21). After the riots in 2002 AIDMI immediately started their activities in more than 20 communities in Ahmedabad. The communities were not only affected by the riots, but also by other disasters such as floods. In many communities AIDMI was the first and only organization that took care of the local people. AIDMI's engagement brought a lot of change to the communities.

The following case studies in Ahmedabad took place in the communities of Vatva, Naroda Kumbharvas and Baherampura. The interviews were held in July and August 2008.

Case study 7: Rajubhai, Naroda Kumbharvas

(Interview with Rajubhai)

Rajubhai is a Muslim and sells cutlery, imitation jewellery for women and decoration items. Even though Raksha Bandhan, the high season for selling imitation jewellery, was to start in a few days, Rajubhai found time to meet us in AIDMI's Office. He has been engaged in this business for many years. His father was a rickshaw driver and Rajubhai intended to become a rickshaw driver too. However, when he left school after the 10th grade, he realized that the



Fig. 6.10 Rajubhai.

rickshaw business was a difficult business with an uncertain income. Poor people in particular, like his family, can be strongly affected by unforeseen costs for the rickshaw, for example reparation after an accident. Thus, he decided to do something else. Rajubhai started to sell cheap trinkets directly on the street. His father supported him in starting the business. Over the years he could expand his business, increase the stock, diversify the supply and buy a hand lorry-cabin.

On 28th February in 2002 Rajubhai saw in the news that people were attacking the Mecca Main Office in Gandhinagar where Muslims register when they are going to Mecca. So he decided to go to the market place to look after his hand lorry-cabin. The sight was terrible. He could already see smoke on the way there. At the market place he saw that some people had looted

his hand lorry-cabin. Then he realized that mobs of unknown people from outside were going to the Muslim area where he lived. He ran back to his house and informed his neighbours before he left with his wife and two children to escape

to a Hindu community, where it was safe and they could hide from the mob. For three months Rajubhai and his family lived in a relief camp, because their house was burnt and totally destroyed. So the family lost everything and had to start from scratch.

The family received a new hand lorry-cabin and a stock of jewellery from the LRF. The value of this support was about 10,000 Rs. Further, they were given shelter relief by the Islamic Relief Committee. Because Rajubhai had been hard working and had taken his business very seriously, AIDMI decided to give him a credit of 10,000 Rs, which Rajubhai repaid within a year. He received a second credit of 20,000 Rs in 2005. He repaid this credit successfully, too. With the two credits he increased his stock and shop. Today he has a big stock of cutlery and jewellery at home, so he can always refill his shop. Before the riots, when his business was flourishing, the shop sometimes sold out and Rajubhai had to close the shop and go to purchase new goods. Now he saves a lot of time by only buying articles for the stock once a month. In the past he had to buy goods to sell almost every day, because he had no stock. He buys the articles to sell in a big market reserved for resellers. Rajubhai always purchases in large quantities to get a discount. Thanks to the credit and the expansion of his business, his monthly income increased from 2,500 to 4,500 Rs. After the disaster his business assets increased from 10,000 (5,000 hand lorry and 5,000 stock) to 30,000 Rs (5,000 hand lorry and 25,000 stock). The high season for his business is during the festival seasons, such as Diwali, Kite- or Rakshawfestival. At the time of our visit, Rajubhai had two to four people to help him in the cabin-shop.

Before Rajubhai came in contact with AIDMI he took a loan from a private finance institute twice. The monthly interest for a credit of 10,000 Rs was 400 Rs. Thus, the yearly interest rate was almost 50%. Furthermore, he had to repay at least 600 Rs each month. The interest and instalment payment together were 1,000 Rs per month, a huge amount compared to the household's budget. Now, with the interest-free credit from AIDMI, Rajubhai saves a lot of money that he can invest in his hand lorry-cabin or stock.

Rajubhai plans to expand his business and to have his own shop in the old city of Ahmedabad. However, first some renovations and extensions of his house have priority. Therefore, Rajubhai has applied for a third credit. Today, Rajubhai has no fear of riots, because he has good relationships with his neighbours, even if they are Hindus. However, he knows that people from outside can provoke attacks against Muslims, as happened in 2002. In this case, he hopes that the people and government will remember the past and prevent a new outbreak of violence.

Case study 8: Jasminben, Baherampura

(Interview with Jasminben and Rafikbhai)

When we met Jasminben and her husband Rafikbhai at their home, she was busy preparing rotis, which she sells to two hotels. Jasminben gets 70 Rs for 100 rotis. Beside this "roti bakery" Jasminben has two more livelihoods: at her home she



Fig. 6.11 Jasminben preparing rotis.

sells provision items such as dry snacks and since she could afford a fridge, she also has cool drinks and chocolates in supply. Her second livelihood is her oil business. Jasminben buys and resells tins (15 l) of oil. She pays 1.100 Rs per tin and sells it on credit. She gets 1.200 Rs after three months. The daily net profit of all her businesses is between 150 and 200 Rs, which is a crucial amount of the household's income. Jasminben works very hard. Everyday she wakes up at 4 o'clock to produce the rotis for the hotels and to sell the snacks and tins of oil. At eleven o'clock she takes a rest for one hour. Then she prepares lunch and looks for business selling snacks. In the afternoon she prepares roti for the hotels again. Sometimes a woman from the

neighbourhood helps her. Until eleven o'clock she does her sales then she goes to sleep. Jasminben is a very active beneficiary and that is why she continues to get loans from AIDMI.

Jasminben's husband also contributes to the household's budget. He is a rickshaw driver and has an average net income of 100 Rs. Thus, the household's total budget is about 9.000 Rs per month. They have three children. All of them go to school. Two of them attend a school in Kerala and so only the youngest son, who is in 1st grade, lives at home. They only have one room where the family lives and which is also used as a shop.

The family was affected badly by the riots in 2002. When a mob came to Baherampura they had to escape over the roofs to the neighbouring area, which is a Hindu area. But they could only stay there for about an hour, because the inhabitants were afraid of being attacked too. So they went to another area from where they moved to a relief camp. The family stayed in the relief camp for four and a half months and were provided with shelter, food and water. It was a very hard time for Jasminben, because she was pregnant at the time and she gave birth to her youngest son in the relief camp. When they came back to their home, they realized that they had lost everything. The day before the riots, Jasminben had bought goods for her business for 15.000 Rs. Thus, the damage to the livelihood was more than 15.000 Rs. In addition there was also the damage to the house and loss of household items.

AIDMI provided flour, spices, provision items and four tins of oil as Livelihood Relief. The value was approximately 10.000 Rs. Jasminben restarted her businesses with the relief material. Later, Jasminben received a credit from AIDMI twice. She received her first credit of 5.000 Rs in 2004. She used it to enlarge her stock and variety of goods. In 2007 she was given a second credit of 10.000 Rs, which she invested in her oil and roti business. She repaid both credits within ten months. Thanks to the Livelihood Relief and microcredit, her

income has more than doubled and Jasminben could even start a savings account. Every month she is able to save 3.000 Rs and the amount on her savings account is 70.000 Rs. Furthermore she could afford a refrigerator for business use as well as for domestic use. Her business changed in different ways. Before the riots, she only had a small stock of goods to sell and today the stock is much larger. Furthermore, these days she produces rotis for two hotels in large quantities. Before the riots she produced for three hotels, but only in small quantities. Additionally, Jasminben is now very well-known by local people, her clientele has increased and because of her successful business, her relatives hold her in high esteem.

Jasminben is asking for another credit for the month following our visit, because next month is Ramsonmonth (Ramadan), the holy month for the Muslims. She will purchase cooking oil and flour to produce "Sevaija" (made from flour and milk), which will be bought by Muslim people. Jasminben's long-term plans are to move into a two-room house and to open a medium-size shop. The house should be located in the same community, because she and her business are well known by the residents. Jasminben still fears riots, but she feels less vulnerable than in 2002 because she has savings, and explained that if anything happens, she will take a loan to restart her business. Now she knows how to start a business. Jasminben hopes that in the event of any disaster, AIDMI will support her with a credit, because it is interest-free. Before the riots the family took a credit from SEWA Bank twice and they charged approximately 20% interest per year. Jasminben and her neighbour, who also once took a credit from the SEWA Bank, note that 20% interest is too high. Thus, both feel lucky to get loans interest-free from AIDMI.

Case study 9: Menaben Kanubhai Chunerai, Vatva

(Interview with Menaben Kanubhai Chunerai)

Menaben's work is a daily struggle. Together with her elder son, she sells vegetables on a hand lorry on the street. Selling fruits on a hand lorry is illegal and the vendors have to deal with the police who often confiscate their hand lorries and vegetables. This happens once or twice a month. Retrieving the hand lorry is time and money consuming. The hand lorry is often broken when Menaben gets it back and the repairs are expensive. Nevertheless, it is less expensive to demand the hand lorry from the police than to buy a new one, which would cost about 3.000 Rs. Menaben's income is low. She only earns 1.000 to 1.500 Rs a month, which has to be enough to support a family consisting of five people. As Menaben has no savings, she has to go into debt to buy the vegetables during slack business periods.

In 2006 Menaben's husband died. Because he was an Afat Vimo beneficiary, his wife received his life insurance, in total 20.000 Rs. She mainly used the money for the costs of the funeral process. With the rest of the sum, she bought a new hand lorry because her husband's had been confiscated by the police and Menaben's efforts to claim it back were unsuccessful.

Smaller disasters such as illness affect poor people's livelihoods significantly. When Menaben suffered from a severe cough and fever in 2003, she was not able to pay for the treatment herself. She could only afford the medical expenses with a credit of about 2,200 Rs from the Livelihood Relief Fund. After her husband's death Menaben took over his insurance. She wants to keep her insurance, not only because she is convinced of its importance but also because it connects her emotionally with her husband.

6.4.3 Work in the City of Kheda

Kheda is located 35 km southeast of Ahmedabad. AIDMI works in two communities in Kheda. The bigger one is called Indiranagar, named after Indira Gandhi. Under Indira Gandhi's reign, a government scheme was established to support poor people in many areas of India. All these places are named Indiranagar and one of them is in Kheda. Indiranagar in Kheda is an area at low altitude and therefore seriously affected by floods. In 2005, during the heavy rainfalls, a large amount of water was released from a nearby dam within a short time, affecting some areas of Kheda badly. Indiranagar, being a slum community situated below the river line, was severely hit by the flood: for one or two days the water was more than two meters high. After the 2005 flood AIDMI provided shelter relief, cash for work and Afat Vimo.

Besides the Indiranagar community, AIDMI is also engaged in the Hanumannagar community, a small community near Kheda. The houses are constructed in a very simple way, mainly out of mud and bricks and not out of hard material like cement or stone. The community is located on a very isolated slope. Thus, the community is often affected by sudden heavy rainfalls. After heavy rainfall and floods there is no way to escape to a safe place, because the water flows from the upper hill area through the community and floods the houses, and the lower area is already flooded. Currently 35 families and 135 people live in this community. Most people do labour work, especially in the agricultural sector during the crop season. The daily income of the agricultural labourers is about 30 Rs for a half-day (from seven o'clock until 12 o'clock) and 60 Rs for a full day. The field visit on which we met the beneficiaries was on 31st of July. The two people interviewed are both from the Hanumannagar community.

Case study 10: Maheshbhai, Hanumannagar

(Interview with Maheshbhai)

Maheshbhai has three children between ten and sixteen years of age who are all still going to school. Thus, together with his wife, there are five members in the family. Maheshbhai has been playing "Sarangi", a traditional wind instrument, for 20 years. He never learnt how to play it and he explained that he got the skills from a supernatural influence and pointed to the sky.

After the floods in 2005 Maheshbhai received drums and other band equipment as a Livelihood Relief from AIDMI. At that time there were four people playing in his band. Before the flood in 2005 he used to hire the instruments whenever he needed them. He had to pay 10 Rs per instrument; for an event the rent added up to nearly 50 Rs.

This year in May, Maheshbhai received a microcredit of 5,000 Rs from AIDMI, which he will repay in eleven instalments. With the money he bought new instruments and was able to enlarge his band. Currently he is the leader of a band with six people, but he dreams of enlarging it. There are four professional musicians and two interns in the band.

Usually they play music for marriage ceremonies. Thus, May and June is high season for them. With the Livelihood Relief and the microcredit, Maheshbhai's income has almost doubled compared to his income before the flood in 2005. Today Maheshbhai earns about 12,000 Rs during May and June when the band plays at marriage ceremonies. During the remaining ten months he does labour work, mainly agricultural labour and only earns about 4,000 Rs. Thus, his yearly income is about 16,000 Rs and his main source of income is his music business. Maheshbhai's wife goes to other households to do household work. Her income is between 200 and 300 Rs per month. Maheshbhai has plans for the future: he would like to expand his music business and purchase some more band equipment like a Casio-Keyboards, a harmonium, a microphone, a battery, loud speakers and a hand lorry. He also wants to hire six more people for the band. To achieve his dream Maheshbhai opened a savings account three months before our visit, when he received his first credit. Furthermore, he hopes to get a second credit, which he can invest in his music band.



Fig. 6.12 Maheshbhai.

Case study 11: Ramanbhai Rupabhai Nayak, Hanumannagar

(Interview with Ramanbhai Rupabhai Nayak)

Ramanbhai is 62 years old and therefore too old to be an Afat Vimo beneficiary. Because the risk of death increases as one gets older, Afat Vimo is only for people under the age of 60. Therefore, Ramanbhai's wife Maniben, who is 55 years old, is the policy holder, even though it is her husband who generates the main income of the family. Ramanbhai earns a living by selling clothes like shirts, pants, hosiery, and baby suits from house to house in the surrounding

villages. During the monsoon, his business does not go well, because all his clients are working in the fields. Therefore he works as an agricultural labourer during monsoon season.

Maniben is a housewife and only works casually in the fields. Like all the other families of the village, Maniben has been an Afat Vimo beneficiary since 2005. In a road accident in 2007 she suffered a fracture of the thigh. The expenses for the medical treatment of her accident were 6,500 Rs. Because they forgot to ask for a bill in the pharmacy, they had no proof of their expenses and only received insurance compensation of 1,500 Rs, which covered 25% of the expenses. They had to cover the rest of the expenses with their savings. Usually Afat Vimo covers medical expenses up to 25,000 Rs. If Ramanbhai had been able to prove all the expenses incurred by his wife's accident, he would have received 100% coverage. Ramanbhai and his wife learned a lesson from the incident and are now much more aware of what insurance covers and what conditions they need to fulfil in order to receive insurance compensation. At the moment they are satisfied with Afat Vimo and intend to renew it – at least for the next five years. After that, even Maniben will be too old to benefit from the insurance. As Ramanbhai and his wife only have one daughter who is married and lives with her husband's family, they will have no option other than to keep working – without any kind of social protection.

6.5

Conclusions

6.5.1

Conclusion regarding the impact of microcredit schemes on beneficiaries' lives

All the case studies show that microcredit is a very efficient and effective tool, not only to achieve poverty reduction, but also to mitigate disasters. The case studies in this report represent the variety and the success of AIDMI's microcredit beneficiaries very well. Fewer than ten out of 400 beneficiaries could not repay their credit so far. The different business ideas that could be realized thanks to Livelihood Relief and microcredit schemes are manifold: one beneficiary started a service and cleaning station for rickshaws, one changed from a sewing business to a more profitable dyeing business, one could enlarge his music band, one could buy a donkey-vehicle, one repaired his house and many other beneficiaries invested the loans in their small businesses. Most of them started or restarted their livelihood business from scratch after a disaster.

All beneficiaries who were visited could increase their income; sometimes their income and assets doubled or even tripled after they started participating. All participants are pleased with the microcredit scheme and for most of them it is the only possible way to obtain a loan. Not even local moneylenders seem to exist in the communities visited. Some of the beneficiaries, especially in urban areas such as Ahmedabad, had access to credit before they were supported

by AIDMI, but the interest rates were 25% per year or even higher. AIDMI charges no interest for the credit provided. Thus, the beneficiaries have more money left to develop their businesses and improve their standard of living. In addition to these financial aspects, microcredit schemes also affect other aspects of the beneficiaries' lives. Regarding the social aspects, some families started sending their children to school after they came in contact with AIDMI, and many beneficiaries mention an improvement of their social status. Because they managed to increase the economic success of their business, the participants became more recognised by more people, and even among their relatives their reputation was enhanced. The interview partners seemed to be proud of their business achievements as they spoke of their businesses and changes they had made, and they all had great plans for the future.

Most of the microcredit recipients are also members of Afat Vimo, AIDMI's microinsurance scheme. This combination makes a lot of sense. The beneficiaries have the certainty that their efforts and new assets are insured in the event of another disaster. Thus, through the combination with microinsurance, the investments made with microcredit become sustainable. AIDMI offers both microcredit and microinsurance to the poor through one organization, which saves costs and has a huge potential.

Currently, of the 15,000 people supported by Livelihood Relief, 4,000 became members of CCISB (Chamber of Commerce and Industries of Small Businesses), but only about 400 have received microcredit so far. Even though microcredit seems to be a successful and efficient tool in disaster mitigation, only a small percentage of possible recipients have benefitted from it. In contrast to this, there are more than 5,000 Afat Vimo members. As there are a lot of potential microcredit recipients, the microcredit scheme should be expanded. First, the Revolving Fund should be expanded in the communities where AIDMI is already active and closely connected to the local volunteers and people. Especially in Kheda, where there are only seven Revolving Fund beneficiaries, an expansion of the scheme is recommended. However, also in Bhuj and Ahmedabad, an expansion of the microcredit scheme makes sense. In communities where AIDMI is not so closely connected with the local people, the development of microcredit is only partly recommended, because of the necessary effort and costs. So local volunteers who know the local people must be introduced, knowledge about the beneficiaries must be collected and the amount of the Revolving Fund must be increased.

Furthermore, it is advisable to create a data bank in which all beneficiaries are properly listed. This data bank should be legible and understandable even for people from the outside. The data bank should be updated regularly. Such a data bank already exists for the Revolving Fund, but not for the Ahmedabad Building Peace and Protection Project. A data bank including all beneficiaries and amounts of microcredit can be helpful for data-analyses and to monitor the scheme. Moreover, updated data can be easily presented to other NGOs, media or donors to promote AIDMI's microcredit scheme.

The idea of introducing a small interest rate should be considered. By paying a small interest rate the beneficiaries could contribute to the operational costs of AIDMI and the funds from which credit is extended could be increased. A small

interest rate between five and ten percent yearly should be affordable for the beneficiaries. Compared to other microcredit schemes of commercial banks, the interest rate would still be low. Additionally, considering the inflation rate, the real interest rate would be about zero percent. Furthermore, as the beneficiaries have already been supported for free at least through Livelihood Relief, a sharing of the costs for a secondary support seems to be justifiable. However, the problem with the idea of introducing an interest rate is to communicate it to the beneficiaries. They will not understand why initially there was no interest, but now AIDMI is suddenly introducing an interest rate.

6.5.2

Conclusion regarding the impact of Afat Vimo on beneficiaries' lives

As shown in the case studies, the impact of Afat Vimo was different on each beneficiary's life. Five of the interviewed people had received insurance claims for the damage or loss of household assets. The coverage of the damage was estimated very differently. It varied between 75% (Sumitraben), 50% (Laljibhai), 40% (Jarinaben), and 30% (Karimaben). The reasons why the Afat Vimo beneficiaries estimated their damage coverage so differently could have various origins. For loss of food and other household items such as vessels or cloth, it is very difficult to state the real loss. Generally, the beneficiaries need to document their losses in order to receive the insurance claim. As the beneficiaries work in the informal sector and mostly do not have any written confirmation of the value of their assets (e.g. a receipt), it is very difficult for them to document the amount of the loss. Besides, they often forget that assets decrease in value with time. The insurance takes the depreciation into account whereas the beneficiaries might not do so. Interestingly, the two illiterate women (Karimaben and Jarinaben) both estimated their damage coverage to be lower than the literate beneficiaries.

Ramjanbhai, whose business was affected by a disaster, received an insurance payment which covered 40% of the damage. One reason for this was that he could not prove the exact loss of his stock of oil. The other important factor was that the water pump that was damaged was already several years old and the insurance took the depreciation into account.

Two of the case studies portrayed people who received insurance compensation for life assets. Menaben from Ahmedabad mainly invested the insurance payment from her husband's death in the funeral process and in a new hand lorry. It can be argued that the insurance compensation did not provide long term relief in her case. Nevertheless, it covered expenses she would not have been able to cover without the insurance, especially since she did not have savings. In Ramanbhai's case, whose wife had an accident, only 25% of the expenses were covered. Usually the coverage for accidents is 100% and up to an amount of 25,000 Rs. Without using his savings, he would not have been able to cover the expenses.

Afat Vimo had a positive impact on the lives of all the interviewed people. The money they received from the insurance was used to cover one part of

their damage or loss. To cover the other part of the damage, different strategies were used. Some of the interviewed people had to buy on credit or limit their expenses for a certain period; others had to use their savings. It can be stated that all beneficiaries were able to recover from the disasters and rebuild their own livelihoods. All of them were able to help themselves and did not need to depend on humanitarian aid provided by others. Afat Vimo is efficient in preventing the beneficiaries from an increase in poverty. However, insurance alone was not sufficient and other forms of coping with risks were necessary to overcome the disaster. Another important factor of Afat Vimo is that everyone who was interviewed was convinced of the benefits of the insurance. They all have felt safer since they have been carrying insurance and want to continue the insurance.

6.5.3

Conclusion regarding Afat Vimo's success in mitigating disasters for poor people in disaster affected areas

The first six case studies can be seen as successes. The insurance had a positive impact on all the interviewed people by providing assistance in covering the damage. However, it is doubtful that the last case study concerning Ramanbhai's wife's accident can be seen as a success. Due to a lack of information on the procedure of the insurance claim, they only received a small sum for the medical expenses, which would have been covered totally if the claim had been settled correctly. As this example shows, it is crucial, especially for illiterate people, to receive enough information about how insurance works. Particularly in the introduction phase of the insurance scheme, sufficient teaching is required.

As has been stated earlier in the paper, the main risks for poor people in South Asia are the loss of life, income and the loss or damage of livelihood assets, household assets, shelter, health, livestock and crops. Afat Vimo only covers some of these risks. Even though it provides protection against the loss or damage of shelter, livelihood and household assets, as well as the loss of life, it does not provide health insurance. The loss of crops and livestock can be neglected for the interviewed people, because they are not farmers. Only a few of the interviewed people in Bhuj possessed cattle (Jarinaben and Karimaben) but neither of them earned their living from keeping cattle.

Four of seven people had someone in the family who suffered from illness. Afat Vimo only covers medical expenses due to accidents but not due to illness. Therefore, only Ramanbhai's wife could benefit from the insurance as the fracture of her thigh was caused by an accident. The other three beneficiaries had to use other means to cover their medical expenses. The most common ways were to use private savings, to sell jewellery or to raise a credit. Sumitraben and Ramjanbhai both borrowed money from relatives. Additionally, Ramjanbhai also raised a credit from AIDMI's Revolving Fund in Bhuj. Menaben could only cover the expenses of her illness with a credit from AIDMI (without interest). Ramjanbhai's case shows how long it can take to recover from a disaster. He needed two years

for the repayment of his debts caused by his wife's illness. It must be stated that Afat Vimo is a successful disaster mitigation tool for many risks, but cannot provide protection against illness.

6.5.4

Conclusion on the potentials and the challenges of Afat Vimo

Afat Vimo has a great deal of potential. As shown in the case studies, it has helped to empower poor people who are excluded from other means of social security. The success of Afat Vimo can be seen from the high renewal rate of 88%. Also, Afat Vimo serves as a model for other microinsurance schemes. It has inspired other NGOs in Sri Lanka and Iran which intend to initiate similar schemes in their countries.

Besides the potentials, Afat Vimo also experiences challenges. As AIDMI is a relatively small NGO with 30 to 40 employees and Afat Vimo is only one of several programs, its capacities are limited. An expansion in Afat Vimo membership numbers would also mean a substantial increase in operating costs, at least in the beginning. Because Afat Vimo is a pilot project, a lot of resources are needed and it is difficult to gain support of the government or of international institutions.

6.6

Major findings and recommendations

6.6.1

Recommendations and findings regarding microcredit schemes

- AIDMI's microcredit scheme is an efficient and effective tool, not only to reduce poverty, but also to mitigate different kinds of disaster.
- The income and assets of all beneficiaries doubled or even tripled after they started participating.
- The beneficiaries mentioned improvements in social aspects and some of them started to send their children to school after they came in contact with AIDMI.
- Most beneficiaries have no access to loans, except for AIDMI's microcredit scheme. Even if they have access to other kinds of loans, the interest rates are generally very high (up to 50%).
- In combination with microinsurance, microcredit is highly sustainable, because the investment will not be lost again through another disaster. Thanks to AIDMI, both services are provided to the beneficiaries by a single organization, which save costs.
- All beneficiaries have great plans for the future and the development of their businesses.
- AIDMI's microcredit scheme is not as widespread as the Afat Vimo scheme. Therefore it should be expanded. There is a huge potential remaining.

- A proper and updated databank that is easily understandable even for people from outside AIDMI, which includes all the beneficiaries' data, should be created.
- The idea of introducing a small interest rate should be considered. Thus, the beneficiaries would contribute a little to the operational costs. An interest rate of between five and ten percent would actually (subtracting the inflation rate) be about zero percent.

6.6.2

Recommendations and findings regarding Afat Vimo as a microinsurance scheme

- **Spread the provision of microcredit schemes.** Afat Vimo should be combined with other forms of risk reduction. Because Afat Vimo only covers certain risks, it is crucial that poor people have the opportunity to raise credit (with low interest rates) if they are in need. Especially in the case of illness, the provision of microcredit is an important risk reduction tool. In every community in which Afat Vimo is offered, a microcredit scheme should be offered too.
- **Consider a provision of health insurance.** Because illness is a major risk especially for poor people who often cannot afford medical expenses, a provision of health insurance should be considered.
- **Offer life and accident insurance for the other breadwinners of the family.** Often there are several people generating a family's income. Usually, only the main breadwinner of the family carries insurance. This also insures the house and business as well as its assets. Therefore, the other breadwinner(s) of the family does/do not need an insurance that covers these assets. A life and accident insurance for the other income generator(s) of the family would be very useful. As this insurance would only cover two risks, the premium would be lower and should therefore be affordable.
- **Provide better information concerning the functioning of Afat Vimo to the beneficiaries.** As shown in the last case study, a lack of information can be the reason people do not benefit fully from their insurance. A better teaching of the beneficiaries is needed, especially for illiterate people.
- **Provide social protection for people over the age of 60.** For people over the age of 60 who can no longer be Afat Vimo beneficiaries, social protection should be offered. Maybe one should consider providing an insurance scheme which covers all disasters except death (as the premium would be too high if death was included). Another idea could be to develop a micro-retirement scheme. In this scheme poor people would pay a certain monthly amount to a pension and could benefit from it after the age of 60 or 65.

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7 Conclusions and lessons to be learned

Esther Gloor, Rita Schneider-Sliwa

The studies presented in this volume deal with the capacity of local communities to adapt to disaster risk. In particular, attention was given to partnership building between local communities and locally active NGOs and approaches implemented by households and communities to increase resilience to disaster occurrences. The studies focused on:

- Livelihood security strategies in the informal sector of disaster affected areas
- Effectiveness, problems and potentials of selected technical approaches
- Microcredit and micro insurance and their impact and effectiveness in securing livelihoods

All studies aimed at identifying and addressing the needs, capacities and preferences of the target groups. Use was made of subjective and objective means of data collection and analysis (case studies, interviews and participatory methods such as focus group discussion, problem tree, seasonal calendar or Venn diagram). The project also provided young Swiss professionals within the context of the Young Researchers' Programme of the Swiss Development Corporation (KFPE) opportunity to develop expertise in conceptualizing and designing fundable small-scale research on risk and poverty reduction of relevance for community-based NGO work. Furthermore, existing institutional links and partnerships with Indian community-based NGOs could be strengthened. For all three institutions involved, the combination of research in local communities and young professionals working with local community members proved to be a suitable means of fostering both human capital and the creative use of resources in development, as well as enhancing institutional and community capacities.

Several important aspects related to personal survival strategies, appropriate community-based development strategies and profiles of target groups emerged from the studies.

In a first part of this study portfolio, the two reports dealing with *livelihood security strategies* focused on communities in Tamil Nadu and Gujarat suffering from the impact of climate change from the view points of the agricultural and small businesses sectors. Both argue that community adaption is one of the key strategies to reduce poverty and risk.

Poor people in disaster-affected coastal areas in Tamil Nadu are heavily

impacted by climate change, and although they have noted changes in monsoon rainfall intensity and higher frequency of disasters, they do not seem to be aware of the long-term character of these phenomena. Hence, afflicted communities have not yet developed adaption strategies such as disaster and ecosystem management. Development efforts targeting the agricultural sector, be it from the government or NGOs, can raise awareness of climate change and initiate adaption strategy development by focusing on the individual or household level or on an entire community. It was argued here that a community approach to disaster management can help farmers to better utilize natural resources and ecological practices of traditional farming and fishing, and smoothen the way for changes concerning crop type or cultivation approach. Also, by diversifying livelihoods, strengthening possibilities of savings, developing microinsurance and microcredit systems and by organizing self-help groups, livelihoods could be sustained and enhanced.

By contrast, the second study report on the small business sector in Gujarat compared different approaches of disaster recovery of small businesses hit by various kinds of disasters. Different factors facilitating recovery could be identified, namely monetary security through insurances or savings, diversified sources of income within a household, or level of awareness and preparedness of owners of small businesses. Recovery of businesses affected by an earthquake and floods appeared to be faster than those affected by the 2002 community riots, an indication that resilience to socially induced disasters is weaker. The results of the report indicate that local NGOs and governmental organizations should work towards greater disaster awareness and preparedness of the poor population by promoting the adoption of microinsurance schemes and by paying special attention to communities affected by communal violence.

The second focus of the study portfolio presented here relates to *the effectiveness, problems and potentials of selected technical approaches to disaster mitigation*. Both immediate emergency response and long-term recovery were investigated. The study report on Emergency Response highlights effective tools for dealing with disasters based on a comparison of emergency response strategies of five local and global organizations (UN, IFRC, Oxfam, SEWA, AIDMI). Although all organizations investigated used different approaches in disaster management, all work together with the target population, know and respect the local context and employ well trained staff. The organizations also concentrated on raising preparedness and awareness of local communities before a possible disaster as well as supporting short-term and on long-term recovery after a disaster. In particular, the use of Response Units by the International Federation of Red Cross and Red Crescent Societies appeared to speed up response activities noticeably. However, such units are expensive to maintain and therefore not affordable for many organizations. Alternatively, effectiveness of response could be increased by use of an emergency response guideline defining aspects to be considered before, during and after a disaster, as well as by increased cooperation between organizations that know the local circumstances well and global organizations which have funds and material at their disposal.

With regards to long-term recovery of communities afflicted by disaster, cooperation again appears to be the key to greater effectiveness in disaster mitigation. The comparison of approaches used by three slum communities in Bhuj and Kheda to improve resilience after the floods of 2005 and 2007 showed that individual approaches were not as effective as a community-based approach. Community meetings, in particular, contributed towards improved information flow and greater cooperation of community members. The availability of a community centre, or similar, thus appears to be an important criterion in increasing long-term resilience of communities afflicted by disaster.

The third focus of the project was on *microcredit and microinsurance and their impact and effectiveness in securing livelihoods*. Using case study approaches and an analysis of the microfinance scheme by AIDMI (All India Disaster Mitigation Institute), the final report could show the positive impact of credit-free microfinance schemes on poor people with low income, particularly due to the opportunity created to start up a business. Most of the beneficiaries managed to repay the credit within some weeks or months. This meant not only an increase in their income, but often also a significant increase of the beneficiaries' social status within a community. Thus, microfinance schemes are both economic and social in nature, with the potential to affect not only individuals but whole communities.

Most of the microcredit beneficiaries were also beneficiaries of Afat Vimo, the microinsurance scheme of AIDMI, designed to help people to insure their new assets. The targeted positive impact of this microinsurance scheme was, of course, only felt after damage or loss when an insurance claim was paid out to a beneficiary. The critical point is that the insurance money provided was not sufficient to cover all costs. Thus, in addition to the money received from the insurance scheme, different strategies had to be applied in order to raise funds to rebuild a livelihood. All beneficiaries questioned were able to recover from the disaster in the end. Thus, microfinance schemes introduced with the aim of sustaining livelihoods can potentially be more effective from the point of view of disaster mitigation by offering a mix of microcredit and microinsurance.


In conclusion, the five reports presented here fulfill their function to highlight the processes involved in community-based development work on risk and poverty reduction, disaster resilience and capacity building. They emphasize the need for packages of complementary actions rather than individual measures to increase effectiveness and sustainability of disaster risk mitigation. Further, they indicate the importance of finding a balance between assistance provided by NGOs or governmental organizations like microfinance schemes, information on disaster awareness, preparedness or emergency response systems, and efforts and initiatives taken by the population concerned. The target population may have very few means but they generally know the local circumstances and may support the long-term effectiveness of a community-based approach best. The potential which lies in tapping into and raising the disaster awareness of the affected population is not to be underestimated. Further, financial schemes

tailored for disaster risk populations appear to be effective for disaster mitigation. Especially insurance schemes (individual, household or business) appear to have an enormous impact on time and scale of disaster recovery, without taking the positive psychological effects of making beneficiaries feel more prepared and safer into account. Finally, the reports confirm and encourage diversity in approaches to development cooperation but emphasise the need for analysis of the local context before selection and application of supportive tools and methods.


8 Appendix

8.1 Appendix chapter 3

8.1.1 Questionnaire in English



QUESTIONNAIRE:
DISASTER RECOVERY OF SMALL BUSINESSES



ALL INDIA DISASTER MITIGATION INSTITUTE

Date of interview: _____ District/city: _____ Initials of interviewer: _____

PERSONALITIES AND HOUSEHOLD COMPOSITION

A1 Name of the person interviewed: _____ A2 Gender of the person interviewed: 1 ☐ female 2 ☐ male

A3 To which community /area do you belong? _____

A4 Is your household below Poverty Line (BPL)?
 1 ☐ yes
 2 ☐ no
 3 ☐ I do not know

A5 How many members are in your family? _____

A6 How many members in your household are female? _____

A7 How many members in your household are male? _____

The following questions are about the household composition. Please circuit the correct number.

A8 Household Composition	A8.1 Age	A8.2 Education grade completed	A8.3 Contribution to family income (monthly)	A8.4 From which sources did your household receive income in the last year?
	1 - uneducated; 2 - primary; 3 - middle school; 4 - secondary; 5 - higher education (college, university)	1 - unemployed; 2 - 100 to 1000; 3 - 1001 to 2500; 4 - 2501 to 5000; 5 - 5001 to 7000; 6 - 7001 and more	1 - job; 2 - small business; 3 - labour work; 4 - Livestock breeding; 5 - service provision (e.g. Auto Rickshaw, tailoring, plumbing, electrician, doing the laundry, etc.); 6 - money received on a regular basis from somebody living and working abroad; 7 - other; 8 - n/a	
Self	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Husband	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Wife	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Grandfather	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Grandmother	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Child 1	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Child 2	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Child 3	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Other	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Other	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8

A9	Own living place (flat/house)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no (rented)	3 <input type="checkbox"/> illegal
A9.1	Size of Living Place (sq ft, floors)			
A10	Land in sqm			
A11	Livestock	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A12	Car, truck, tractor, motorbike, bicycle or Auto Rickshaw	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A13	Cell phone	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A14	TV	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A15	Refrigerator	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A16	Food Storage System	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
A16	Total income of the family per month (in Rupees)			

BUSINESS INFORMATION

B1 What kind of business do you have? _____

B2 For how many years have you been doing this business?
 1 ☐ < 1 year
 2 ☐ 1-2 years
 3 ☐ 3-4 years
 4 ☐ 5-6 years
 5 ☐ > 6 years
 6 ☐ No answer

B3 What did you do before this business in order to make a living? (only one answer, please)
 1 ☐ job
 2 ☐ Small business, namely: _____
 3 ☐ Labour work
 4 ☐ Livestock breeding
 5 ☐ Service provision (e.g. Auto Rickshaw, tailoring, plumbing, electrician, doing the laundry, etc.)
 6 ☐ Other, namely: _____
 7 ☐ No answer

B4 How many times was your business hit by a disaster in the last 8 years?
 1 ☐ Once
 2 ☐ Twice
 3 ☐ Three times
 4 ☐ More, namely: _____
 5 ☐ Not affected
 6 ☐ No Answer

B5 By what kind of disaster(s) and when was your business hit? (multiple answer possible)
 1 ☐ Earthquake, year(s): _____
 2 ☐ Flood, year(s): _____
 3 ☐ Riots, year(s): _____
 4 ☐ Other, namely: _____
 5 ☐ No Answer

B6 (If same business as before the disaster) Is your business situated in the same place as before the disaster?
 1 ☐ yes 2 ☐ no 3 ☐ No answer

B7 Is your business in a fix place or mobile?
 1 ☐ Yes, namely (e.g. main road, crossroad, side street) _____
 2 ☐ No
 3 ☐ No answer

B7.1 If yes, how many rooms does your business have? _____

B7.2 If yes, how many sq ft does your business cover? _____

B8 How many hours are you walking or driving every day in order to maintain your business (e.g. buying goods or other needs, if mobile in order to sell goods or service)?
 1 ☐ < 1 hour
 2 ☐ 1-3 hours
 3 ☐ 4-6 hours
 4 ☐ > 6 hours
 5 ☐ No answer

B9 Do you have a fix clientele?
 1 ☐ yes 2 ☐ no 3 ☐ Don't know 4 ☐ No answer

B10 How many units are you selling every day (e.g. kg of vegetables, rickshaw rides etc.)? _____

B11 From which community do people come in order to profit from your business / service?

- 1 ☐ Same community
 2 ☐ Neighbour community, namely: _____
 3 ☐ From other place of the city, namely: _____
 4 ☐ No answer

DISASTER RECOVERY, BUSINESS CONTINUITY AND BUSINESS RESILIENCE

C1 Please describe how you and your business were affected during the disaster and during the 1st week after the disaster.

C2 Please describe how you and your business were affected in long-term.

What was/is your average daily income in Rupees before the disaster, right after the disaster and today?

C3 Daily income before the disaster	C4 Daily income 1 month after the disaster	C5 Daily income today
1 <input type="checkbox"/> < 50 Rupees	1 <input type="checkbox"/> < 50 Rupees	1 <input type="checkbox"/> < 50 Rupees
2 <input type="checkbox"/> 51-100 Rupees	2 <input type="checkbox"/> 51-100 Rupees	2 <input type="checkbox"/> 51-100 Rupees
3 <input type="checkbox"/> 101-150 Rupees	3 <input type="checkbox"/> 101-150 Rupees	3 <input type="checkbox"/> 101-150 Rupees
4 <input type="checkbox"/> 151-200 Rupees	4 <input type="checkbox"/> 151-200 Rupees	4 <input type="checkbox"/> 151-200 Rupees
5 <input type="checkbox"/> 201-250 Rupees	5 <input type="checkbox"/> 201-250 Rupees	5 <input type="checkbox"/> 201-250 Rupees
6 <input type="checkbox"/> > 250 Rupees	6 <input type="checkbox"/> > 250 Rupees	6 <input type="checkbox"/> > 250 Rupees
7 <input type="checkbox"/> No answer	7 <input type="checkbox"/> No answer	7 <input type="checkbox"/> No answer

C6 How much money are you able to save every month at present time?

- 1 ☐ < 100 Rupees
 2 ☐ 101-250 Rupees
 3 ☐ 251-400 Rupees
 4 ☐ 401-550 Rupees
 5 ☐ 551-700 Rupees
 6 ☐ > 700 Rupees
 7 ☐ No answer

How many employees did you have before the disaster, right after the disaster and today?

C7 No. of employees before the disaster	C8 No. of employees 1 month after the disaster	C9 No. of employees today
1 <input type="checkbox"/> 0 employees	1 <input type="checkbox"/> 0 employees	1 <input type="checkbox"/> 0 employees
2 <input type="checkbox"/> 1 employee	2 <input type="checkbox"/> 1 employee	2 <input type="checkbox"/> 1 employee
3 <input type="checkbox"/> > 1 employees	3 <input type="checkbox"/> > 1 employees	3 <input type="checkbox"/> > 1 employees
4 <input type="checkbox"/> No answer	4 <input type="checkbox"/> No answer	4 <input type="checkbox"/> No answer

C10 Do you have insurance for your household?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C10.1 If yes, since how long have you had insurance?

- 1 ☐ < 1 year
 2 ☐ 1-2 years
 3 ☐ 3-4 years
 4 ☐ 5-6 years
 5 ☐ > 6 years
 6 ☐ No answer

C10.2 If yes, what kind of insurance? _____

C11 Do you have business insurance?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C11.1 If yes, since how long have you had business insurance?

- 1 ☐ < 1 year
 2 ☐ 1-2 years
 3 ☐ 3-4 years
 4 ☐ 5-6 years
 5 ☐ > 6 years
 6 ☐ No answer

C12 Did you get livelihood relief (LRF) by DMI in the past?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C12.1 If yes, for which disaster / part of the disaster (e.g. Kheda floods 2005)? _____

C12.2 If yes, how much was the support you received?

- 1 ☐ < 2000 Rupees
 2 ☐ 2001-3000 Rupees
 3 ☐ 3001-4000 Rupees
 4 ☐ 4001-5000 Rupees
 5 ☐ > 5000 Rupees
 6 ☐ No answer

C12.3 If yes, what is the current value of livelihood asset today?

- 1 ☐ < 2000 Rupees
 2 ☐ 2001-4000 Rupees
 3 ☐ 4001-6000 Rupees
 4 ☐ 6001-8000 Rupees
 5 ☐ > 8000 Rupees
 6 ☐ No answer

C13 Was there any kind of disaster preparedness for your business before the disaster?

- 1 ☐ Disaster recovery plan

2 ☐ Others, namely: _____

- 3 ☐ No answer

C14 Did you take loans before the disaster?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C14.1 If yes, by whom?

- 1 ☐ Relatives / neighbours
 2 ☐ Private money lender
 3 ☐ Bank / financial institute
 4 ☐ government
 5 ☐ Micro credit, by: _____
 6 ☐ No answer

C14.2 If yes, what was the monthly rate? (in Rupees) _____

C15 Did you take loans at any time after the disaster?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C15.1 If yes, by whom?

- 1 ☐ Relatives / neighbours
 2 ☐ Private money lender
 3 ☐ Bank / financial institute
 4 ☐ government
 5 ☐ Micro credit, by: _____
 6 ☐ No answer

C15.2 If yes, what was the monthly rate? (in Rupees) _____

C15.3 If yes, was it helpful to improve your business?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

C15.4 If yes, in which way?

- 1 ☐ Better infrastructure
 2 ☐ More monthly savings
 3 ☐ Higher income
 4 ☐ Other, namely: _____
 5 ☐ Don't know
 6 ☐ No answer

C16 What would you describe to be the main personal strategies for the business to survive the disaster and to recover from the disaster? What reasons contributed to you and your business to survive? What reasons made it difficult?

BUSINESS PERSPECTIVES

D1 Do you think your community might be hit by another disaster in the future?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

D1.1 If yes, what kind of disasters?

- 1 ☐ Earthquake
 2 ☐ Draught
 3 ☐ Tempest
 4 ☐ Floods
 5 ☐ Riots
 6 ☐ Other, namely: _____

D2 Do you think your business would be resistant against any kind of disasters?

- 1 ☐ Yes, without damage 2 ☐ Yes, but with light damage 3 ☐ Yes, with high damage 4 ☐ no 5 ☐ No answer

D2.1 If yes, why?

- 1 ☐ New building standards since the last disaster happened (e.g. paca instead of kacha etc.)
 2 ☐ Enough personal money savings since the last disaster happened, provided for disaster recovery
 3 ☐ Due to any kind of insurance
 4 ☐ Other, namely: _____
 5 ☐ No answer

D2.2 If no, why not?

- 1 ☐ Not enough money/ savings
 2 ☐ Not enough building security for business
 3 ☐ No insurance
 4 ☐ Other, namely: _____
 5 ☐ No answer

D3 Have you ever had the possibility to get information on disaster preparedness (information meeting etc.)?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

D3.1 If yes, from whom and how?

D3.2 If no, would you attend an information meeting here in your community talking about disaster preparedness?

- 1 ☐ yes 2 ☐ no 3 ☐ No answer

D3.3 Why?

Thank you☺

8.1.2 Questionnaire in Gujarati



ઓલ ઇન્ડિયા કિઝાર્સર મિડિગેશન ઇન્સ્ટિટ્યુટ

પ્રસ્તાવલી
નાના ધંધાઓમાં આફત પુનઃપ્રાપ્તિ



UNEP
BASEL

મુલાકાતની તારીખ : _____ જિલ્લો/શહેર : _____ મુલાકાત લેનારનું નામ : _____

HOUSEHOLD COMPOSITION

કુટુંબનું બંધારણ

એ ૧ વ્યક્તિનું નામ _____

એ ૨. લીંગ _____

(૧) સ્ત્રી ☐

(૨) પુરુષ ☐

એ ૩ તમે કયા સમુદાય/વિસ્તારમાં રહો છો? _____

એ ૪ તમે વરીબીરિયાની નીચે રહેનારા લોકોમાં આવો છો?

૧ ☐ હા

૨ ☐ ના

૩ ☐ બંધર નથી

એ. ૫ આપના કુટુંબમાં કુલ કેટલા સભ્યો છે? _____

એ ૬ આપના કુટુંબમાં બહેનો/સ્ત્રીઓ કેટલી છે? _____

એ ૭ આપના કુટુંબમાં પુરુષો કેટલા છે? _____

નીચેનું કોષ્ટક કુટુંબના વધારાને સંબંધિત છે. વ્યક્તિને આપેલ નંબરમાંથી જવાબ મુજબ નંબર પર ગોળ કરવું.

એ ૮ કુટુંબનું બંધારણ	એ ૮.૧ ઉંમર	એ ૮.૨ ભણતર	એ ૮.૩ કોટ્ટેબ્લિક આવકમાં ભાગ	એ ૮.૪ ગયા વર્ષે ઘરના સભ્યની આવકનો સોત કયો હતો?
	(૧) અભણ (૨) પ્રાથમિક ધો. ૧-૫ (૩) ધો. ૬-૭ (૪) ધોરણ-૮ થી ૧૨ (૫) કોલેજ અને વધુ	(૧) બેરોજગાર (૨) માસિક ૧૦૦થી ૧૦૦૦ (૩) ૧૦૦થી ૨૦૦૦ (૪) ૨૦૦૧થી ૫૦૦૦ (૫) ૫૦૦૧થી ૭૦૦૦ (૬) ૭૦૦૦થી વધુ	(૧) નોકરી (૨) નાનો ધંધો (૩) મજૂરી (૪) ડોર-ટોબર/ મરથા ઉછેર (૫) ધંધાકીય સેવા (રિક્ષા, સ્વિચલકામ, પ્લમ્બિંગ, ઈલેક્ટ્રિશિયન, ઈસ્ટ્રીકામ (૬) બહારગામ રહેનાર ઘરની વ્યક્તિ પૈસા મોકલે છે (૭) અન્ય (૮) લાગુ પડતું નથી	
પોતે	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
પતિ	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
પત્ની	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
દાદા	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
દાદી	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
સંતાન-૧	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
સંતાન-૨	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
સંતાન-૩	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
અન્ય	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮
અન્ય	૧ ૨ ૩ ૪ ૫	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬	૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮

એલ	પોતાનું ઘર	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના (બાડાનું)	<input type="checkbox"/>	નેરકાયદેસર
એલ.૧	ઘરનો વિસ્તાર (વર્ગ, ફૂટ, ભોંયતળિયું)						
અ૧૦	જમીન (વર્ગ મીટર)						
અ૧૧	ઘોર-ઘોખર (મરથા)	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૨	કાર, ટ્રક, ટ્રેક્ટર, બાર્ડક, સાયકલ અથવા રિશ્મા	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૩	મોબાઈલ	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૪	ટી.વી.	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૫	ફ્રિજ	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૬	ખોરાક સંગ્રહની વ્યવસ્થા	<input type="checkbox"/>	હા	<input type="checkbox"/>	ના		
અ૧૭	કુટુંબની કુલ માસિક આવક						

ધંધાની માહિતી

બી૧ તમે કયા પ્રકારનો ધંધો કરો છો? _____

બી૨ તમે આ ધંધો કેટલા વર્ષોથી કરો છો?

- ☐ ૧ વર્ષથી ઓછા સમયથી
☐ ૧-૨ વર્ષથી
☐ ૩-૪ વર્ષથી
☐ ૫-૬ વર્ષથી
☐ ૬થી વધુ વર્ષથી
☐ ખ્યાલ નથી

બી૩ રોજગારી માટે આ ધંધા પહેલાં તમે શું કરતા હતા? (કોઈપણ એક જવાબ)

- ☐ નોકરી
☐ નાનો ધંધો જેમ કે, _____
☐ મજૂરી
☐ પશુપાલન
☐ ધંધાકીય સેવા (દા.ત. રિશ્મા, સિલાઈકામ, પ્લમ્બિંગ, ઈલેક્ટ્રિશિયન, ઈસ્વીકામ વગેરે)
☐ અન્ય, જેમ કે _____
☐ કંઈ નહીં

બી૪ છેલ્લા ૮ વર્ષોમાં તમારા ધંધા પર કેટલી વાર કોઈ આકતની અસર થઈ છે?

- ☐ એક વાર
☐ બે વાર
☐ ત્રણ વાર
☐ વધુ, વર્ષો જણાવો _____
☐ અસર થઈ નથી
☐ ખ્યાલ નથી

બી૫ કઈ આકત (આકતો)ની કયા વર્ષમાં તમારા ધંધા પર અસર થઈ? (એકથી વધુ જવાબ શક્ય છે)

- ☐ ભૂકંપ, વર્ષ _____
☐ પૂર, વર્ષ _____
☐ રમખાણ, વર્ષ _____
☐ અન્ય નામ જણાવો, વર્ષ _____
☐ ખ્યાલ નથી

બી૬ (આકત પહેલાંનો જ ધંધો હાલ ચાલુ હોય તો) આકત પહેલાં તમે જ્યાં ધંધો કરતા હતાં ત્યાં જ હાલ ધંધો કરો છો?

- ☐ હા ☐ ના ☐ ખ્યાલ નથી

બી૭ તમારા ધંધાનું સ્થળ ચોક્કસ સ્થાને છે કે ફરતું છે?

- ☐ હા, સ્થળ (દા.ત. મુખ્ય રસ્તો, ચાર રસ્તા, ગલી) _____
☐ ના
☐ ખ્યાલ નથી

બી૭.૧ જો હા, તો ધંધાકીય સ્થળે કેટલા ઓરડા છે?

બી૭.૨ જો હા, તો ધંધાકીય સ્થળ કેટલા વર્ગ/ફૂટમાં છે? _____

બી૮ તમારા ધંધાથે તમે રોજના કેટલા કલાક ચાલો છો કે વાહન ચલાવો છો? (દા.ત. વસ્તુ કે અન્ય ચીજ ખરીદવા, જો ધંધાની જગ્યા નક્કી ન હોય તો વસ્તુ વેચવા કે ધંધાકીય સેવા માટે)

- ☐ ૧ કલાક કરતાં ઓછો સમય
☐ ૧-૩ કલાક
☐ ૪-૬ કલાક
☐ ૬થી વધુ કલાક
☐ ખ્યાલ નથી

બી૯ તમારા બાંધેલા ગ્રાહકો છે?

- ☐ હા ☐ ના ☐ ખ્યાલ નથી ☐ જવાબ ના આપ્યો

બી૧૦ રોજનું જથ્થાનું વેચાણ થાય છે? (દા.ત. શાકભાજી કિ.ગ્રા.માં, રિશ્માના કેરા વિ.) _____

બી૧૧ તમારી પાસેથી કયા વિસ્તારનાં લોકો ખરીદી કરે છે?

- ☐ મારા જ વિસ્તારનાં
☐ આસપાસનાં વિસ્તારનાં, જેમ કે, _____
☐ શહેરનાં અન્ય વિસ્તારમાંથી, જેમ કે, _____
☐ ખ્યાલ નથી

આકત પુનઃપ્રાપ્તિ, ધંધામાં સાતત્ય અને ધંધાની સલામતી

સી૧ આકત અને તેના એક અઠવાડિયા બાદ તમારા અને તમારા ધંધા ઉપર કેવી અસર પડી હતી તે જણાવો

સી૨ તમારા અને તમારા ધંધા ઉપર લાંબા ગાળાની શું અસરો થઈ હતી તે જણાવો.

તમારી આકત પહેલાં, આકત બાદ અને હાલની રોજની સરેરાશ આવક કેટલી?

સી૩ આકત પહેલાં રોજની આવક	સી૪ આકતના એક માસ બાદની રોજની આવક	સી૫ હાલની રોજની આવક
<input type="checkbox"/> ૧૫૦ રૂપિયા સુધી	<input type="checkbox"/> ૧૫૦ રૂપિયા સુધી	<input type="checkbox"/> ૧૫૦ રૂપિયા સુધી
<input type="checkbox"/> ૧૫૧-૧૦૦ રૂપિયા	<input type="checkbox"/> ૧૫૧-૧૦૦ રૂપિયા	<input type="checkbox"/> ૧૫૧-૧૦૦ રૂપિયા
<input type="checkbox"/> ૧૦૧-૧૫૦ રૂપિયા	<input type="checkbox"/> ૧૦૧-૧૫૦ રૂપિયા	<input type="checkbox"/> ૧૦૧-૧૫૦ રૂપિયા
<input type="checkbox"/> ૧૫૧-૨૦૦ રૂપિયા	<input type="checkbox"/> ૧૫૧-૨૦૦ રૂપિયા	<input type="checkbox"/> ૧૫૧-૨૦૦ રૂપિયા
<input type="checkbox"/> ૨૦૧-૨૫૦ રૂપિયા	<input type="checkbox"/> ૨૦૧-૨૫૦ રૂપિયા	<input type="checkbox"/> ૨૦૧-૨૫૦ રૂપિયા
<input type="checkbox"/> ૨૫૦ રૂપિયાથી વધુ	<input type="checkbox"/> ૨૫૦ રૂપિયાથી વધુ	<input type="checkbox"/> ૨૫૦ રૂપિયાથી વધુ
<input type="checkbox"/> ખ્યાલ નથી	<input type="checkbox"/> ખ્યાલ નથી	<input type="checkbox"/> ખ્યાલ નથી

સીક હાલમાં માસિક તમે કેટલા રૂપિયા બચાવી શકો છો?

- ૧ ☐ ૧૦૦ રૂપિયા સુધી
 ૨ ☐ ૧૦૧-૨૫૦ રૂપિયા
 ૩ ☐ ૨૫૧-૪૦૦ રૂપિયા
 ૪ ☐ ૪૦૧-૫૫૦ રૂપિયા
 ૫ ☐ ૫૫૧-૭૦૦ રૂપિયા
 ૬ ☐ ૭૦૦ રૂપિયાથી વધુ
 ૭ ☐ ખ્યાલ નથી

આકૃત પહેલાં, આકૃત બાદ અને હાલમાં તમારા ધંધામાં કેટલાં કાર્યકરો કામ કરતા હતાં?

સીક આકૃત પહેલાં કાર્યકરોની સંખ્યા	સીક આકૃતના એક મહિના બાદ કાર્યકરોની સંખ્યા	સીક હાલ કાર્યકરોની સંખ્યા
૧ <input type="checkbox"/> ૦ કાર્યકર	૧ <input type="checkbox"/> ૦ કાર્યકર	૧ <input type="checkbox"/> ૦ કાર્યકર
૨ <input type="checkbox"/> ૧ કાર્યકર	૨ <input type="checkbox"/> ૧ કાર્યકર	૨ <input type="checkbox"/> ૧ કાર્યકર
૩ <input type="checkbox"/> ૧થી વધુ કાર્યકર	૩ <input type="checkbox"/> ૧થી વધુ કાર્યકર	૩ <input type="checkbox"/> ૧થી વધુ કાર્યકર
૪ <input type="checkbox"/> ખ્યાલ નથી	૪ <input type="checkbox"/> ખ્યાલ નથી	૪ <input type="checkbox"/> ખ્યાલ નથી

સી૧૦ તમારા કુટુંબનો વીમો છે?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૦.૧ જો હા, તો કેટલા વર્ષથી વીમો છે?

- ૧ ☐ ૧ વર્ષ કરતાં ઓછા સમયથી
 ૨ ☐ ૧-૨ વર્ષથી
 ૩ ☐ ૩-૪ વર્ષથી
 ૪ ☐ ૫-૬ વર્ષથી
 ૫ ☐ ૬ કરતાં વધારે વર્ષથી
 ૬ ☐ ખ્યાલ નથી

સી૧૦.૨ જો હા, તો કયા પ્રકારનો વીમો છે? _____

સી૧૧ તમારા ધંધાનો વીમો છે?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૧.૧ જો હા, તો કેટલા વર્ષોથી છે?

- ૧ ☐ ૧ વર્ષ કરતાં ઓછા સમયથી
 ૨ ☐ ૧-૨ વર્ષથી
 ૩ ☐ ૩-૪ વર્ષથી
 ૪ ☐ ૫-૬ વર્ષથી
 ૫ ☐ ૬ કરતાં વધારે વર્ષથી
 ૬ ☐ ખ્યાલ નથી

સી૧૨ શું તમને ભૂતકાળમાં એ.આઈ.ડી.એમ.આઈ. તરફથી રોજગારીની મદદ મળી હતી?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૨.૧ જો હા, તો કઈ આકૃત બાદ / દરમિયાન (દા.ત. ખેડ પૂર ૨૦૦૫) _____

સી૧૨.૨ જો હા, તો તમને રોજગારીની કેટલી મદદ મળી હતી?

- ૧ ☐ ૨૦૦૦ રૂપિયા સુધી
 ૨ ☐ ૨૦૦૧-૩૦૦૦ રૂપિયા
 ૩ ☐ ૩૦૦૧-૪૦૦૦ રૂપિયા
 ૪ ☐ ૪૦૦૧-૫૦૦૦ રૂપિયા
 ૫ ☐ ૫૦૦૦ રૂપિયાથી વધુ
 ૬ ☐ ખ્યાલ નથી

સી૧૨.૩ જો હા, તો હાલ તમારી ધંધાની મૂડી કેટલી છે?

- ૧ ☐ ૨૦૦૦ રૂપિયા સુધી
 ૨ ☐ ૨૦૦૧-૪૦૦૦ રૂપિયા
 ૩ ☐ ૪૦૦૧-૬૦૦૦ રૂપિયા
 ૪ ☐ ૬૦૦૧-૮૦૦૦ રૂપિયા
 ૫ ☐ ૮૦૦૦ રૂપિયાથી વધુ
 ૬ ☐ ખ્યાલ નથી

સી૧૩ આકૃત પહેલાં તમારા ધંધા માટે કોઈ પૂર્વતૈયારી કરી હતી?

- ૧ ☐ આકૃત પુનઃપ્રાપ્તિનું આયોજન

- ૨ ☐ અન્ય, જેમ કે _____

- ૩ ☐ ખ્યાલ નથી

સી૧૪ આકૃત પહેલાં તમે લોન લીધી હતી?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૪.૧ જો હા, તો કોની પાસેથી?

- ૧ ☐ સગાસંબંધી/પડોશી/મિત્રો
 ૨ ☐ શાહુકાર પાસેથી
 ૩ ☐ બેંક/નાણાકીય સંસ્થા પાસેથી
 ૪ ☐ સરકાર પાસેથી
 ૫ ☐ સૂક્ષ્મ વિરાણ, સંસ્થાનું નામ _____
 ૬ ☐ ખ્યાલ નથી

સી૧૪.૨ જો હા, તો માસિક કેટલા દરે? (રૂપિયામાં) _____

સી૧૫ આકૃત બાદ તમે ક્યારેય લોન લીધી હતી?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૫.૧ કક્ક ઇંચ, ફ્લ દરબ?

- ૧ ☐ સગાસંબંધી/પડોશી/મિત્રો
 ૨ ☐ શાહુકાર પાસેથી
 ૩ ☐ બેંક/નાણાકીય સંસ્થા પાસેથી
 ૪ ☐ સરકાર પાસેથી
 ૫ ☐ સૂક્ષ્મ વિરાણ, સંસ્થાનું નામ _____
 ૬ ☐ ખ્યાલ નથી

સી૧૫.૨ જો હા, તો માસિક કેટલા દરે? (રૂપિયામાં) _____

સી૧૫.૩ જો હા, તો ધંધો સારો ચલાવવા માટે તે મદદરૂપ થઈ હતી?

- ૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

સી૧૫.૪ જો હા, તો કેવી રીતે?

- ૧ ☐ વધુ સારા ધંધાકીય સ્થળ માટે
 ૨ ☐ વધુ બચત માટે
 ૩ ☐ વધુ સારી આવક માટે
 ૪ ☐ અન્ય, જેમ કે, _____
 ૫ ☐ ખ્યાલ નથી
 ૬ ☐ જવાબ નથી

સી.૧.૬ આકતમાંથી બચવા અને પુનઃપ્રાપ્તિ માટે વ્યક્તિગત વ્યૂહરચનામાં મુખ્ય કઈ ભાજનો આવી શકે? તમે અને તમારો ધંધો આકતની અસરમાંથી કેવી રીતે બચી શક્યા? કયા કારણોથી મુશ્કેલી પડી?

ધંધાકીય પાસાં

ડી.૧ તમારી દુકાનને તમારા વિસ્તાર પર ભવિષ્યમાં આકતનું જોખમ છે?

૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

ડી.૧. જો હા, તો કઈ આકતો?

૧

૧ ☐ ભૂકંપ

૨ ☐ કૃદાળ

૩ ☐ વાવાઝોડું

૪ ☐ પૂર

૫ ☐ રમખાણ

૬ ☐ અન્ય, જણાવો

ડી.૨ તમારી દુકાનને તમારો ધંધો કોઈપણ આકત સામે સલામત છે?

૧ ☐ હા, નુકસાન વગર ૨ ☐ હા, પણ થોડા નુકસાન સાથે ૩ ☐ હા, ભારે નુકસાન સાથે ૪ ☐ ના ૫ ☐ ખ્યાલ નથી

☐

ડી.૨. જો હા, તો કેમ?

૧

૧ ☐ છેલ્લી આકત બાક સલામત ભોંયકામ (ફા.ત. કાચામાંથી પાકું મકાન)

૨ ☐ આકત પુનઃપ્રાપ્તિમાંથી મળેલ પૈસામાંથી પુરતા પૈસા બચાવેલા છે

૩ ☐ લીમો લીધો છે માટે

૪ ☐ અન્ય, જેમ કે,

૫ ☐ ખ્યાલ નથી

ડી.૨ જો ના, તો શા માટે?

૧ ☐ પુરતા પૈસા/બચત નથી

૨ ☐ ધંધા માટે મકાન સલામત નથી

૩ ☐ લીમો નથી

૪ ☐ અન્ય, જણાવો

૫ ☐ ખ્યાલ નથી

ડી.૩ તમને આકત સામે પૂર્વતૈયારી માટેની ક્યારેય માહિતી મળેલી છે?

૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

ડી.૩.૧ જો હા, તો કોના દ્વારા અને કેવી રીતે?

ડી.૩.૨ જો ના, તો તમારા વિસ્તારમાં આકત સામે પૂર્વતૈયારીની માહિતી કોઈ આપે તો તમે તેમાં ભાગ લેશો?

૧ ☐ હા ૨ ☐ ના ૩ ☐ ખ્યાલ નથી

ડી.૩.૩ શા માટે?

આભાર☺

8.2 Appendix chapter 5

Questionnaire in English



ALL INDIA DISASTER MITIGATION INSTITUTE

**INTERNSHIP QUESTIONNAIRE:
FLOOD AFFECTED COMMUNITIES**


UNIBASEL

Date of interview: _____ District/city: _____ Initials of interviewer: _____

HOUSEHOLD COMPOSITIONA1 Name of the person interviewed: _____ A2 Gender of the person interviewed: 1 ☐ female 2 ☐ male

A3 To which community / area do you belong? _____

A4 How many members are in your family? _____

A5 How many members in your household are female? _____

A6 How many members in your household are male? _____

The following questions concern the household composition. Please circuit the matching number.

A7 Household Composition	A8 Age	A9 From which sources did your household receive income in the last year? <i>1 - job; 2 - small business; 3 - labour work; 4 - Livestock breeding; 5 - service provision (e.g. Auto Rickshaw, tailoring, plumbing, electrician, doing the laundry, etc.); 6 - money received on a regular basis from somebody living and working abroad; 7 - other; 8 - n/a</i>
Self		1 2 3 4 5 6 7 8
Husband		1 2 3 4 5 6 7 8
Wife		1 2 3 4 5 6 7 8
Grandfather		1 2 3 4 5 6 7 8
Grandmother		1 2 3 4 5 6 7 8
Child 1		1 2 3 4 5 6 7 8
Child 2		1 2 3 4 5 6 7 8
Child 3		1 2 3 4 5 6 7 8
Other		1 2 3 4 5 6 7 8
Other		1 2 3 4 5 6 7 8

HOUSEHOLD ASSETS

B1	Own living place (flat/house)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no (rented)	3 <input type="checkbox"/> illegal
B1.1	Height of building (in ft)			
B1.2	Type of Living Place	1 <input type="checkbox"/> pacca	2 <input type="checkbox"/> kachcha	3 <input type="checkbox"/> other
B1.3	Sink / Drainage	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
B2	Water tab	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
B3	Livestock	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
B4	Home based Business	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
B4.1	Kind of business			
B7	Total income of the household per month (in Rupees)			
B8	Toilet	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no	
B8	Type of household	1 <input type="checkbox"/> joint family	2 <input type="checkbox"/> core family	3 <input type="checkbox"/> other

2005 FLOOD - HOUSEHOLD & ECONOMIC AFFECTIO:C1 Has your house been damaged by the flood in 2005? 1 ☐ yes 2 ☐ no

C2 What degree of destruction did your house suffer from after the flood in 2005?

- 1 ☐ No Destruction
 2 ☐ Slight Destruction (flooded floor)
 3 ☐ Moderate Destruction (rooms partially flooded, water damages)
 4 ☐ Heavy Destruction (fundamental damage on walls, walls partially destroyed, roof damaged)
 5 ☐ Complete Destruction (walls & roof completely destroyed)

C3 What was the height of the water level in your house during the flood in 2005 (in ft)? _____

C4 Has any equipment, utensils, household items, fitting, furniture, installations or tools been destroyed or got lost in the flood of 2005?

- 1 ☐ No Destruction
 2 ☐ Slight Destruction (equipment got wet, but still functional)
 3 ☐ Moderate Destruction (equipment got wet and partially had to be replaced)
 4 ☐ Heavy Destruction (fundamental damage on equipment and furniture, decisive loss of fitting and/or tools)
 5 ☐ Complete Destruction (all the equipment has been destroyed and has to be replaced)

C5 Has any food stocks or other supplies been destroyed due to the flood in 2005?

- 1 ☐ yes 2 ☐ no

C4.1 If yes, please specify quantity and type of supplies lost: _____

C6 Has any livestock animals been lost due to the flood in 2005?

- 1 ☐ yes
 2 ☐ no

C5.1 If yes, please specify quantity and type of livestock animal lost: _____

C7 Has your business been affected by the flood of 2005?

- 1 ☐ No
 2 ☐ yes, I had to stop working because of damaged or lost tools/equipment
 3 ☐ yes, I had to stop working because of health issues after the flood
 4 ☐ other: _____

C6.1 If yes, please specify number of days not working and the wages lost (in Rupees): _____

C8 Was any repair work necessary after the flood of 2005?

- 1 ☐ no
 2 ☐ I cannot say
 3 ☐ yes, but the repair work hasn't been done
 4 ☐ yes, the repair work has been done

C8.1 If the repair work has been done, how was it financed with? 1 ☐ insurance claim

- 2 ☐ relatives gave money
 3 ☐ paid from the daily income
 4 ☐ savings
 5 ☐ other: _____

C8.2 If the repair work has been done, how has it been done? 1 ☐ the construction remained the same as before

- 2 ☐ the construction has been improved

C8.3 If the repair work hasn't been done yet, what is the reason for? 1 ☐ I don't know

- 2 ☐ I don't think it was necessary
 3 ☐ there was no money
 4 ☐ there were no qualified persons to provide enhancements
 5 ☐ other: _____

C9 What was the approximate total material loss to your household due to the flood of 2005?

- 1 ☐ 0-100
 2 ☐ 101-1000
 3 ☐ 1001 to 2500
 4 ☐ 2501 to 5000
 5 ☐ 5001 to 7000
 6 ☐ 7001 and more

C10 Apart from the flood, have any other of the following risks happened to you or to other household members in 2005? (multiple answers are possible)	1 - yes 2 - no	D2 What was affected? 1 - loss of wages; 2 - business premises or trade-stock affected; 3 - house/flat or household durables are affected; 4 - crop affected; 5 - livestock affected	D3 How many times?
Accident / illness	1 2	1 2 3 4 5	
Death of a household member	1 2	1 2 3 4 5	
Earthquakes	1 2	1 2 3 4 5	
Droughts	1 2	1 2 3 4 5	
Riots	1 2	1 2 3 4 5	
Malicious damage incl. assault	1 2	1 2 3 4 5	
Cyclones, Storms, Typhoons, Hurricanes	1 2	1 2 3 4 5	
Theft	1 2	1 2 3 4 5	
Explosion, Implosions, Fires, Lightning	1 2	1 2 3 4 5	

2005 FLOOD - SOCIAL AFFECTION:

D1 Did any of your household members got sick or hurt because of the flood in 2005?

1 ☐ no2 ☐ yes: _____ (indicate number of household members and type of affection)

D2 Did any of your household members died due to the flood impact in 2005?

1 ☐ no2 ☐ yes: _____ (Indicate number of household members, who died)

D3 Was there an impact on your social network due to the flood in 2005?

1 ☐ No2 ☐ Yes, I had to take care of an injured household member after the flood3 ☐ yes, a household member migrated after the flood4 ☐ other: _____

D4 After the flood of 2005, did you install any means in your household to mitigate a future flood?

1 ☐ no2 ☐ yes: _____ (please specify the kind of installation)

D4.1 If no, why not?

1 ☐ I don't know2 ☐ I don't think it was necessary3 ☐ there was no money4 ☐ there were no qualified persons to provide enhancements5 ☐ other: _____**2005 FLOOD - COMMUNITY AFFECTION:**

E1 Were there any precautions taken on community level before the flood in 2005?

1 ☐ no2 ☐ yes

E1.1 If yes, what work has been done?

1 ☐ drainage2 ☐ protection walls3 ☐ roads4 ☐ public places (toilets, shrines for instance)5 ☐ other: _____

E1.2 If no, why not?

1 ☐ I don't know2 ☐ I don't think it was necessary3 ☐ there was no money4 ☐ there are no qualified persons to provide enhancements5 ☐ other: _____

E2 Was there any repair work done on the community level after the flood of 2005?

1 ☐ no2 ☐ yes

E2.1 If yes, what work has been done?

1 ☐ drainage repaired2 ☐ protection walls repaired3 ☐ roads repaired within slum4 ☐ public places (toilets, shrines for instance)5 ☐ other: _____

E2.2 If no, why not?

1 ☐ I don't know2 ☐ I don't think it's necessary3 ☐ there is no money4 ☐ there are no qualified persons to provide enhancements5 ☐ other: _____

E3 Was there any enhancement done on the community level after the flood of 2005 to mitigate flood disasters in future?

1 ☐ no2 ☐ yes

E3.1 If yes, what work has been done?

1 ☐ drainage2 ☐ protection walls3 ☐ road4 ☐ public toilets5 ☐ other: _____

E3.2 If no, why not?

1 ☐ I don't know2 ☐ I don't think it's necessary3 ☐ there is no money4 ☐ there are no qualified persons to provide enhancements5 ☐ other: _____

E4 Was there a decisive migration movement out of the community after the flood in 2005?

1 ☐ no2 ☐ yes

E5 Was there a decisive migration movement into the community after the flood in 2005?

1 ☐ no2 ☐ yes

E6 Was there any looting in the community after the flood in 2005?

1 ☐ no2 ☐ yes**2007 FLOOD - HOUSEHOLD & ECONOMIC AFFECTION:**

F1 Has your house been damaged by the flood in 2007?

1 ☐ yes2 ☐ no

F2 What degree of destruction did your house suffer from after the flood of 2007?

1 ☐ No Destruction2 ☐ Slight Destruction (flooded floor)3 ☐ Moderate Destruction (rooms partially flooded, water damages)4 ☐ Heavy Destruction (fundamental damage on walls, walls partially destroyed, roof damaged)5 ☐ Complete Destruction (walls & roof completely destroyed)

F3 What was the height of the water level in your house during the flood in 2007 (in ft.)? _____

F4 Has any equipment, fitting, furniture, installations or tools been destroyed or got lost in the flood of 2007?

- 1 ☐ No Destruction
 2 ☐ Slight Destruction (equipment got wet, but still functional)
 3 ☐ Moderate Destruction (equipment got wet and partially had to be replaced)
 4 ☐ Heavy Destruction (fundamental damage on equipment and furniture, decisive loss of fitting and/or tools)
 5 ☐ Complete Destruction (all the equipment has been destroyed and has to be replaced)

F5 Has any food stocks or other supplies been destroyed due to the floods of 2007?

- 1 ☐ yes 2 ☐ no

F4.1 If yes, please specify quantity and type of supplies lost: _____

F6 Has any livestock animals been lost due to the flood of 2007?

- 1 ☐ yes
 2 ☐ no

F5.1 If yes, please specify quantity and type of livestock animal lost: _____

F7 Has your business been affected by the flood in 2007?

- 1 ☐ no
 2 ☐ yes, I had to stop working because of damaged or lost tools/equipment
 3 ☐ yes, I had to stop working because of health issues after the flood
 4 ☐ other: _____

F8 Was any repair work necessary after the flood in 2007?

- 1 ☐ no
 2 ☐ I cannot say
 3 ☐ yes, but the repair work hasn't been done
 4 ☐ yes, the repair work has been done

F8.1 If yes, how was the repair work being financed?

- 1 ☐ insurance claim
 2 ☐ relatives gave money
 3 ☐ paid from the daily income
 4 ☐ savings
 5 ☐ other: _____

F9 What was the approximate total material loss to your household due to the flood of 2007?

- 1 ☐ 0-100
 2 ☐ 101-1000
 3 ☐ 1001 to 2500
 4 ☐ 2501 to 5000
 5 ☐ 5001 to 7000
 6 ☐ 7001 and more

F10 Apart from the flood, have any other of the following risks happened to you or to other household members in 2005? (multiple answers are possible)	1 - yes 2 - no	D2 What was affected? 1 - loss of wages; 2 - business premises or trade stock affected; 3 - house/flat or household durables are affected; 4 - crop affected; 5 - livestock affected	D3 How many times?
Accident / illness	1 2	1 2 3 4 5	
Death of a household member	1 2	1 2 3 4 5	
Earthquakes	1 2	1 2 3 4 5	
Droughts	1 2	1 2 3 4 5	
Riots	1 2	1 2 3 4 5	
Malicious damage incl. assault	1 2	1 2 3 4 5	
Cyclones, Storms, Typhoons, Hurricanes	1 2	1 2 3 4 5	
Theft	1 2	1 2 3 4 5	
Explosion, Implosions, Fires, Lightning	1 2	1 2 3 4 5	

2007 FLOOD - SOCIAL AFFECTION:

G1 Did any of your household members get sick or hurt because of the flood in 2007?

- 1 ☐ no
 2 ☐ yes: _____ (indicate number of household members and type of affection)

G2 Did any of your household members died due to the flood impact in 2007?

- 1 ☐ no
 2 ☐ yes: _____ (indicate number of household members, who died)

G3 Was there an impact on your social network due to the flood in 2007?

- 1 ☐ no
 2 ☐ yes, I had to take care of an injured household member after the flood
 3 ☐ yes, a household member migrated after the flood
 4 ☐ other: _____

2007 FLOOD - COMMUNITY AFFECTION:

H1 Was there any repair work done on the community level after the flood of 2007?

- 1 ☐ no
 2 ☐ yes

H1.1 If yes, what work has been done?

- 1 ☐ drainage repaired
 2 ☐ protection walls repaired
 3 ☐ road repaired
 4 ☐ public places (toilets, shrines for instance)
 5 ☐ other: _____

H1.2 If no, why not?

- 1 ☐ I don't know
 2 ☐ I don't think it's necessary
 3 ☐ there is no money
 4 ☐ there are no qualified persons to provide enhancements
 5 ☐ other: _____

H2 Was there any enhancement done on the community level after the flood of 2007 to mitigate flood disasters in future?

- 1 ☐ no
 2 ☐ yes

H2.1 If yes, what work has been done?

- 1 ☐ drainage
 2 ☐ protection walls
 3 ☐ road
 4 ☐ public places (toilets, shrines for instance)
 5 ☐ other: _____

H2.2 If no, why not?

- 1 ☐ I don't know
 2 ☐ I don't think it's necessary
 3 ☐ there is no money
 4 ☐ there are no qualified persons to provide enhancements
 5 ☐ other: _____

H3 Was there a decisive migration movement out of the community after the flood in 2007?

- 1 ☐ no
 2 ☐ yes

THANK YOU VERY MUCH FOR PARTICIPATING IN THE SURVEY!!!

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