

Reducing risks and protecting assets:

from piloting to mainstreaming disaster
risk reduction in development initiatives
in Bangladesh

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Swiss Agency for Development
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A capitalisation of experiences made in the Livelihoods, Empowerment and Agroforestry (LEAF) project and in the Samriddhi project of the Swiss Agency for Development and Cooperation (SDC) - two development initiatives in Bangladesh, implemented by Intercooperation

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Contents

Acronyms	04
Executive summary	05
1 Introduction	06
1.1 Natural disasters and development	06
1.2 About this publication	07
1.3 Methodology	07
2 Context	08
2.1 The project context	08
2.2 Objectives of the DRR mainstreaming in the pilot phase	10
3 Process from piloting to mainstreaming DRR	10
4 Lessons learned and recommendations	
4.1 Overall lessons learned	20
4.2 Specific lessons learned	21
(i) Instruments for communities to elaborate their own DRR plans	21
(ii) Awareness raising and capacity building of the communities as core focus	22
(iii) Implementation of 'smart' structural measures	22
(iv) Favour linkages with relevant stakeholders at the local level	23
4.3 Overall recommendations	24
5 Conclusion	27
6 References	28
7 Annex	29
Annex I: Examples of structural measures at the community level	29
Annex II: Poster-Disaster Risk Assessment	31

Acronyms

APO	Annual Plan of Operations
BMDA	Barind Multiple Development Authority
BRRI	Bangladesh Rice Research Institute
BWDB/WDB	Bangladesh Water Development Board
CBO	Community Based Organisation
CC	Climate Change
CDMP	Comprehensive Disaster Management Programme
CF	Community Facilitator
CP	Community Platform
CRiSTAL	Community-based Risk Screening Tool, Adaptation & Livelihood
DRR	Disaster Risk Reduction
FF	Field Facilitator
IC	Intercooperation
IGA	Income Generating Activity
IPCC	Intergovernmental Panel on Climate Change
IRRI	International Rice Research Institute
LEAF	Livelihoods, Empowerment and Agroforestry (project)
LSP	Local Service Provider
MFDM	Ministry of Food and Disaster Management
MoFF	Ministry of Environment and Forest
PNGO	Partner NGO
SAAKTI	Sustainable Access to Agroforestry Knowledge, Technology and Information (project)
SDC	Swiss Agency for Development and Cooperation
SHARIQUE	Local Governance Programme
UDMC	Union Disaster Management Committee
UNISDR	United Nations International Strategy for Disaster Reduction
UP	Union Parishad
WB	World Bank

Executive summary

Recent catastrophic disasters or smaller disasters associated with climate variability have revealed how risks are continuously constructed through existing development gaps and growth in economic and population exposure. Since poverty reduction, sustainable development and natural disasters are closely linked, the integration of Disaster Risk Reduction (DRR) in development initiatives is, therefore, no longer an option, but a must!

Bangladesh, as one of the most vulnerable countries to natural hazards and disasters due to its geography, high population density and poverty, is exposed to a variety of recurrent natural hazards inter alia floods, cyclone, droughts, riverbank erosion, and earthquake. The adverse effect of climate change is an additional burden and puts the highly populated country further at risk. Having recognised this challenge, the Government of Bangladesh launched in 2003 the Comprehensive Disaster Management Programme to advance the government's risk reduction efforts at the national and local level and has thereby given DRR major importance even before the international community approved the Hyogo Framework for Action in 2005.

The capitalisation of experience is the response by the Swiss Agency for Development and Cooperation (SDC) to mainstream DRR within development initiatives in Bangladesh. The project on Livelihoods, Empowerment and Agroforestry (LEAF), implemented by Intercooperation, was selected for monitoring DRR mainstreaming efforts. The publication summarises the lessons learned gained by Intercooperation in Bangladesh during the process from piloting to mainstreaming DRR in development initiatives.

In order to support communities to develop their own priorities to deal with disasters, Intercooperation developed simple but comprehensive instruments (risk assessment poster, DRR planning tool and implementation guideline) convenient for communities to collect information and plan their activities related to risks from natural hazards in order to strengthen the local resilience. With these guidelines the concept of 'smart hardware', improved indigenous techniques of structural-measures, was introduced, facilitating the communities to come up with appropriate interventions adapted to the local context and developed in a participatory way. Using these guidelines, local communities have developed strong ownership over their risk reducing activities and are able to maintain established hardware protection by using their own resources. Hardware activities supported were, for example, the reduction of water logging in rice fields, the establishment of livestock shelters or the re-excavation of ponds and canal.

Those activities were followed up by non-structural measures like awareness raising and capacity building events, use of loudspeaker systems of local mosques as early warning systems or the establishment of a school boat system enabling girls and boys to continue their classes during monsoon. Further, new rice varieties were selected that can be harvested earlier in order to reduce the risk of destruction by early flash flood. In addition, the livelihood basis of the people was broadened by crop diversification, the use of fallow land or the introduction of innovations like floating vegetable cultivation.

In sum, the DRR pilots have been successful in improving the resilience of local communities in regard to natural disasters and thus have contributed to reducing the overall vulnerability. The pilots helped to develop appropriate mechanisms, to identify relevant players and to define the required support for the communities to steer DRR. It proved to be crucial to involve the communities and to create their ownership for all DRR activities. Thus, the community facilitators and community platforms played an essential role. For the implementation of DRR measures they collaborated with local authorities, line agencies, governmental disaster management entities and others. These linkages with other stakeholders are a crucial outcome of the DRR pilots and have help to strengthen the communities in order to tackle their problems linked to natural disasters even in the absence of the project.

1. Introduction

1.1 Natural disasters and development

Disasters are a major threat to people's livelihoods! In a few minutes or hours a disaster can eradicate years of local development efforts. Catastrophic disasters like in Haiti or Pakistan in 2010 or smaller disasters associated with climate variability have shown how disaster risks and poverty are closely interlinked. These events also reveal how economic growth and population exposure can increase the risks of disasters. Although there is a "dramatic" rise in natural disasters over the past decade" (CRED, 2010), the risk of being killed by a cyclone or flood is lower today than it was 20 years ago (UNISDR, 2011a). In other words, significant progress has been made in the last years, especially since the adoption of the Hyogo Framework for Action in 2005 (ISDR, 2011b), and it has become evident that prevention pays off (WB, 2010)!

Since poverty reduction, sustainable development and natural disasters are closely interlinked; it is crucial to integrate Disaster Risk Reduction (DRR) measures in development initiatives there where people's livelihoods are at risk.

Bangladesh is one of the most vulnerable countries to natural hazards and disasters due to its geography, high population density and poverty (MoEF, 2008). The country is exposed to a variety of recurrent natural hazards including floods, cyclones, droughts, earthquakes, and riverbank erosion (MFDM, 2007). Bangladesh heads the list of countries most at risk (Harmeling, 2010) of floods.

DRR as a topic has achieved major importance in Bangladesh mainly in the aftermath of disasters such as cyclones "Sidr" in 2007 and "Aila" in 2009 or after the heavy flood in 1998 during which about 70% of the country was inundated (IPCC, 2007). The adverse effect of climate change, including a shift in the monsoon pattern and the sea level rise, is an additional burden and puts Bangladesh with an average population density of 1, 246 persons/km² (among the highest in the world) and a population of more than 162 Mio further at risk (WB, 2009). Already before the international community approved the Hyogo Framework for Action in 2005, the Government of Bangladesh launched in 2003 the Comprehensive Disaster Management Programme (CDMP) as a key strategy to advance the government's risk reduction efforts in the country at the national and local level (MFDM, 2003).

Considering these facts, the Swiss Agency for Development and Cooperation (SDC) introduced DRR as a special theme in its Cooperation Strategy for Bangladesh 2008-2012 (SDC, 2008). At the same time, Bangladesh was chosen as one of the seven pilot countries where SDC aims at integrating DRR measures in its development activities. Among others the project on Livelihoods, Empowerment and Agroforestry (LEAF), implemented by Intercooperation, was selected to monitor DRR mainstreaming in development initiatives.

1.2 About this publication

The purpose of this publication is to document and share experiences and lessons learned gained by Intercooperation in Bangladesh in the field of mainstreaming Disaster Risk Reduction (DRR). The experience is based on DRR pilot activities conducted from April 2009 to March 2010 under the LEAF project. The publication also tries to answer "how" to concretely mainstream DRR in a development project. The experiences gained in this pilot period serve now as orientation for DRR mainstreaming in the entire project region of LEAF respectively Samriddhi¹, as the project is called in its new phase (2010-2013).

The structure of the publication is the following: chapter 2 gives some background information about the project's context. Chapter 3 provides a detailed overview of the steps in the process of DRR mainstreaming followed by chapter 4, which critically reflects on lessons learned and ends with recommendations. Concrete DRR measures at the community level are presented in Annex 1.

1.3 Methodology

For capitalising Intercooperation's experiences from piloting to mainstreaming DRR in development initiatives, the project team followed an internal process of experience capitalisation consisting of five steps: (a) generating experience; (b) capturing experience; (c) sorting and storing experience; (d) processing experience; and (e) utilising experience.

In a first step, all the actors generated experiences while implementing DRR interventions. In the step 'capturing experience' different methods for capturing these experiences were used including interviews, focus group discussions, story telling, after action review, cross-interview and witness over time. In the following step, the team used experience files, project memory and experience profiles of actors for sorting and storing experience. In the step 'processing experience', the project followed methods like micro-workshop, peer review, mind mapping, and cards and pin boards. The project is now at the last step of mainstreaming DRR in Samriddhi.

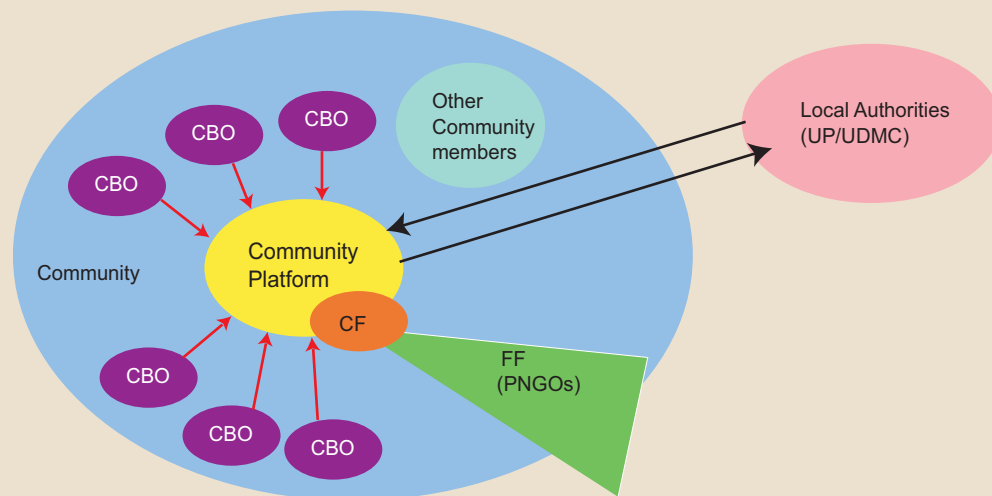
¹Samriddhi meaning 'prosperity' in Bangla

2. Context

2.1 The project context

The LEAF project, an SDC development initiative implemented by Intercooperation from 2004 to 2010, aimed to improve livelihoods of poor rural farmers by developing human and institutional capacities for accessing social and economic resources. In the succeeding project Samriddhi, the main goal is to contribute to sustainable wellbeing and resilience of poor and extreme poor households through social and economic empowerment. Through local partner NGOs (PNGO) the project mainly works with Community Based Organisations (CBO) operating through Community Platforms² (CP) (see graphic 1; c.f. table 1). The Community Platforms are seen as the drivers for local development and play an essential role in building linkages and partnerships with public and private organisations, local governments and market actors. The Community Platforms involve poor community members and support them in getting services from local stakeholders and access to marginal land.

Figure 1: Overview of actors at the local level



The programme has been successful in improving livelihoods and the economic status of households through a wide range of interventions. Despite some pragmatic measures to address natural disasters, a systematic DRR approach was lacking. Since communities have particularly suffered from constant setbacks through recurrent hazards in the project region, it has become evident that the improved assets of beneficiaries have to be retained and consolidated by appropriate risk reduction methods.

² While LEAF supported Community Based Organisations (CBO) resp. Community Clusters in planning and implementing their socio-economic development, Samriddhi works now directly with Community Platforms for the following reasons: the cluster platforms, which have been coordinating activities between CBO during LEAF, have to be put in a better position to cover the interest of extreme poor and disadvantaged groups. Thus, they will be encouraged to transform themselves into community platforms, representing not only CBO members, but also taking into account and especially the weak segments of the community.

SDC selected LEAF for DRR pilot activities, which resulted in experiences and lessons learned to integrate DRR in Samriddhi (2010-2013). DRR is a transversal issue in Samriddhi in order to ensure sustainable development.

The project's working areas cover Rangpur, Bogra, Rajshahi regions in north-western and Sunamganj district in north-eastern Bangladesh; areas which are particularly vulnerable to natural hazards.

To initiate DRR, each regional project office organised a stocktaking workshop aiming at identifying the major regional hazards and impacts. With regard to the most common hazard pattern and climatic conditions of Bangladesh, the project area can be classified into three broad categories:

Figure 2: Working areas of Samriddhi



- Haor basin, north-east (District of Sunamganj): characterised by a deep shallow depression, regularly affected by flooding and devastating flash floods; most of it is inundated from May to October. The people live on scattered small patches of raised land (hati), which become islands during the rainy season and are particularly vulnerable to flooding and erosion.
- High barind tract, northwest (Chapai Nawabganj district): dominated by drought, with reduction of soil organic matter and crop production, scarcity of water and fuel wood, health hazards and scarcity of animal feed being common scenarios every year between October and April.
- River basin, north/central of Bangladesh (district of Sirajganj and Kurigram): characterised by yearly floods and extensive river erosion along the flow of the mighty Jamuna and Teesta rivers.

2.2 Objectives of the DRR mainstreaming in the pilot phase

The overall objective of the DRR mainstreaming efforts in the livelihoods project was to increase the resilience of communities towards adverse impacts of natural disasters respectively to safeguard their assets gained through the project interventions and thereby avoiding a relapse of people into poverty and extreme poverty.

The specific objectives of the DRR pilots were as follows:

- Develop instruments for communities to elaborate DRR plans;
- Promote awareness raising and capacity building as core focus of the DRR intervention;
- Promote and test 'smart' structural measures; and
- Favor linkages with relevant stakeholders to steer DRR activities at the local level.

As mentioned earlier, the lessons learned of the DRR pilots during the LEAF phase serve now for DRR mainstreaming in the entire project regions of Samriddhi.

3. Process from piloting to mainstreaming DRR

As indicated in figure 3, the process from piloting to mainstreaming DRR in development initiatives involved eight broad steps.

Figure 3: The eight steps from piloting to mainstreaming DRR



The DRR pilot phase followed the structure and approach of the ongoing livelihood project. This meant to recognise Intercooperation's strengths in building social and economic resilience, raising of awareness and building of capacities of stakeholders, and subsequently use these strengths as the predominant activities in the DRR mainstreaming process. Further, the activities targeted the same beneficiaries who are already implicated in the project. Table 1 presents the different stakeholders involved and their responsibility in the DRR mainstreaming process.

A. Capacity building of project staff and Partner NGOs

The way of stepping into DRR

As a preparatory step, Intercooperation's project staff participated in training workshops on DRR facilitated by experts. Based on these training modules, each regional project office organised DRR training for the staff of their partner NGOs. The trained staff of the project facilitated training with the assistance of experts. The training included field visits and exchange with other organisations working in the field of DRR.

B. Development of a community-based DRR tool

A self-conducting instrument at the community level to address DRR in a systematic way

In order to systematically mainstream DRR in the project, a common approach in all project regions was considered crucial. For this reason, Intercooperation developed the "Community based disaster risk reduction planning tool" with the objective to build the capacities of communities and local authorities to assess disaster risks and vulnerabilities and to come up with appropriate risk reduction measures. The direct output is a DRR activity plan that can be implemented by the community while raised awareness and increased capacities are additional benefits of the process.

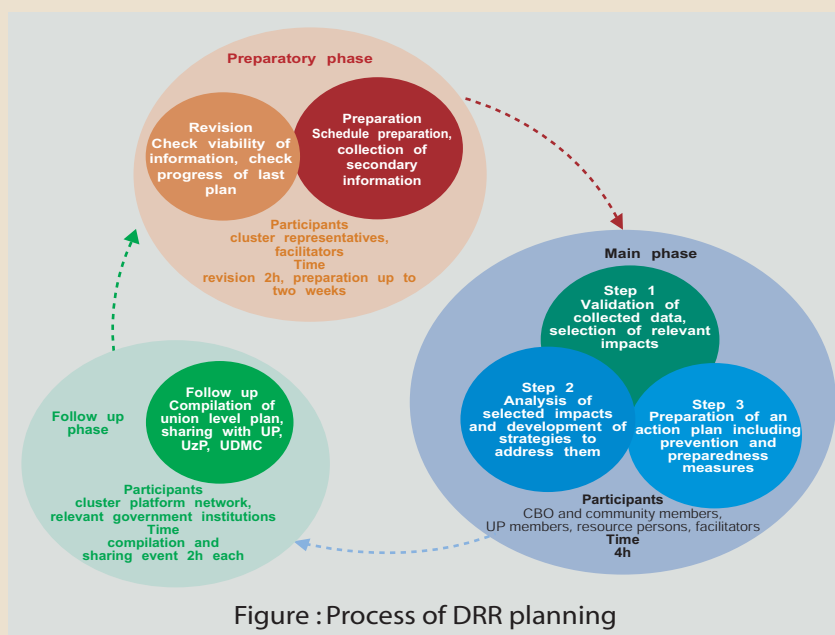
Table 1: Actors implicated in the DRR mainstreaming

Actor	Definition	Responsible for...	Steps (c.f. figure 3)
Staff at the delegation and the Project Support and Management Unit of Samridhi project	Staff of Intercooperation working at the delegation office in Dhaka and the Project Support and Management Unit of Samridhi at Rajshahi	<ul style="list-style-type: none"> organising main capacity building for project staff at the regional offices developing and adjusting the different DRR instruments. Overall responsibility 	A to H
Project staff at regional offices (Intercooperation)	Staff of Intercooperation working in the regional offices	<ul style="list-style-type: none"> assuring the quality of the DRR mainstreaming at the field level capacity building of FFs supporting and assisting the PNGO if needed. gradual and appropriate preparation of the phasing out regarding required assistance from PNGO. 	A to H
Field Facilitator (PNGO)	Person from the PNGO in charge of the project	<ul style="list-style-type: none"> assuring the training of CFs providing assistance to the CFs and communities during the entire mainstreaming process if needed facilitating linkages with local authorities 	C to G
Community Facilitator (CF)	Community member selected by the community	<ul style="list-style-type: none"> leading the community through the entire process of the DRR mainstreaming process establishing linkages with local authorities and community negotiating with the local authorities for financial and human support 	D to G
Community Platform/ community members	Representatives of the community/members of the community	<ul style="list-style-type: none"> actively participating in different DRR sessions implementing the DRR measures the maintenance of the structural measures implemented 	D to G
Task Force	Selected members of the community	<ul style="list-style-type: none"> elaborating detailed "business implementation plan" negotiating with stakeholders for financial resources launching of the implementation 	F and G
Union Parishad (UP)	Local authority	<ul style="list-style-type: none"> actively participating in the different DRR sessions being involved in the implementation of the DRR activities providing support and mobilise resources (financial and human) 	D to G
Union Disaster Management Committee (UDMC)	Governmental body responsible for DRR at the local level	<ul style="list-style-type: none"> actively participating in the different DRR sessions providing technical support in questions related to DRR 	D to G

The basis for the tool was the Community-based Risk Screening Tool, Adaptation and Livelihood (CRISTAL)³ and the Community Risk Assessment and Risk Reduction Action Plan Guidelines developed and used by the Government of Bangladesh⁴. A taskforce comprised of staff of Intercooperation with long experience in developing community tools was assigned to develop the tool. The tool is a direct product of the pilot activities and was developed and tested during the implementation in an iterative, participatory process. Meanwhile, the tool has been published and is available online (Intercooperation, 2010).

The tool is divided in three phases (see figure 4). In the preparatory phase a designated team of the community prepares the planning process and collects relevant secondary data on hazards and risks in their area. In the main phase, the actual planning, the whole community platform goes through three steps, i.e. (1) the validation of the collected secondary information (preparatory phase), (2) the analysis of selected impacts of hazards and development of strategies to address them, and (3) the preparation of a DRR action plan including prevention, mitigation and preparedness measures. In the follow-up phase, the DRR plans are shared with relevant stakeholders, especially the local authorities, and necessary external support for the implementation is sought. This is an important moment to harmonise the different DRR activities planned in the region as well as to make sure that the needs of the communities are considered by the local authorities and in their planning processes.

Figure 4: The Community based disaster risk reduction tool with its three phases



To conclude, the tool helps to identify and integrate DRR aspects in regular livelihood activities. In case of the livelihood project in Bangladesh it is not an additional task, but it is designed as an integrated part in the communities' annual planning process.

³ For more information, visit the website of the CRISTAL tool: <http://www.iisd.org/cristaltool/>

⁴ For more information: http://www.undp-adaptation.org/projects/websites/docs/CRA_Guidelines_English.pdf

C. Development of capacities of community facilitators

A preparation to reach and involve the communities

As earlier mentioned, the common approach of the livelihood project is to build community capacities through community platforms. In regard to DRR this means that the main goal of the interventions is to enable the communities to respond to natural hazards and risks based on own capacities and sources. For this reason, community facilitators and selected members of the community received an extensive training in DRR in order to lead the community through a process of elaborating DRR action plans at community level. To ensure a smooth process, the community facilitators accompanied and supported the CFs when initiating the process, which strengthened CF's confidence so that in later sessions most of them were able to conduct the planning sessions on their own. Through the extensive training, the community facilitator also got familiar with the local authorities responsible for addressing DRR issues.



Mr. Afzal Hossain, Cashier, Wapdarhat Community Platform, Pachgachi Union, Kurigram

I have been selected as one of the community facilitators for facilitating the DRR planning exercises in our Community Platform. Prior to facilitate the planning process, I attended an orientation training organised by the project. While using the tool, I found it creates an environment for the participants to do in-depth analysis about their own context in regard to disasters. The tool enabled the participants to come up with specific actions in order to reduce the disaster related risks. Apart from these positive aspects, I found some limitations in the planning tool: some participants were leaving the sessions at a point of time before it was completed.

D. Identification of risk-prone areas and communities

A quick risk assessment identifying disaster-prone areas

Prior to the community based DRR planning tool, a quick risk assessment tool in form of a poster (see Annex 2) was developed, which permits identifying disaster-prone areas by the community itself. The information from the risk assessment was compiled and analysed resulting in a list of identified high, medium and low disaster risk prone communities in the project areas. At the same time, the poster contributed to an overall understanding about disasters and their risks in the sense that communities understood better their level of vulnerability. This preliminary step was developed in order to avoid that areas, which are not negatively affected by natural hazards, would go unnecessarily through the entire DRR planning process. These so called low risk communities received some awareness raising trainings, but no specific DRR interventions were developed; DRR is embedded in their annual planning together with other issues.

Disaster Risk Assessment				
Name of CF: _____		Ward: _____ Union: _____		
Total HH of the ward: _____ (EP: _____, Poor: _____, Rich and medium: _____)				
Indicator	Question	Answer (Put Tick mark in appropriate box)		
Vulnerability	How many HH are poor or extreme poor in your Community Platform?	<input type="checkbox"/> More than 70%	<input type="checkbox"/> 50 - 70%	<input type="checkbox"/> Less than 50%
	How many people of your Community Platform are literate (can read and write)?	<input type="checkbox"/> Less than 20%	<input type="checkbox"/> 20 - 40%	<input type="checkbox"/> More than 40%
	How many women headed HH are in your Community Platform?	<input type="checkbox"/> More than 20%	<input type="checkbox"/> 10 - 20%	<input type="checkbox"/> Less than 10%
	How many HH are exposed to risks by natural hazards?	<input type="checkbox"/> More than 50%	<input type="checkbox"/> 10 - 50%	<input type="checkbox"/> Less than 10%
Hazard	How many HH had at least once a substantial loss, damage or reduction of assets or incomes due to natural hazards during the past 5 years?	<input type="checkbox"/> More than 50%	<input type="checkbox"/> 10 - 50%	<input type="checkbox"/> Less than 10%
	How often did you experience the following events of natural hazards during the past 5 years?	<input type="checkbox"/> Every year	<input type="checkbox"/> At least once	<input type="checkbox"/> Never
	Drought Flood Early Rain Flood River erosion Others	<input type="checkbox"/> Each year <input type="checkbox"/> Each year <input type="checkbox"/> Each year <input type="checkbox"/> Each year	<input type="checkbox"/> At least once <input type="checkbox"/> At least once <input type="checkbox"/> At least once <input type="checkbox"/> At least once	<input type="checkbox"/> Never <input type="checkbox"/> Never <input type="checkbox"/> Never <input type="checkbox"/> Never
	How big were the damages and/or losses due to natural hazards?	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Small
Vulnerability	Did some people leave the village after being affected by natural disasters?	<input type="checkbox"/> More than 20%	<input type="checkbox"/> 1 - 20%	<input type="checkbox"/> Nobody left

E. Elaboration of DRR action plans at community level

An effective instrument to raise awareness, plan and implement DRR activities

The communities ranked medium and high through the risk assessment poster held planning sessions. The sessions were led by the CF and with active participation of the community members. Following the three steps (c.f. step B) of the tool, each community platform developed its own DRR action plan. Through this process, the communities got a good understanding about the concept of DRR as well as about the natural hazards they are facing and the potential impacts on their lives and livelihoods. Their active participation in the planning process helped them to build a sense of ownership for the implementation of the DRR measures. The tool particularly promoted the active

involvement and presence of local authorities. Giving a voice to the communities and responsibilities to local authorities encouraged better collaboration between communities and local authorities.

The involvement of aged people in the planning process was particularly helpful, since they have a valued knowledge of past events, observation of seasonal patterns and changes.



F. Preparatory step for launching the implementation

Enabling communities to elaborate a business plan and acquire negotiation skills

In order to ensure that the DRR activities identified in the plan will and can be implemented by the community, a brief implementation guideline for the community facilitators was elaborated which helps to support the community in implementation.

As a first step, the community formed a taskforce for each major DRR activity identified in the plan. The taskforce elaborated a detailed "business implementation plan" including a precise time frame and budget. The mobilisation of resources both external and internal is a core issue of this step. It has to take place at different levels and subsequently needs to be facilitated in different ways. This required to define the type of resources needed for this particular activity (cash, mankind, 100 day work programme etc.) and secondly to negotiate

G. Implementation of DRR measures by the communities

Communities address DRR issues at the local level

For consistency in the project, principles to implement measures at community level were identified:

- 'Hardware serves as a means for software', i.e. alongside awareness raising and capacity building, particular physical measures were used as a means for software, meaning that through hardware interventions human and social capacities could be developed.
- Only 'smart hardware' was promoted, i.e. infrastructure that (i) can be implemented and especially replicated by the communities themselves without or with little external capacity input and (ii) can be maintained by the communities with their own means and without additional external support. (However, it is worthwhile to note that a specific budget was available for testing some smart hardware during the pilot phase.)
- Mobilising local resources. Cost sharing by direct beneficiaries in terms of cash, kind or labor was promoted in order to create a sense of ownership within the community.
- Emphasis on learning from partners at all levels. Communities were encouraged to share best practices through exchange visits to existing initiatives.

According to needs and opportunities identified through the DRR planning process, each community selected and elaborated a number of physical and non-physical measures. Although each community elaborated independently its own DRR measures, those identified and implemented in the different regions show common patterns and can be grouped around similar action lines: DRR measures with focus on (i) smart hardware, (ii) building resilience by promoting joint community activities, and (iii) awareness raising and capacity building. Needless to say, a clear categorisation of the different measures is not always possible and some measures fit into more than one action line.

(i) Smart hardware

When elaborating DRR plans, the concept of 'smart hardware' was introduced, referring to measures that (i) physically protect assets or lives in case of a disaster, often using local material and indigenous techniques with a minimal external support; (ii) can be implemented and replicated by the communities; (iii) can raise the awareness of the whole community about the importance of prevention and preparedness activities; and (iv) can be maintained by the communities without external support. In order to assure the ownership, the community contributed to the construction costs by donation of land, labor and/or construction material.

Such measures comprise inter alia protections against floods and wave erosion in the flood-prone region (Sunamganj), livestock shelters in case of floods (River basin), pilings and bundles against river erosion (River basin), re-excavation and use of ponds and kharis against droughts (High barind tract). It should be mentioned that most of this infrastructure has a multi-purpose use, reducing the impacts of natural hazards while generating some income during the off-hazard season (see box in next page).

Intercooperation's experience in Bangladesh

Multi-purpose livestock shelter against floods

In flood prone areas, communities often have to sell their livestock at very low prices during the rainy season, as they do not have a safe place to keep them. Through the DRR pilots, the livestock shelters, consisting of a raised surface of land, can now protect community livestock from floods. Poor and extreme poor are given first priority as they often do not have raised homesteads and are generally the first and most affected members within the community. These measures were implemented with communities' contribution of land, construction material

Facts of the livestock shelter in Fulbari:

- Size: 24,000m³ earthwork with a surface of 45 m x 60 m = 2,700 m²
- Capacity: 800 - 900 animals, mainly cows, some goats, representing a total value of 230,000 USD
- Construction costs: 8,600 USD
- Cost-benefit analysis: Assuming a life-time of 30 years and a protection for a 20 year flood-return period, cost: benefit = 1 : 40

and labour. A specially designed committee elaborated a plan for maintenance and further shelter management. The construction of livestock shelter is regarded as a win-win situation. While it serves as a flood shelter during monsoon, it is used during dry season as a place for meetings and different income generating activities, such as the cultivation of vegetables or as a place to dry jute or rice. The income from those activities is generally used for the maintenance of the shelter.

(ii) Building resilience by promoting joint community activities

To counteract the devastating impacts of natural disasters, joint community activities have been encouraged. Such activities included the establishment of a community seed and food bank, preparedness through early warning systems or the introduction of a school boat system during monsoon, which enables girls and boys to continue their classes.

Further, new crop varieties were introduced such as flood tolerant, early varieties of rice or drought tolerant vegetables. Also heat tolerant fish species were identified and introduced in the DRR pilot communities. Intercooperation under its LEAF project facilitated contacts between Community Platforms and relevant institutions, which identified and provided appropriate seed, established trials and gave demonstrations and trainings to the Cluster Platforms. For instance, in collaboration with research organisations such as the Bangladesh Rice Research Institute, the Department of Agriculture and the Rajshahi University, the project has introduced early rice varieties, which allow farmers to harvest mature rice before the critical period of flash floods (Sunamganj). Demonstration plots and trials for Participatory Variety Selection (PVS) were established. PVS trials on short duration rice proved that the rice could be harvested within 120 days, instead of 140 to 160 days. As a result of the trials, a short duration variety of rice (BRRI dhan 45) could be identified and harvested with a good yield before the flash floods⁵.

⁵More examples of structural DRR measures can be found in Annex 1

Thanks to Disaster Risk Reduction activities, farmers in Sunamganj could save their rice during the flash floods in March 2010



Hardly ever have flash floods occurred as early as it was the case end of March 2010. Most farmers in the region were heavily concerned to save their rice crop by protecting and raising the embankments. Despite these efforts, most of the paddies (rice) submerged and farmers tried to harvest almost green paddy. In brief, the entire paddy harvest from the haor was estimated to be only about 10 to 15 percent of the expected annual production.

However, this has not been the case for the

farmers of the project who cultivated early rice varieties. Even though communities have become reluctant the past few years to continue cultivating new varieties as no flash flood occurred and since they faced difficulties in accessing quality seeds, the project continued promoting the early varieties with great success!

Almost all demonstrations (132) of early rice varieties (BRRI-45) across eight sub-districts (upazillas) were harvested mature before the flash floods could cause any damage. The production was excellent with an average amount of 7.8 to 8.4 ton per ha, which is equal to the common high yielding rice variety (BR-29) used in the region. Due to improved capacities and awareness in DRR, LEAF supported communities could mobilise and engage the entire community in voluntary work to raise the embankments. Although water levels continued increasing, fortifying the embankments ultimately helped delaying water inflow by 15 to 25 days, thereby allowing the people to harvest 70 to 80 percent of the crops before the land submerged. In total, an area of 15 to 20,000 hectares of cropland benefited from this initiative.

(iii) Awareness raising and capacity building

A set of different capacity building training courses at different levels was conducted to build skills within the communities so that they are able to analyse and elaborate concrete DRR measures even after the phasing out of the project.

The Community Platform organised a variety of capacity building events like cultural programmes, dramas, simulation events with the objective to make the community people aware about the precautionary measures to be taken before, during and after a disaster. As part of the event different messages were shared through folk songs. Days like the international environment day, the national disaster risk reduction day and the national disaster preparedness day were commemorated by organising special events and used as a platform to raise awareness about DRR. For these events, the CP invited the whole community, local authorities, representatives of line agencies, local committees, local NGOs, etc. Alongside the strengthening of the community skills, the capacities of local authorities were directly or indirectly strengthened through their active participation during the DRR planning process and special training. In particular in the regions where the local governance project Sharique⁶ intervenes, the strengthening of local authorities including the Union Disaster Management Committee (UDMC) was promoted; in other words, the strengthening of local capacities at community and at authority level went hand in hand. Last but not least, special attention was drawn to the strengthening synergies and linkages among the different stakeholders.

⁶SDC's governance project SHARIQUE is implemented by Intercooperation in some of the same project areas as Samridhi.



Mr. Sudhir Chandra Das, UDMC member, Sulla Union, Sulla Upazilla, Sunamganj

I am a member of Sulla UDMC as well as of Sulla Union Parishad (UP). Since 2003, I have been working as a UDMC member, but I didn't know the activities, roles and responsibilities of UDMC, and how to develop and implement a DRR plan. In April 2009, I became involved with the DRR pilot initiative of the livelihood project. The project organised training for us on disaster management and supported the UDMC to develop a DRR plan for the UP. The project also organised a matchmaking workshop to make necessary adjustments in the DRR plan of the UDMC based on the demand of the CPs. These initiatives developed the

capacities of our UDMC to plan and implement the DRR activities effectively. Now, along with my other colleagues of UP and UDMC we are actively involved in DRR activities like installation of tube wells, selection of vulnerable villages/hatis for earthwork to protect against wave action, selection of common places for building livestock shelters, repairing embankments, establishment of demonstration plots etc. I am very happy that the UP/UDMC has finally become functional and linked with CPs and other relevant organisations, which are working on DRR. I think this is a good way of strengthening local capacities in line with DRR.

H. Development of operational guidelines for DRR mainstreaming

DRR has become institutionalised

Operational guidelines were developed at the end of the DRR pilot phase and serve now as main orientation for DRR mainstreaming in the entire project for Intercooperation's staff in the regional offices and the partner NGOs. Through the guidelines DRR has become institutionalised and systematically embedded into the annual planning process of the project respectively of the communities. It indicates roles and responsibilities, timeframe and other concrete instructions for the implementation of each activity.

4. Lessons learned and recommendations

In this chapter, a number of overall lessons learned related to the DRR pilots are shared followed by some specific lessons learned linked to the objectives defined at the beginning of the DRR pilots (c.f.2.2) and considered crucial for DRR mainstreaming in development initiatives. The lessons learned identify positive, successful aspects as well as capture the negative aspects and challenges encountered during the DRR pilot phase. A number of recommendations wrap up this section and shall serve as a kind of general orientation on which projects can constructively built during DRR mainstreaming in development initiatives.

4.1 Overall lessons learned

"DRR interventions have first priority. If we do not focus on DRR activities, our "classical" project activities are in danger and will not be sustainable as they are threatened through recurrent natural hazards in the region". (CBO member of Wapda, Rangpur, October 2009)

Disaster risk reduction has become a priority in disaster prone areas: Although DRR means an investment in the reduction of potential risks; the communities involved in the DRR pilots clearly recognised the importance of investing in risk reducing measures as the CBO member of Wapda clearly expressed in his statement. The communities are today aware that if they do not invest in DRR, they will be more vulnerable and their assets gained through the livelihood project (e.g. income generating activities) will be under threat. This change in attitude is mainly due to the following: thanks to awareness raising and capacity building, communities have understood the concept of DRR respectively their vulnerability to certain hazards and thereby have learnt that they can strengthen their resilience through concrete measures. They no longer "accept" the occurrence of recurrent hazards, but proactively confront them.

A shift from reactive to proactive action at the community level has taken place: The DRR pilots have clearly contributed to saving assets and homes and have demonstrated the effectiveness of appropriate technologies. Today, farmers have learnt to be prepared and to protect their homestead, livestock and agricultural production thanks to the launch of particular prevention and preparedness measures. For instance, the establishment of food banks (e.g. for storage of rice) at the community level is a preparatory measure in case of a food crisis during a disaster and simultaneously ensures seed for the upcoming year. This activity is implemented in all project regions in a systematic way, especially poor and extreme poor household benefit in case of a disaster. In the past, banking of food was not done regularly or collectively and food or seeds were often not stored properly (e.g. place would also be affected during the disaster).

Thanks to joint-community efforts, even the most vulnerable are now better protected: It is worth mentioning that DRR has turned into a joint-activity and has contributed to improved mobilisation within a community, i.e. communities have recognised that DRR measures are only fully effective if done as a joint-effort. Activities, which used to be adopted by individual household, are now done collectively, which is cost and time reducing. For instance, through the improved hati protection, for which communities incur significant coping costs to maintain and strengthen their homestead, the cost could be reduced with about 25%⁷. Even more, poor and extreme poor households who could not protect their homestead, profit now from this joint effort since the protection of the whole hati is ensured.

⁷ Source: Field visit to the community of Putia, Beheli Union-Jamalganj Upazila, October 2009

Maintenance is ensured thanks to the multi-purpose use of structural measures: It is encouraging to see that local communities have developed strong ownership over their risk reducing activities and are able to maintain established hardware protection with their own resources. As earlier mentioned, while livestock shelters serve as flood shelters during the monsoon, they are used during the dry season for income generating activities like the cultivation of vegetable and the income is used for the maintenance of livestock shelters. In other communities, ponds for raising fish, created by removing the soil to make the raised livestock shelters, were established; the selling of fish is another income source for the maintenance of the shelter.

Ensure the involvement of all social segments within the community: Unlike other activities under the project, the "incentives" to get poor and extreme poor people involved might not be as obvious as with other activities (e.g. income generating activities). When someone is surviving from day to day or week to week, DRR may be less of a priority than immediate food security. Further, in particular in flood prone areas (e.g. Sunamganj) the mindset of local stakeholders towards DRR is often completely focused on structural DRR interventions and the importance of non-structural measures is ignored due to the predominance of structural measures and various immediate post disaster relief programmes through NGOs, donors and government. As most of the examples indicated, the involvement of poor and extreme poor people in DRR measures is an important step towards increased local resilience. However, it remains challenging in the DRR mainstreaming process to convince people that disasters have a long-term adverse impact on the local economy and consequently on the income per household so that risk reducing measures are crucial for surviving, especially for poor and extreme poor.

Gender-sensitive DRR: Although gender is a transversal issue in the livelihood project, particular attention was given to gender issues during the DRR pilots. The pilot activities demonstrated that women are more vulnerable in the context of specific hazards. For instance, during dry periods women need to go quite a distance to collect water and are thereby more vulnerable for various reasons: water scarcity can cause family conflicts, more workload, less time for income generating activities (e.g. homestead vegetable garden, weeding).

4.2 Specific lessons learned

(i) Instruments for communities to elaborate their own DRR plans

Self conducting instruments at community level increase local ownership: The risk assessment poster, the DRR planning tool and the implementation guideline were regarded as very useful instruments at the local level allowing the communities to assess their own risks, elaborate an annual DRR plan and select measures in accordance to their needs and priorities. While the tool facilitates the elaboration of concrete DRR actions, increased awareness and capacities are additional benefits. Particularly promising is the active participation of community people in the planning process, which creates a sense of ownership for the implementation of measures.

Facilitators' competences are critical in the entire process: Despite the positive aspect that communities can do their own risk assessment at community level, the pilot testing clearly highlighted the importance of the facilitator's role and skills during the entire DRR planning process and implementation. As the process is led by a facilitator, indeed a selected community member, and not by a specialist in the field of DRR, there is a risk that certain thematic DRR issues might not be properly treated or not considered. Good training modules for the facilitators are, therefore, central and support from the field facilitator (Partner NGO) need to be ensured through the entire DRR mainstreaming process, at least at the beginning. However, the well-elaborated DRR action plans by the communities can be used as argument for the adequate skills of the facilitators and confirm the good quality of the training programme they went through.

(ii) Awareness raising and capacity building of the communities as core focus

Cultural events reach the entire community: As outlined earlier, awareness raising and capacity building of the communities were at the core of all DRR interventions in order to enable the communities to lead the DRR mainstreaming process in the future on their own. Awareness raising events in the form of cultural events were found to be effective to reach an entire community at relatively low costs and can easily be organized by the community. The mock drills and cultural programmes were also highlighted as successful in disseminating important disaster related information among the community people about being better prepared and understand better the different roles of community members in case of a disaster.

Awareness raising activities are crucial in drought prone areas: It was also positive that the project teams experienced that awareness-raising activities are particularly crucial in drought prone areas where impacts are less immediate and visible so that people are often less sensitised to natural hazards. It is even more important to train these communities as they hardly receive support since smaller scale disasters are often forgotten and get hardly any attention by the central government and even less by international aid.

Collaboration between communities and local authorities has improved: Through the awareness raising events, communities have become familiar with the responsibilities of local authorities (e.g. UP, UDMC) in view of the different steps of the DRR cycle. For instance, they are conscious about the local authorities' responsibilities before a disaster and not only during emergency. One concrete outcome was that communities have approached more easily government authorities to discuss DRR and asked for support while the local authorities feel empowered in their actual role and have gained more self-esteem.

Continuity of DRR campaign is crucial: In a disaster prone context like Bangladesh, it is vital to constantly repeat awareness raising activities in order to be fully prepared in case of a disaster. It remains challenging to ensure that this type of events is regularly organised and people do not become reluctant (see success story in Sunamganj during the flash flood), especially in the future in the absence of the project.



Mr. Nibaron Das (45), Kheruala village, Sulla Union, Sulla Upazilla, Sunamganj

Before starting the DRR activities we had the belief that every disaster is made by God and we cannot do anything about it. But after having gotten involved with DRR activities, the community people started to get a different understanding: participation in DRR planning, training and awareness raising events made the community people aware about the concept of disasters and their vulnerability. Now, the community people are aware about what they can do before, during and after a disaster. They are now conscious of preventive measures, emergency responses and rehabilitation activities in order to reduce their risks.

(iii) Implementation of 'smart' structural measures

Demonstration is a key to success: In general, smart hardware, using local material and indigenous techniques, was widely accepted by the communities. Such structures reduce risks, raise awareness and the implementation has made the communities confident to manage problems linked to natural disasters. However, it has become evident that most such measures were often only practiced and widely implemented when first successful results were achieved within their own or a neighboring community (c.f. success story piling). Only then was the community convinced to go for such DRR measures. The selection of appropriate activities is, therefore, crucial and project teams need to be fully aware of this fact in order to avoid frustration cause by inappropriate activities.

Structural and non-structural measures need to go hand in hand: the DRR pilots revealed that the understanding of the DRR concept is often very one-sided due to some outstanding 'perfect and expensive technologies' dependent on large external investment in the regions. In this regard, the awareness raising and capacity building events positively contributed to change the mindset of local stakeholders by demonstrating that even with less resources risk can be reduced. The successful implementation of some smart hardware clearly contributed positively to this change of attitude. Last but not least, structural measures can often not be scaled up by the neighboring community or only to a certain extent. In contrast, strengthened capacities and increased awareness could definitely serve a whole Union and neighborhood communities.

Some risks beyond the control or capabilities of local stakeholders persist: At the same time, the project was also confronted with the fact that for certain risks no permanent solution could be found respectively risks are beyond the control or capabilities of the project and local stakeholders. For example, the establishment of piling and bundles along the river is not solid enough to protect land and homestead from major river erosion and thereby only offer a temporary solution; instead large investments would be necessary in order to mitigate such risks in the long-term. There is also a certain risk that such temporary solutions might not only lead to mal-adaptation, but also to frustration and wrong expectations from the community. Nonetheless, as a temporary measure and for protection alongside canals and small rivers, these constructions can considerably reduce the effects of erosion.

Mobilisation of resources and capacities at the community is challenging: Having successfully elaborated the DRR action plans, the project teams felt quite challenged how to support the communities to turn these activities into concrete actions. Striking interventions such as livestock shelters require some technical knowhow by specialists and the cost of such constructions, although highly cost-effective exceeds the financial resources available at community level. While in the DRR piloting phase a certain budget for testing some innovative structural technologies was available, in the DRR mainstreaming process for the entire project region funding is limited. Even though it is ideally promoted by the project that the communities shall mobilise their own resources, Intercooperation is aware about their limitations as the directly involved stakeholders are not only resource-poor, but also lack organisational and institutional capacities. For this reason, Intercooperation intends to look now for additional funding to support the establishment of some smart hardware in high-risk areas. However, the direct provision of resources undermines the communities' efforts on resource mobilisation. In brief, it remains one of the major challenge in the DRR mainstreaming process to develop adequate mechanisms and procedures, which allow supporting the most vulnerable communities, but create at the same incentives for mobilising own funds at the local level (own resources, i.e. of directly concerned beneficiaries and external sources, i.e. resources at UP level, special government funds/schemes).

(iv) Favor linkages with relevant stakeholders at the local level

Encouraging collaboration among stakeholders is worth investing: For successful DRR interventions, especially in the absence of the project, linkages with local stakeholders are vital. So the project systematically encouraged collaboration between the Community Platform and other stakeholders 'inter alia' local authorities, line agencies, research institutes and universities. These formal contacts proved to be valuable achievements, which also gave the community more confidence to approach these institutions for DRR and other community concerns. However, the project has faced difficulties to get some stakeholders, especially local authorities (UP, UDMC) on board for various reasons: limited availability, perception of DRR as a theme only after a disaster, passive attitude due to receiving funding through international agencies. Through intense

dialogues and support given by the project, collaboration could in most areas be positively encouraged and has improved. Several actors emphasised that in the elaboration process of the DRR plan all local stakeholders were involved and contributed positively to the plan. In brief, the DRR pilot activities demonstrated that the actors have become aware that DRR is a joint activity between local authorities and communities and only then it will be successful. One particular positive outcome was that several local authorities initiated the implementation of DRR measures identified in the community's DRR plan.

Local authorities are key players for successful DRR: The pilots also demonstrated that DRR is more effective and successful when local authorities are involved in the process. Although the relationship between the communities and the local authorities has improved, it became obvious that it is often limited to individual persons active in that union and not to the whole institution. This confirms once more the important role the project can play by taking up an advocacy role to encourage the community to be proactive and raise their voice, in particular in the areas where the local governance project Sharique is present. While Samriddhi elaborates and promotes concrete DRR activities through the Community Platform, the governance project builds DRR capacities of local governance bodies (UP) and DRR committees (UDMC). It has been observed that in regions where the governance project is present, DRR activities seem to have become a more prominent and proactive issue for local authorities than in regions where the programme is absent. In brief, the current framework of SDC's development programmes is an ideal set-up for successful DRR and provides the necessary mechanisms in order to respond quickly and efficiently during a disaster.

4.3 Overall recommendations

The process of DRR pilot activities yielded a number of lessons learned which lead to the following recommendations (Table 2).

(i) Mechanisms for successful community-based DRR planning

Development of suitable instruments for assessing and planning DRR

Elaborate and promote simple community-based DRR instruments, which can be used by communities themselves or with limited external support (e.g. PNGO) so that even in the absence of the project the communities can elaborate their DRR plans. Ideally, while developing an instrument consider existing tools and guidelines used by the government and/or local authorities in the country. Train selected community members (community facilitators) in the field of DRR so that they can facilitate the process at the community level.

Active participation of local authorities

Encourage and facilitate active participation of local authorities during the elaboration process of the DRR plans, even offer them a facilitation role during the process. Ensure that the involvement is not limited to individual persons, but to the institution. Further, if DRR volunteers are in place, encourage them to have an active role during the entire process (planning and implementation).

Record and make indigenous knowledge available

Climate related information is most easily collected with elderly persons who have the deepest knowledge and experience. Encourage the communities to collect and record this knowledge before it is lost. Such indigenous knowledge can be a sound foundation in the process of elaborating DRR measures.

Table 2: Recommendations for implementing DRR mainstreaming activities

Recommendations	
Mechanisms for successful community-based DRR planning	<ul style="list-style-type: none"> • Develop community-based DRR instruments which can be facilitated by the community people and guide them to elaborate a simple DRR action plan • Elaborate simple training modules for field facilitators based on the instruments developed • Consult and involve local stakeholders in the elaboration process of the DRR planning • Include local DRR volunteers in the process and facilitation (if in place) • Record and make indigenous knowledge available
Strengthening of local capacities	<ul style="list-style-type: none"> • Ensure the involvement of representatives of different social groups (elderly, women etc.) and local stakeholders (especially local authorities, DRR committees etc.) • Ensure the concept of DRR is understood (precondition for any activity in DRR) • Make awareness raising and capacity building activities at the core of the interventions • Consider the hazard-specific context of the region and adapt the awareness raising activities accordingly • Create incentives and mechanism that farmers do not become reluctant to implement DRR measures
Implementation of community-based DRR measures	<ul style="list-style-type: none"> • Ensure the introduction of structural and non-structural measures in synergy • Ensure the community's own contribution and facilitate linkages with possible stakeholders • Promote structural measures which are replicable, cost-effective and based on indigenous practices • Define a set of criteria for the types of structural measures which will be supported • Communicate clearly if measures are not appropriate for long-term solutions • Clarify on the question of maintenance and costs as well as on future responsibilities at the very beginning of the intervention • Train communities on technical innovations and new varieties
Local stakeholders	<ul style="list-style-type: none"> • Ensure the involvement of local authorities during the entire DRR process • Encourage the involvement of the private sector and create incentive for DRR related investment • During a disaster: ensure the active role of the local stakeholders who were strengthened through the project • During a disaster: support and coordinate with the local authorities (UP) who ideally shall have the lead
Gender-sensitive DRR	<ul style="list-style-type: none"> • Screen all DRR measures through the gender lenses • Promote awareness raising activities in the context of gender-sensitive DRR • Ensure the active role of women and all social classes in the implementation of DRR activities

(ii) Strengthening of local capacities

Involvement of all stakeholders in the capacity building

To ensure an increase in local resilience towards the adverse impacts of disasters, the involvement of all local stakeholders (local authorities, line agencies, institutional department etc.) in the process of awareness raising and capacity building is crucial. Also share and discuss the different roles each local authority has in the DRR cycle so that the communities can approach the local authorities for getting support in DRR related concerns.

Understanding of the DRR concept is a pre-condition for community-based DRR

The understanding of the DRR concept is a fundamental and preliminary step before any risk reducing measures are planned. This means awareness raising and capacity building at different levels need to be conducted to make sure that all local stakeholders have a clear understanding about this concept. Once this has been achieved, specific capacity building trainings can be organised (e.g. mock drills within the community; responsibilities and tasks in the DRR cycle with local authorities).

Hazard-specific awareness raising activities

Elaborate awareness raising activities based on the hazard-specific context of the region, adapt and plan the sessions. The sessions should take place once a year, ideally one to two months before the hazard season so that people can get prepared accordingly. Further, particular sensitivity should be given to slow onset and small-scale disasters where external support is hardly given and communities rely on their own resources and skills.

Capacity building in specific skills development

Provide specific capacity building for implementing the DRR activities identified in the plan. This can include training on negotiation skills, elaboration of budgets, mobilisation of funds, technical skills etc.; indeed training which empowers communities to implement their activities in the future themselves.

(iii) Implementation of community-based DRR measures

Implementation of structural measures

Encourage local stakeholders to implement structural and non-structural measures in synergy. When promoting structural measures the following set of criteria should be considered:

- Cost effective and easy to be replicable by a community without or only limited external support
- Clarification of maintenance and costs (at the very beginning)
- Promote indigenous techniques and material

Incorporation of the private sector in DRR

Facilitate collaboration between the private sector and the communities and analyse specific value chains through a DRR lens, which might be attractive for the private sector to invest. (With regard to the DRR pilots, the involvement of the private sector in DRR has so far not been particularly explored. However, the inclusion of the approach 'Markets for the Poor (M4P)' in the project offers now opportunities to better involve the private sector in DRR activities and to create incentives for investing in DRR related issues.

Find balance between a community's own investment and the project's contribution

Ensure a community's own contribution for the implementation of structural measures by creating incentives at the community level to mobilize their own funds. Some kind of competitive procedure should be launched where the most suitable project initiatives elaborated by the communities would be selected. A desired approach could be one of "positive discrimination" where communities and local authorities are asked to bring in their own resources, and to approach external agencies for additional resources, before approaching the project. Positive discrimination would then mean that those communities are supported, which are able to manage mobilising own and external resources.

(iv) Local stakeholders

Strengthening of existing local structure

Strengthen the local governmental structures according to the Disaster Management Strategies and policies given in the country and contribute to a more efficient realisation of the responsibilities at the local level.

During a disaster: make optimal use of existing collaboration among the local stakeholders and involve local authorities

When local DRR stakeholders are strengthened in the context of the project, ensure that these actors also have a leading role and responsibilities during emergencies⁸ and support them upon request through the project's structures and networks.

(v) Gender-sensitive DRR

Bear in mind that all activities planned are screened through a gender lens; ensure that women and men are implicated in the implementation of DRR measures on the basis of equitable power relation.

5. Conclusion

The key lessons and conclusions drawn from the DRR pilot activities implemented by Intercooperation clearly illustrate that disaster risk reduction in a disaster-prone country like Bangladesh is crucial to secure people's livelihoods.

The DRR piloting schemes have been successful in improving the resilience of local communities in regard to natural disasters and thus have contributed to reducing the overall vulnerability. Communities and local authorities have developed awareness and have a better understanding of the concept of DRR. There is also a clear shift away from focusing "only" on response to prevention and preparedness activities; in other words, communities no longer "accept disasters", but strengthen their resilience through preventative and preparedness measures in order to be less vulnerable.

Through the different activities of the DRR pilot activities - risk assessment, activity planning and implementation of DRR measures - communities got a fundamental understanding about the concept of DRR and what they can do to increase their resilience at the local level to natural disasters. Through the pilot interventions, they are now empowered to prepare and protect themselves and their assets and thus to reduce their vulnerability to disaster risks. Even with a small budget, some effective measures to reduce risks due to natural hazards could be implemented. The communities learned how to use local materials in a more innovative way, to elaborate budgets for financial and human resources, negotiated with other stakeholders resp. mobilised additional funding for implementing 'smart hardware' measures.

In sum, the different activities strongly contributed to build primarily the confidence of communities and local authorities and secondly created ownership within the community for DRR activities, both fundamental for successful DRR interventions. It remains open to hope that the mainstreaming of DRR in the entire project regions will continue to be as successful and communities will be prepared in case of the occurrence of a next disaster in Bangladesh.

⁸ Past experiences in the regions have shown that local authorities have often been left out during a disaster, which can cause frustration on their side.

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7. Annex

Annex I: Examples of structural measures at the community level

(i) DRR measures with focus on 'smart' hardware

Hati protection against floods and wave erosion (Haor)

Communities in the haor region incur significant coping costs to maintain and strengthen their homestead and homes ranging between US\$ 150 and 200 per year before the monsoon season. To protect the homesteads from flooding and wave erosion, the DRR pilot communities raised their hatis and used bamboo and locally growing grass species (e.g. challa bon) to build protection walls using indigenous knowledge. In order to achieve a favourable slope, the hatis got some additional surface. In this way, the raised and extended hatis can be used for poultry and livestock rearing, vegetable cultivation, post harvest management of rice and storage of livestock feed. The material, which used to be bought at the nearby market, is now planted by the community itself.

Pilings and bundles against river erosion (region of Bogra and Rangpur)

Communities living close to the rivers constructed pilings and bundles with bamboos and trunks to protect their land from river erosion, a kind of indigenous protection measures against river erosion. Pilings are structures of bamboos and trees filled with soil, which are built in a line from bank to flow to reduce bank erosion. Bundles consist of a skeleton of bamboos and trunks which are placed in the river to deviate the main flow, reduce its erosion force and enhance siltation. For the construction of the pilings and bundles, the communities made a big effort to collect the required bamboo and trunks from within the communities and from governmental agencies (e.g. the Bangladesh Water Development Board). Further, local members of parliament, elite persons and a bazaar committee made financial

Piling as a successful intervention to mobilise communities to build preventive measures

Initially, the communities were quite sceptical regarding the establishment of piling for addressing river erosion due to the fact that the neighboring community did not get very encouraging results last year. So, only one cluster established 6 pilings (each piling was 20-30 feet long with 81 bamboos and 5 trunks) with the partial contribution from the project.

At the beginning of June, heavy rainfall occurred and the piling saved 6 culverts, one primary school, about 500 acres of cultivated land and about 450 houses. The fact that only one of the six pilings got destroyed compared to the number of dismantled pilings (about 15 pilings) financed by the WDB and built by contractors, motivated the community to establish more pilings and eventually they established 33 pilings with 2,700 bamboos and 170 trunks.

The "saved disaster" made headlines: Journalists and even the Minister for Water Resources visited the region. The community-based initiative has had a positive impact at various levels: CBO members feel now empowered and have more self-confidence to discuss with governmental authorities; at the same time the UP/UDMC feel needed and have a role within the union.

contributions and the community provided voluntary services for the construction work. The shared contributions and collective actions created ownership and linked the communities with other stakeholders important for future support and collaboration. Although the piling is not a permanent solution, the positive experience in the particular community highly motivated the people to get involved into DRR activities and mobilised the entire community.

Re-excavation and use of ponds and kharis against droughts (high Barind area)

Ponds and kharis (canals to irrigate the crop fields) are common measures in the drought prone north of Bangladesh to ensure the irrigation of the field crops in the surrounding area. However, regulatory mechanisms or initiatives to maintain and re-excavate these structures after siltation are lacking. In the frame of the DRR pilots, the Community Platform organised meetings with local authorities, owners of the kharis, and private pond owners to get the legal permission for the re-excavation of the khari. They also got the permission to cultivate fish in the khari, to plant trees, cultivate vegetables and raise rice seedlings on the embankments. Through a formal agreement with the government bodies, the CP finally negotiated a lease agreement of the khari for 25 years.

The ponds and kharis are also used to grow fish and to plant trees, vegetables and rice seedlings on the embankments (income generating activities for maintenance).

Community people shared the cost of the re-excavation of the khari. They expressed that the re-excavation would have a twofold benefit, i.e. crop production of the landowners would be increased due to irrigation from khari and additionally create employment opportunities for poor and extreme poor who can work in the crop fields. In sum, these small scale measures cannot completely protect the communities from major natural disasters, but since they are simple and cheap to implement and easily replicable, they can contribute to a significant improvement of resilience at household level.



Mr. Taimur Ali, Dimkoil, Nizampur Union, Nachole Upazilla, Chapai Nawabganj

I am an agriculture labourer of this village. During dry periods, I don't have any work in this area. Each year, I migrate to other districts to get employment. In the coming seasons, all landowners surrounding the khari will get irrigation facilities to grow paddy and other crops. This will create job opportunity for agricultural labourers like me. I hope next year during Aman and Rabi⁹ seasons I can stay and work in my own village which will only be possible thanks to the availability of water in the khari.

(ii) Building resilience - promotion of joint community activities

Establishment of community seed and food bank (in all project regions)

The introduction of community seed and food bank are simple, but effective measures to reduce the impact of natural disasters respectively seed crisis and provide a quick recovery after crop loss. It was decided by the communities that the seeds will be distributed during a crisis (without external support) amongst the most affected poor and extreme poor households for use in the following year. Similar to the storing of seed banks, community food banks were established to store dry food in a specially established bank.

For a first multiplication, the seeds were distributed to the farmers with the condition that after harvesting they had to hand back two to three times the given amount of seeds for the bank. For establishing the food bank, money and dry food (e.g. fried rice, puffed rice) were collected from local wealthy people.

DRR measures as income generating activities (in all project regions)

In order to increase the resilience of the disaster prone households, income generating activities (IGA) are crucial coping measure to reduce the negative impact of a natural disaster. For this reason, tree saplings (mainly fruit trees) were planted in common places like schools, mosques, temples, graveyards and around homestead areas. For this purpose, a contract with the local nurseries was established and the farmers received quality samplings at a reasonable price. During the dry season, the trees provide shade and increase water retention of the soil. The domestic consumption and/or selling of the fruits represent an added value for the community people. The diversified IGAs not only helped to finance the maintenance of the protection infrastructure, but also to develop the shock absorbing capacity of poor and extreme poor people. For instance, extreme poor were contracted by the landowners with the condition that the landowners get 33% and the farmers 67% of production. Trainings for the poor and extreme poor farmers on crop cultivation and management techniques were organised accordingly.

Preparedness through early warning system (Haor)

Each year, flash floods, a sudden rush of rain and downstream water from the bordering hills of India, affect Bangladesh's north eastern region (Sunamganj). Since there is no official information or warning system, these flash floods often implicate huge losses of crop, particularly if occurring before harvest time.

Initiated through the DRR pilots, several communities introduced early warning systems using available technologies such as mobile phones, mobile loudspeaker systems (touring on vehicles) and loudspeakers of mosques. In case of the early flash flood of 2010, the community was warned with microphones and cell phones. As a result, the warned communities raised and repaired the embankments in due time for protecting crops from flash flood. Thanks to the new early warning system between 25% and 80% paddy could be protected from the unprecedented devastating flash flood in 2010 (c.f. success story Sunamganj).










Annex II: Poster-Disaster Risk Assessment










Name of CP:

Ward:

Union:

Total HH of the ward:------(EP-----, Poor-----, Rich and medium-----)

Indicator	Question	Answer (Put Tick mark in appropriate box)		
Vulnerability				
	How many HH are poor or extreme poor in your Community Platform?	<input type="checkbox"/> More than 70%	<input type="checkbox"/> 50-70%	<input type="checkbox"/> Less than 50%
	How many people of your Community Platform are literate (can read and write)?	<input type="checkbox"/> Less than 20%	<input type="checkbox"/> 20-40%	<input type="checkbox"/> More than 40%
	How many women headed HH are in your Community	<input type="checkbox"/> More than 20%	<input type="checkbox"/> 10-20%	<input type="checkbox"/> Less than 10%
	How many HH are exposed to risk by natural hazards?	<input type="checkbox"/> More than 50%	<input type="checkbox"/> 10-50%	<input type="checkbox"/> Less than 10%
	How many HH had at least once a substantial loss, damage or reduction of assets or income due to natural hazards during the past 5 years?	<input type="checkbox"/> More than 50%	<input type="checkbox"/> 10-50%	<input type="checkbox"/> Less than 10%
Hazard				
	How often did you experience the following events of natural hazards during the past 5 years? Drought Flood Early flash flood River erosion Others	<input type="checkbox"/> Each year <input type="checkbox"/> Each year <input type="checkbox"/> Each year <input type="checkbox"/> Each year <input type="checkbox"/> Each year	<input type="checkbox"/> At least once <input type="checkbox"/> At least once <input type="checkbox"/> At least once <input type="checkbox"/> At least once <input type="checkbox"/> At least once	<input type="checkbox"/> Never <input type="checkbox"/> Never <input type="checkbox"/> Never <input type="checkbox"/> Never <input type="checkbox"/> Never
	How big were the damages and/or losses due to natural hazards?	<input type="checkbox"/> Big/large	<input type="checkbox"/> Moderate	<input type="checkbox"/> Small
	Did some people leave the village after being affected by natural disasters?	<input type="checkbox"/> More than 20%	<input type="checkbox"/> 1-20%	<input type="checkbox"/> Nobody left
	Did some people change their IGA after being affected by natural disasters?	<input type="checkbox"/> More than 20%	<input type="checkbox"/> 1-20%	<input type="checkbox"/> Nobody changed

	Were people seriously injured or did some die due to natural hazards?	<input type="checkbox"/> Many	<input type="checkbox"/> Few	<input type="checkbox"/> None
	Was livestock seriously affected or did some die due to natural hazards?	<input type="checkbox"/> Many	<input type="checkbox"/> Few	<input type="checkbox"/> None
	Has the number of natural hazards and their impact in the past 5 years increased compared to previous 10 years?	<input type="checkbox"/> Yes, it has increased a lot	<input type="checkbox"/> Yes, it has increased a bit	<input type="checkbox"/> No, it did not increase
Coping Capacity				
	During the last natural disaster did the Community Platform get support from UDMC, UP, line agency, NGOs or rich community members?	<input type="checkbox"/> No help	<input type="checkbox"/> Little help, but not sufficient	<input type="checkbox"/> Sufficient help
	Since the last natural disaster were there some specific DRR actions or initiatives taken by the CP?	<input type="checkbox"/> No action has been taken	<input type="checkbox"/> Some little action(s) have been taken	<input type="checkbox"/> Sufficient action has been taken
	How many different types of IGA do the poor and EP have?	<input type="checkbox"/> Mainly 1 - 2 type of IGA	<input type="checkbox"/> 3 types of IGA	<input type="checkbox"/> 3 or more different types of IGA
	During the last natural disaster did the CP provide some assistance for the most affected households?	<input type="checkbox"/> No assistance was provided	<input type="checkbox"/> Some assistance for a few families was provided	<input type="checkbox"/> Sufficient assistance was provided
Total tick mark		<input type="checkbox"/> X1	<input type="checkbox"/> X0.5	<input type="checkbox"/> X0
Weighted tick marks		=	=	=Zero
<p>Result = <input type="checkbox"/> + <input type="checkbox"/> =</p> <ul style="list-style-type: none"> ● if result less than 7 → low risk ● if result between 7 and 12 → intermediate risk ● If result higher than 12 → high risk <p><i>For intermediate and high risk a separate DRR planning should be carried out!</i></p>				
<p>Funded by:  Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra</p> <p>Swiss Agency for Development and Cooperation SDC</p>		<p>Published by: Samiddhi Project </p> <p><small>Natural Resource Management Rural Economy Local Governance and Civil Society</small></p>		
<small>Note: Pictures used in this poster are taken from PGA Tool & Business Plan Guiding Tool of IC/SDC, Cyclone Shelter Management Guideline of BDPC and the document 'Akal Ko Nikal' published by UNESCO.</small>				

About Intercooperation

Intercooperation (IC) is a leading Swiss not-for-profit organisation engaged in international development and cooperation. Intercooperation is both an implementing and an advisory organisation, providing professional resources and knowledge combined with social commitment. Intercooperation's expertise is grouped around three broad working domains:

- Environment and climate change
- Local Governance and Natural Resources
- Income and food security

In all its work, IC seeks to empower the poor and marginalised by supporting gender-balanced, equitable, rights-based development.

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