



Training Manual On Community Based Early Warning System on Landslide

Printing supported by:

Comprehensive Disaster Management Programme
Ministry of Disaster Management and Relief



Empowered lives.
Resilient nations.



Training Manual On Community Based Early Warning System on Landslide

Comprehensive Disaster Management Programme (CDMP-II)
Ministry of Food and Disaster Management (MoFDM)
Disaster Management and Relief Division (DMRD)
Government of the People's Republic of Bangladesh

Training Manual On

Community Based Early Warning System on Landslide

Submitted by

Joint Venture of



And



Data Experts (Pvt.) Limited
House 25/3, Road 15 (old 28)
Dhanmondi, Dhaka-1209, Bangladesh

Asian Disaster Preparedness Center
SM Tower, 24 th Floor, 979/69 Paholyothin Road,
Samsen Nai Phayathai, Bangkok 10400, Thailand

Acronyms

ADPC	Asian Disaster Preparedness Center
CDMP	Comprehensive Disaster Management Program
CBEWS	Community Based Early Warning System
CBV	Community Based Volunteer
CBDRM	Community-Based Disaster Risk Management
CDRMO	Community Disaster Risk Management Organization
CMDRR	Community-Managed Disaster Risk Reduction
CVA	Capacity and Vulnerability Analysis
CRA	Community Risk Assessment
DRC	Disaster Risk Communication
DRM	Disaster Risk Management
DRMP	Disaster Risk Management Plan
IDNDR	International Decade for Natural Disaster Reduction
ISDR	International Strategy for Disaster Reduction
PDRA	Participatory Disaster Risk Assessment
PDMC	Pourashava Disaster Management Committee
PME	Participatory Monitoring and Evaluation
PLA	Participatory Learning and Action
PRA	Participatory Rural Appraisal/ Participatory Reflection and Action
SOP	Standing Operating Procedure
SOD	Standing Order on Disaster

Acknowledgements

The Data Experts and Asian Disaster Preparedness Center (ADPC) Joint Venture is grateful to the Comprehensive Disaster Management Program (CDMP) for assigning the technical research on landslide risk assessment followed by integration of its results with the establishment of early warning mechanism at community level. This has also opened the doorway for developing the Training Manual for establishing Landslide Early Warning Mechanism which might be useful for similar type of assignment in the future.

Introduction

In 2007 a total of 395 fatal landslide events were recorded, inducing a total of 3017 deaths worldwide. This is considerably lower than the average over the period 2003-2006, which is 4399 excluding losses associated with the 2005 Kashmir earthquake, or 10976 if estimated landslide deaths from this event are included. Nonetheless the total of over 3000 deaths continues to demonstrate that previous estimated of human losses from landslides have massively underestimated the true costs. Geographically, 38.7% of fatal landslide events, and 34.5% of landslide deaths, occurred in South Asia. In terms of occurrence of landslide fatalities by nation, Bangladesh stands the most affected country including China, Indonesia, India, Nepal and Vietnam. Apart from regular events, in 2007 in Bangladesh, heavy rainfall caused a landslide at the commercial city Chittagong in Bangladesh killing 86 people and 100 other people injured. The landslide phenomenon and settlement in those areas have been constantly debated in various domains including political groups, NGOs, government agencies and media as well. Due to lack of awareness to understand the nature of pre-event symptoms to take action before the event occur, has compounded the problem manifold. In most of the case, landslide occurs in the event of flash-floods or earthquakes. This makes the case of landslide as secondary hazard while focus turned to the floods and earthquakes. In a way, landslide has largely been ignored and subsided from the disaster risk reduction strategy to incorporate as a main hazard.

datEx-ADPC Joint Venture in collaboration with Comprehensive Disaster Management Program (CDMP) has been implementing project to address the risks of landslides in Cox's Bazar and Teknaf. This effort corroborates to bring the science, society and institutions together to deal with the landslides risks. Community in both the cities are facing landslide risks on daily basis which are somehow indicate the extensive hill cutting and lack of awareness on landslide. To address these two issues, a community based early warning system has been proposed to set up to increase awareness among community to monitor landslide events as well as reduce hill cutting activities.

Project Objectives

The primary objective of this project is to model the slopes in Cox's Bazaar and Teknaf municipal areas susceptible/potential to failure triggered by heavy rainfall and to introduce community-based early warning system as a pilot basis in Bangladesh for managing landslide hazard.

The secondary objective is to use the project experience as a model for landslide disaster risk reduction in two hazard prone cities in Bangladesh and assist stakeholder institutions to formulate a long term landslide hazard mitigation strategy for Bangladesh



Module 1

Module 1

Community Risk Assessment - Concept, Risk Resources & Evacuation Mapping, Hazard Assessment, Vulnerability Assessment, Critical Slopes Identification

Introduction

Community based risk assessment process is carried out using the Participatory Rapid Appraisal (PRA) methods. It is advised to conduct the Risk mapping activity first and foremost in a community for the following reasons.

- It builds self confidence of community Based volunteers through knowing regarding whole community at a glance
- This can act like the baseline of how the community sees their community
- The map acts as a visual aid in risk assessment process
- Making communication strategy, identification of safe evacuation places

This module is intended to introduce the trainees to both the Risk Assessment (RA) process

Key points: Participation, Risk Resources & Evacuation Mapping, Hazard Assessment, Vulnerability Assessment, Critical Slopes Identification

Session I: Introduction to Participatory Risk Assessment

Facilitators' Guideline

1. Facilitator can divide this module in two sessions;
 - a. Introduction to Participatory Risk Assessment Process
 - b. Risk ,Resource and Evacuation Mapping (R&E)
2. Participatory Risk Assessment Process's session can be conducted as a Q & A session where the facilitator will ask questions from the participants to measure their knowledge on respective Community.

Objective

At the end of the session, participants would be able to learn:

- What is participatory Risk Assessment Process and major tools
- How to develop RR&E maps through community participation

Methods of Delivery:

Training of Volunteers: Discussions and PowerPoint presentations to explain about the process, importance of Participatory risk Assessment (PRA) and the tools which can be used in conducting the Risk , Resource and Evacuation mapping exercise

Material to be used

Flip charts, Permanent markers and/or whiteboard markers, White board, Meta cards in different colors, Transparent Plastic sheets, Fixed Markers, Ink remover, Multi color sign pen

Process

1. Facilitator can begin with a PowerPoint presentation or a poster explaining what is “participation” and why participation by all are necessary
2. Facilitator can then explain the Participatory Rapid Appraisal (PRA), advantages and disadvantages of PRA
3. Select the most important PRA tools involved in CBEWS and explain them using hands-on exercise

PRA Tools used in CBEWS

- Transect Walk
- Risk , Resource and Evacuating Mapping
- Seasonal Calendar
- Direct Observation
- Structured Questionnaire
- Survey
- Formal & Informal Discussions
- Ranking of community
- Historical transect

Duration

One and half (1.5) Hour

Definitions

What is “participation”?

The term participation refers to the involvement of all the concerned parties (stakeholders) in decision making process regarding common issue(s) which affect them all. It is a process by which local communities are empowered to take control of their lives, make informed decisions regarding issues affecting their daily activities with regards to landslide.

Participation does not imply that everyone in the community has to come together one day in a meeting to discuss some issue. Though such situation would be ideal, CBEWS facilitators/ volunteers should recognize the fact that it is nearly impossible to bring all the members in the community into one place one time due to cultural, economical, social and political reasons. Therefore, participation by all can be arranged in different manners, different times and places in order to get everyone’s inputs but separately.

For example, in South Asian cultural situation, women may not be able to speak out their concerns in front of their husbands, fathers and sons. This may hinder them voicing their concerns and their views/solutions on some issues in the community. Similarly, politically and economically poor people will not speak in front of rich if both the groups are in the same meeting. The rich will dominate the meeting and get their concern across the table. Therefore, it is better to bring different groups of community members into different separate meetings to get their ideas regarding community and hazard

Participation by every group in a community is necessary in CBEWS in order to ensure all their needs are addressed. Different groups have different needs, risks, vulnerability levels and Evacuation. To capture all these different inputs, everybody should be involved in this process

What is PRA?

PRA is a set of approaches used in promoting participation at local level in collecting and analyzing data and planning for development and other issues. It is a “shared learning process” for the communities, volunteers and the outsiders i.e. facilitating organization, municipality. “The purpose of PRA is to enable development practitioners, government officials, and local people to work together to plan context appropriate programs. PRA techniques are equally applicable in urban settings and are not limited to assessment only.

Why PRA?

PRA is encouraged mainly for 2 reasons:

1. It helps to achieve Good Governance among the practitioners i.e. volunteers, municipality ,service agencies

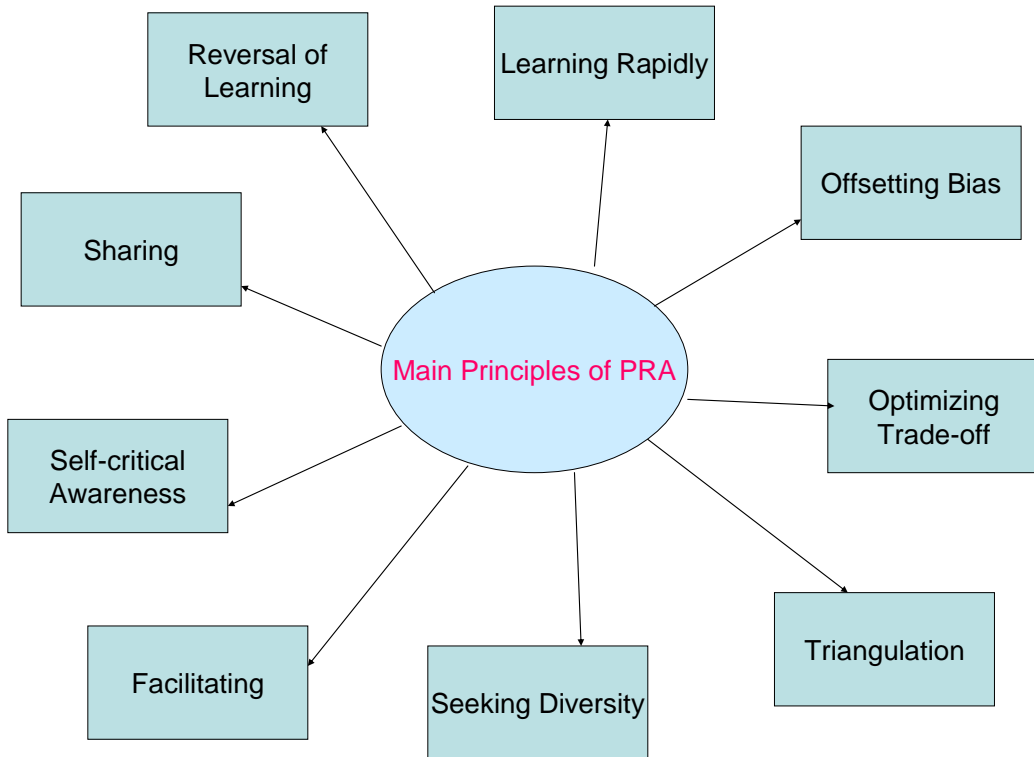


Characteristics of Good Governance

PRA promotes the “Participatory” character of Good governance which is the key to achieve other characteristics.

2. It enables women empowerment by allowing the women to take equal part in planning and decision making roles
By promoting “participation” by all, PRA helps bringing the marginalized groups and women to come forward in planning and decision making.

Principles for PRA



Source: Asian Institute of Technology/RRDP Handouts

Reversal Learning: PRA is a two-way learning technique. Facilitator should not consider himself/herself as the “expert”. Facilitator should respect the local knowledge and expertise of the community and be open hearted to unlearn what he knows and learn what the community knows.

Learning Rapidly The facilitator should be able to learn fast regarding the participant’s knowledge and level of understanding and adjust the method of conducting PRA accordingly.

Offsetting Bias The facilitator team should not go into the community with the mind set

	that they are the experts. They should respect each and every member of the community and treat them equally without favoring one group over the other.
Optimizing Trade-offs	To efficiently use time and money the facilitator team needs to gather just enough information to make the necessary recommendations and decisions. The facilitator team should decide what information they want to gather from the community using PRA and what information they do not need for the present intervention purposes. Based on that the facilitators may need to trade-off information and opportunities for the most important information/opportunity.
Triangulation	PRA requires qualitative data. To ensure that information is valid and reliable, at least three sources must be consulted or techniques must be used to investigate the same topics. If there are no other sources of information available (e.g. Baseline maps for community level), available information are deemed true and reliable.
Seeking diversity	To ensure that all aspects with regards to CBDRM are captured a diversified group representing socioeconomic, cultural, gender, and generational perspectives should be present during PRA meetings.
Facilitating	In community, all other outsiders who willing to intervene, should be “facilitators” not “Lecturers or trainers”. The community should be guided through the process of CBDRM using PRA tools by the facilitators.
Self-critical awareness	Facilitators should be able to criticize themselves regarding their performance as well as be ready to any of the feedbacks given by the participants
Sharing	Whatever the information gathered during PRA is owned by the community. The facilitator team should take measures to share the information gathered from the community and whenever those information is used, get that community’s prior approval for their use.

PRA Tools

- Transect walk
- Risk & Resource Mapping
- Seasonal Calendar
- Direct Observation
- Structured Questionnaire
- Survey
- Formal & Informal Discussions
- Timeline
- Ranking
- Historical transect

Session II: Risk, Resource and evacuation Mapping (RR &EM)

Objective

At the end of the session, the participants will be able to learn

- The standard steps of facilitating Risk , Resource and Evacuation Mapping exercise.
- How to develop Risk , Resource and Evacuation Map
- How to conduct Hazard, vulnerability Assessment
- How to validate Risk and Resource Map

Facilitator’s guidelines

1. Facilitator team should only guide the community to draw the map. They should facilitate the drawing of the map, and not interfere. They should avoid drawing on the map. The facilitator should encourage everyone, as the situation allows, to draw and inform them that the plastic sheet allows for erasures using the acetone.
2. RR&EM session should be conducted as a hands-on exercise where the participants are asked to draw the map: it can be a scenario or their surrounding or a common place they all are familiar with.
3. The process of discussing Risk assessment should be conducted based on the map drawn by the community/participants.

Methods of Delivery:

At community level: Guide the community members to draw their perception of their community. The facilitator can ask questions to guide the process.

Materials to be used

Flip Charts (several bunch to be used in mapping), Permanent markers in several different colors, Transparent polythene sheets (3m x 3m), 3 Acetone bottles OR nail polish remover bottles, Packet of cotton balls, Pair of Scissors, Masking tape , Transparent tape

Process

Stage 1: Pre-Mapping & Risk Assessment Stage

1. Community Visits

a. Selecting the community

- i. Based on the community visits, interviews, and interactions with the community members, identify the needs of the community.
- ii. Decide on the **purpose** of your organization’s intervention to this particular community (e.g. Landslide, Disaster Risk Management, women empowerment, livelihoods creation, micro-credit schemes) based on the identified needs.
- iii. Do a cost benefit analysis: How much resources necessary for the intervention, number of beneficiaries and a comparison of the costs of intervention and benefits returned
- iv. Search on secondary information/data about the community. The historical record of the community, other NGOs working in the community and their mandates, socio-demographic data of the community
- v. Identify different groups in the community and their personal interests in the community and your organization

b. Selecting criteria

- i. Severity of community’s exposure to risks (most vulnerable community)
- ii. Number of beneficiaries
- iii. Accessibility to the community
- iv. Readiness of the community to do landslide risk reduction activities

c. Ranking of Most Vulnerable Community

Selected communities are prioritized for reselecting pilot communities from Cox’s bazar & Teknaf Municipalities considering following criteria-

- i. previous landslide record
- ii. Losses of lives
- iii. Damages of assets
- iv. Frequency of hill cutting
- v. Most vulnerable houses in the hilly area
- vi. Highly density of population in the hilly area
- vii. Underprivileged, most vulnerable people in the community like, elderly, child, differently able etc.

These criteria can be represented in a matrix as given below to conduct Ranking exercise to select a community for intervention.

Criteria for Critical Community Identification

	Name Of Community	Voted by the community based volunteers	# of vote as high Vulnerable community	# of vote as medium vulnerable community	Ranking
For Cox’s Bazar					
1	Mohajer Para,Ward # 09	12	8	4	2nd
2	KabarstanPara,Ward # 11	0	0	0	
3	Badshar Gona,Ward # 07	2	1	1	4th
4	West Pahartoli/Khalpra,Ward	2	1	1	4th
5	Teknaf Pahar,Ward # 07	2	1	1	4th
6	Jadi Pahar/North Gonar Para,Ward # 08	8	1	7	3rd
7	S.M. Jadi Pahar/Tal Gach Pahar,Ward # 08	13	8	5	1st
8	East Pahartoli/Yusuler Gona,Ward # 07	2	1	1	4th
For Teknaf					
1	Fakirer Moora/ Uromer Chora-Ward # 02,Name of Ward: Puran Pollan Katha	10	10	0	1st
2	Ameer Ahmed’s Zoom Pahar/Monafer Pahar- Ward # 02,Name of Ward: Puran Pollan Katha	10	10	0	1st
3	Hafiz Paglar Pahar- Ward # 02,Name of Ward: Puran Pollan Katha	10	10	0	1st

2. Building rapport with the community

After selecting the community, the facilitator team should build good rapport with the community to gain their trust. Trust and friendship is the key to facilitation of appropriate participation. This will also lead to greater understanding of the community by the facilitator team.

The actions you can take to gain trust by the community:

- Living in the community
- Being transparent and open about your goals, who you are and what is being done
- Participating in daily life in the community, as well as community activities and cultural events
- Listening to local people about their life, issues and problems
- Learning new skills from local people
- Performing local tasks

Gathering secondary data about the community is important in understanding them. Following are basic elements to understand the community¹.

“Social groups

What are the main ethnic class, religion and language-based groups in the community?

Who is in the majority, who is in the minority, what is the nature of their relationships?

Cultural arrangements

How are the family and community level structures organized?

What hierarchies exist?

What are the common ways of behaving, celebrating, and expressing?

Economic activities

What are the major livelihood sources and what are the associated activities that people carry out?

What is the division of labor?

What is the relationship between landslide and seasonality?

Spatial characteristics

What are the locations of housing areas, public service facilities (e.g. schools, mosque, pagoda, temples, health clinics, and evacuation centers), agricultural land etc?”

3. Obtaining community consent and support

- It is mandatory to explain to the community why you are proposing CBDRM in their community because having them involved from the inception increases their sense of ownership over the whole CBDRM process
- Thereafter, inquire from the community whether they would like to draw a map of their community and explain the importance of having a map.
- If the community agrees to do a mapping exercise and risk assessment, decide on a possible date, time and location to do the mapping exercise together with the community

Stage 2: Mapping & Risk Assessment Stage

1. Making the map base

- Glue together 6 or more (depending on the size of the community) flip chart pages. The size of the base map must be enough to accommodate the number of participants who want to draw the map.
- Cover the pages with the transparent polythene sheets – laminate
- It is better to make this base on the previous day and bring it to the community on the day of mapping to save time.

2. Participant List

Send around a Participant Signature list to gather everyone’s names who are participating in the mapping exercise. Including their names in the map increases their interest and sense of ownership over the map and the assessment. Make sure that the names in this list are written on the digitized and integrated map.

3. Legend identification

On a separate flip chart, identify the “Legend” icons with the community – which Icon they want to give for the specific resources in the village. The community should be left at liberty to decide how and what to draw for the icons.

4. North Arrow and Direction of the map

Ask the community to identify which side of the paper should be North and mark it accordingly.

5. Boundaries and landmarks

- Guide the community to identify the first major landmarks and boundaries of the community.
- Thereafter let the community to draw the resources found in their community on the map at their own liberty.
- Use the permanent markers to draw on the polythene sheet and if any mistake done, use the Acetone with a piece of cotton to erase and re-draw. This is useful because this allows children to draw their perception of the community and if the adults find it wrong, they can easily erase it and re-draw. In this manner, children are exposed to these kinds of participatory exercises as well as their sense of ownership is built from a very young age. This ensures the participation of every member in the community in this PRA activity.
- Once the community has completed drawing the map and they are satisfied, finalize the resource map: Ask questions if the community has not drawn the things which you have observed during your transect walks and other information gathering exercises. Asking questions is the key to facilitate the mapping exercises. Therefore, prior knowledge on the community is important.

6. Hazard, Vulnerability, Risk (HVR) Identification on the map

- After finalizing the Risk ,Resources and Evacuation Maps take another piece of transparent polythene sheet and laminate again the resource map. Use this overlay to identify Communication Strategy.

Hazard Identification

1. What is the most common natural disaster in the community?
2. Please mark that area on the map in **red** color, Blue and Green for **High, Medium, Low respectively.**
3. Vulnerability

Elements at risk identification

1. Who are the people living in the **red** colored area? How many men per household, how many women/children/elderly and disabled per household?
2. What are their livelihoods? Where do the men usually work (inside the community or outside the community)?
3. Who are at home all the time?
4. How many people are living there?
5. How many households are there?
6. What are the other structures in that area?



Module 2

Module 2

Community Based Early Warning System- Installation, Monitoring, Recording, Documentation, Communication and Evacuation

Introduction

Comprehensive Disaster Management Program (CDMP) has been implementing project through the collaboration with ADPC to address the risks of landslides in Cox’s Bazar and Teknaf. This effort corroborates to bring the science, society and institutions together to deal with the landslides risks. Community in both the cities are facing landslide risks on daily basis which are somehow indicate the extensive hill cutting and lack of awareness on landslide. To address these two issues, a community based early warning system has been proposed to set up to increase awareness among community to monitor landslide events as well as reduce hill cutting activities.

The primary objective of this project is to model the slopes in Cox’s Bazaar and Teknaf municipal areas susceptible/potential to failure triggered by heavy rainfall and to introduce community-based early warning system as a pilot basis in Bangladesh for managing landslide hazard. The secondary objective is to use the project experience as a model for landslide disaster risk reduction in two hazard prone cities in Bangladesh and assist stakeholder institutions to formulate a long term landslide hazard mitigation strategy for Bangladesh.

Session I: Concept and process of Community Based Early Warning System

Key Points

Community
Early Warning System
Community Based Early Warning System
Installation
Monitoring
Recording
Documentation
Communication
Evacuation

Facilitators guide

1. Facilitator team should share regarding concepts from participants and ask them to share their views on above issues
2. Facilitators should maintain proper documentation of participants’ view in the flip chart.
3. Facilitator team will share experts views on above concept and make a easiest concept for better understanding through using references

Objectives

- At end of this session participants will be able to understand regarding major concepts on Community Based Early Warning System
- At end of this session participants will be able to understand regarding systematic process of Community Based Early Warning System

Method to delivery

Brain storming
Open Discussion
Lecture
Peers review
Content Analysis
Historical Analysis

Process

Step1:Preliminary visit to Cox’s Bazar and Teknaf- At the initial stage of project, a team of experts of ADPC including senior, intermediate and junior technical staff made visit to both the cities. The objective of this visit was to introduce and share the purpose of the project to the municipality and the primary stakeholder; the vulnerable community. Transect walk and direct observation methodology were used to observe the landslide locations and affected habitation and their pattern. Project related information were shared at both level; community and municipality. Since community is the primary stakeholder of this project, it was essential to understand the landslide risk perspective. Community based focal persons were also identified who will take a lead role in facilitating the CBEWS².

Step2: Early Warning Audit- Hazard ready toolkit is primarily an audit or investigation on early warning system development to understand the strengths and weaknesses of the existing information dissemination process from national to community level. It provides an opportunity to enquire six different key areas of early warning systems such as **communication and coordination, warning reception, local hazard monitoring, local warning dissemination, preparedness and administrative compliance**. This helps in bridging the gaps among these key components of early warning system as well as exploring opportunities to make the early warning dissemination process simpler and effective. As the **four key elements** of early warning focus on **risk knowledge, monitoring and warning service, dissemination and communication and response capability**, the hazard ready toolkit has align these perspectives as well as to touch upon the cross cutting issues such as governance and institutions arrangement, multi-hazard approach, ownership of local communities, gender perspectives and cultural diversity. The hazard ready toolkit primary highlights the set of roles played by various agencies such as communities, local governments, national governments, regional institutions and organizations, international bodies, non-governmental organizations, the private sector, the science and academic institutions. The early warning audit was conducted both at the community and municipality level. Though the municipal authorities in both the cities pay adequate attention in responding to the landslide events mostly, but landslide monitoring and preparedness is key concern for community and authorities. Due to high priorities given to cyclone, storm surge and floods, landslide always considered to a secondary hazard induced by incessant rain, cyclone and storm surge and so as monitoring and early warning at all levels from national to community.

Step3:City level meetings and workshops- City level workshops were organized and project related objectives, activities and outcomes were shared. In the chairmanship of Mayor, the workshops were presided by elected councilors, PDMC³ members, local met office and Red Crescent representative. In the workshop, the most vulnerable communities within the city were identified by the participants to implement the community based activities on landslide risk reduction. During the workshop, the consensus was development that, municipality would take lead role in the implementation of the project. It was also discussed that the elected commissioner would be a change agent in this project and mobilizes community on landslide risk reduction.

Step4: Identification of most vulnerable communities- During the workshop, representatives from different agencies identified the vulnerable locations and communities to implement the project. Past events on landslide were also the major consideration for selecting community. During the initial visits to Cox’s Bazar and Teknaf, all the probable vulnerable communities were identified based on Municipality recommendations. After that, all vulnerable communities sat together to identify most vulnerable communities among them. Following are the criteria that have been implied during the discussion with community, ward councilors, and pouroshava representatives;

- Past events of landslides;
- Loss of lives and property;
- Population density;
- Women, children, persons with disabilities and elderly.

There was common consensus on identified communities prone to landslides for both cities. Below mentioned are the identified communities in both Cox’s Bazar and Teknaf:

Teknaf	
Location	Risk ⁴
Puran Pallan Para	High
Urumchara, Puran Pallan Para	High
Fakirer Mura, Puran Pallan Para	High

Cox’s Bazar	
Location	Risk ⁵
Mohajer Para	High
S.M. Jadi Pahar	High

Source: Field Survey

Step5: Rapport building with vulnerable communities- With the identification of the vulnerable communities, volunteers and community facilitators were identified in each selected communities. These volunteers and community facilitators would act as a change agent for landslide risk reduction.

Step6: Orientation and Training Program for Volunteers and Community facilitators- With the identification of the community based facilitators and volunteers’, training on early warning system was organized to orient. In this training, the focus was to discuss about the CDMP Landslide and the basics of early warning components such as risk knowledge, monitoring and warning, dissemination and

⁴ Risk category has been assigned based on the previous incidents as well vulnerable locations based on critical slopes.

⁵ Risk category has been assigned based on the previous incidents as well vulnerable locations based on critical slopes.

communication and response capability. The training also covered the process of community based disaster risk reduction (CBDRR) and how to mobilize vulnerable community.

Step7: Stakeholders Analysis- In determining the target beneficiary groups, it is crucial to conduct a stakeholder analysis and identify which group among the vulnerable is the most vulnerable. This analysis therefore focused on vulnerable groups living in the landslide locations.

Table 1: Primary Stakeholder Analysis⁶

Group	Issues	Needs	Vulnerability
Cox' Bazar and Teknaf			
Men/youth	During the focus group discussions with men/youth, it was found that there is lack of understanding of the risk that landslide carries. Participants responded that, they are aware of the consequences of landslide but it is difficult for them to understand which particular location would high vulnerability to landslide. In the group discussion it was also found that, participants did not have understanding about CRITICAL SLOPE. Due to this lack of awareness, lot of constructions are taking place on CRITICAL SLOPE, however this can be avoided to a great extent to identify the locations which can be used to construct houses.	<ul style="list-style-type: none"> • Create awareness on landslide risks. • Training and orientation about the CRITICAL SLOPE and Landslide OBSERVATION. • Training on Construction of House on SLOPES. 	Medium
Women/child ren	During the focus group discussion with women, it was found that the understanding on landslide risk among women is more or less same with men/youth. Some of the participants did recognize that most of the time women stay at home as men go out for livelihood. In this case women become more vulnerable than men. This also depends on the time of landslide event (day/night)	<ul style="list-style-type: none"> • Create awareness on landslide risks. • Training and orientation on Landslide OBSERVATION • Provide lead role in Landslide Early Warning System 	High
Persons with different abilities	In specific group discussions with persons with different abilities, it was found that, in the community, they are the most vulnerable group. The reasons that participants brought up during the discussions were; very limited participation in any of the community or public meetings, limited interactions with the ongoing community based activities. As most of the time, persons with different abilities stay at home close by places due to the household restrictions.	<ul style="list-style-type: none"> • Same as above 	High

⁶ There are two kinds of stakeholders; Primary and Secondary. The above matrix gives information on Primary Stakeholders because of the direct impact of the disasters.

Group	Issues	Needs	Vulnerability
Elderly	During the group discussion with elderly it was found that, in terms of understanding the nature and symptoms of landslides, group of elderly people have vast knowledge. Water oozing, cracks, hill cutting were some of the symptoms that participants discussed. But due to lack of participation in community based activities, elderly people do not take interest to facilitate the Landslide Risk Reduction process and due to cultural barrier, elderly people are less mobile than men/youth or women.	<ul style="list-style-type: none"> • Same as above 	High

Table 2: Secondary Stakeholder Analysis

Group	Issues	Needs
Bangladesh Meteorological (BMD) Department	<ul style="list-style-type: none"> • The BMD provides rain fall forecast and warnings. <i>The existing problem is with the limited understanding to interpret the rainfall data and predict landslide event or warning.</i> 	<ul style="list-style-type: none"> • BMD can downscale the rainfall related information at the city level and local met office can assist municipality to develop LOG BOOK to OBSERVE or MONITOR the THRESHOLD VALUES for LANDSLIDES
City level Met Office	<ul style="list-style-type: none"> • The linkage between city level met office and PDMC is weak in terms of utilizing information generated by the BMD from national to local office. 	<ul style="list-style-type: none"> • The local met office can play a key role in mechanizing the information from BMD at national level to the city level linked with PDMC.
PDMC	<ul style="list-style-type: none"> • PDMC members are mostly elected members representing the different wards and normally they do not get involved in this early warning activity at all. 	<ul style="list-style-type: none"> • PDMC is an asset for the city which has linked to the community, given the opportunity to mobilize community on EWS, PDMC would be able to do so.
NGOs	<ul style="list-style-type: none"> • NGOs have intensive outreach in Cox’s Bazar and Teknaf but have little interventions on CBEWS. 	<ul style="list-style-type: none"> • With the assistance of NGOs, the outreach can be maximized in different community settings.

Step8: Community Risk Assessment (CRA) - After conducting the training, the next step was to facilitate community risk assessment. Under this activity, risk mapping, early warning action planning and implementation were facilitated through the identified volunteers and community based facilitator. Risk and resource maps were developed for each of the community and ward level. The purpose of the risk and resource map are as follows:

- Community will be able to understand about critical slope in landslide locations.
- Community will be able to identify vulnerable houses and people over the space.
- Community will be able to identify the symptoms of landslides.
- The risk and resource map has also identified the evacuation route within the community in the event of landslides.

Step9: Review and validation of Community Risk Assessment (CRA) process – after accomplishment of CRA process, a review and validation activities were conducted in both the cities at the community level. In the review and validation process, each identified community reviewed the risk and resource maps and identified the gaps. Following were the information updated during the validation process at the community level where volunteers, ward councilors, teachers, and representatives from vulnerable houses

Some of the risk and resource maps did not have the community level demographic information.

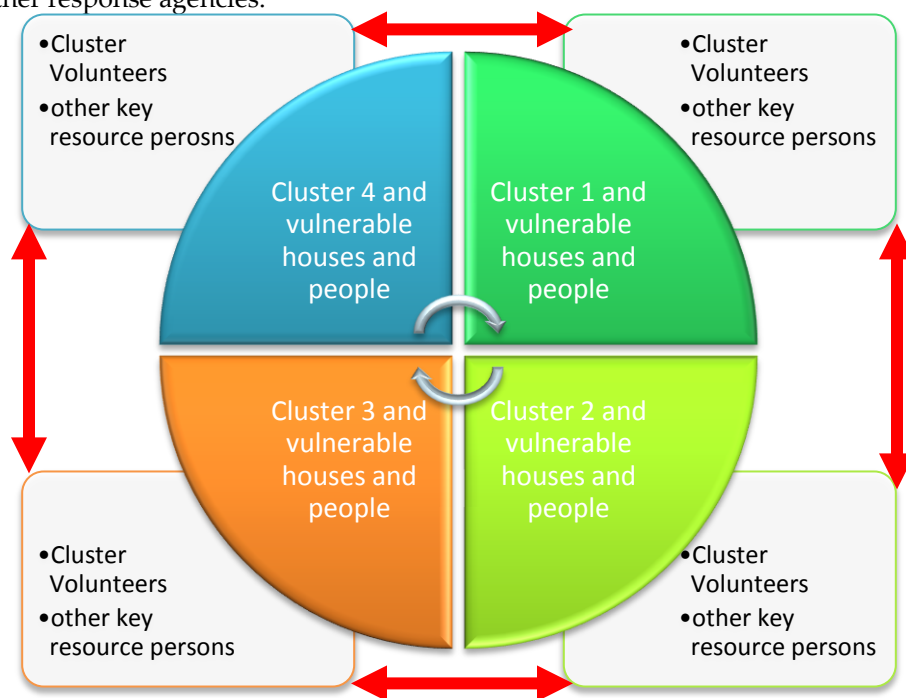
- During the mapping process, risks were categorized into three; high, medium and low risks. During the discussion with community it was found that, some of the houses were exactly located on the critical slopes and some at the foothill. Based on the discussion with community, houses located at the critical slopes have been identified as VERY HIGH RIS
- K and houses at foothill as HIGH RISK. Some of the risks and resource maps did not have legend mentioned. Houses of important resource persons such as volunteers ward councilors and teachers were not located on the map. Development of evacuation map



Risk and Resource Map

Step10: Development of Communication Strategy- After the completion of risk and resource map validation, a communication strategy is being developed at the community level. The communication strategy deals with the communication and dissemination procedure before and during the landslide event. Following are the standard steps that have been adopted to develop the communication strategy:

- **Demarcation of Clusters within the identified community-** The identified community has been grouped as cluster to design the communication and dissemination strategy at the community level. How the information would be disseminated to each of the vulnerable location.
- **Identification of Cluster level volunteers within community-** the demarcation of clusters within community then identified the cluster volunteers. Each cluster volunteer would have list of key resource persons to mobilize households in that particular cluster as well as to other cluster volunteers to provide landslide early warning information.
- **Communication Process-** The communication process was also discussed with each community on HOW each cluster will communicate internally and externally with regards to landslide early warning system.
- **Internal, within cluster and external communication process-** Each cluster has discussed and defined the communication process. Cluster volunteers will have internal communication with regards to early warning information collection and dissemination. On the other hand, cluster volunteers would also communicate with other cluster counterpart as a part of community mobilization before and during the landslide event. At the same time, these cluster volunteers would also communicate with external agencies such as Pouroshava, Red Crescent, NGOs and other response agencies.



Communication Strategy on Landslide Risk Information Dissemination

In Cox’s Bazar, each community has four clusters and in Teknaf, there are 3 clusters. The demarcation of clusters is based on as follows:

- **In Cox’s Bazar-** The criteria of four clusters within the community is based on the geographic location and area. The geographical area in selected community is big and it is difficult for

volunteers to manage. It was decided by the volunteers that, there should be four clusters in S.M. Jati Pahar and Mohajeer Para so that communicate the early warning effectively and community can be mobilized easily.

- **In Teknaf**-The criteria here is based on location of volunteers. There are three clusters in selected community where cluster volunteers are located in three different locations.

Step11: Development of Standard Operating Procedure (SOP) at community level- The standard operating procedure was also developed during validation of CRA process. Key mobilizers within each cluster and stakeholders for SOP were also developed. The purpose of SOP is to have a SIMPLE GUIDELINE at the community level so that specific roles and responsibilities can be performed. The develop SOP is at the consultation stage and would be finalized during the simulation. It is also better to give this guideline a local name rather than SOP which is more technical. What should be the name of this guideline will also be discussed with community. Following is the format that have been developed for SOP and written by community themselves:

Change Agents of Early Warning System	Responsibilities	
	Before	During
Cluster Volunteers	<ul style="list-style-type: none"> • Facilitate the risk and resource map development and installation of Early Warning Display Board • Monitoring Very High Vulnerable Houses and regular contact and Put Color code to the most vulnerable houses • Maintenance of Early Warning Equipment. • Collect data from Rain Gauge and interpret • Disseminate early warning information to Vulnerable Houses in Clusters • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Communicate with Ward Councilors and response agencies • Facilitate Evacuation for other possible landslide areas • Inform other cluster volunteers to be vigilant
Ward Councilors	<ul style="list-style-type: none"> • Mobilize community to develop and update Risk and Resource Map • Disseminate early warning information to various key persons in the community, school teacher, religious leader and Pouroshava authorities. • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Coordinate with Response agencies. • Facilitate evacuation process for other possible landslide areas. • Keep in touch with other cluster volunteers and external agencies
Religious Leaders	<ul style="list-style-type: none"> • Mobilize community to develop and update risk and resource map • Regular public announcement about Landslide protection and vigilance • Facilitate Simulation/Drill on regular 	<ul style="list-style-type: none"> • Coordinate with Response agencies. • Facilitate evacuation process for other possible landslide areas.

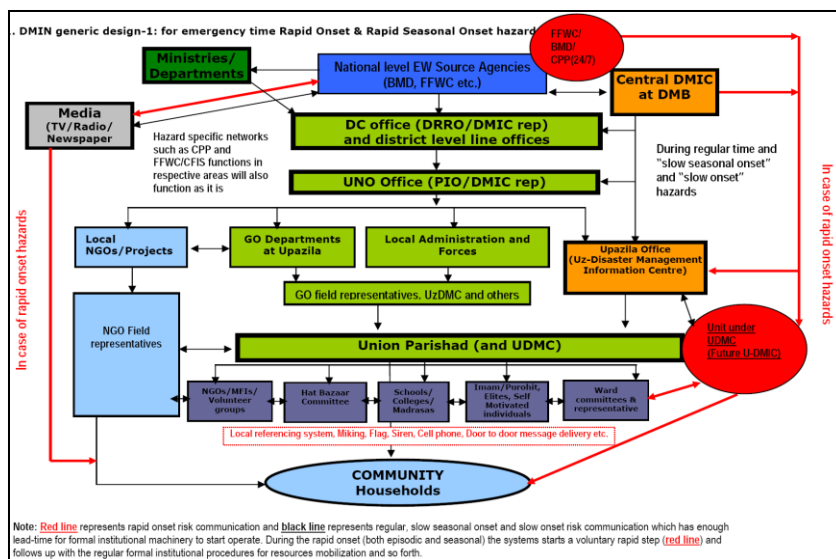
Change Agents of Early Warning System	Responsibilities	
	Before	During
	<ul style="list-style-type: none"> • basis 	<ul style="list-style-type: none"> • Keep in touch with other cluster volunteers and external agencies
Teachers	<ul style="list-style-type: none"> • Discuss on Hill Cutting and its consequences with children • Participate in the development of risk and resource map along with children • Orient children to discuss about landslide with their parents and siblings • Participate in Simulation/Drill on regular basis with children 	<ul style="list-style-type: none"> • Coordinate with Response agencies. • Facilitate evacuation process for other possible landslide areas. • Keep in touch with other cluster volunteers and external agencies
Red Crescent	<ul style="list-style-type: none"> • Discuss on Hill Cutting and its consequences with houses located in very high risk areas • Facilitate the risk and resource map development and installation of Early Warning Display Board. • Facilitate Public Awareness on regular basis • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Communicate with Ward Councilors and response agencies. • Facilitate Evacuation for other possible landslide areas • Inform other cluster volunteers to be vigilant
Social Worker	<ul style="list-style-type: none"> • Discuss on Hill Cutting and its consequences with houses located in very high risk areas • Facilitate Public Awareness on regular basis • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Facilitate Evacuation for other possible landslide areas
Youth Club	<ul style="list-style-type: none"> • Discuss on Hill cutting and its consequences with houses located in very high risk areas. • Facilitate the risk and resource map development. • Facilitate Public Awareness on regular basis • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Facilitate Evacuation for other possible landslide areas
School Children	<ul style="list-style-type: none"> • Discuss with Peer Group, parents and siblings about landslides • Participate in the development of risk and resource maps • Participate in Public Awareness Campaign on Landslides 	

Change Agents of Early Warning System	Responsibilities	
	Before	During
	<ul style="list-style-type: none"> • Participate in Simulation/Drill 	
Women	<ul style="list-style-type: none"> • Discuss on Hill cutting and its consequences with houses located in very high risk areas. • Facilitate the risk and resource map development. • Facilitate Public Awareness on regular basis • Facilitate Simulation/Drill on regular basis 	<ul style="list-style-type: none"> • Facilitate Evacuation for other possible landslide areas
Persons with Disabilities	<ul style="list-style-type: none"> • Discuss with household members about landslides • Participate in the development of risk and resource maps • Participate in Public Awareness Campaign on Landslides • Participate in Simulation/Drill 	<ul style="list-style-type: none"> • Facilitate Evacuation for other possible landslide areas

Source-Community Consultation

Step12: Early warning and monitoring system development- after conducting the community risk assessment, early warning and monitoring system has been developed. Numerous areas of possible interventions were identified through this activity. Encouragingly, most of the identified possible interventions have already been incorporated into the Project design. In this section, the important thing now is to analyze *how* to best implement these interventions. Analysis on local institutions mechanism and community-level social dynamics are very important in this regard, as they help identify existing mechanisms/institutions the Project can take advantage of to ensure smooth implementation and sustainability of the project impacts. Following mechanism has been discussed with municipality and community to act upon to establish early warning and monitoring system development:

- ***Downscale the early warning information products at local level-*** At the national level in Bangladesh BMD have been engaged intensively to develop variety of information products on rainfall data and forecasts. These products required to be analyzed in the local context so that the essence of the generated information remains the same but the interpretation changes from ***Macro-Meso-Micro levels***. In other words, the developed early warning information at the national level requires guidance to be translated at the city and community level for different users.



- **Alignment of hazard monitoring and risk profiling into early warning system**-The most important aspect in early warning system is to monitor the hazard and understand how and where it will have the severe impact within the location. In the current scenario, hazard monitoring is being done by the government agencies at various levels such as meteorological department and local met office etc. To complement the existing efforts, the risk profiling can be brought into the picture to develop the scenarios in case of hazard turns into disaster. This will also help monitoring institutions, government agencies, designated response agencies, volunteers, non-government organizations to make their response smart and effective in times emergency.
- **Development of decision support system at the Municipal level**-At present the city has very limited capacity to develop decision support system. Most of the time, decision support system utilization or analysis takes place at the national level which invariably takes time to reach to micro level. To minimize the information transmission cost as well as increase the reaction time, there is a need to develop the capacity of the city level officials to engage in developing decision support system. If city is prone to landslide hazard with high vulnerabilities, in this case the DSS would assist city to prepare and respond to landslides. Most of the work at the city level with regards to disaster risk reduction takes place without the use of risk maps and resource inventory, risk profile, vulnerability maps and inundation maps and these information are the requirements of city level disaster management authorities. The diagram shows the disaster management information network (DMIN) which has covered both slow and rapid onset hazard. Using the existing resources and system, the DSS can easily be developed at the city level.
- **Collection and processing of rain gauge data at the municipality level**- The information collected at the community level would be send to municipality. Municipality would also have a display system to record the rainfall data on day to day basis. Municipality would closely work with local meteorological department to observe and interpret the rain gauge data and will act accordingly.
- **Installation of Rain Gauge at the Community level and display system**- Since the scientific study has been done to develop the threshold values using rainfall data and soil quality, rain gauges have been installed in various strategic locations in the community vulnerable to landslides. Volunteers and community based facilitators have been trained to collect the rain fall data through the rain gauge.
- **Duration:** 2:00 hours

Materials used

Flip Charts , Permanent markers in several different colors, White Board with Stand, OHP/Multi Media Projector, VIIP card (multi Color)

Note

Community is a term that has a wide range of usage, which includes the following:

Community can be defined geographically: such as a cluster of households, a small village, or a neighborhood in a town.

Community can be defined by shared experience, such as particular interest groups, ethnic groups, professional groups, language groups, particular hazard-exposed groups, etc.

Community can be defined by sector, such as the farmers, fisher folk, business sector, etc.

Community can be used to refer to groupings that are both affected by and can assist in the mitigation of hazards and reduction of vulnerabilities.

Community In the context of disaster risk management, a community can be defined as people living in one geographical area, who are exposed to common hazards due to their location. They may have common experience in responding to hazards and disasters. However, they may have different perceptions of and exposure to risk. Groups within the locality will have a stake in risk reduction measures (either in favor or against). (Source: Field Practitioners handbook: Imelda Abarquez and Zubair Murshed, ADPC-2004)

Community Based Early Warning System: Community Based early Warning is a systematic and participatory process to install, monitor, record, communicate by the community based volunteers on behalf of community. Early Warning System will be generated & maintained by the community, of the community and for the community.

These rain gauges have three different color codes as shown below:

Color code	Level	Threshold Values	Actions
	Evacuate	101-200 mm rainfall recorded within 24 hr	Evacuate to Safer Place
	Ready	76-100 mm rainfall recorded within 24 hr	Get Ready
	Alert	0-75 mm rainfall recorded within 24 hr	Get Alert

The information collected by volunteers and facilitators at each of the rain gauge would be displayed at the community level using a display board. The display board would be located in a strategic place within the community.

Monitoring The continuous or periodic review and overseeing by stakeholders of the implementation of an activity, to ensure that input deliveries, work schedules, target outputs are proceeding according to plan.

নিরাপদস্থানে প্রস্থান করুন	২৪ ঘন্টায় ২০০ মি.মি. বৃষ্টিপাত ও চলমান
নিরাপদস্থানে প্রস্থানের প্রস্তুতি নিন	২৪ ঘন্টায় ১০০ মি.মি. বৃষ্টিপাত ও চলমান
সতর্ক থাকুন	২৪ ঘন্টায় ৭৫ মি.মি. বৃষ্টিপাত ও চলমান

A three step alerting system developed.

“Alert “ - 75 mm rainfall for 24 hours- Increase vigilance and observe appearance of any symptoms of slope destabilization on critical slopes.

“Get ready for evacuation” to safer location from high risk locations on 100 mm rainfall for 24 hours

“Evacuation” - 200 mm rainfall for 24 hours –Warning for evacuation to safer places.

Recording: Taking daily rainfall data in every 24 hours to monitor raingauges.

Documentation: Maintaining daily log book “log-book” to record daily rainfall data

Communication: The word **communication** is derived from Latin;“communicare”, meaning common, to share, indicating a process having joint action as its purpose. To communicate means sharing visions, objectives, attitudes, knowledge, information and opinions. Communication is a continuous process of coding, decoding and interpretation. In this process, communication is sharing & updating information and situation between cluster’s volunteers, cluster

Evacuation: A common place in the community to replacing vulnerable community people in the nearest safer place before & during landslide happening



Risk resources & evacuation Maps (RR&EM)



Rain Gauge

Standing Operating Procedure (SOP):

a **guideline on** What to do and how to do by the community for institutionalizing of Community Based early Warning System on Landslide .There are following three stakeholders to institutionalize & activate SOP -

Rain gauge observation:

1. **Daily observation and monitoring** of rainfall through “rain-guage” and “critical slopes” in the area;
2. Daily documentation and maintenance of the observes data into a simple “log-book”;
3. “**Communicate**” to other clusters and rain-gauge observers, community , municipality and other agencies;
4. “**Maintenance**” and “**secure**” the rain-guage;

Community:

1. Maintains “**a list of socially vulnerable groups/people**” (e.g. children, elderly, pregnant, disable, women etc.);
2. Observes “**settlements**” and Operation & Maintenance of “**critical slopes**” in the area;
3. Make enhanced use of “**local knowledge**” for “**traditionally practiced landslide alerting**” measures (e.g. using dogs for observing critical slopes and heavy rainfall);
4. **Raising “awareness for community-based landslide monitoring and early warning”** through youth, students, religious leaders, teachers, volunteer groups and others;
5. Maintaining a sustainable “**Community based Landslide Forums**” in each community

Pourashava/ Municipality:

1. Takes “**decision on the evacuation and coordination**” for wards and respective communities for landslide risk management;
2. Maintains the coordination between the “**District Disaster Management Committee (DDMC)** and related DDMC member agencies;

Follow the nationally approved “**Standing Order on Disaster (SOD)**” of the GoB for landslide

Bill Board

কমিউনিটি ভিত্তিক ভূমিধ্বস পর্বসতর্কীকরণ ও পর্যবেক্ষণ ব্যবস্থা
আমির আহমেদের ঝুম, টেকনাফ পৌরসভা

১. সামাজিক মানচিত্র প্রস্তুতকরণ

সংকেতিক চিহ্ন

- কোলা / অসহায়
- নির্দেশক সড়ক
- দুর্গম
- একটি ও অধিক
- বিদ্যালয়
- ইউএনও অফিস
- ক্রীড়াঙ্গণ
- পানির খোঁজ
- স্ব. পানির খোঁজ
- খোঁজ
- উচ্চ ভূমিধ্বস এলাকা
- মাঝামাঝি ভূমিধ্বস এলাকা
- কম ভূমিধ্বস এলাকা

২. বৃষ্টিপাত পর্যবেক্ষণ ও পরিমাপন

“বৃষ্টিপাত পরিমাপক পাত্র” ব্যবহার করে কমিউনিটি ভিত্তিক ভূমিধ্বস পর্বসতর্কীকরণ ও পর্যবেক্ষণ করার কৌশল

ক. যথাযথভাবে কমিউনিটিতে বৃষ্টিপাত পরিমাপক পাত্র স্থাপন করুন।

খ. দৈনিক (২৪ ঘণ্টার) বৃষ্টিপাতের নিম্নলিখিত সীমা মেনে চলুন।

নিরাপদস্থানে গ্রহণ করুন	২৪ ঘণ্টায় ২০০ মি.মি. বৃষ্টিপাত ও চলমান
নিরাপদস্থানে গ্রহণের প্রস্তুতি নিন	২৪ ঘণ্টায় ১০০ মি.মি. বৃষ্টিপাত ও চলমান
সতর্ক থাকুন	২৪ ঘণ্টায় ৭৫ মি.মি. বৃষ্টিপাত ও চলমান

৩. করণীয় বিষয়াবলী

বৃষ্টিপাত পর্যবেক্ষণ বিষয়ক পরামর্শ

- বৃষ্টিপাত পর্যবেক্ষণ কেন্দ্রসেবকগণ “বৃষ্টিপাত পরিমাপক পাত্র” ব্যবহার করে দৈনিক বৃষ্টিপাতের পরিমাণ পর্যবেক্ষণ করবেন ও তথ্যাদি লিপিবদ্ধ করে রাখবেন।
- এলাকার “ভূমিধ্বস সতর্কতা সূচক” নিয়মিত পর্যবেক্ষণ ও তদারকী করবেন।
- এলাকার অন্যান্য অংশের কেন্দ্রসেবকগণ, বৃষ্টিপাত পর্যবেক্ষণ, পৌরসভা এবং অন্যান্য স্থানীয় নির্ধারিত প্রতিষ্ঠান গণের সাথে যোগাযোগ বজায় রাখবেন এবং বৃষ্টিপাতের তথ্য যত্ন সহকারে রাখবেন।
- বৃষ্টিপাত পরিমাপক পাত্র নিজ নিজ এলাকার নিরাপদ স্থানে রাখবেন ও তদারকী করবেন।

কমিউনিটি পর্যায়ে পর্যবেক্ষণ বিষয়ক পরামর্শ

- বিশপাশ্রম জনসংগঠিত স্থান ও অঙ্গিক তৈরি করবেন (শিশু, বৃদ্ধ, প্রতিবন্ধী, গর্ভবতী মহিলা প্রভৃতি) এলাকাবাসী সচেতন করে এলাকার ভূমিধ্বস সতর্কতা সূচক নিয়মিত ভাবে পর্যবেক্ষণ, তদারকী ও রক্ষণাবেক্ষণ করবেন।
- ভূমিধ্বস সতর্কতার জন্য এলাকাবাসী যথাযথ স্থানীয়জ্ঞান ও প্রাথমিক ধান ধারণাতে ব্যবহার করে সতর্কতা বজায় রাখবেন।
- বৃদ্ধ, ছাত্র, বয়স্ক স্ত্রী, শিশু, বৃদ্ধ, প্রতিবন্ধী, গর্ভবতী মহিলা এবং অন্যান্য অসুস্থদের মাঝে কমিউনিটি ভিত্তিক ভূমিধ্বস সতর্কতা ও তদারকী বিষয়ে সচেতনতা বৃদ্ধি করবেন।
- প্রত্যেক কমিউনিটিতে টেকনিক কমিউনিটি ভিত্তিক ভূমিধ্বস পর্যবেক্ষণ ও তদারকী কর্মসূচি গঠন ও কার্যকরী করবেন।

পৌরসভা পর্যায়ে করণীয়/বিবেচ্য

- ভূমিধ্বস এর ঝুঁকি ব্যবস্থাপনা করা প্রত্যেক ওয়ার্ড ও কমিউনিটিতে নিরাপদ স্থান চিহ্নিত করবেন এবং পরামর্শগত সমর্থন সনদ করবেন।
- পৌরসভার প্রতিষ্ঠানগুলো যথাযথ ব্যবস্থাপনা কর্মসূচি এবং সর্বত্র প্রতিষ্ঠানের সাথে সমর্থন বজায় রাখবেন।
- পাহাড়ী এলাকার ভূমি ব্যবহার পরিকল্পনা প্রণয়ন এবং যথাযথ কার্যকরী করণে রূপায়ন করবেন।
- পাহাড়ী এলাকার পরিকল্পিত বনায়ন এর উদ্যোগ গ্রহণ করবেন।
- ভূমিধ্বস ঝুঁকি ব্যবস্থাপনা এবং কমিউনিটি ভিত্তিক আশ্রম সতর্কতা সূচক এর জন্য পাহাড়ী এলাকার বাসোদ্ভোগ সতর্কতা সূচক অনুমোদিত “সুরক্ষা সতর্কতা সূচক আশ্রমপত্রী” (SOD) সনদ লভন।

Session II: Hands on Training and Community visit

Key Points

CBDRM process
Participatory Disaster Risk Assessment Process (PDRA)

Facilitators guide

1. Facilitator team will share regarding CBDRM process and importance with participants and try to match with their familiar process
2. Facilitator team will share the process of PDRA and its importance
3. Facilitators will share about the importance of their own community visit and facilitate to visit own community by CBDRM lance for CBEWS establishment

Objectives

- At end of this session participants will be able to understand the CBDRM process and its importance
- At end of this session participants will be able to understand the PDRA process and importance of own community visit

Method to delivery

Brain storming
Open Discussion
Lecture

Peers review
Direct Observation
Transect walk
Rapport Building

Process

Selecting the Community. This is the process of choosing the most vulnerable communities for possible assistance on risk reduction using a set of criteria.

Rapport Building and Understanding the Community. This is basically building the relationship and trust with the local people. As relationship is established, general position of the community in terms of social, economic, political and economic aspects is understood. Deeper appreciation of the community dynamics will happen later, when participatory risk assessment is undertaken. *Please see Resource Pack 2 for details on Rapport Building and Understanding the Community.*

Participatory Disaster Risk Assessment (PDRA). This is a diagnostic process to identify the risks that the community faces and how people overcome those risks. The process involves hazard assessment, vulnerability assessment and capacity assessment. In doing the assessments, people’s perception of risk is considered.

Participatory Disaster Risk Management Planning. This follows after the analysis of the results of participatory risk assessment. People themselves identify risk reduction measures that will reduce vulnerabilities and enhance capacities. These risk reduction measures are then translated into a community disaster risk management plan.

Building and Training a Community Disaster Risk Management Organization (CDRMO). Disaster risks are better managed by a community organization that will ensure that risks are reduced through implementation of the plan. Therefore it is imperative to build a community organization, if there is none yet or strengthen the current one, if there is any. Training the leaders and members of the organization to build their capacity is important.

Community-Managed Implementation. The CDRMO should lead to the implementation of the community plan and motivate the other members of the community to support the activities in 17 *partone*. A Framework for Reducing Risk the plan.

Participatory Monitoring and Evaluation. This is a communication system in which information flows amongst all the people involved in the project: the community, the implementing staff and the support agency, concerned government agencies and donors.

Participatory Disaster Risk Assessment Process (PDRA)

Participatory Disaster Risk Assessment (PDRA) is the fourth step in CBDRM. PDRA is both a dialogue and a negotiated process involving those at risk, authorities and other stakeholders. It is a process whereby all parties concerned collect and analyze disaster risks information, in order to make appropriate plans and implement concrete actions to reduce and/or eliminate disaster risks that will adversely affect their lives. Where other risk management framework and practices exclude those who are at risk or potentially at risk, PDRA puts at risk communities at the heart of the entire disaster risk management process. Where other risk assessments stop at the determination of whether an undesirable event will occur, PDRA moves on to the determination of people’s capacities and encourage the use of

individual and community resources to reduce disaster risks that affect their lives. PDRA is the basis for Participatory Disaster Risk Management Planning. This is founded on the belief that local people can and will help themselves to prevent or reduce disaster risks. PDRA involves seven steps. However, the process is not entirely linear; thus, simultaneous activities are involved in the disaster risk assessment process.

ADPC describes community disaster risk assessment as a “participatory process of determining the nature, scope and magnitude of negative effects of hazards to the community and its households within an anticipated time period.” (ADPC, CBDRM 11)

Step 1 identifies hazards in the community. Its output should identify, list down and describe the nature of hazards in terms of its recurrence, seasonality, location, possibility of early warning and general knowledge of the people about the hazard.

Step 2 captures the hazards, vulnerability and natural resources and facilities of the community in community and/or digitized maps.

Step 3 identifies and assesses the vulnerabilities and capacities of the community in general but makes sure that there is gender disaggregation of data; special needs groups like the children and disabled are given utmost considerations as well.

Community disaster risk assessment also facilitates a process of “determining the probable or likely negative effect (damage and loss) on elements at risk (people – lives and health; household and community structures, facilities and services – houses, schools, hospitals; livelihood and economic activities (jobs, equipment, crops, livestock); lifelines – access to roads and bridges)”. (ADPC, CBDRM 11)

References

1. Disaster risk reduction and development training manual: Muslim Aid and ADPC, March-2011
2. Preparing school Safety for a safer tomorrow: A multi hazard approach manual on school safety in Bangladesh: ADPC and Islamic Relief, March-2011
3. Climate Vulnerability and Capacity Assessment (CVCA) Manual: SHOUHARDO PROGRAM-ii, CARE Bangladesh, January-2011
4. Child Centered Disaster Risk Reduction: ADPC and plan Bangladesh, December-2010
5. Disaster Relief Emergency fund (DREF) report: June-2010
6. Situation report no.178: NIRAPAD, 17 June-2010
7. Landslide Report of Cox’s Bazar:Google,15 June-2010
8. DRRO report of Landslide in Cox’s Bazar: Ref no.00297.018.000.014.2009, 18th June-2010
9. 50,000 still at Landslide risk, Gov’t could not rehabilitate them 2 years in to ctg death: The Daily Star,17 June-2010
10. 10 killed in landslides: Cox’s Bazar hits this time, indiscriminate hill cutting blamed for tragedy: The New Nation,4th July-2008
11. Disaster Management Training Manual for UDMC: SHOUHARDO PROGRAM-i, CARE Bangladesh, December-2006
12. TOT manual on community Based Disaster Risk Management (CBDRM): CARE Bangladesh-2006
13. Community-Based Disaster Risk Management-field practitioners’ handbook: Imelda Abarquez and Zubair Murshed, ADPC,2004

