Training Curriculum

COMMUNITY BASED DISASTER RISK MANAGEMENT

Department of Disaster Management
Ministry of Home and Cultural Affairs
Thimphu, Bhutan

Table of Contents

MODULE ONE: DISASTER RISK MANAGEMENT SYSTEM IN BHUTAN

Session 1:   Overview of Disaster Management in Bhutan
Session 2:   National Disaster Risk Management Framework (NDMRF)
Session 3:   Disaster Management Institutions – Roles and Responsibilities

LEARNING OBJECTIVES

At the end of the session participants will be able to:

- *Identify various kinds of hazards faced by Bhutan*
- *Understand the complex interplay of social, economic and cultural factors that determine vulnerabilities and increasing impacts of hazards.*
- *The existing structures/mechanisms of National Disaster Risk Management Framework at various levels of administration and implementation arrangements*
- *The existing institutional, legislative and policy framework,*
- *Implementation arrangements, response mechanisms and information flow*
- *The constitution of various committees within the Institutional Framework*

Key Concepts

- *To harness the synergies of action and convergence of strategies and resources for implementation of disaster risk management, a well defined structure should be put in place at all administrative levels*
- *The primary responsibility of formulating DRM Framework lies with the government, the effective implementation will require active participation of all stakeholders.*
- *It is essential to create a mechanism of supervising, monitoring and evaluating the efficacy and proper implementation of various disaster risk management programs.*
- *An effective emergency communication network is required to maintain a constant vigil on the emerging disaster situation and coordination of response endeavors.*
- *The importance of mitigation and integration of disaster risk reduction in development sectors*
- *The roles and responsibilities to be undertaken by the disaster management committees and the EOCs in various stages of disaster management.*
- *Bhutan faces various disasters both human induced and natural hazards.*
- *Bhutan has had a long history of disasters (i.e. earthquakes, fires and GLOF) and its vulnerability to such disasters continues.*
- *The factors that determine the vulnerability and the capacity to cope with disasters necessitate policies and scientific interventions and good decision making by the government.*
- *It is important to create awareness on all aspects of disasters and their impacts on sustainable development.*

A. Hazards in Bhutan

Bhutan is prone to multiple natural hazards that pose varying degrees of risk to the lives and livelihoods of its inhabitants. The country lies in one of the most seismically active zones of the world, Glacial Lake Outburst Floods (GLOFs) pose a serious hazard risk in the country, and flash floods and landslides are a recurrent threat to human lives, properties and livelihoods – especially in the southern and eastern parts of the country. Forest fires, mainly in the dry winter months cause significant disruption of activity and present a serious threat to the environment and livelihoods of local inhabitants. Communities in Bhutan, in the past have also been affected by minor outbreak of pest, epidemic diseases and drought. Presently, the influenza pandemic poses a heightened risk. In the near future climate change processes will contribute towards increasing the frequency and severity of such hazards.

i) Landslides
Landslide events are closely linked with flooding events, and are also recurrent phenomena in Bhutan. Slopes in the country are highly susceptible to landslides especially in the rainy season. Most occur in the eastern and southern foothill belt where the terrain is steep and rocks underlying the soil cover are highly fractured, allowing easy seepage of water. Contributing factors are the undercutting of slopes by high-energy rivers and streams during a period of heavy rainfall. Landslides can also be caused by the tremors of an earthquake, as witnessed in the aftermath of the 1980, 1988, and 2003 earthquakes. In particular, the urban areas experience secondary affects of landslides due to the importance of road infrastructure for the dispatch of vital goods. Farmers on steep slopes and foothills of the south and the eastern region of the country in particular are regularly impacted by the hazard.

ii) Fires on forest and human settlements
Given the rugged and steep topography with thick ground fuels and erratic wind conditions, Bhutan is prone to frequent forest fires. In the last decade, there have been severe forest fire outbreaks in many parts of the country. The risk of fire outbreaks is generally exacerbated in the dry winter months (November to April). The leading cause for forest fires have been traced to human behavior (burning of agricultural debris, carelessness and short circuit transmissions) and the impact on the natural environment and on local inhabitants' sources of livelihood is significant. Forest fires are also a persistent threat to houses, infrastructure, human life, livestock and wild life.

Incidents of fires on houses and other settlements are also increasing both in the rural areas as well as in the towns. Heavy use of wood in traditional buildings, Dzongs, monasteries and other structures of historical significance make them highly susceptible to fire accidents.

iii) Epidemic, pests and diseases
Communities in Bhutan have been affected by outbreak of pest and epidemic diseases in the past. Malaria has largely affected the southern belt and dengue fever cases have also been noted.

At present, the recent Avian Influenza (AI) outbreaks in the region has been a cause of concern for Bhutan. With increased air and surface travel to countries in the region, Bhutan's porous border with India and frequent exchange of poultry products heighten the risk of an AI outbreak. In response, the National Influenza Pandemic Preparedness Plan for Avian influenza Outbreak has been prepared jointly by the Department of Livestock, and BAFRA (Ministry of Agriculture) and the Ministry of Health.

iv) Earthquakes

Geo-physically, Bhutan is located in one of the most seismically active zones in the world. Although a detailed and comprehensive seismic zonation of Bhutan is unavailable, its proximity to the north-eastern parts of India, which is in the 'most active' seismic Zone V (according to Bureau of Indian Standards), indicates that the majority of Bhutan is either in Zone IV or V.

Despite the high risk of earthquakes occurring in the region, there is little by way of 'official' historical records tracking earthquakes and consolidating the relevant data. Records suggest that four great earthquakes of magnitude exceeding 7.5 have occurred in the Himalayan belt during the past 100 years. (September 21 incident)

v) Glacial Lake Outburst Floods (GLOF)

GLOFs are among the most serious natural hazard potentials in the country. Due to the effects of global warming, glaciers in the Himalayas are shrinking rapidly in the region. According to a recent study conducted by the Department of Geology and Mines (DGM) in collaboration with ICIMOD, there are 2,674 glacial lakes in Bhutan, of which 562 are associated with glaciers. 25 glacial lakes have been identified as 'potentially dangerous lakes'.

GLOF has taken place in Bhutan in the past in 1957, 1960 and most recently in 1994. All of these have taken place in the Pho Chu sub-basin. There is virtually no written record of the 1957 and 1960 GLOFs. The 1994 GLOF, which was caused by partial burst of Lugge Tsho in eastern Lunana, cost us lives and damaged more than 1,700 acres of agricultural and pasture lands. Apart from recurrence of GLOFs in the past, Pho Chu sub-basin is a very critical area for GLOF impact mitigation in the future because it hosts one-third of the 25 potentially dangerous lakes in the country.

Future threats are likely to encompass regions that fall within the Chamkhar Chu basin, the Mangde Chu basin, Kuri Chu basin, Mo Chu basin and Pho Chu basin. Overall, GLOFs regularly threaten the lives and livelihoods of people living in the valleys and low lying river plains. Also susceptible to damage are industrial infrastructures such as hydropower projects and low lying bridges and infrastructure along the rivers.

vi) (Flash) Floods

Flash floods are also recurrent phenomena in Bhutan causing extensive damages during the monsoon (June to September). They have been observed to follow a cyclic pattern of 2 to 4 years with the eastern and southern regions being particularly vulnerable. Most flood events are flash floods, which are local floods of great volume and short duration.

The most recent record of flash floods can be traced to heavy rains (2000 mm) in the areas of Phuentsholing and Pasakha, along with some southern towns where more than 200 people lost their properties. In 2004, flashfloods affected six eastern Dzongkhags, of which Trashigang,

Tashi Yangtse and Samdrup Jongkhar were the most affected areas. The event resulted in the death of 9 people, 29 houses were washed away, 26 houses collapsed and 107 houses were partially damaged. A total area of 664 acres of wet and dry farm lands were destroyed and hundreds of tones of maize, paddy and potatoes were lost affecting about 1437 households. Taking into consideration the small population size and limited arable land, the loss was enormous. (Cyclone Aila Event)

vii) Artificial dam formations and dam bursts
Bhutan's steep terrain, narrow river gorges and increasing incidences of landslides during monsoon have led to artificial dam and lake formation on the rivers. In September 2003, there was dam formation due to rock slide on the Tsatichhu, a tributary of Kurichu. An estimated volume of 33 million m^3 was formed within 0.3 km^2 of the size of dam body.

In May 2004 the dam began to fail leading to dam burst on 10th July 2004. The Kurichu Hydropower Corporation Authorities, however, were able to open the reservoir gates in time avoiding major destruction to the dam and other casualties. Such hazards will continue to prevail in Bhutan's rivers placing many of the hydropower plants, farmlands, human settlements, social infrastructures and numerous properties of cultural, social and historical significance in danger.

ix) Windstorm/snowstorms/hail storms/droughts.
Due to global climate changes recent climatic variations around the world have been highly unpredictable. This has also resulted in extreme natural events such as dry weather, excessive rains and other devastating natural calamities such as typhoons, floods and droughts etc that have affected many people around the world. Similarly Bhutan is also witnessing extreme variations in its climate and weather patterns.

Regular precipitation and timely farming practice determines the livelihood of our communities. Although Bhutan has not experienced large scale destructions due to windstorms, snow and hailstorms and droughts, education and awareness among the communities that are likely to be affected must be brought about.

The complexity of the factors that determine the vulnerability and the capacity to cope with such natural hazards necessitates policies, scientific interventions and good decision making by the authorities concerned. Strategies that address immediate, medium and long term must be place to address these issues. Bhutan is exposed to a range of natural hazards but it is the underlying vulnerabilities that intervene in the translation of this physical exposure to hazards into disaster risks. A complex interplay of social, economic and cultural factors determines these vulnerabilities and is increasing the impacts of hazard events over the years.

B. Some of the underlying vulnerabilities in Bhutan.

i) Unsafe construction practices: Lack of incorporation of adequate disaster risk reduction elements in construction renders the physical infrastructure in both the public as well as the private domain susceptible to hazards. In addition, there is insufficient technical expertise among engineers, architects, masons and other building artisans on disaster-resistant construction practices. The fact that there has not been a major disaster in the country in recent memory has bred certain complacency among the people at large.

ii) Rapid urbanization: In recent decades, there has been a spurt of urbanization in Bhutan and more often than not, this growth has been unplanned and haphazard. For example, the population of the capital city Thimphu has increased five times in the past twenty years and an urban earthquake is likely to have a far more devastating impact today than a few years ago. The increasing population and other demographic changes especially in the two largest urban centres such as Thimphu, Phuentsholing and other emerging townships of Paro, Wangdue, Punakha, Gelephu, Gedu, Chimalakha, Samdrup Jongkhar, Tala, Mongar, Gyalpoizhing and Rangjung have redefined the hazard risk profile in the country.

iii) Pressure on land and settlements: Majority of our people are dependent on agriculture and forestry products for livelihood which in turn requires more and more areas to be brought under cultivation and denuding of hill slopes rendering them vulnerable to landslides, mudslides and flash floods during the rainy season. The problem is further compounded by the geo-physical structure of the area. So far, the process of sitting of habitations has not been taking into account their vulnerability to hazards. Consideration to hazard risks is not a major priority in the development of townships thereby necessitating larger amounts of resources at a subsequent stage to reduce and mitigate the risk to inhabited areas.

iv) Socio-economic factors: The socio-economic conditions are perforce compelling the common people to adopt livelihood patterns which tend to cast an adverse impact and vest the country with a high vulnerability profile. People settle in hazard-prone areas such as steep slopes or flood-prone river beds in search of sources of sustenance and are exposed to a high degree of risk.

v) Lack of awareness: At the general level, there is an inadequate incorporation of disaster risk reduction concerns in the planning and development process especially in the private sector and at the community level. The overall lack of awareness that something can be done to reduce the risk further compounds the scenario.

vi) Environmental degradation: The pressure exerted by increasing population on the environment is leading to its rapid degradation and denuding of hills threatening the human settlements downstream as well as the national infrastructural assets viz. dams, hydro-electric plants, road and communication network etc. which are the lifeline of the national economy. Environmental degradation is leading to a high rate of siltation in the dams and reservoirs, necessitating timely interventions before the situation becomes precarious.

vii) Insufficient enforcement of building by-laws: There is an insufficient enforcement of building by-laws and codes in the urban areas due to lack of expertise and trained human resources to enforce the same. The compliance among the common people is also low due to lack of awareness and general apathy to disaster risk management issues.

viii) Lack of preparedness planning: There is a general lack of disaster preparedness and response planning not only at the administrative level but also at the community level with the result that the capacity to mitigate the impact of disasters and to generally respond to them in a speedy and effective manner is also non-existent. This is also exacerbated due to the lack of proper research, data and capacities in all forms at all levels.

Session 2: National Disaster Risk Management Framework for Bhutan

---

The National Disaster Risk Management Framework was endorsed by the Lhengye Zhungtshog in 2006. It recognizes the need to promote a risk management approach to dealing with disaster rather than a reactive approach that deals with the aftermath of disaster in an ad-hoc manner.

While primary responsibility of formulating, evaluating and updating the NDRM Framework lies with the government, effective implementation will require active participation of all stakeholders including communities, volunteers, religious organisation, local governments, academia and scientific and technical institutions.

The key objectives of the NDRMF are:

- To promote a disaster risk management approach instead of an ad-hoc reactive approach to dealing with disasters;
- To recognize the respective roles of different organizations in disaster risk management and provide all possible support to their work within the national framework for disaster risk management; and
- To establish linkages between disaster risk management and the other ongoing activities in different development sectors such as environment (adaptation to climate change), governance (decentralization), health and education.

The NDRMF envisages the development of a holistic and multi-sectoral disaster management approach. With the view of having a comprehensive disaster risk management system as an integral part of sustainable development planning, the framework calls for a decentralized and empowered set up placing community based disaster risk management at its core.

1. **NDRMF and its Components**

i. Institutional, Legislative and Policy Frameworks

The objective of this component is to design and implement an appropriate institutional and legislative framework for disaster risk management in Bhutan. This will help define the mandates and inter-relationship of respective organizations across sectors as well as different administrative levels. Appropriate financial arrangements to meet the various disaster risk management needs (disaster risk reduction, disaster response and local level risk reduction) of the country will be designed under this component. Under this component, the government will also begin to articulate its policies on different aspects of disaster risk management (such as recovery, rehabilitation). (Efforts made - NMD planning guidelines at various levels, NMD Bill, SOPs etc.)

ii. Hazard Vulnerability and Risk Assessment

The objective of this component is to improve access to synthesized information on disaster risks for policy and decision makers across different sectors and administrative levels. In the absence of such information, policies and decision makers have to make disaster risk management decisions (such as where to invest in risk control measures, where to locate emergency response assets, where to locate critical facilities etc.) in an ad hoc or at best intuitive manner, which may not make the most optimal use of scarce resources. This component will synthesize existing information on hazards, vulnerabilities and risks that is available with different organisation in such a form that it can be utilized for decision making for disaster risk management. At the same time it will identify critical gaps in existing information and work towards filling those gaps in a prioritized manner. Under this component a geo-referenced disaster data base will be set up that will capture disaster impacts at the Gewog levels in order to tract existing and emerging patterns of disaster risks.
(Present efforts – GLOF Hazard zonation maps, other hazard maps, working towads seismic macro zonation map in the 10th FYP – multi-hazard atlas)

iii. Disaster Risk Management System

The NDRMF envisages the development of a holistic approach designed to mange disaster in a more proactive basis involving various sectors, it is felt that a strong disaster management system should be put in place so that the sectors will be fully accountable in the long run. Plans, programmes and procedures relating to disaster must be institutionalized. DRM system should be an integral part of sustainable development planning at different levels of administrations and rural development plans. Further steps should be taken to integrate understanding of natural hazards with local knowledge and traditional beliefs. This will ensure timely and coordinated actions at all spheres of administrative levels and at the communities during a major disaster. The MoHCA as coordinating agency shall see that disaster mitigation, prevention, preparedness and response systems are built into all government, public, private, corporate sectors, NGOs and civil societies by incorporating plans, adequate financial arrangements and set of practical measures in their development plans.

iv. Early Warning System

The objective of this component is to work towards development of a coherent, end-to-end EWS that has both broad spatial coverage (covering all vulnerable areas) and a broad multi-hazard focus to reduce risks from all natural hazard events. The promotion of community based and people centered approaches to disaster risk management will be a part and parcel of this process. Various agencies in Bhutan are organized according to specialized task for different hazards, with relatively little information sharing or partnership with other agencies. It is these gaps that this component seeks to address by bringing together all concerned agencies. It will begin to establish a policy dialogue so that appropriate standards for end-to-end EWS are developed, implemented and institutionalized at the national level. This will have linkage with communication and transportation components that will address issues related to the lack of communication lines/networks and specially their vulnerability during times of emergency. The local and national level support activities will also be designed to integrate with regional and international early warning system development efforts. A local approach to EWS also needs the direct participation of those who are likely to be exposed to such hazards. Involvement of local communities in all stages of EWS will reinforce public understanding of whole array of risks they face thus strengthening desired preparedness actions and warning response.

v. Disaster Preparedness Plans

The objective of this component is to minimize the adverse effects of hazards through adequate preparedness and response planning to ensure timely and coordinated action at administrative and community levels to meet the exigencies arising out of all natural catastrophe. Preparedness involves development and regular testing of warning system (linked to multi-hazards EWS) and plans for evacuation or other measures to be taken during disaster alert period. It also involves education and training of officials, intervention teams and communities. Establishment of policies, standards, organizational arrangements and operational plans to be applied following a disaster are also crucial. Disaster preparedness planning at all administrative levels are essential to ensure proper assigning of roles and responsibilities and conduct of mock drills to test the efficacy of the plans. It also requires systematically building capacities for immediate response and recovery across all levels. The plans clearly define the roles of concerned agencies in order to avoid mismanagement, over lapse and gaps and emphasize coordination of all sectoral agencies. Sensitizing the media and ensuring development of relevant information mechanisms.

(CBDRM Process, CBHFA, CBSAR efforts)

vi. Mitigation and Integration of Disaster Risk Management in Development sector

The object is to reduce loss of lives and property in the event of potential hazard occurrences. The primary aim is to reduce the risk of death and injury to the population. Secondary aims include reducing damage and economic losses to public sector infrastructure and reducing private sector losses in as far as they are likely to affect their community as a whole. The objectives are likely to include encouraging people to protect themselves as far as possible.

Any mitigation strategy is likely to include a range of measures. A set of actions that includes engineering measures, spatial planning and degree of economic management and community participation will be need to bring about effective mitigation. A mitigation programme that concentrates solely on any one of these five aspects will be unbalanced and is unlikely to achieve its aims. Disaster mitigation investment has to be seen in terms of the price of protecting existing and future infrastructure. The spending of a few per cent extra on a new facility to build it better and protect it against future threats is prudent. The level of investment that is justified to protect society, its economic activities and its built environment is a matter of political decision making, and economics of risks. Decision making on appropriate levels of investment in disaster mitigation depends on how likely the hazard is likely to occur and what would be the impact of the hazard if it does occur. The cost and benefits of alternative investment strategies need to be carefully evaluated. The use of a systematic framework of risk assessment to establish which hazards are most likely to occur and the probable effects will help define the priorities of mitigation programmes.

vii. Public Awareness and Education

Building Awareness among the people about the hazards, vulnerabilities and disaster risks and the steps that can be taken for mitigating the same is synonymous with building their knowledge,

aptitude and skills for effective disaster risk management. Incorporation of disaster risk management issues in the schools, college and technical curricula will facilitate creation of a generation alive and sensitive to risk reduction and amounts to a wise investment for mitigating and managing future risks. Cross-sectoral partnerships and concerted efforts at disseminating the agenda of disaster management to the younger generation through school curricula and through conduct of preparedness drills at regular interval will go a long way in inculcating a culture of disaster safety and risk management among people at large.

 (On going efforts – print and broadcast media – posters, pamphlets, IDD day, Ap naka, safe school campaign, GLOF community awareness programme)

viii. Capacity development

Effective implementation of disaster risk management necessitates development of an appropriate human resource with technical, managerial and communication skills. Training and capacity building is a continuous process necessitating familiarization with latest thought-processes and developments in the fields of disaster risk management. On the one hand the training programmes would seek to build a better understanding of disaster management scenario in the country and on the other it shall also be ensured that sector specific training modules are available to develop requisite technical skills in concerned ministries/sectors. The Department of Disaster Management (DDM) shall strive to formulate a comprehensive, needs based capacity building policy and plan for upgrading and developing the knowledge and skills of disaster management practitioners at various administrative levels. Requisite partnerships and linkages with institutions of excellence and training academies in the region as well as with international organisation would be forged to facilitate training of disaster management professionals

ix. Communication and Transportation
Communication is the first casualty in the aftermath of a disaster. It has been experienced that a traditional telecom connectivity of the effected areas becomes largely dysfunctional and flow of timely and correct information from the affected regions is severely hampered. The absence of first hand information constricts the disaster manager's ability to access the magnitude of the situation and leads to an avoidable delay in launching a suitable disaster response. This underscores the need to design and develop multi-model communication networks with adequate back-up facility. (EoC developments)

 The transportation networks are also at times severely disrupted with roads getting washed away or buried under landslides or debris. This assumes greater importance in the context of Bhutan. With its hilly and rugged terrain affording only limited access to many regions and the criticality of mounting a speedier and timely response put a lot of strain on available modes of transportation. It is not only critical to build disaster-resistant road networks in the country but also to formulate a long term plan to build alternate routes to various Dzongkhags, Dungkhags, Gewogs, and Thromdes so as to ensure adequate connectively at all times. Since the villages in Bhutan are well connected by mule tracks allocation wise (Gewog inventory of mules, horses, yaks etc should be maintained in the Dzongkhags).

Institutional Framework in Bhutan

1. National Level

In order to secure synergies of action and confluence of strategies and resources for implementation of disaster risk in the country, it is essential that well defined structures/ mechanisms are put in place at all administrative levels. An underlying principle of an effective administrative structure that different administrative rungs reflect the national vision and objectives to achieve commonality of approaches, harmonization of efforts and effective harnessing of national capabilities and resources.

With His Majesty the King at the apex level, the following authorities and committees will be set up to undertake disaster management activities:

a. National Disaster Management Authority (NDMA)

The National Disaster Management Authority shall be the highest decision making body on disaster management in Bhutan and shall consist of such number of members, not exceeding seven, as may be prescribed by the Government. The National Disaster Management Authority shall comprise:
   a) The Prime Minister, who shall be ex-officio Chairperson;
   b) The Minister in charge of the department having administrative control of disaster management, who shall be ex-officio Vice Chairperson;
   c) The Finance Minister; and
   d) Four other members from the Lhengye Zhungtshog to be nominated by the Prime Minister on the basis of relevancy and in accordance with the rules framed under this Act.

b. The following are the Functions of the National Disaster Management Authority

The National Disaster Management Authority shall:
   (a) Approve strategic policy and policy framework for disaster management;
   (b) Approve the National Plan and National Contingency Plan;
   (c) Approve hazard zonation maps and infrastructure safety codes and standards prepared by the concerned Ministries and Agencies;
   (d) Approve resources secured by the National Committee for Disaster Management for disaster operations under section 15 (j) of this Act;
   (e) Approve the provision of funds for the purpose of prevention and mitigation measures, preparedness and response;
   (f) Approve the allowances and compensation determined by the National Committee for Disaster Management under section 15(m) and (n) of this Act;
   (g) Direct Disaster Management Committee in regard to all matters during a declared disaster situation and provide necessary support;

(h)   Direct any Disaster Management Committee on such matters as it deems necessary for the effective implementation of this Act.

The Chairperson of the National Disaster Management Authority shall, in the case of emergency, have power to exercise all or any of the powers of the Authority subject to post facto ratification by the Authority.

2. National Committee for Disaster Management (NCDM)

The National Committee for Disaster Management shall assist the National Disaster Management Authority in the performance of its functions. The National Committee for Disaster Management shall consist of such number of members, not exceeding twenty, as may be prescribed by the National Disaster Management Authority.

The National Committee for Disaster Management shall comprise:
(a)   The Secretary in charge of the department having administrative control of disaster management, who shall be the ex-officio Chairperson;
(b)   Secretaries of all Ministries;
(c)   Gyalpoi Zimpon, Office of the Gyalpoi Zimpon;
(d)   Head of the National Environment Commission;
(e)   Secretary of the Land Commission;
(f)   Dagchong of the Dratshang Lhentshog;
(g)   Deputy Chief (A) of the Royal Bhutan Army;
(h)   Chief of Police;
(i)   Director General or Director of the department having administrative control of disaster management, who shall be the member secretary; and
(j)   Four/three other members to be nominated by the Chairperson on the basis of relevancy and in accordance with the rules framed under this Act.

The Vice Chairperson of the National Committee for Disaster Management shall be elected by the Committee for a period of 3 years.

a. Functions of the National Committee for Disaster Management

The National Committee for Disaster Management shall:
(a)   Implement decisions of the National Disaster Management Authority;
(b)   Lay down strategic policy and policy framework for disaster management;
(c)   Ensure the establishment of Disaster Management Committee, Inter-Ministerial Task Force and Emergency Operation Centre;
(d)   Approve guidelines for the preparation, regular review and updating of Disaster Management Plans;
(e)   Approve the relief, rehabilitation and re-construction guidelines prepared by the department having administrative control of disaster management;
(f)   Endorse the National Disaster Management Plan and the National Contingency Plan;
(g)   Direct Ministries, Agencies and Local Governments to mainstream disaster risk reduction initiatives into their development plans and programmes;

(h) Advise the National Disaster Management Authority regarding financial matters related to disaster management;

(i) Identify and secure resources, in and outside the country, that may be used for disaster operations subject to approval by the National Disaster Management Authority ;

(j) Allocate funds for the National Disaster Prevention, Mitigation and Preparedness Fund to finance activities as specified in section 106 of this Act;

(k) Allocate funds for the Dzongkhag, Dungkhag, Thromde and Gewog Emergency Response Funds to provide immediate relief and response in affected areas, and to restore public infrastructure and services;

(l) Determine allowances and compensation to be paid to members of Search and Rescue, Evacuation, Rapid Assessment and such other teams, during implementation of their tasks and in case of injury, disability or loss of life;

(m) Determine allowances to be paid to members of the Disaster Management Committee, Inter-Ministerial Task Force or any sub-committee constituted thereof;

(n) Endorse hazard zonation maps and infrastructure safety codes and standards prepared by the concerned Ministries and Agencies;

(o) Advise and coordinate the activities of Ministries, Departments and bodies engaged in disaster management;

(p) Direct disaster operations and activities in the event of declaration of Class III disaster;

(q) Direct bodies engaged in disaster management including Dzongkhag, Dungkhag, Thromde and Gewog Disaster Management Committee on such matters as it deems necessary for the effective implementation of this Act;

(r) Coordinate with international organizations, governments of other countries and international non-governmental organizations for the purpose of this Act;

(s) Provide reports and make recommendations to the National Disaster Management Authority on matters relating to disaster management and disaster operations; and

(t) Perform such other functions as may be prescribed under this Act or any other law in force.

3. The Department of Disaster Management, MoHCA

The department having administrative control of disaster management shall serve as the national coordinating agency for disaster management, and also function as the secretariat for the National Committee for Disaster Management. The department having administrative control of disaster management shall be headed by a Director General or Director who shall be a civil servant.

The department having administrative control of disaster management shall:
(a) Facilitate the institutionalization of Disaster Management Committees at all levels and ensure it functions efficiently and effectively;

(b) Formulate guidelines for the preparation of disaster management plans at various levels in consultation with relevant Ministries and Agencies;

(c) Formulate standards and guidelines for relief, rehabilitation and re-construction in coordination with relevant Ministries and Agencies;

(d) Formulate the National Disaster Management Plan and the National Contingency Plan in coordination with relevant Ministries and Agencies;

(e) Coordinate and facilitate implementation of Disaster Management Plans at all levels;

(f) Coordinate with Disaster Management Committees, Sectors and Agencies for disaster prevention, mitigation, preparedness, response and rehabilitation activities;

(g) Coordinate the activities of other agencies involved in disaster management;

(h) Facilitate the setting up of Emergency Operation Centre and disaster communications network and coordinate its functioning;

(i) Facilitate capacity building at all levels to effectively respond to disasters;

(j) Strengthen response capabilities at all levels to provide appropriate relief, recovery, rehabilitation and re-construction efforts after a disaster;

(k) Supervise various disaster risk reduction initiatives and projects and oversee effectiveness of the response mechanisms;

(l) Develop and implement a national disaster awareness, education and media management strategy at all levels;

(m) Develop standard training modules and curriculum on various hazards, risks, vulnerabilities and measures to be taken to prevent, mitigate and respond to disasters;

(n) Ensure the readiness of all relevant Ministries, Sectors and Agencies to issue effective warnings to the Disaster Management Committee and coordinate the functioning of an effective early warning system;

(o) Ensure timely transmission of information between the National Committee for Disaster Management, Ministries, Sectors, Agencies and Disaster Management Committees;

(p) Coordinate and facilitate mainstreaming of disaster management and risk reduction initiatives into development plans and programmes;

(q) Collaborate with relevant international, regional and national organizations for the purpose of disaster management;

(r) Gather timely and authoritative information from respective Ministries and Agencies in relation to both current and potential hazards, risks and vulnerabilities;

(s) Develop national disaster management database, hazard zonation maps and carry out risk assessments in coordination with relevant Ministries and Agencies;

(t) Submit periodic report on all issues pertaining to disaster management to the National Committee for Disaster Management; and

(u) Carry out any such other activities as deemed appropriate by the National Committee for Disaster Management.

The guidelines for the preparation, regular review and updating of Disaster Management Plans developed under section 47(b) of this Act shall, within the time so prescribed, be submitted to the National Committee for Disaster Management for approval.

The guidelines for relief, rehabilitation and re-construction plans developed under section 47(c) of this Act shall, within the time so prescribed, be submitted to the National Committee for Disaster Management for approval.

4. Ministries and Agencies for Disaster Management

It shall be the responsibility of each Ministry and Agency to:

(a) Formulate, review and update Disaster Management Plan in accordance with the guideline issued by the National Committee for Disaster Management;

(b) Develop sector contingency plans which shall provide action plans in case of disaster and shall include assignment of responsibilities to its sectors at National, Dzongkhag, Dungkhag and local level;

(c) Develop respective hazard zonation maps and infrastructure safety codes and standards;

(d) Oversee the implementation of Disaster Management Plans;

(e) Integrate measures for prevention, mitigation and preparedness for disasters and capacity building activities into its development plans and projects in accordance with the National Plan and strategic policy framework;

(f) Respond effectively and promptly to any threatening disaster situation or disaster as outlined in the National Contingency Plan or as per directives of the National Committee for Disaster Management;

(g) Allocate funds for prevention and mitigation of disaster, capacity-building, preparedness, response, rehabilitation, recovery and re-construction; and

(h) Provide assistance to the Disaster Management Committee for:

$\Rightarrow$ Drawing up and implementing National, Dzongkhag, Dungkhags, Thromde and Gewog Disaster Management Plans;

$\Rightarrow$ Data collection, capacity building, training of personnel and information and communication set up in relation to disaster management;

$\Rightarrow$ Carrying out rescue and relief operations;

$\Rightarrow$ Carrying out damage assessment and rehabilitation and re-construction efforts; and

$\Rightarrow$ Such other actions as may be necessary for disaster management.

The Ministerial and Agency Disaster Management Plan and Sector Contingency Plans developed under section 51 (a) and (b) of the Disaster Management Act shall, within the time prescribed in the guideline, be forwarded to the department having administrative control of disaster management.

The hazard zonation maps and infrastructure safety codes and standards developed under section 51 (c) of the Act shall, within the time so prescribed, be submitted to the department having administrative control of disaster management for obtaining endorsement of the National Committee for Disaster Management and the approval of the National Disaster Management Authority.

2. Dzongkhag Level

a. Dzongkhag Disaster Management Committee

Every Dzongkhag Administration shall establish a Dzongkhag Disaster Management Committee. The Dzongkhag Disaster Management Committee shall consist of such number of members, not exceeding twelve, as may be prescribed by the National Committee for Disaster Management.

The Dzongkhag Disaster Management Committee shall comprise:
  (a)   Dzongdag, who shall be the ex-officio Chairperson;
  (b)   Dzongkhag Forest Officer;
  (c)   Dzongkhag Health Officer;
  (d)   Commander, Royal Bhutan Army wherever such post exists;
  (e)   Superintendent of Police/Officer-in-Charge, Royal Bhutan Police;
  (f)   Drungchen of the Dratshang;
  (g)   Chairperson of the Dzongkhag Tshogdu;
  (h)   Member Secretary to the Thromde Disaster Management Committee; and
  (i)   Four other members to be nominated by the Chairperson on the basis of relevancy and in accordance with the rules framed under this Act.

The Vice Chairperson of the Dzongkhag Disaster Management Committee shall be elected by the Committee for a period of 3 years.

The Chairperson of the Dzongkhag Disaster Management Committee shall designate one of the members as member secretary to the Committee.

b. Functions of the Dzongkhag Disaster Management Committee

The Dzongkhag Disaster Management Committee shall:

  (a)   Prepare, review and update the Dzongkhag Disaster Management Plan;
  (b)   Implement the Dzongkhag Disaster Management Plan;
  (c)   Monitor and evaluate measures taken for prevention, mitigation, preparedness, response and capacity building by each sector and various Disaster Management Committee at all levels in the Dzongkhag;
  (d)   Promote general education, awareness and community training on various hazards, risks, vulnerabilities and measures to be taken by the community to prevent, mitigate and respond to disasters;
  (e)   Ensure the establishment and functioning of a Dzongkhag Emergency Operation Centre;
  (f)   Ensure the establishment and efficient functioning of communication systems and conduct of regular mock drills;
  (g)   Ensure the integration of disaster prevention and mitigation measures into sector development plans and projects;
  (h)   Report on the implementation and progress of its Disaster Management Plans to the National Committee for Disaster Management on quarterly basis;
  (i)   Maintain a Dzongkhag Emergency Response Fund;
  (j)   Ensure enforcement of the approved hazard zonation maps and infrastructure safety codes and standards prepared by the concerned Ministries and Agencies;
  (k)   Conduct disaster operations and activities in the event of declaration of Class II disaster;
  (l)   Direct Dungkhag, Thromde and Gewog Disaster Management Committee on such matters as deemed necessary for the effective implementation of this Act;
  (m) Provide reports and make recommendations to the National Committee for Disaster Management on matters relating to disaster management and disaster operations; and

(n) Perform such other functions as may be prescribed under this Act or any other law in force.

3. *Dungkhags, Gewog and Thromde levels*

Similarly Thromdes, Dungkhags and Gewogs will have their own disaster management committees. They will be responsible for developing their own disaster management plans, which will go on to constitute their respective dzongkhag disaster management plans. In line with the concept of decentralization and community based disaster risk management, the various disaster management authorities will have to play a lead role in disaster management and risk reduction activities, plans and programmes.

a. *Dungkhag Disaster Management Committee (DDMC)*

Every Dungkhag Administration shall establish a Dungkhag Disaster Management Committee. The Dungkhag Disaster Management Committee shall consist of such number of members, not exceeding eleven, as may be prescribed by the Dzongkhag Disaster Management Committee.

The Dungkhag Disaster Management Committee shall comprise:

(a)   The Dungpa, who shall be the ex-officio Chairperson;
(b)   Medical Officer/Health Assistant;
(c)   Officer-in-charge/ In-charge, Royal Bhutan Police;
(d)   Representative of the Dratshang;
(e)   Member Secretary of the concerned Gewog Disaster Management Committee; and
(f)   Four other members to be nominated by the Chairperson on the basis of relevancy and in accordance with the rules framed under this Act.

The Vice Chairperson of the Dungkhag Disaster Management Committee shall be elected by the Committee for a period of 3 years.

The Chairperson of the Dungkhag Disaster Management Committee shall designate one of the members as member secretary to the Committee.

b. *Functions of the Dungkhag Disaster Management Committee*

The Dungkhag Disaster Management Committee shall:

(a) Prepare, review and update the Dungkhag Disaster Management Plan;
(b) Implement the Dungkhag Disaster Management Plan;
(c) Monitor and evaluate measures taken for prevention, mitigation, preparedness, response and capacity building by each sector and the concerned Gewog Disaster Management Committee;
(d) Promote general education, awareness and community training on various hazards, risks, vulnerabilities and measures to be taken by the community to prevent, mitigate and respond to disasters;

(e) Ensure the establishment and efficient functioning of communication systems and conduct of regular mock drills;
(f) Ensure the integration of disaster prevention and mitigation measures into sector development plans and projects;
(g) Report on the implementation and progress of its Disaster Management Plan to the Dzongkhag Disaster Management Committee on a quarterly basis;
(h) Maintain a Dungkhag Emergency Response Fund;
(i) Ensure enforcement of the approved hazard zonation maps and infrastructure safety codes and standards prepared by the concerned Ministries and Agencies;
(j) Direct Gewog Disaster Management Committee in its jurisdiction on such matters as deemed necessary for the effective implementation of this Act;
(k) Provide reports and make recommendations to the Dzongkhag Disaster Management Committee on matters relating to disaster management and disaster operations; and
(l) Perform such other functions as may be directed by the Dzongkhag Disaster Management Committee.

4. Thromde Disaster Management Committee (TDMC)

Every Thromde Tshogde shall establish a Thromde Disaster Management Committee.
The Thromde Disaster Management Committee shall consist of such number of members, not exceeding eleven, as may be prescribed by the Dzongkhag Disaster Management Committee. The Thromde Disaster Management Committee shall comprise:

(j) The Thrompon, who shall be the ex-officio Chairperson;
(k) Two members of the Tshogde nominated by the Thromde Tshogde;
(l) Medical Officer;
(m) Officer-in-charge, Royal Bhutan Police;
(n) Representative of the Dratshang;
(o) Executive Secretary of the Thromde Dagchong; and
(p) Four other members to be nominated by the Chairperson on the basis of relevancy and in accordance with the rules framed under this Act.

The Vice Chairperson of the Thromde Disaster Management Committee shall be elected by the Committee for a period of 3 years. The Chairperson of the Thromde Disaster Management Committee shall designate one of the members as member secretary to the Committee.

a. Functions of the Thromde Disaster Management Committee

The Thromde Disaster Management Committee shall:
(a) Formulate, review and update the Thromde Disaster Management Plan;
(b) Implement the Thromde Disaster Management Plan;
(c) Monitor and evaluate measures taken for prevention, mitigation, preparedness, response and capacity building by each sector, and provide feedback for enhancing disaster management;
(d) Promote general education, awareness and community training on various hazards, risks, vulnerabilities and measures to be taken by the community to prevent, mitigate and respond to disasters;

(e) Ensure the establishment and efficient functioning of communication systems and conduct of regular mock drills;

(f) Ensure the integration of disaster prevention and mitigation measures into Thromde plans and projects;

(g) Report on the implementation and progress of its Disaster Management Plan to the Dzongkhag Disaster Management Committee on quarterly basis;

(h) Maintain a Thromde Emergency Response Fund;

(i) Ensure enforcement of the approved hazard zonation maps and infrastructure safety codes and standards prepared by the concerned Ministries and Agencies;

(j) Conduct disaster operations and activities in the event of declaration of Class I disaster;

(k) Provide reports and make recommendations to the Dzongkhag Disaster Management Committee on matters relating to disaster management and disaster operations; and

(l) Perform such other functions as may be directed by the Dzongkhag Disaster Management Committee.

5. Gewog Disaster Management Committee (GDMC)

Every Gewog Tshogde shall establish a Gewog Disaster Management Committee. The Gewog Disaster Management Committee shall consist of such number of members, not exceeding nine, as may be prescribed by the Dzongkhag Disaster Management Committee.

The Gewog Disaster Management Committee shall comprise:
(a) The Gup, who shall be the ex-officio Chairperson;
(b) Mangmi;
(c) Two Tshogpas nominated by the Gewog Tshogde;
(d) Gewog Administrative Officer of the Gewog Administration;
(e) Health Assistant; and
(f) Three other members to be nominated by the Chairperson on the basis of relevancy and in accordance with the rules framed under this Act.

The Vice Chairperson of the Gewog Disaster Management Committee shall be elected by the Committee for a period of 3 years. The Chairperson of the Gewog Disaster Management Committee shall designate one of the members as member secretary to the Committee.

a. Functions of the Gewog Disaster Management Committee

The Gewog Disaster Management Committee shall:

(a) Formulate, review and update the Gewog Disaster Management Plan;
(b) Implement the Gewog Disaster Management Plan;
(c) Monitor and evaluate measures taken for prevention, mitigation, preparedness, response and capacity building by each sector, and provide feedback for enhancing disaster management;
(d) Promote general education, awareness and community training on various hazards, risks, vulnerabilities and measures to be taken by the community to prevent, mitigate and respond to disasters;

(e) Ensure the establishment and efficient functioning of communication systems and conduct of regular mock drills;

(f) Ensure the integration of disaster prevention and mitigation measures into Gewog plans and projects;

(g) Report on the progress and implementation of its Disaster Management Plan to the Dzongkhag Disaster Management Committee on quarterly basis;

(h) Maintain a Gewog Emergency Response Fund;

(i) Ensure enforcement of the approved hazard zonation maps and infrastructure safety codes and standards by the concerned Ministries and Agencies;

(j) Conduct disaster operations and activities in the event of declaration of Class I disaster;

(k) Provide reports and make recommendations to the Dzongkhag Disaster Management Committee on matters relating to disaster management and disaster operations; and

(l) Perform such other functions as may be directed by the Dzongkhag and concerned Dungkhag Disaster Management Committee.

ORGANOGRAM A: INSTITUATIONAL MECHANISM AT THE CENTER

```
┌─────────────────┐     ┌──────────────────┐
│  HM the King    │─────│ HM's Relief Fund │
└─────────────────┘     └──────────────────┘
         │
┌───────────────────────────┐
│ National Disaster Management│
│ Authority (Chaired by the   │
│ Prime Minister)             │
└───────────────────────────┘
         │
┌──────────────┐   ┌───────────────────┐   ┌──────────────────────┐
│ Emergency    │───│ National Committee│───│ National Disaster    │
│ Response Fund│   │ on Disaster Mgmt  │   │ Mitigation, Prevention│
└──────────────┘   └───────────────────┘   │ and Preparedness Fund │
                            │               └──────────────────────┘
┌──────────────────┐  ┌──────────────────┐  ┌────────────────────┐
│ National Emergency│──│ Ministry of Home │──│ Inter-Ministerial  │
│ Operation Centre  │  │ and Cultural     │  │ Task Force         │
└──────────────────┘   │ Affairs          │  └────────────────────┘
                       └──────────────────┘
                            │
   ┌────────────┬───────────┼───────────┬────────────┐
┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│Dzongkhags│ │Dungkhags │ │ Thromdes │ │  Gewogs  │
└──────────┘ └──────────┘ └──────────┘ └──────────┘
```

ORGANOGRAM B: INSTITUTIONAL MECHANISM AT THE DZONGKHAGS, DUNGKHAGS, THROMDES & GEWOGS.

```
┌──────────────────────┐           ┌──────────────────────┐
│     DZONGKHAG        │           │                      │
│   ADMINISTRATION     │───────────│    NATIONAL EOC      │
└──────────┬───────────┘           └──────────┬───────────┘
           │                                   │
           │                                   ▲
           │                                   │
           │                                   ▼
┌────────────────┐  ┌──────────────────┐  ┌──────────────────────┐
│   Dzongkhag    │  │  DZONGKHAG DM    │  │   DZONGKHAG EOC      │
│   Emergency    │──│   COMMITTEE      │──│                      │
│ Response Fund  │  │                  │  │                      │
└────────────────┘  └────────┬─────────┘  └──────────────────────┘
                             │
                    ┌──────────────────┐
                    │  DZONGKHAG DM    │
                    │     TEAMS        │
                    └────────┬─────────┘
```

┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│   DUNGKHAG DM   │   │   GEWOG DM   │   │   THROMDE DM   │
│   COMMITTEE   │   │   COMMITTEE   │   │   COMMITTEE   │
└────────┬─────────┘   └────────┬─────────┘   └────────┬─────────┘
         │   │   │
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ DUNGKHAG DM TEAMS│   │ GEWOG DM TEAMS   │   │ THROMDE DM TEAMS │
└──────────────────┘   └──────────────────┘   └──────────────────┘
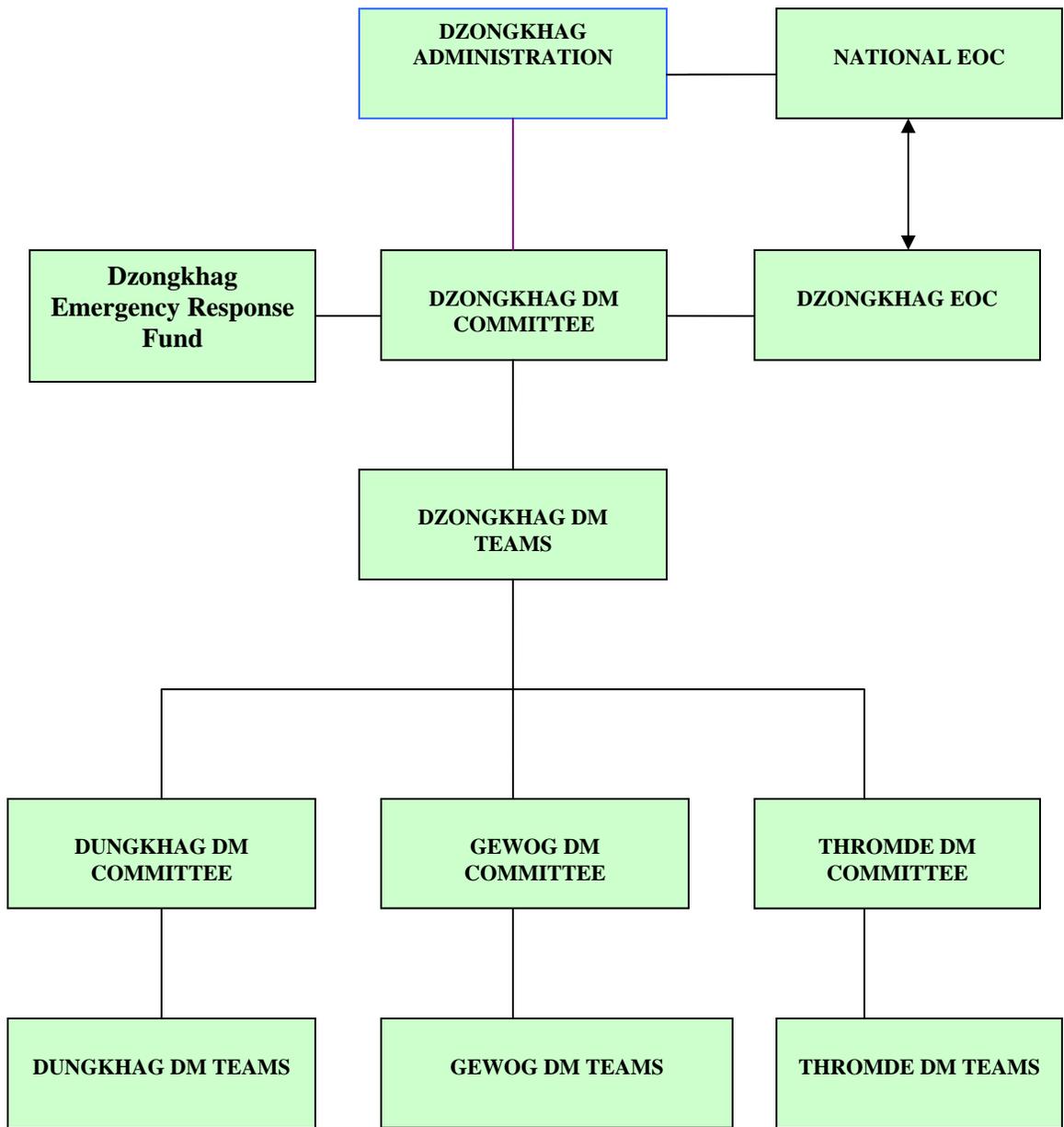
MODULE TWO: Introduction to Community Based Disaster Risk Management (CBDRM)

Session 1:   Basic Disaster Risk Reduction (DRR): Terms and Concepts
Session 2:   Mainstreaming DRR in Development
Session 3:   Characteristics of a Safer, More Resilient Community

LEARNING OBJECTIVES

At the end of the session, the participants should be able to:

- *Explain the basic concepts related to disaster risk management: e.g. disaster, hazard, vulnerability, capacity, disaster risk assessment, disaster risk reduction.*
- *Define the conceptual relationship between disaster and development.*
- *Examine measures to make at- risk communities safer and more resilient.*

KEY CONCEPTS

- *A disaster occurs when a hazard impact upon a vulnerable community and causes damage, casualties and disruption*
- *Vulnerability is a set of prevailing or consequential conditions, which adversely affect the community's ability to prevent mitigate prepare for and respond to hazardous events*
- *Capacities are resources, means and strengths, which exists in the households and in the community and which enable them to cope with, withstand, prepare for, prevent, mitigate and quickly recover from disaster.*
- *Disaster risk is the chance of damage and loss as a result of the occurrence of a hazard.*
- *Disaster risk reduction includes all activities to minimize the loss of lives, property or assets by either mitigating the hazards or reducing the vulnerability of the elements at risk.*

Session 1: Basic Disaster Risk Reduction (DRR) Terms and Concepts

1. Basic Disaster Risk Reduction (DRR) Terms and Concepts

There are many definitions of disasters and disaster risk management terms depending on the scientific, professional, organizational background and needs of the authors or practitioners involved in achieving common ground, it is best to look into common elements in the definitions as well as how definitions are incorporated into practice.

Disaster
A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope, using its own resources (UNISDR 2004). A disaster happens when a hazard impacts upon a vulnerable population and causes damage, casualties and disruption.

Hazard
A potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydro metrological and biological) or induced by human processes (environmental degradation and technological hazards). Each hazard is characterized by its location, intensity, frequency and probability.

Examples of natural hazards are typhoons, tsunamis, earthquake, which are exclusively of natural origin. Landslides floods, drought fires are socio-natural hazards since their causes are both natural and human made (Human induced)

Human induced hazards are associated with industries or energy generation facilities and include explosions leakage of toxic waste, pollution, dam failures. War or civil strife is included in this category. Hazards can be single, sequential or combined in their origin and effects. For example, an earthquake causes landslides, which dams a river and then causes flooding. A community may be exposed to multiple hazards when there are simultaneous occurrences of different hazards.

Vulnerability
The conditions determined by physical social economic and environmental factors or processes. Factors that increase the susceptibility of the community to the impact of hazards; is a set of prevailing or consequential conditions which adversely affect people's ability to prevent, mitigate, prepare for and respond to hazards.

Capacity
A combination of all the strengths and resources available within the community, society or organization that can reduce the level of risks or effects of a disaster; may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability. In most disaster, people suffer their greatest losses in physical and material realm. However, though everything physical may be destroyed, people still have their skills and knowledge, their family and community organisation. They have leaders and systems for making decisions. They might also have village welfare and religious *Tshogpas* and other civil societies and affiliations etc.

Disaster Risk

The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activities disrupted or environment damage) resulting from interactions between natural or human induced hazards and vulnerable condition.

Disaster Risk = $\dfrac{\text{Hazard X Vulnerability}}{\text{Capacity}}$

Elements at risk

A societal element is said to be "at risk" when it is exposed to hazards and is likely to be adversely affected by the impact of those hazards when they occur. This includes who and what can be damaged:

⇒ people(their lives and health)
⇒ household and community structures (houses, community centre, school and public building)
⇒ Community facilities and services (access roads, bridges, hospital, electricity, water supply)
⇒ Livelihood and economic activities (jobs, production facilities and equipment, crops)
⇒ The natural environment (natural resources base)

Disaster Risk Assessment

Disaster risk assessment is a participatory process to assess the hazards, vulnerabilities and capacities of a community. Through hazard assessment, the likelihood of the occurrence, the severity and duration of various hazards is determined.

The vulnerability assessment identifies what elements are at risk and causes of their vulnerable conditions and households and groups that are most exposed to a hazard. The assessment takes into account, physical, geographical, economic, social and political factors that make some people vulnerable to the dangers of a given hazard. The result of a disaster risk assessment is the ranking of the disaster risk in the community as a basis for planning of risk reduction.

Disaster Management

A collective term for all activities that contribute to increasing capacities and reduction of immediate and long-term vulnerabilities. It covers all activities before, during and after a disaster.

Disaster Risk Management

Is the systematic process of using administrative decisions, organisation, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impact of natural hazards and related environmental and technological disaster; this comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster Risk Reduction

Is the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout the society, to avoid (prevention), or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Disaster Prevention
Measures taken to avert a disaster from occurring, if possible (to impede a hazard so that it does not have any harmful effects).

Disaster Mitigation
Measures taken prior to the impact of a disaster to minimize its effects (sometimes refererdn to as structural and non-structural measures).

Structural Mitigation
Risk reduction effort performed through the construction and altering of the physical environment through application of engineering solutions. Structural mitigation measures are those that involve or dictate the necessity for some form of construction, engineering or other mechanical changes or improvements aimed at reducing hazard risk likelihood or consequence.

Non-structural Mitigation
Measure that reduces risk through modification in human behavior or natural processes without requiring use of engineered structures.

Disaster Preparedness
Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and temporary evacuation of people and property from threatened locations.

Emergency Relief or Response
It covers measures required in search and rescue of survivors and meeting basic survival needs for shelter, water, food and health care. Provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short term, or protracted duration.

Disaster Recovery
Decisions and actions taken after disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risks. It refers to rehabilitation of livelihoods, restoration of social and economic activities and reconstruction of shelter and infrastructure.

Local Governments
The terms Local Government (LG) and Local Authorities are used interchangeably. LG are administrative offices in the Dzongkhags and the Gewogs. It is referred to as *Saney Zhung*. The term is used to contrast with offices at nation-state level which are referred to as central government.

Community Based Disaster Risk Reduction
A process of disaster risk reduction in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that people are at the heart of decision making and implementation of disaster risk reduction activities.

Sustainable Development

Development that meets the needs of the present generation without compromising the ability of future generations to meet their needs.

Since development is human centered and reducing disaster impacts involves regulating human actions that create the conditions in which disasters happen, disasters risk reduction should be seen as a development issue. Incorporating Disaster Risk Reduction concerns into development makes sense for many reasons, including the following:

* The underlying causes of poverty, unsustainable development and disasters are related and all originate from factors that cause or increase the vulnerability of people;   * Development with disaster risk reduction concerns can reduce disaster risks, thereby reducing people's vulnerability and contributing to poverty alleviation and sustainable development;

* Disasters can put development at risk and make it unsustainable, thereby reducing the development potential of the country. It is a well documented fact that for every dollar invested in risk reduction, countries actually save seven dollars in terms of recovery and re-construction;

1. The Hyogo Framework of Action

During the World Conference in Kobe, Japan in January 2004, the global community adopted the Hyogo Framework for Action (HFA) as a guide in disaster risk reduction.

The HFA has 5 main priority areas in building the resilience of nations and communities to disasters:

- Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.
- Identify, assess and monitor disaster risks and enhance early warning.
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
- Reduce underlying risk factors.
- Strengthen disaster preparedness for effective response at all levels.

In all the five priority areas the importance of community participation and community-centric disaster risk management is the underlying theme.

The HFA also draws attention to the relationship between development and disaster risk management. Since development is human centered and reducing disaster impacts involves regulating human actions that create conditions and vulnerabilities leading to disasters. Therefore, disasters risk reduction should be seen as a development issue.

2. Mainstreaming DRR into Development Programming

Mainstreaming-The word is derived from the metaphor of a small isolated flow of water being drawn into the mainstream of a river from where it is expected to expand and flow smoothly without loss or diversion. Therefore 'mainstreaming risk reduction' describes a process to fully

incorporate disaster risk reduction into development policy and practice. It means radically expanding and enhancing disaster risk reduction so that it becomes normal practice, fully institutionalized within an agency's development agenda.

Mainstreaming has three main purposes:
- To make certain that all the development programmes and projects are designed with evident consideration for potential disaster risks and to resist hazard impact.
  (examples)
- To make certain that all the development programmes and projects do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economic and environment.
  (examples)

- To make certain that all the disaster relief and rehabilitation programmes and projects are designed to contribute to developmental aims and to reduce future disaster risk.
  (examples)

Mainstreaming disaster risk reduction ultimately means ensuring **Sustainable Development,** which basically means meeting the needs of the present without compromising the ability of future generations to meet their own needs.

While mainstreaming disaster risk reduction we would also need to consider the needs of **Vulnerable groups** in disasters such as women, children, older people and people with disabilities (PWDs) as these groups often suffer specific disadvantages in coping with a disaster and may face physical, cultural and social barriers in accessing the services and support to which they are entitled.

Session 3: Characteristics of a Safer, More Resilient Community

1. **Aim of Resilience**

   The aim of CBDRM is to create resilient people living within safer and resilient communities within safer and resilient environments within safer and resilient countries. This may be achieved by:

   1. Putting in place risk reduction and prevention measures to prevent or reduce impct of hazards;

2. Putting in place preparedness and capacity building measures to ensure fewer lives lost, fewer injuries and reduced direct and indirect damage;
3. Reducing the time needed for recovery; and
4. Patterns of vulnerability that can develop during the process of reconstruction.

2. The Nature of Resilient Communities

A resilient community is one that has certain capacities in three phases:

Phase 1. The ability to absorb the shocks of hazard impact, so that they do not become disasters (thus to reduce the probability of failure);

Phase 2. The capacity to bounce back during and after disaster (thus to reduce the consequences of failure);

Phase 3. The opportunity for change and adaptation following a disaster (thus to reduce the time needed for recovery as well as patterns of vulnerability).

3. Characteristics of resilience before a disaster

Societies anticipate and reduce disaster impact by adopting many approaches:

- Using traditional experience and knowledge (coping mechanisms);
- Preparing for any possible hazard by having emergency kits or supplies, (buffer stocks) ready for the event;
- Having family or community disaster plans as well as adaptive behavior, (strengthening houses, providing emergency protection of doors and windows from high winds, etc.);
- Organizing training courses in first aid, etc.;
- Temporary evacuation before an impending flood or windstorm.
- Permanent relocation of the community away from unsafe sites.

4. Characteristics of resilience during a disaster

Themes need to be addressed such as integrating recovery plans to link social, physical and economic recovery; following a disaster recovery plan; recognizing the importance of securing a prepared community who know what to do to recover; and taking actions to reduce future vulnerability. Societies cope during and after a disaster by:

1. Drawing on the support of their community;
2. Taking stock to determine what they have and what or who is missing
3. Restoring communications to facilitate aid distribution;
4. Mitigating future risks (both psychological as well as material threats);
5. Recognizing that physical recovery work can combine with bereavement therapy with a possible income source; and
6. Regarding the entire experience as a learning process.

5. Characteristics of resilience after a disaster

The following concerns need to be addressed during the recovery process, together they will build far more resilient communities:

- Devise a community recovery plan that links social, physical, economic and environmental recovery;
- Regard physical recovery work as bereavement therapy and a possible income source and the entire reconstruction experience as a learning process;
- Draw on support of their community by being adaptable, flexible and patient;
- Where possible ensure that there is local purchase or reconstruction goods using local labor to re-vitalize the damaged local economy;
- Recognize the value of a prepared community who know what to do to recover;
- Take actions to reduce future vulnerability as the recovery proceeds.

6. Elements of Community Level DRR System

Resilience is a moving target, and realistically it may not be possible for communities to achieve absolute resilience against hazards or other risk factors. However, communities can still achieve certain level of development, and they can establish institutional arrangements that would enhance their resilience. In order to assess whether a community has achieved a certain level of resilience, we will need to establish some indicators, which if existed would mean that the community had achieved a minimum level of resiliency. Though by no means comprehensive, a set of elements is given below:

- A community organization;
- A DRR and DP plan;
- A Community Early Warning System;
- Trained manpower: risk assessment, search and rescue, medical first aid, relief distribution, masons for safer house construction, fire fighting
- Physical Connectivity: roads, electricity, telephone, clinics
- Relational connectivity with local authorities, NGOs, etc
- Knowledge of risks and risk reduction actions
- A Community Disaster Reduction Fund to implement risk reduction activities
- Safer House to withstand local hazards
- Safe source/s of livelihoods

Achieving absolute resilience however is probably impossible. Like vulnerability, resilience is complex and multifaceted. Different features or layers of resilience are needed to deal with different kinds and severity of stress. The aim of disaster risk reduction therefore is to make the community as resilient as possible. In order for this to happen many different areas need to be addressed. It is unlikely that one organization could address all of them by itself. Therefore just as it is important to encourage participation within the community it is important to promote partnerships with other communities and organizations so that all areas can be addressed appropriately. In this way, all the necessary resources can be made available and used appropriately.

MODULE THREE: COMMUNITY BASED DISASTER RISK MANAGEMENT – FRAMEWORK FOR RISK REDUCTION

LEARNING OBJECTIVES:

At the end of the session the participants are able to:

- *Understand the steps involved in CBDRM*
- *Explain the purpose of risk assessment and use of its tools*

KEY CONCEPTS

- *Risk refers to the probability of something happening in the future, which has a negative consequence*
- *Assessment is a participatory process undertaken in phases, its interpretation and analysis, and involves on-the-spot collection of information from various sources*
- *Participation of community members is an essential component of community risk assessment, which determines the methodologies and tools to be used. It unites the community in understanding their disaster situation*
- *CRA involves four interrelated components: hazard assessment, vulnerability assessment, capacity assessment and people's perception of disaster risks.*

Session 1: CBDRM- Introduction and the Seven Steps

Community Based Disaster Risk Management: Rationale and process

A process of disaster risk management in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means people at the heart of decision making and implementation of disaster risk reduction activities.

CBDRM involves activities, measures, projects and programmes to reduce disaster risks which are designed and implemented by people living at-risk communities with the goal of building safe, livable, disaster resilient and development communities.

The involvement of the most vulnerable is paramount and the support of the less vulnerable is necessary. Since the community can not reduce disaster risks and address vulnerable conditions on its own, support of local and national government, NGOs, the academic, scientists, geochronology experts, the private sector, etc are important.

What is a Community?

The term community can have different meanings to different people. Communities can be defined based on the following:
- Geographically such as cluster of houses, neighborhood, ward, village.
- Shared experiences such as particular interest groups-local NGOs; professional groups-teachers, health professionals; age groupings- youth, children, elderly
- Sectors such as industry sector, workers in rubber products, garments ort transport workers

In CBDRM, community is taken as a group of people in a locality who by virtue of sharing the same environment (living in the locality, working in the locality or the sector) are exposed to the same threats, though the degree of exposure may differ. Common problems, interest, hopes and behaviors may be shared and are basic for common objectives in disaster risk management.
Contrary to usual notions, the community is not a homogenous group but can be socially differentiated and diverse with gender, class, caste, education background, wealth, age, religion, ethnicity, language factoring for differences in perceptions, interest, values and attitudes.

Urban communities, especially in big cities generally lack social cohesion and stability when compared to rural communities. Aside from original inhabitants cities have permanent migrants who still maintain close ties with their places of origin and a "floating population" or temporary migrants who have no sense whatsoever of belonging to the city.

Importance of Community Involvement

The key aspect of community involvement is the sustainability of community level initiatives for disaster reduction. External agencies like government, NGOs may initiate and implement community level programmes before and after disasters. However such initiatives many times discontinue once the external support ends.

Communities need to be involved not only in the CBDRM process because there is growing evidence to show that most top down disaster risk management and response programs failed to address specific local needs of vulnerable communities, ignored the potential of local resources and capacities and in some cases even increased peoples' vulnerabilities.

Community involvement is therefore paramount as local communities know their own opportunities and constraints resulting in better identification of risk, vulnerabilities and required

mitigation efforts. Also, unless the disaster risk management efforts are sustainable at individual and community level it would be difficult to reduce their vulnerability and losses.

All communities and villages have some vitally important assets to deal with disaster. This may include knowledge of disaster warning signs, locally safe and vulnerable areas, experience of past disaster, methods of survival and social relations that are often vitally important in coping with crisis. Local communities have an active part to play before and after disaster as:
  ⇒ A good state of disaster preparedness may reduce its impacts
  ⇒ More number of lives can be saved during the first few hours after disaster and has occurred through local response teams, before help arrives from elsewhere.
  ⇒ The numerous problems of survival and health resulting from a disaster are dealt with more efficiently, if the communities are active and well organized (WHO, 1989)

The relevance of the community-based disaster management approach is increasing due to changing patterns of disaster occurrence and loss. While occasional large catastrophes continue to occur, it has been documented that rapid increase in disaster occurrence and loss is due to the exponential increase in occurrence from small to medium-scale disasters associated with social, natural hazards such as landslides, flood, drought and fire.

The CBDRM Process

The CBDRM process is the whole process of assessment of community's hazards, vulnerabilities, and capacities and planning and implementation of risk reduction activities, projects and programs with the full involvement of the community.

The CBDRM process has seven sequential stages, which can be implemented before a disaster occurs or after one has happened to reduce future risks. Each stage grows out of the presiding stage and leads to further action. Together the sequence can build up a planning and implementation system, which can become a powerful disaster risk management tool. Following are the seven steps in the CBDRM Process:

  a. Selecting the Community
  b. Rapport Building and Understanding the Community
  c. Community Based Participatory Disaster Risk Assessment
  d. Community Based Disaster Risk Management Planning
  e. Capacity Building of Community Based Disaster Management Organizations
  f. Community Managed Implementation
  g. Participatory Monitoring and Evaluation

The stages in the DRR process are given in the figure below:

Selecting the Community (a) → Rapport building (b) → CBDR Assessment (c) → CBDM Planning (d) → Capacity Building (e) → Community Implementation (f) → Participatory Monitoring and Evaluation (g)
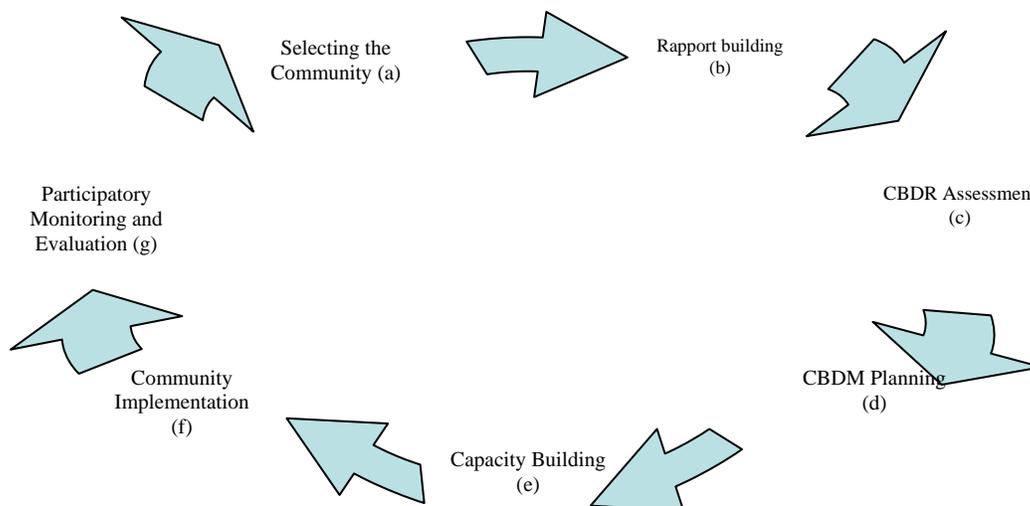
a. Selecting the community

The first task of local authorities is to conduct a detailed risks assessment survey of the whole area under its jurisdiction. The selection of community for implementation of CBDRM activities depends upon a number of factors and criteria but most importantly the risk exposure of the particular community. Given below is a list of criteria for identifying communities for CBDRM activities:

⇒ Severity of communities exposure to risk (level of vulnerability)
⇒ Number of people to benefiting
⇒ Readiness of communities to engage in DRR activities
⇒ Poverty status of the community
⇒ Governmental priority of physical social and economic vulnerability
⇒ Budget availability
⇒ Accessibility

All of the above mentioned criteria would not be equally important in given area. The local authority can make decisions on the basis of factors that might be more important locally, than the others. A thorough survey will need to be conducted for the identification of vulnerable communities. The following table can be used to conduct survey for identifying vulnerable communities for a transparent decision-making process.

Community Identification matrix

Criteria								
Communities (gewogs/villages)	Risk Exposure	Poverty Status	Will to engage in DRR	No. of Potential beneficiaries	Accessibility	Staff Security	Total	Rank
1.								
2.								
3.								

4.								
5.								
6.								
7.								
8.								
9.								

Using matrix ranking decision makers and programme staff can reflect and make better decision in community selection.

How to select communities using matrix ranking

⇒ Using a set of criteria rank the communities
⇒ Reflect the evaluation of each community by using beans if in the field
⇒ Ten beans is the highest number that the community can receive
⇒ The community that receives the highest number (e.g ten beans) is the community that satisfies most of the criteria used. Communities should not be, ranked equally. As much as possible, only one community should be ranked with ten beans.

b. Rapport Building and Understanding

Once the most vulnerable communities are identified it would be important to understand the local social relationships and power structures key economic groups and to build the good informal relationship with the local people. This will be crucial in order to ensure participation of various local groups.

Local authorities supporting the community in disaster risk reduction need to build a picture of nature and needs and resources of the community. This step usually involves interacting and integrating with the community and gathering basic information to have a general description of the community.

A relationship of trust and friendship is key in facilitating effective participation. If community members have trust in the outsiders who are working with them, then open sharing about issues, problems concerns and solution can take place. Local Authorities can take a number of actions in order to develop trust, with and understanding of the community. This can include the following:

⇒ Living in the community
⇒ Being transparent and open about their purpose
⇒ Participating in daily life activities in the community and cultural events
⇒ Listening to the issue and problems of local people
⇒ Learning new skills from local people
⇒ Performing local tasks

The behavior of LA staff is very important in establishing a proper relationship of trust and openness. Ways in which they should behave include:

⇒ Show humility

⇒ Understand local culture, problems and way of life
⇒ Be patient
⇒ Have interest in what people have to say
⇒ Be observant rather than judgmental
⇒ Have confidence that local people can achieve what they set out to do and transmit that confidence.

An understanding of the community's development position and the context upon which disasters will impact includes the following basic elements:

i. Social Groups
- The main ethnic , class, religion and language-based groups in the community
- The majority, the minority and the nature of their relationship.

ii. Cultural Arrangements
- How are the family and community level structures organized?
- What hierarchies exist?
- What are the common ways of behaving, celebrating, expressing?

iii. Economic Activities
- What are the major livelihood sources and what are the associated activities that people carry out?
- What is the division of labour?
- What is the relationship between livelihood activities and seasonality?

iv. Spatial Characteristics
- What are the locations of housing areas, public service facilities (e.g. Schools, temples, health clinics, evacuation centres), agricultural land etc.

v. Vulnerable households and Groups
- Who might be the most vulnerable groups or households, given the location of their houses, sources of livelihoods, ethnic and cultural positions etc?

c. Community Based Participatory Disaster Risk Assessment (CBPDRA)

Community Based Disaster Risk Assessment is a process to identify the risk the communities, villages, communes face and how people overcome those risks. This will be conducted in most vulnerable and priority communities. This process involves hazard assessments, vulnerability assessment, capacity assessment, analysis and prioritization of risk. The CBPDRA will be conducted by the Local Authorities with the involvement of the local people, community leaders and subject experts.

d. Community Based Disaster Risk Management Planning (CBDRMP)

At this stage, further analysis will be conducted jointly by the local authorities and communities to analyze the risks and identify strategies and solutions to address them. Based on this analysis a detailed risk reduction and response plan will be developed for the particular communities. The planning process will involve analysis of local stakeholder and local resources. Roles and responsibilities of the various stake holders for implementation of activities will be clarified.

e. Capacity Building of CBDRM Organizations

To effectively undertake risk reduction measures, it is best to have an organization within the community that will deal with disaster risk management. The form of organization can vary depending upon the situation in the community. It is important to have an understanding of existing organizations within the community. A disaster management committee can be one of the communities within an existing organization. However, if there is no organization yet in the community, a community disaster management organization (CDRMO) can be initiated. The objective of the CDRMO is to enable communities to become better prepared for implementing disasters and to become disaster resilient in long term.

f. Community Managed Implementation.

The implementation of the plan should be done through the community organization at community level with support from local authorities and technical and research institutions. The implementation process will include various structural and non-structural activities; e.g. community training, disaster response drills, community early warning systems, disaster resilient construction of houses, forest plantation, diversification of crops, rainwater harvesting, construction of dykes, bridges etc for vulnerability reduction and hazard mitigation. The community-based organization would be responsible for overall management of the disaster management activities. The Local Authority should play a facilitating and coordinating role for the implementation of the community plan and mobilization of the resources. They would also need to provide essential technical assistance to the communities for hazard mitigation and vulnerability reduction since the local communities may not have technical skills and knowledge to undertake various disaster reduction task; e.g. construction of dyke, construction of disaster resistance houses, or hazard assessment.

g. Participatory Community Monitoring and Evaluation (PCME)

Participatory Community Monitoring and Evaluation (PCME) involves the local community, development agencies, local authorities and other stake holders in measuring the progress made, and identifying necessary follow-up actions. The approach assumes that all concerned parties need to know effective and project efforts have been. It may be challenging, because it encourages people to examine their assumptions on what constitutes progress and to deal with contradictions and conflicts that may emerge.

Session 2: **Introduction to Hazard, Vulnerability and Capacity Assessment**

Community Based Disaster Risk Assessment (CBDRA)

CBDRA is the third step in the CBDRM process. It is a participatory process involving all stakeholders to collect and analyze disaster risk information for the formulation of appropriate risk reduction, mitigation, preparedness and response activities and plans.

Participation of community members is an essential component of community based disaster risk assessment, which determines the methodologies and tools to be used. CBDRA combines both scientific data and indigenous knowledge in determining not only disaster risks but also individual and community capacities to reduce identified risks.

The following are the components of Hazard, Vulnerability and Capacity Assessment:

1. Hazard Assessment
Hazard assessment focuses on the existing or latent factors present in, or around, the community that could potentially have a harmful affect on the community. As stated earlier in the course these may be natural (geological, hydro-meteorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be measured in terms of their location, intensity, frequency and probability.
Particularly useful tools for hazard assessment are: Hazard mapping, Seasonal Calendar, Historical profile. Semi-structured interviews, Transect walk, Direct observation are also useful tools.

2. Vulnerability Assessment
Vulnerability assessment 'measures' the physical, social, economic and environmental factors or processes, which increase the susceptibility of the community to the impact of hazards.
Particularly useful tools are: Social vulnerability mapping, Physical vulnerability mapping, Seasonal calendar, Problem tree, Transect walk, direct observation, semi-structured interviews.

In other word it is the process of estimating the susceptibility of 'elements at risk' to various hazards and analyzing the causes behind their vulnerability. The assessment takes into account the physical, geographical, economic, social, political and psychological factors, which make some people more vulnerable to the danger of the given hazard, while others are relatively protected.

Elements at risk could be: People, houses, property, crops, livelihood, community facilities, and environment. During vulnerability assessment, the elements at risk are detailed and why these can suffer damage and damage and loss are studied. The vulnerability assessment answers the following questions:

- Who are at risk and incur damage and loss?
- What are other elements at risk
- What change or loss can these people or elements at risk suffer/incur?
- Why will these people or elements at risk suffer or incur loss/damage?

For instance, why are houses and fields destroyed by landslides?

- Possible answers are: because of inappropriate land development
- Because of deforestation
- Because the houses are on dangerous location

Analysis is important to determine what preparedness and mitigation measures can be most effective in the short and long term.

Vulnerabilities can be broadly categorized as:

- Physical/material
- Social organizational
- Attitudinal/motivational

Categorization of Vulnerabilities

Physical/material	Social/organizational	Motivational/Attitudinal
• Disaster-prone location • Insecure sources of livelihood • Lack of access and control over means of production • Lack of adequate skills and educational background • Overexploited natural resources	• Weak family/kinship structures • Lack of leadership, initiative to solve problems or conflicts • Unequal participation in community affairs • Absence or weak community organisations	• Negative attitude towards change • Fatalism • Lack of 'fighting spirit' • Unawareness about hazards and consequences • Dependence n external support

At the local level the most important factor concerning vulnerability is the level of income (Bishop, 1998). Nature of houses adds to the vulnerabilities of the local people. Homes made of mud and stone and roofs made of thatched grasses and galvanized tins are more vulnerable than the RCC houses. Usually houses in the cities are better protected with majority of them made of reinforced cement, concrete in most of the countries.

Poverty status, education, communication and transportation system accessibility of public resources such as forest produce, government facilities and drinking water and presence of agricultural banks and credit banks and NGOs and other service delivery institutions can be used for assessments of vulnerabilities in an area.

3. Capacity Assessment
Capacity assessment 'measures' the strengths and resources available in and to the community and areas where these can be improved. As stated previously these may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management.

Particularly useful tools for capacity assessment are: Resource mapping, Chapatti diagram, problem tree. Semi-structured interviews, transect walk and direct observation are also useful tools.

Capacity assessment is the process to determine how people cope in times of crisis to reduce the damaging effects of hazards. Through CA the community scoping strategies and resources which are available for disaster preparedness, mitigation and prevention are identified. The capacity assessment process involves the following key components:

- Understanding people's previous experience with hazards and coping strategies they have developed.
- Analyzing resources that are available and used by the community to reduce disaster risks.

Some participatory tools for conducting HVCA are:
- Secondary sources
- Direct observation
- Questionnaires / Survey
- Community meetings
- Brainstorming
- Semi-structured interviews
- Focus group discussion
- Mapping
- Transect walk
- Seasonal calendar
- Historical profile and historical visualization
- Household assessment

These will be discussed in detail in the next session.

CBDRA involves seven steps. The process may not be linear at all times and simultaneous activities may take place.

a) Step 1 – Describe Hazards in the Community
b) Step 2 – Conduct Hazard Mapping
c) Step 3 – Vulnerabilities and Capacities Assessment
d) Step 4 – Determine Disaster Risks
e) Step 5 – Rank Disaster Risks
f) Step 6 – Decide Acceptable level of Risk
g) Step 7 – Decide on strategies to deal with identified risks

Disaster risk Assessment Design

		Objectives	Outputs
Risk Assessment	Step 1	• Describe hazards in the community	List the nature of hazards
	Step 2		Community hazards

	Step 3	• Conduct hazard mapping • Describe vulnerabilities and capacity of communities, of women and men	map, community resource map, digitized map
	Step 4	• Determine disaster risks • Describe acceptable level of risk	Capacities, vulnerabilities Analysis(CVA)
	Step 5	• Rank disaster risks	Comprehensive list of risk faced by the communities
	Step 6		Prioritized list of risks
	Step 7	• Decide on acceptable level of risk • Decide whether to prevent, reduce, transfer or live with the disaster risks	Agreed level of risks for family and community security Agreed strategies

Disaster Risk Assessment Design

Key area of inquiry	Key questions	Method	Respondent
A. perception			
1.Disasters	Describe a disaster that happened in your family and in the community the last ten years. Why do consider it a disaster?	• Transect walk • Ranking	• Community leaders
2. Disaster risk.	What are the things that threaten your personal, family and community's welfare and security? • To life of man, women, children, disable elderly • To live stock • To property like houses • To infrastructures like bridges, schools What are the risk or danger that considered most serious? What are the common problems encountered by the community to reduce the disaster risk?	• Transect walk • Seasonal calendar • Ranking	• Community leaders • Community members

3. Gender	What are the characteristics of a women/ girl, man/boy? What are their defined roles in the family, in the community and the family, in the community and in the wider society?		• Community leaders • Community member
4.Quality of life	Describe who are rich in the community. Who are poor? Who cannot protect themselves from disaster threads? Who find it difficult to recover from disasters? Monthly income? Livelihood?		• Community leaders • Community members
B. Physical/material			
1.Area profile	What is the size of the community? What are its borders? What are resources found in the market and factories nearby the community (crops, marine life, metals, gas, etc.) what are the major sources of food and the map the following: • Fire hydrant • Schools • Public building • Water pipe • Water paints • Sewage (drainage system) • Water facilities • gas station • critical infrastructures found in the community • soil type and crops produced if community is a rural farming community • marine resources if community is a costal community • graze land if community is pastoralist	• Transect walk	• Community leaders
2. Demographic profile	What is the total population of the community? How many are man? How many are women? How many boys and girls? How many are pregnant and lactating women? How many are elderly? How many elderly are living alone? Locate where the special needs groups are in the map.	• Focus group interview	• Community leaders • Community house center
3. access and control of	Who use, own, control or manage the resources in family or community (resources,	• Ranking • Focus group	• Men • Women

resources	income, cash)? What are man, women, children; roles in the use, ownership, control or management of these resources?	discussion	• Children.
4. Security from natural disaster/technological disaster.		• Historical transect • Mapping seasonal calendar • Ranking • Group • discussion	• Community leader
C. **Social/ Organisational**			
1. Access to basic services Other services -offered by NGOs -offered by business or private sectors	What government basic services are available in the community-health care, education, water and sanitation, relief assistance, livelihood assistance, security and legal assistance? Are there other organisation providing basic services to the community? What services are available to the country before, during, and after a disaster occurs? Who has access to basic services of government.? Are there existing community based organisations, people's organisations in the community	• Interview • Venn Diagramme	• Village team • Community people to translate information
2. Cohesion of family/community Reconsider or delete	What is the concept/definition of a family? Who are the members of community (ethnic composition?) Where do they come from? What community events give a venue for different groups to meet and help each other? In what ways do different groups help each other before, during, after a disaster? How have the disasters positively and negatively affected the relationships of community members among themselves? How do they help each other during and after disasters? What are the functions/roles of the elected village functionaries? What other organisations have been established in the community? How do these organisations help reduce disaster risks or help the community prepare for, respond to and mitigate disasters?	• Interview • Documents Review	• People's organisation • people
D.			

Motivational/Attitudinal			
1. sense of ability to bring about change and plan effectively	Are there existing community based organisations, People's organisations in the community? How many existing organisations related to disaster management in the community? Do they have the volunteer unit in the community?	• Group interview and individual interview	• Community leaders, local authorities
2. Ability to cope with trauma, uncertainty, insecurity	What is the community's plan to reduce disaster risks and impact and what have been done? What are the trauma, uncertainties, insecurities people experience before during, after disasters? What do community members do to deal with all their feelings?	• Questionnaires and discussion	• Community leaders and villagers

Session 3: HVCA Tools- Secondary Sources and Direct Observation

Prior to the conduct of Vulnerability and Capacity Assessment, the most commonly used tool to assess the community needs is the baseline studies or the data collected through secondary sources and through direct observations:

1. **Secondary Sources:** Collecting information that already exists
Purpose
- Get an overview of the situation based on the work already done by others.
- Cross-check information gathered by other means.
- Get ideas of the challenges facing the community and a history of what has been done so far to address them.

Benefits:
- Time and cost effective
- Information not available at community (e.g. about infrequent disasters)

Steps:
- Determine what information you want to collect. (focus on information relevant to VCA)
- Make a list of potential sources of information.
- Collect Information

Potential Sources of Information:
People

- Government officials
- Local authorities (police, health care workers, fire fighters, social workers, etc.)
- NGO workers
- Community leaders (elders, religious leaders, health or school officials)
- Teachers
- Groups (e.g. women's group, farmers' group)

Libraries
- Local library
- University library
- Local, national government libraries
- Related organizations
- Journals or magazines

Other organizations
- International non-governmental organizations
- Local, national governments
- Specialized government institutes (e.g. National Disaster Management Office, Meteorological Office)
- Private sector or business suppliers
- Reports (situation reports, project reports, annual reports)
- Data and statistics
- Budgets
- Expert opinions from key individuals

  Internet
- UN organizations
- World Bank
- Government sites
- Educational institutions and universities

Information you may need to collect:
- Location and geography of the community.
- Main economic activity and income breakdown
- Access to community (road infrastructure and transportation methods).
- Population (total, births, deaths, distribution, age, occupations, migration).
- Community resources (services available to community members).
- Community organizations.
- History of risks in the community.
- Vulnerable areas, such as hazard-prone areas or densely populated.
- Changes in hazards patterns.
- Location of emergency shelters and environmental hazards.
- Political parties or social movements
- Security issues in the region.

2. **Direct Observation:**   Observing objects, people, events and relationships

What: systematically observing objects, people, events, relationships, participation, and recording these observations. Consider how to observe the 'invisible' (e.g. people with disabilities).

Why: to get a better picture of the (disaster) situation, especially of things that are difficult to get across verbally

When: in initial phase when you enter community, and during to cross-check verbal information. Observations are analyzed afterwards (for instance how men and women participate in community meetings).

Who: everybody

How: think about the purpose of why you are in the community, and identify indicators, which you can assess through direct observation.

Steps in Direct Observation

Step 1: Decide what areas you are going to focus your observations on.
Given below is a suggested list that you may focus on:

Demographic information
- Distribution of the population (age, work, gender)
- Daily routine (school-aged children in school, adult present with children at home, working in the fields)
- Family structure (nuclear or extended family present,
- child-headed households)
- Community interaction

Infrastructure
- Types of housing and other infrastructure, use of latrines
- Construction materials, design and proximity of buildings
- Types of roads
- Green spaces and playgrounds
- Sports facilities

Health, sanitation and other essential services
- Sanitation (sewers, availability of running water, functionality and type)
- Availability of electricity, water and telephone
- Basic services
- Distance people have to travel to schools and health centres
- Animals in the street
- Institutions present

Daily activities
- What people eat
- Where they shop

- Religion –temples, etc.
- Recreational activities
- Types of transportation used

Any other vulnerabilities and capacities

Step 2: Assign Tasks
Step 3: Record the Data
Step 4: Observe the data

Session 4: HVCA Tools- Mapping

Mapping:

What: making a spatial overview of the area's main features.

Why: maps facilitate communications and stimulate discussion on important issues in the community. Maps can be drawn for many topics:
- spatial arrangement of houses, fields, roads, rivers, and other land uses
- social map (houses, social facilities and infrastructure, i.e. temple, stores, rice mills, school, pharmacy, trails and roads, water pumps, irrigation, recreational facilities, etc.)
- hazard map, elements at risk, safe areas, etc
- Resource map showing local capacities (health centres, religious facilities, schoold, local markers, etc.)
- accessibility map (route and condition of access to evacuation centre or shelter)
- mobility map (consideration for people with special needs)

When: in the initial phase when you enter the community, and during community risk assessment.

Who: Community members

How:
   a) Decide what kind of map should be drawn
   b) Find people who know the area and are willing to share their experiences
   c) Choose a suitable place (ground, floor, paper) and medium (sticks, stones, seeds, pencils, chalk) for the map.
    d) Help the people get started but let them draw the map by themselves.

Insert pics of maps

Session 5: HVCA Tools- Transect Walk

What: systematic walk with key-informants through the community to look out the layout of the community including distances between key places, accessibility, and land use zones, by observing, asking, listening and producing a transect diagram.

Why:
- Visualizes interactions between physical environment and human activities over space and time.
- Identifies danger zones, evacuation sites, local resources used during emergency periods, land use zones, etc.
- Seeks problems and opportunities

When: in initial phase when you enter community

Who: team with six to ten community members representing the cross-section of the area

How:
   i. Based on map, select a transect line (can be more than one)
  ii. Select a group of six to ten people who represent the cross-section, and explain purpose
 iii. During walk, take time for brief and informal interviews at different places in the transect
  iv. Focus on issues like land use, proneness to particular disasters, land tenure, and even changes in the environment to draw a historical transect
   v. Conduct transect walks with representatives from vulnerable groups, and their families.

Additional tips:
- If small community can go to top of mountain and get overview from there.
- A matrix can be used to tabulate data from transect walk.

Insert pic from Lobesa Training

Example (from VCA training in Eritrea)

Type of ground	Hilly, slopy, valley	Rocky, hilly, valley
Livelihoods	Irrigation, farming, settlements, health, school, hay storage, water harvesting	Settlements, farming, soil erosion control measures, water harvesting
Risks/hazards	Soil erosion, water contamination, mosquito breeding	Erosion, mosquito breeding, unprotected dam
Conditions that increase vulnerability	Slopy ground, stagnant nature of water, deforestation, use of artificial fertilizer	Stagnant nature of water, slopy ground
Beliefs and values	Church, aloe for medicine	Aloe for traditional medicine
Capacities	Rocks, catchments, food production, water pump, water harvesting	Dam, catchments, food production
Natural environment	Water, aloe and eucalyptus trees	Aloe, water

Hilly, slopy, valley	Hilly, slopy, valley, flat	Hilly, slopy, rocky, flat
Irrigation, farming, settlements, grazing, water point, water harvesting, soil and water conservation	Farming, grazing, firewood collection	Farming, grazing, soil and water conservation activities
Erosion, poor sanitation at water point, open well	Erosion, soil degradation, contamination of underground water, depletion of underground water	Soil erosion, soil degradation, contamination of underground water, depletion of underground water
Unprotected spring, deforestation, slopy ground, use of artificial fertilizer, overuse (pressure) on water point	Deforestation, slopy nature of the ground, overgrazing, use of artificial fertilizer	Deforestation, slopy nature of the ground, overgrazing, use of artificial fertilizer
Church, aloe for traditional medicine	Aloe and eucalyptus for traditional medicine	-
Road access, rocks for construction, soil erosion control measures, food production, potential catchments	Road access, rocks for construction, soil erosion control measures, food production, potential catchments	Rocks for construction, road access, soil and water conservation measures, food production, potential catchments
Grazing area, water well, rocks	Aloe, eucalyptus trees	

Session 6: HVCA Tools- Historical Profile

Historical Profile (visualization and projection)

What: gathering information about what happened in the past

Why:
- to get insight in past hazards, changes in their nature, intensity and behaviour,

- understand present situation in community (Causal link between hazards and vulnerabilities)
- to make people aware of changes

When: at initial phases

How:
   i. Plan a group discussion and ensure that key-informants (old people, leaders, and teachers) are present. Invite as many people as possible, especially the young ones, for them to hear the history of their community
   ii. ask people if they can recall major events in the community, such as:
   o major hazards and their effects
   o Changes in land use (crops, forest cover, etc.)
   o changes in land tenure
   o changes in food security and nutrition
   o changes in administration and organization
   o major political events
   o changes in attitudes (e.g. toward people with disability and the elderly)
   iii. the facilitator can write the stories down on a blackboard or chart paper in chronological order

Life histories: another method is to ask individual informants to give a detailed account of their life or regarding a specific issue from a historical perspective

History tracing: ask individuals or group to begin with current experiences and to go back in time. Purpose is to find reasons / causes which contributed to the occurrence of a certain experience.

Additional point:
- Historical profiling is a very important exercise for gathering information as time is often not found in day-to-day life to share historical information.

Example of Historical Profile:
1944   First ten families settle in the community.
1951   Construction of the train road and presence of 20 railroad   workers.
1954   Train station workers lived in the village. Main railroad station was donated to the community and became the school.
1957   Fire in the community destroyed two houses. The church was built with the support of the community.
1960   Water system providing potable water to one-third of the population was constructed accounting for about 200 houses in the   community. Electricity coverage was extended to half of the population.
1980   Paved road linked to main highway.
1987   Earthquake destroyed many houses and services.
1989   A clinic for 30 beds was inaugurated.

Historical Projection and Visualization

Session 7: HVCA Tools- Seasonal Calendar

Seasonal Calendar

What: making a calendar showing different events, experiences, activities, conditions throughout the annual cycle.

Why:
- Identify periods of stress, hazards, diseases, hunger, debt, vulnerability, etc.
- Identify what people do in these periods, how they diversify sources of livelihood, when do they have savings, when do they have time for community activities, what are their coping strategies
- Identify gender specific division of work, in times of disasters and in normal times

Who: team and community members; have separate sessions for men and women. Older people often have good historical information around seasons.

How:
   i.   Use "blackboard" or craft paper. Mark off the months of the year on the horizontal axis. Ask people to list sources of livelihood, events, conditions, etc., and arrange these along the vertical axis.
   ii. Ask people to enumerate all the work they do (e.g. ploughing, planting, weeding, etc.) for each source of livelihood / income by marking months and duration, adding gender and age
   iii. Facilitate analysis by linking the different aspects of the calendar: how do disasters affect sources of livelihood? When is workload heaviest? Ask for seasonal food intake; period of food shortage, out-migration, etc.
   iv. You can continue the discussion on coping strategies, change in gender roles and responsibilities during times of disasters, or other issues you think are relevant.

> ## Session 8: HVCA Tools- Interviews and Focused Group Discussion

Semi-Structured Interviews / Focus Group Discussions

What: Semi-structured interviews are discussions in an informal and conversational way. They do not use a formal questionnaire but at the most a checklist of questions as a flexible guide.

There are different types of semi-structured interviews:

   I)   Group interview
   II)   Focus group discussion
   III) Individual interview
   IV)   Key informant interview

Why: to get info (general and specific), to analyze problems, vulnerabilities, capacities and perceptions, to discuss plans, etc. Each type of semi-structured interview has its specific purpose:
   • group interview: to obtain community level information, to have access to a large body of knowledge, not useful for sensitive issues
   • Individual interview: to obtain representative, personal info. May reveal differences / conflicts within community
   • key-informant interview: to obtain special knowledge about a particular topic; you interview a nurse if you want to know more about epidemics, a farmer about cropping practices, a village leader about procedures and policies
   • Focus group discussion: to discuss specific topics in detail with a small group of persons who are knowledgeable or who are interested in the topic. People can also be grouped according to gender, age, owners of resources

Who: team of 2 - 4 people

How:
   i.   prepare key issues in advance

ii.   select one person to lead the interview
iii.   Ask questions in an open-ended way (what, why, who, when, how, how do you mean, anything else?). The semi-structured format ensures that you do not miss information and allows flexibility for community members to voice what they want.
iv.   ask for concrete information and examples
v.   try to involve different people (if present)
vi.   pay attention to group dynamics
vii.   ask new (lines) of questions, arising from answers given
viii.   make notes in a discreet way

MODULE FOUR: COMMUNITY BASED DISASTER RISK MANAGEMENT PLANNING (CBDRMP)

LEARNING OBJECTIVES

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

- *Explain the importance of a community risk management plan;*
- *Describe the process of developing a community risk management plan;*
- *Link disaster reduction plan to development plans and policies*
- *Discuss the concepts of community monitoring and evaluation;*
- *Design and conduct participatory community monitoring and evaluation activities for CBDRR;*
- *Discuss the role of monitoring, how it can be done and areas where the outputs of plan can be monitored*
- *Discuss the process of evaluation and the role that evaluation plays in improving future policies and practices*

KEY CONCEPTS

- *What are the principles of participatory community monitoring and evaluation and why are they necessary?*
- *The qualitative and quantitative indicators for participatory community monitoring and evaluation and why they are necessary*
- *How do we measure community participation*
- *Coping mechanisms are what people resort to in order to manage difficult situations they are a part of people's capacities to be strengthened in order to mitigate the adverse effects of disaster risks.*
- *Disaster risk management plan is wide ranging (addresses the needs of the community in all phases of disaster cycles: (before, during and after); and integrated with management of community development initiatives.*

Session 1: Data collation and Analysis (Ranking and Visioning)

When you do data collection, facilitate it by establishing rapport with the community and respecting local culture and ensure the following:

- Participation specially of most vulnerable groups;
- Respect for community leaders;
- Interests in what they know, say, show, and do;
- Patience, not rushing and not interrupting;
- Listening, not lecturing;
- Humility;
- Methods which empower community members to express, share, enhance and analyze their knowledge.

You can organize assessment teams. The team can be further grouped into the following:

Subgroup 1: Facilitate discussion of key respondents

Community leaders- baseline information (demography, special needs groups such as the disable and the elderly, sources of income etc.) hazards disaster history of the community, which hazards become disasters and why, impact of disasters on lives (of men and women, boys and girls), property, livelihoods, economy of the community and the municipality/commune, what different sectors ins the community do to reduce disaster risks that threaten life, property and livelihoods Teachers: educational attainment of people in the community, current enrollment and drop out rate, disasters that happened in the community in the last ten years, impact of disasters on community, among teacher's lives, in children's education, what different sectors in the community do to reduce disaster risks that threaten life, property and livelihoods.

Health workers- common illness and injury at different times of the year and reasons for illness and injury, disaster s that happened in the community, among the lives of the health workers, among the people especially among children 0-5 years old, the elderly, and the disabled, what different sectors in community do to reduce disaster risks that threaten life, property and livelihoods.

Village elders- History of the community, disaster history of the community, most destructive disaster s and why, impact of disaster s on life , property and livelihoods, what different sectors in the community do to reduce disaster risks that threaten life, property and livelihoods

Thromde or Gewog leaders- hazards, disaster history of the community, which hazards become disasters and why, impact of disasters on lives(of men and women, boys and girls), property, livelihoods, economy of the community. What the government does to reduce disaster risks that threaten life, property and livelihoods.

NGOs implementing projects in the community- hazards, disaster history of the community, which hazards become disasters and why, impact of disasters on lives (of men and women, boys and girls), property, livelihoods, economy of the community. What the government does to reduce disaster risks that threaten life, property and livelihoods.

Sub groups 2: facilitate discussion of community members (mix men and women groups and children)

Prepare hazard map of community. Identify location of community resources, household and special needs groups, parts of community at risk from different hazards, schools etc. disaster history of community.

Subgroup 3: facilitate discussion of men's group, women's group (gender perspective)

- Gendered perception of disaster risks
- Disasters that struck the community in the past ten years and why they suffer from those disasters.
- Differential impact on men and women
- Impact on vulnerable groups: 0-5 years old, elderly, disabled
- Impact on health, education, livelihoods
- What men, what women do to reduce disaster risk
- To get gendered perceptions of disaster risks, the PDRA may be organized into specific groups; men's group and women's group

Sub group 4: facilitate discussion of children

1. Disasters that strike the community they can remember
2. Impact on children
3. Impact on their health education livelihood of the family
4. What children do to reduce disaster risk

Sub group 5: Review secondary data

- Review documents collected from all sources
- Collate data using CVA framework

Subgroup 6: Collect technical information

- Conduct transect walk
- Contribute to various maps to be produced by community
- Collect information on soil types, water system, etc

Subgroup 7: GIS if available
- Collect digitize information about the Dzongkhag or Thromde or Gewogs
- Produce basic digitized maps
- Add input from PDRRA to basic maps
- Produce simulation and probabilistic forecasting and show to community
- Produce hazard and vulnerability maps of target communities

Data Collation and Analysis:

At the end of each assessment day collate and crosscheck data. Some data will be duplicated; some data may contradict each other. Note down and verify with concerned individual or agencies as appropriate. Some data will be recommendations. Group them together and keep them aside until the group is ready to conduct action planning.

Data Collation and analysis should involve:
- Presentation of all findings from each of the tools used
- Comparison and triangulation of this data(a matrix may be useful for example)
- Preliminary discussion of what the vulnerabilities and capacities are present and what measures can be taken
- If there is a need for more data, planning how to collect this

Tips on communicating results with the communities
It is important that results of the HVCA are communicated back to the community as they have allowed people into their community and shared their time. If possible the team should try and present the findings to the community in conjunction with the community leader. If the member of the community is not comfortable with this, however the participant should conduct the presentations:

The presentation should involve:
- Summarizing the data compiled. This allows the community to verify that this is correct.
- Reflection on the hazards, vulnerabilities and capacities present
- Some practical suggestion from the community themselves for steps forward

Ranking

What: a tool for exploring people's perceptions, elicit their criteria and understand their choices in measuring and prioritizing.

Why: to identify criteria and determine preference; to identify differences in perceptions and reasons; to encourage problem solving through discussion and ranking the problems and the solutions; for comparative studies

Who: team with community members, including the views of vulnerable groups

How:
i. criteria or characteristics for comparing items are listed by the community members
ii. Criteria used are put on one side of the matrix or table (y-axis)
iii. Items being compared are put on the x-axis
iv. Points are given by putting stones, seeds, etc.

Tools after HVCA (Pre Planning)

Visioning

What: Assisting the community develop a model for the increased safety of their community, based on the results of VCA in their community

Why: to gain a more thorough understanding of how the community members themselves feel the safety of their community can be improved and which areas are perceived to be more or less important to them.

When: after the collated and analysed data obtained during VCA has been presented to the community

Who: Community members facilitated by VCA field practitioners. Make sure that vulnerable groups are appropriately represented.

How: Analyzing the findings of the VCA, 'dreaming and drawing' the safer community of the future.

Field work briefing

General
- Timetable for visit and other logistics (travel, lunch etc)
- Ground rules and cultural considerations in the communities to be visited

5. Team Responsibilities
- It is up to the groups what tools they use
- Teams will present findings with suggested measures from villagers and team, to villagers with involvement of villagers if the people from village are comfortable doing this
- Team leader leads each team
- There needs to be once observer from each group

- Note taker for each group
- Observers will present observation to whole group
- This information will be specified to the particular communities involved in field exercise
- If you are good at something already, give other opportunities to practice skills
- Support each other, work as a team
- Don't forget community participation, if they want to they could even present or jointly present
- Choice of tools will depend on the situations in the community to a certain extent
- Team leaders to meet and plan presentation to the community.

Session 2: CBDRM Planning

1. Community Disaster Risk Management Planning

A.   Why plan?

If participatory risk assessment unites the district in understanding their risks (hazards, vulnerabilities, and capacities), elements at risk and why these are at risk, local coping strategies and resources, the disaster risk management plan unites the district in commitment and actions to reduce these risks.

The DRMP can be called by various names such as disaster preparedness and mitigation plan, counter disaster plan, disaster reduction plan or even district development plan.

What is essential is that the DRMP is a blueprint or guide in charting the Dzongkhag/ community's progression to safety, disaster resilience and community development.

B.   What to plan?

Using the results of the risk assessment, the plan contains measures, activities to reduce vulnerabilities and increase capacities to reduce disaster risks.

The plan contains a mix of do-able structural and non-structural measures or interventions necessary for the community's safety, protecting and strengthening well being and development at the individual, household and community levels.

Immediate short term, medium term and long term activities and measures are identified together with the supporting mechanisms to make the plan a reality.

The plan contains measures on how the community can:

- Avoid loss, rather than replace loss
- Avoid social dislocation
- Protect assets of households, community, government

- Protect community safety nets (family, health, food supply, business, education, culture) and equity of access to support
- Ensure the needs of vulnerable people are adequately addressed

Fail to Plan or Plan to fail

The term fail to plan or plan to fail reminds CBDRM planners to plan properly otherwise the plan would fail at the implementation stage.

C. How to plan?

CBDRR Planning is a process where all parties propose concrete risk reduction measures based on the following:

- vision of their ideally prepared and resilient community
- determining the acceptable level of risk
- decision as to whether identified risk can be prevented, reduced, transferred or lived with
- Their own capacities and other resources that can be generated outside of their community.

Taking off from the results of the HVCA in which the community ranks the disaster risks according to priority for action, the team will now proceed to participatory disaster risk management planning. The following steps may be followed:

Steps in Formulating the Community Disaster Risk Reduction Plan (CDRRP)

1. Risk Assessment (Hazard, Vulnerability Capacity Assessment)
    - Also referred to as the community problems to address

2. Identify the objectives and targets of the CDRRP
    - Also referred to as aims or goals of the plan

3. Identify the Disaster Risk Reduction Measures
    - Strategies and activities in the pre-, emergency phase, post disaster   periods; Also referred to as the solutions to identified community problems

4. Determine the Resources Needed
    - Manpower/labor, materials, money, etc. for particular risk reduction measures

5. Assign responsibilities for activities
    - Who will implement the pre-, emergency phase, post-disaster phase activities at the various stages of plan implementation?

6. Determine Schedules and Deadlines
    - When will the particular activities be initiated and complete?

7. Lay down operational procedures and policies

- Basic principles and agreements on operational procedures and policies to guide disaster management committees and community members

8. Determine critical elements and barriers for plan implementation
   - Project what can go wrong, what can delay or derail plan implementation, or who will likely oppose the implementation of the plan and identify ways to address these issues

9. Discuss with Community Members and Other Stakeholders
   - Draw more supporters for the CDRRP and its implementation

10. Implementation, periodic review and plan improvement
    - Regular assessment, review and adjustment of the plan

11. Continued progress in ensuring public safety, building community resilience and attaining sustainable development

Parts of community Disaster Risk Reduction Plan

a. **Brief description of the community**
   - Location, population, livelihood, community in relation to other villages (significance of the community)

b. **Community Disaster Situation**
   - Summary of Disaster History and Risk Assessment Results
   - People and other elements at risk in the community
   - Why they are at risk

c. **Objectives and Targets of the CDRRP**
   - Target number of population or families to cover; target percentage decrease in deaths and damages to property.

d. **Strategies and activities for risk Reduction**
   - Pre-emergency phase, post-disaster risk reduction activities
   - Community EWS; evacuation sites, routes and procedures for families and animals; evacuation centre management, drills and simulation exercises
   - Structural and non-structural measures such as strengthening of houses and river embankments, community health and sanitation, reforestation activities, diversification of livelihood and income sources, sustainable agriculture training, and projects etc.

e. **Roles and responsibilities**
   - Persons, committees and organisations to be in-charge of particular functions and activities; relationships of persons, committees
   - Relationships of persons, committees and organisations. An organizational structure to implement the plan may be drawn as needed.

Community Disaster Risk Management Plan Outline

Hazard	Phase	Activity	Responsibility	Resources Needed		Period
				Existing	To look for	
	Prevention					
	Mitigation					
	Preparedness					
	Response					
	Recovery					

Community Based Disaster Risk management, April 2007, UNDP, Pakistan

Session 3:   Community Based Monitoring and Evaluation

Monitoring is ongoing during project and evaluation tends to be done at the end of the project (unless mid-term evaluation). Both can be internal and external. PME involves the local community, development agencies, donors and other stakeholders decoding together how progress should be measured and what action need to be taken as a result of this analysis. This approach assumes that that all concerned parties needs to know how effective the project efforts have been. It may be challenging because it encourages people to examine their assumptions on what constitutes progress and to deal with contradictions and conflicts that may emerge.

What is monitoring and why is it necessary?
- Monitoring is a continuous or periodic review to ensure that input deliveries work schedules, target outputs and other required actions are proceeding according to plans.
- Monitoring provides timely accurate and complete information on the effectiveness of the input being used to provide the desired results.
- Monitoring should be done frequently throughout the project.

Why monitoring is necessary?
- To see if we are on tract
- To see if we are achieving our objectives
- To see how we are achieving our objectives
- To look at strength and weaknesses
- To make changes if we have to before its too late
- To make sure we are not wasting money our limited resources
- To make sure that the community is involved and the process is documented
- To help identify areas for staff and community training

What is evaluation and why it is necessary?

- Evaluation is an assessment of the results and effects of the project
- Evaluation focuses on out put, outcomes and impacts and to what the objectives have been met.

- Evaluation is more analytic impact assessment, and concerned with long term result.
- Evaluation is infrequent. It is usual to have evaluation at the end of the phase or towards the end of the plan or project implementation.

The Four Broad Principles of PME:

- **Participation.** Multiple stakeholders participate in PME. These may include beneficiaries, project or programme staff at levels of the implementing organisation, researchers, government agencies and donors
- **Learning**. The emphasis is on practical or experimental learning. Participants gain skills which strengthen capacity for planning, problem solving and decision making. The also gain a greater understanding of factors or conditions that effects their projects, reasons for success or failure and why alternates may be tried.
- **Negotiation.** PME becomes a social process for negotiation between people's differing needs, expectations, aspirations, and visions.
- **Flexibility.** There is no one to do PME it is flexible and adaptive according to project-specific circumstances and needs.

Some of the tools for Community Monitoring and Evaluation:
- Semi-Structured interviews or focus group discussions
- Surveys or gathering new data
- Direct observation
- Case studies

1. *Semi- structured interviews or focus group discussion (discussed in Module 3).*

2. *Direct Observation:*

What: Systematically observing change (or not) in objects, people, events, relationships, participation, and recording theses observations

Why: To get a better picture of the developing situation, especially of things that are difficult to get across verbally

When: at regular intervals during programme

How: Identify indicators, which you can assess through direct observation

3. *Case Studies*

What: Recording of particularly successful or unsuccessful, aspects of a programme in a document that can be shared with others.

Why: To record good or bad practices to improve subsequent programme delivery

How: Identify a particular area of interest then gather data about it in order to write a structured report.

The case studies can be used to:
- *Allow the application of theoretical concepts to be demonstrated to bridge the gap between theory and practice*
- *Encourage active learning*
- *Provide an opportunity for the development of key skills such as communication, group working and problem solving*

Indicators: How to Measure Progress and Changes

A. What are the indicators? What are good indicators, and why? How are indicators produced?

- Indicators provide a means to measure progress and effectiveness of particular measures;

Good indicators are:
- Specific and reflect things that the project intends to control
- Direct-closely tracked results
- Verifiable-can be checked
- Measurable
- Sensitive enough to capture changes over time
- Time-bound-when a change is expected
- Adequate in providing enough relevant information

B. Indicators can be produced by:
- Review with the community members the project objectives: general and specific
- Review in the same way the project outputs and effects
- Review external factors that might affect the community and influence the project Results
- Review the criteria the community members formulated when they selected the most favorable solution to address their problems. Why do they prefer certain solutions?
- Formulate questions, which need to be answered in order to monitor the relevant issues and changes.

C. Quantitative indicators show changes which can be mentioned numerically. **Qualitative** indicators show changes which can not be measured, but must be described.

D. Monitoring and Evaluating: Community Participation in CBDRM

A definition for participation in CBDRR has been drawn up: "Participation in CBDRM action is understood as the engagement of affected populations in one or more phases of the project

cycle assessment: design; implementation; monitoring; and evaluation. This engagement can take a variety of forms.

i) Measuring Community participation

Below are examples of indicators related to community participation.

Indicator	1(bad)	2(poor)	3(fair)	4(good)	5(excellent)
Leadership	No committee after six months	There is committee but has never held a meeting	Committee but holds meeting once in two months	Committee form and holding monthly meetings	Committee formed without Dzongkhag/ Gewog officials influence and holding weekly meetings
Organisation	Committee only works on projects if paid by Dzongkhag/ Gewog.	Committee works only when told to do so	Committee volunteers for work but needs supervision	Committee organized work groups after meeting with Dzongkhag/ Gewog officials.	Community already has organized working groups before officials arrived
Resources Management	Committee lost equipment given by the Dzongkhag/ Gewog officials.	Committee took equipment but only leaders use it	Committee has equipment but often argue about using it	Committee shares all equipment as needed	Community requested equipment and manages it
Needs assessment	Assessed by Dzongkhag/ Gewog officials	Assessed by Dzongkhag/ Gewog officials but with community involvement	Leaders and Dzongkhag/ Gewog officials assessed needs	Leaders assessed needs but without consulting the community	Leaders in consultation with community assessed needs and informed Dzongkhag/ Gewog officials
Involvement of Women	No woman involved in decision making	Women on committee but in minority and do not talk	Women represented equally but talk occasionally	Women talk as much as men	Decisions taken equally by men and women

MODULE FIVE: COMMUNITY PREPAREDNESS AND EMERGENCY RESPONSE ACTIVITIES

Session 1:   Overview of Disaster Preparation and Emergency Response in Bhutan

Session 2:   Community Mobilization and Advocacy
Session 3:   Action Planning for Gewog CBDRM and Planning
LEARNING OBJECTIVES

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

- *Understand the objectives of disaster preparedness and emergency response, its mechanisms and strategies*
- *Explain relief management system*

KEY CONCEPTS

- *Disaster preparedness refers to measures that ensure the ability of at-risk-communities to forecast and take precautionary actions before potential threat.*

- *Emergency response activities are measures that ensure the ability of affected communities to responds and cope with immediate effects of disaster*

- *Discuss the importance and the process in conducting damages, needs and capacities assessments.*

- *DNCA is a participatory analysis of disaster event, of the damages caused, of the immediate needs and priorities of the affected community, and of the remaining capacities people use to cope with its adverse effects*
- *The purpose of the DNCA is :*

  - *To identify appropriate emergency assistance*
  - *To receive timely report from the community*
  - *To generate resources: human, financial and material*
  - *To adequately inform the public on disaster situation, needs and responses(disaster alerts and public information campaigns)*
  - *To update the information gathered through the PCR*

Session 1: Overview of Disaster Preparedness and Emergency Response

1. What is an emergency?

A situation where there is an immediate threat to life or to the survival of victims. A situation where the immediate survival of the affected population is threatened and the event is beyond the coping capacity of the affected population or in an impending disaster situation which has the potential of causing major damages to properties and environment.

A. What is the Objective of Emergency Response?

- To control the further deterioration of the victims situation

B. Activities/Components of Emergency Response
- Evacuation
- Evacuation centre Management
- Search and Rescue
- Emergency health Services such as – First Aid; managing mass casualties; managing severe nutritional deficiencies; sanitation; Water supply; Personal hygiene; Control of communicable diseases
- Psychological first aid such as: diagnosis, counseling; therapy(play, music, movement, etc)
- Provision of food and non-food items
- Temporary Shelter
- Emergency repair of critical facilities
- Security measures/tracing/family reunification
- Legal measures
- Advocacy/issue projection especially for human-made disasters

C. Requirements

- Logistics
- Damage needs capacities Assessment (DNCA)
- Monitoring and Reporting
- Coordination and communication between and among victims and service agencies
- Resource mobilization
- Emergency Operations Centre/Committee Formation

D. When should emergency response commence?
When there is enough monitoring and gathering of relevant and valid data necessary to serve as basis for interventions.

E. What is Damage, Needs and Capacity Assessment (DNCA)?

DNCA involves a participatory analysis of the disaster event, of the damages it causes, of the immediate needs and priorities of the affected community and of the remaining capacities people use to cope with the adverse effects.

F. Purpose of the DNCA:
- To identify appropriate emergency assistance
- To receive timely reports from the community level
- To generate financial, material and human resources
- To adequately inform the public on disaster situation, needs and responses
- To update the information gathered through the HVCA.

G. DNCA contains the following data:

1. Disaster event: What happened? When?, Where?, How?, What are other immediate threats? Who will be affected?

2. Damages and Losses: Who suffered losses and damages to life and property? What and where are the damages? What facilities and services are disrupted and non-functional?

3. Responses of the family and the community: What emergency responses have been undertaken by the affected families and the community? What services have been given by the government and the NGOs? Emergency responses-evacuation, evacuations centre management, search and rescue, monitoring of disaster situation, relief assistance, assessment of damages, needs and capacity.

4. Plans of the affected families and community: What plans to respond to the emergency situation? Who are involved?

5. Needs in the Emergency period: What emergency services and responses are needed? How many? How much? When?

Sample of DNCA form

I.   Name of Organisation:_____

II. Description of Disaster Event:_____

       Disaster:_____

       Date of Occurrence: _____

       Duration:_____

III. Affected Area:_____
(Address: Village/city/District/Region/Dzongkhag)

       Total Land Area:_____

       Total Population:_____

       Total number of Families:_____

       Total Number of families affected:_____

       No. of Children below 15 years old:_____

       No. of women affected:_____

       No. of Missing persons:_____

Usual family size or no. of children per family:_____

IV. Damage to Structures:_____

No. of families who own their houses:_____

No. of families who lease:_____

Structures affected	No. of partially destroyed	No. of completely destroyed

Source: Disaster Risk management for District Authorities, April 2007, UNDP-Pakistan

Men and women

Type of economic activity	Regular income (monthly/daily)	No. Engaged in Livelihood

Source: Disaster Risk management for District Authorities, April 2007, UNDP-Pakistan

V. Damage to Livelihood: Sources of livelihood in the area

VI. Present Location of the Survivors: Did the affected families evacuate or do they remain in their respective homes?
 If the answer to the above is yes, answer section A or B below)

A. Evacuation Centres (specify name, location, distance from the place of origin)

1. When did the families move to the evacuation centre?_____

2. How large is the evacuation centre (square meter)?_____

3. How many are staying in the centre?_____

4. is there enough ventilation?_____

5. Are there beds to sleep on?_____
    If none, where do the people sleep?_____

6. How are the waste and excreta disposed of?_____

7. Are there enough latrines?_____

8. Are there sources of potable drinking water?_____

B. In the absence of an evacuation centre, please specify present location of the survivors and give brief description of the physical condition of the place.

VII. Organisations Where the Target beneficiaries are Members:

Name of organisation	Sector	Total No. of members	No. of members from survivors

Can these organisations help in the relief operation?_____

In what ways can they help?_____

VIII. Assistance Received from Other Organisations:

Name of Organisation	Assistance Extended	Date	Quantity/estimated amount

IX. Identification of needs of target Beneficiaries
1.

Present type of illness	No. of cases per age group			
	0-5	6-15	16-65	Over 65

2.

Causes of death	No. of cases per age group			

3.

Nature of Injury	No. of cases per age group

(Indicate severity)				

4. Are there people suffering from psychological disturbance? If yes, please state observed abnormal behaviors and how many are exhibiting such behaviour.

5. Are there medical personnel who can help in treatment of the sick persons? If yes, how many and what are their field of expertise? Where is the nearest hospital or medical facility?

6. How many need professional and medical treatment?

7. How many of them need to be hospitalized?

B. Water:
1. Source of water for drinking and household use_____

2. Number of water taps/pipes-potable:_____

   Not potable:_____

C. Food
1. Who and how many should receive food relief? Why?_____

2. Are there food stocks available locally? How long will these last?_____

3. When will be food rations be used and until when?_____

D. Other items needed
1. Kitchen utensils: what, how many and why?_____
2. Sleeping materials: what, how many and why?_____
3. No. of families in need of materials for temporary shelter:_____

XI. Additional Information of the area

Describe the physical features of the area and the disaster threats/hazards (e.g., near the river bank, low lying, fire/congested streets, etc) Place this at the back of the form.

Date of Interview:_____

Respondents:_____

Interviewer:_____

A. What is Relief Delivery?

- It is a provision of temporary shelter, medical treatment, food and clothing; without this assistance, conditions will deteriorate (Kent)

- Meeting immediate needs for food, clothing, shelter and medical care of disaster victims

- Assistance given to save lives and alleviate suffering in the days and weeks following a disaster

- For creeping or slow-onset disasters, the relief period may be months or even years after(ADPC)

- Emergency response whose aim is to ensure the immediate survival of the threatened population(CDRC)

B. Relief Delivery Operations Process

DNCA; planning; resource generation; Purchasing; Warehousing; Repacking; Distribution; Assessment; and Reporting

Relief as a tool for development

- It encourages people's participation
- It facilitates formation of organisations
- It does not create false perceptions and attitude among the people (dependency, etc)
- A consultative process with education component
- It is based on realistic, felt, observed and expressed needs
- It relies on victims strong coping mechanisms
- It is sensitive to gender and culture considerations
- It develops public awareness of disaster situation, its causes and consequences and it increases knowledge and skills in disaster response
- It mobilizes both the less vulnerable sectors for disaster response

Emergency Preparedness and Response Capacities

The Department of Disaster Management in collaboration with our stakeholders have carried out few capacity needs assessments and also carried out some activities to strengthen emergency response in the country.

In April 2008, on the request of the Royal Government, the OCHA (Office for the Coordination of Humanitarian Affairs) fielded a United Nations Disaster Assessment and Coordination (UNDAC) mission to carry out a response preparedness assessment. The Mission met with all relevant stakeholders concerned with disaster response, including few Dzongkhag

authorities. The mission report included 38 recommendations to strengthen response preparedness in Bhutan most notable among them were the need for a clear definition of the term "disaster"; formation of a Cabinet Committee for Disaster Management; establishment of Fire and Rescue Service as a stand alone department with independent identity under MoHCA and their strengthening; search and rescue roles and responsibilities within one department. i.e. Fire and Rescue Service; establishing emergency frequencies to be used in case of disasters; maintaining emergency food stocks pre-positioned in key locations to assist vulnerable population in case of disaster; provision for procurement and maintenance of spare parts for bridges; negotiating standby agreements with neighboring airports to accommodate aircraft overspill from Paro airport in major disaster situations.

The Department has also conducted a capacity needs assessment for all sectors, Dzongkhag and the Gewogs. The assessment highlighted the need for basic equipments and training at the gewog level and at the Dzongkhag level its ………………..

In addition the Department has also prepared and distributed planning guidelines for the sectors, Dzongkhags, Schools and prepared the disaster Management bill and the Emergency Safety and First Aid manual.
To strengthen the response capacities in the schools, the department as part of its safe school initiatives, conducted mock drills and first responder trainings in basic first aid and fire safety to teachers in few schools in Thimphu, Chukha and Pemagatshel.

Emergency Family kits have been distributed to all Dzongkhags, to be distributed to families affected by disasters. The Department also facilitated relief and compensation to individual families in cases where they were badly affected by a disaster.

It has been ensured that funds for disaster response and procedure for access at all levels have been included in the DM bill.

As part of its future efforts to strengthen disaster response in the country, the department will come up with standards for relief and compensation, maintain stock piles in strategic locations, distribute standard rescue kits to the Dzongkhags and the gewogs, and come up with standard operating procedures for response and set up emergency communication for the whole country.

Session 2: Community Mobilization and Advocacy

Advocacy is the deliberate process of influencing those who make policy decisions of influencing those who make policy decisions. Advocacy enables one to influence policy makers as a means of addressing policy root causes related to disasters and development; contribute more efficiently to reducing risk and build safer communities by using a wide range of interventions and reach a large segment of the population and broaden the scope of program impact

 What is the difference between advocacy and IEC?

- Advocacy always seeks to develop or change a policy, or address resource allocation issues. It uses IEC to raise awareness of key audiences, but it does not stop with raising awareness. The advocacy process is complete when a policy maker implements the prescribed policy action. While the general public maybe one of the audiences for an advocacy campaign, the public is targeted to generate support and pressure policy makers.

Steps in Advocacy: Theory and Practice

A critical element in the success of any advocacy effort is a thorough understanding of the opportunities that exist for influencing the policy process, from the national, regional and local level. This assessment is important because it focuses the organization's efforts on what is potentially attainable.
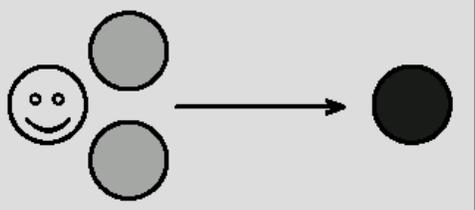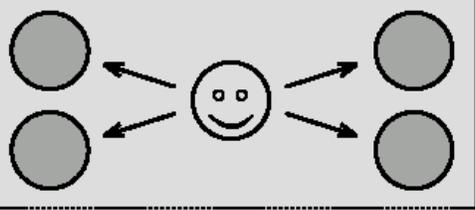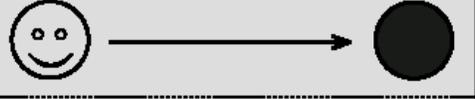
1. Define the issue
    Based on the results of the VCA, this is the problem that an organization agrees to support in order to promote a policy change. Example of an issue on CBDRR, needing policy, is the institutionalization of disaster management authorities at the local level, if such agency does not at all exist

2. Develop advocacy goal and set of objectives – the goal is the general statement of what the organization hopes to achieve in the long term (3-5 years) while advocacy objectives is shot term description, specific and measurable achievement that contribute to the advocacy goal.
3. Identify the target audience. This includes the primary and secondary target audience; the former includes the decision makers who have the authority to bring about the desired policy change; the latter includes persons who have access to and are able to influence the former. For example, if there is a need to allocate local budget for a nutrition program, the mayor of the municipality is the primary audience. But if his priority is on the construction of basketball courts or waiting sheds, it may be difficult to convince him to set up a nutrition program. The wife, a mother of 3 children and who has interest in development program for malnourished children and their families may influence the mayor to start the proposed nutrition program.
4. Building alliance through networking. Networking is a process for initiating and maintaining contacts with individuals and organizations (e.g. NGOs, civic organizations, government line agencies and other stakeholders for CBDRR) that share or support common goals and agree to work together to achieve the goals. Building alliances broadens the support base for the advocacy issue.
5. Develop the message - messages are tailored to specific target audience; after framing the issues, persuade the receiver to support the organization's position.
6. Select Channels of Communication – depending again on the target audience, this is the selection of the most appropriate medium for advocacy messages. Debatable issues on CBDRR are usually better heard than watched. Radio, which is considered to be a hot medium, can be the more appropriate channel of communication. On the other hand, the concept of a safer community is better seen rather than heard. The television, being a cold medium, can be used as the most appropriate channel of communication.

Role of Advocates

The following are the roles of the advocates for CBDRR:

Possible advocate roles

ROLE	CHARACTERISTIC	
Represent	Speak **for** people	
Accompany	Speak **with** people	
Empower	Enable people to speak for themselves	
Mediate	Facilitate communication between people	
Model	Demonstrate the practice to people or policy makers	
Negotiate	Bargain for something	
Network	Build coalitions	
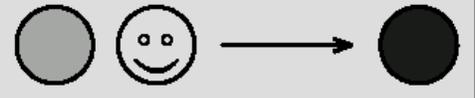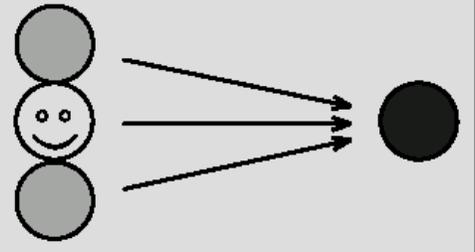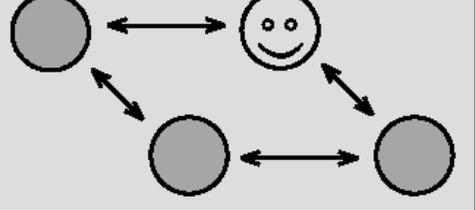
Key

advocate

targets / those in power

those affected by a situation

Session 3: Action Planning for Gewog CBDRM and Planning

In this session, discuss with the Gewog DM committee the dates and time for carrying out data collection in the pilot chiwogs and also discuss on who would do the data collection in rest of the chiwogs. Discuss the date for carrying out the consolidation workshop in the gewog to consolidate that data from the chiwogs and come up with the gewog DM plan.

References

Abraquez, Imelda and Zuber Murshed, community based disaster Risk management: Field Practitioners' Handbook, ADPC(Adapted from CBDRM-II course materials), 2004.

ADPC, CBDRM-11 Course Reference Manual, Bangkok, Thailand, 2003

Sampath, Priya, Vulnerability Reduction at Community Level, the New Global Paradigm, inc; Disaster Mitigation Experiences and Reflections. Pardeep Sahni, Akka Dameja and Uma Medury(eds), Prentice Hall of India, Pvt. Ltd., New Delhi, India, 2001

Shah Rajib and Okajaki Kenji, sustainable community-based disaster management practices in Asia; a User's Guide, UNCRD, Kobe, Japan, 2004

WHO Coping with natural Disasters: The Role of Local Health Personnel and Community, Geneva 1989.