Handbook

Community-Based Disaster Risk Management

for Sindh Province, Pakistan

OXFAM Novib

adpc

Compilation and Editing: Asif Iqbal Asif
Reviewed by: Irfan Maqbool
Layout and Design: Lowil Fred Espada

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Introduction to Community Based Disaster Risk Management

Basic Terms and Concepts used in Disaster Management

Disaster

Serious disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the ability of the affected people to cope using their own resources.

UNISDR defines that a disaster takes place when the following three conditions occur at the same time:

- When a hazardous phenomenon occurs, be it natural or human-made.
- When people and assets are in hazardous places like, for example, close to an active volcano, on unstable slopes where landslides are likely to happen, or close to rivers which could flood.
- When the phenomenon also causes a lot of damage, especially where no preventive measures have been taken.

High Intensity Low Frequency Disasters

Highly destructive intensive disasters are responsible for the vast majority of global mortality and direct economic loss, but only occur relatively infrequently in any one place. e.g. Pakistan Earthquake 2005, Japan Earthquake.

High frequency low Intensity Disasters

These are slowly evolving localized disasters, which tend to manifest themselves frequently and their effects are felt cumulatively.

They may account for only a small proportion of overall disaster mortality but, they are responsible for significant damage to housing, crops, livestock and local infrastructure, and particularly affect low-income households and communities. e.g. Road accidents, Rain Induced small floods.

High frequency High Impact Disasters

Some disaster prone areas experience high intensity disasters frequently. These events inflict colossal damage to the societies and economies but their severity forces the societies and countries to develop strategies and take actions to minimize the losses. e.g. Pakistan Floods 2010, 2011 & 2012.

Disaster Management

Disaster Management is a collective term encompassing all aspects of planning for, preparing and responding to disasters and refers to the management of the consequences of disasters and includes all the pre and post disaster interventions.

Hazard A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.	**Geo-physical** Dangerous phenomenon originating from solid earth. e.g. Earthquake, volcano, Dry mass movement etc.
	Meteorological Dangerous phenomenon caused by short-lived or small to mass scale atmospheric processes (in the spectrum from minutes to days). e.g. Tropical cyclone, local storms, etc.
	Hydrological Dangerous phenomenon caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind set-up . e.g. General Floods, Coastal Floods, Flash Floods, Wet mass movements, etc.
	Climatological Dangerous phenomenon caused by long-lived or meso-to macro-scale processes (in the spectrum from intra-seasonal to multi-decadal climate variability). e.g. Heat Wave, Cold Wave, Forest Fire, etc.
	Biological Dangerous phenomenon Caused by the exposure of living organisms to germs and toxic substances. e.g. Epidemics, Insect Infestation, Animal Stampede, etc.

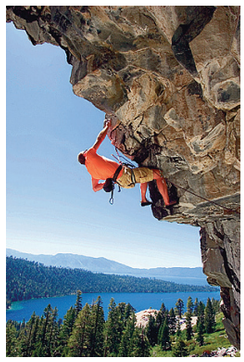
Vulnerability

Vulnerability means the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Types of Vulnerability

- **Physical Vulnerability** Physical weakness or structural drawback that makes some buildings, assets or areas susceptible to damaging impacts of disasters.
- **Social Vulnerability** Conflicts among communities, lack of capacities, lack of knowledge, skill or preparedness or giving in attitude of the communities make them vulnerable to negative impacts of hazards.
- **Economic Vulnerability** Lack of economic resources or dependence on one source of livelihood because of which a community, or some part of it, becomes liable to damages in case of a disastrous event.
- **Environmental Vulnerability** Environmental degradation, deforestation or other environment related factors which makes the surrounding areas vulnerable to losses by possible disasters.

Exposure



By exposure we mean, proximity or closeness of the people, property, systems, or other elements to the hazard zones that are thereby subject to potential losses in case of any disasters.

Capacity

Capacity is the combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals or to resist and fight the negative impacts of disastrous situation. Building capacities is the key to reducing vulnerabilities and constructing disaster resilient societies because coping capacity is the ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Disaster Risk

The potential losses in lives, health status, livelihoods, assets and services, which could occur to a particular community or society over some specified future time period (UNISDR). The combination of the probability of an event to happen and its negative consequences determine the extent of disaster risk.

Components of Disaster Risk

$$\text{Disaster Risk} = \frac{\text{Hazard x Exposure x Vulnerability}}{\text{Capacity}}$$

Risk Treatment

Risk treatment is a risk modification process. It involves selecting and implementing one or more treatment options. Once a treatment has been implemented, it becomes a control or it modifies existing controls. Risk treatment options comprise of retaining the risk, avoiding the risk, reducing the risk or transferring the risk.

Disaster Risk Management (DRM)

Disaster risk management (DRM) aims to avoid, reduce or transfer the adverse impacts of hazards on people, property and the environment through activities and measures. It is the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster Risk Reduction (DRR)

Disaster risk reduction is the preparation and application of policies, strategies and practices to minimize vulnerabilities and hence disaster risk throughout society. It is the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Mitigation

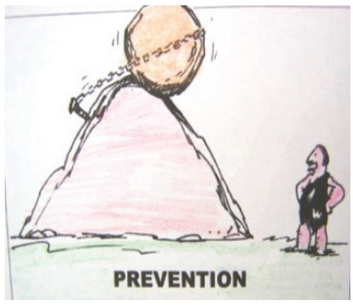
All actions taken to minimize the extent of a disaster or potential disaster are called mitigation measures. These actions include Physical or structural measures, Non-structural interventions and steps to Environmental upgradation.

Preparedness

Disaster Preparedness involves specific measures taken before disasters strike. These methods include disaster forecasting, early warnings etc. The knowledge and capacities are developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate,

respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Prevention



Prevention Activities are the steps to avoid the adverse impact of hazards. These activities contain Capacity Building, Community Based Disaster Risk Management (CBDRM) etc.

Response

Response consists of actions taken immediately following the impact of a disaster when exceptional measures are required to meet the basic needs of the survivors. These actions comprise of Search and rescue, Relief, Protection, Child Protection and Needs of vulnerable groups.

Rescue

Rescue activities include saving and protecting human life, relieving suffering and containing the emergency in an effective manner.

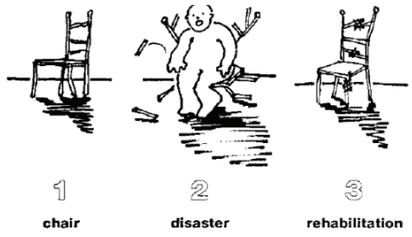
Relief

Relief means maintaining or restoring critical activities, providing essential services at an appropriate level and promoting and facilitating self-help in affected communities.

Recovery

Recovery means restoration, and improvement, where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

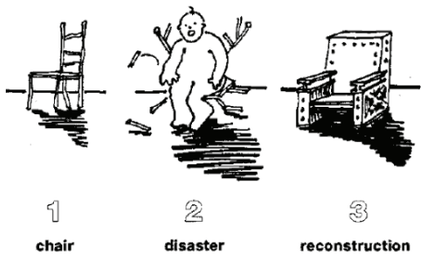
Rehabilitation



Rehabilitation is restoration of an entity to its normal or near-normal functional conditions after the occurrence of a disaster. It includes Re-establishing essential services and Reviving key economic and social activities.

Reconstruction

Permanent measures to repair or replace damaged dwellings and infrastructure and to set the economy back on course, is categorized as Reconstruction.



Community Based Disaster Risk Management

CBDRM is a process in which communities at risk are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacity.

Disaster Management Cycle

The whole spectrum of disaster management is generally divided into pre-disaster and post-disaster interventions. The post disaster activities are phased as per needs of the affected populations in accordance with international standards. These activities start with the immediate rescue and relief efforts to provide immediate respite to the affectees as per the estimates reached in rapid need assessment carried out soon after the disaster strikes. These activities are called response activities and protection of the vulnerable groups remains a vital consideration during this phase. In the recovery phase facilities, livelihoods and living conditions are improved to such a level that the stage is set for rehabilitation to begin and for their lives to be brought to normal. It is only when the disaster affectees are rehabilitated to a state of normalcy that the process of reconstruction starts wherein the cities, infrastructure, households and economies are built back better so that their vulnerabilities to a similar disaster in the future are reduced.

Pre Disaster		Post Disaster
Early Warning	DISASTER	Search & Rescue
Preparedness		Relief
Awareness & Capacity Building		Recovery
Prevention & Mitigation		Rehabilitation
Risk Assessment		Reconstruction

The pre-disaster interventions start with Risk assessment which include hazard, vulnerability, exposure and capacity or resource assessments in detail to gauge the extent of disaster risk, its possible damages, vulnerable populations and the capacity of and resources available with the communities to absorb the effects of disasters. This assessment serves as the basis for strategizing and prioritizing rest of the pre-disaster activities which include prevention and mitigation measures, awareness and capacity building of the people and disaster management practitioners to enhance their preparedness and resilience and finally establishing an effective early warning system to reduce the disaster risks. It is universally accepted that any investments on disaster risk reduction in the pre-disaster phase is more beneficial economically because the resultant saving in post-disaster phase is manifold. Hence, while the government and disaster management institutions remain prepared for any eventuality, their main focus is and should be on the pre-disaster activities to promote disaster resilient societies.

Risk Profile of Sindh Province

The province of Sindh has historically suffered from both natural and human induced disasters. The high level of risk is mainly from floods/ heavy rains, cyclones in coastal area, sea intrusion, droughts, earthquakes, and epidemics etc.

Floods/ Rains

The topography of Sindh Province is almost flat and located at the bottom of Indus basin. The surplus water of Indus River and its tributaries including monsoon rain water has to pass through Sindh. Hill torrents which emanate from Baluchistan are also adding up to the pressure on both accounts, till its outfall in the Arabian Sea. The River Indus in Sindh is dangerous, because it flows at ridge. In case of breach the out flowing water cannot be drained back into the river at any point. The Indus River is also known for changing its course. High floods since the creation of modern irrigation network in 1932 are being monitored. The river Indus is contained by flood protection embankments, which are 1400 miles long, to protect irrigation network emanating from three barrages having 12.8 million acres of command area. Besides, there is a large network of surface drainage and 6000 public tube wells, roads and railways network, cities / towns, rural settlements etc.

Cyclone

The coastal districts have also been adversely affected by heavy rainfall and cyclones. The three coastal districts - Karachi, Thatta and Badin, are highly vulnerable. The districts of Thatta and Badin have been badly affected on several occasions. Cyclones not only wiped out the human settlements and resulted in huge losses of human and animal lives, but they also destroyed and damaged fishing boats, therefore badly affecting the livelihood of the majority of residents of these two districts. Historically, the tropical cyclones are formed over the Arabian Sea and made landfall at the coastal areas of Sindh. Major cyclones during the last 100 years which hit Sindh were in May 1902, June 1926, June 1964, November 1993, June 1998, May 1999 and June 2007 (Cyclone– 02A). The Cyclone Yemen in 1999 hit three coastal districts of Sindh, where 244 people lost life, 40177 animals perished, villages affected were 1449, houses damaged were 29873 and population affected was 0.5 million. Loss in financial terms was about Rs. 3.231 billion. Keti Bunder town has been wiped out four times in recent history. The cyclones of 2010 (PHET) and 2011(KIELA) also emerged during last few years, out of which PHET caused significant damages in district Thatta.

Tsunami

The Sindh province can be a recipient of a tsunami disaster also. A tsunami disaster occurred in November 1945 at Makran coast in Baluchistan Province. It produced sea waves of 12-15 meters height that killed about 4,000 people. Although Karachi was away from the epicenter, yet it experienced 6 feet high sea waves which affected harbor facilities. This usually happens during the months of March, April and May. The effects of tsunami of December, 2004 were also felt along the Pakistan coastline. Abnormal rise in water, detected by tide gauge station at Keti Bander area created panic in the coastal population including Karachi.

Drought

Geographically, Sindh can be divided into four zones namely eastern desert, western hilly / mountainous area, coastal area in the south and irrigated agriculture area in the middle. Its 60% area is arid receiving rainfall on average of 5 inches during monsoon and very little in December & January. The arid area population depends upon the scanty rainfall raising livestock and millet crops. The failure of rainfall and global climatic effects reduce the water supplies in Indus River System (IRS). Sindh, being at the end of the system, usually takes the brink. Besides, two-

third of ground water is brackish and 80% agricultural land is affected by water logging and salinity. People in the arid area usually move to canal commanded area but low flow in the river Indus from 1998-2002 created havoc in the entire province. Historically, Sindh faced the worst drought situation during 1871, 1881, 1899, 1931, 1942 and 1999-2002 and 2013-14.

Earthquake

The recent earthquake that affected Sindh desert area was recorded in the year 2001 in Tharparkar district and the bordering Badin District was also badly affected. Due to this earthquake 12 people lost their lives, 115 persons got injured, 1989 houses were fully damaged, 43,643 houses partially damaged and 1406 public sector buildings got damaged. Loss in financial terms was recorded around Rs. 2.4 billion. A geological tectonic line runs under Karachi through Khirthar Hills / Mountains to north-west of Sindh and Thar Desert, due to which Sindh has risk of a major earthquake in the future. The latest earthquake occurred on 16th April 2013 in Iran whose effects were felt in Pakistan but damages happened in Balochistan only. It was recorded in Karachi at Richter scale at 5.5 which strongly jolted the entire province.

Sea Intrusion

Sindh is also badly affected by sea intrusion. Thatta and Badin districts are among the most vulnerable areas. The outflow of water downstream Kotri Barrage is continuously declining and has resulted in massive sea intrusion in coastal area of both the districts. This intrusion has wreaked havoc not only on human and fish population, but has also badly damaged the precious agricultural land. The sea intrusion is shrinking sea food market every year due to depletion of fish and shrimp population in the area. By one estimate coastal district of Thatta and Badin's 9 Taluka, 87 Dehs, 47 Irrigation Channel are affected. Area affected is 1.2 million acres.

The relative severity of various vulnerabilities / hazards per district-wise in Sindh is given as under (Taken from Provincial DRM Plan Sindh Province):

District	Drought	Floods / rains	Cyclones	Tsunami	Earthquake	Landslides	Communicable diseases	Fire	Locusts / pests	Crisis situation	Industrial & mines accidents cyclones	Refugees& IDP's
Karachi	4	3	4	4	3	1	3	5	---	5	5	3
Thatta	4	4	4	4	2	---	4	2	---	2	1	3
Badin	4	5	5	4	3	---	4	1	1	2	1	4
Tharparkar	5	3	3	3	4	---	4	2	4	3	1	1
Umerkot	5	3	2	1	2	---	3	2	3	1	1	2
Mirpurkhas	4	3	2	2	2	---	3	3	1	1	1	1
Tando allahyar	3	4	2	1	2	---	3	3	1	1	1	1
Tando m.k.	3	4	2	1	2	---	4	2	1	1	1	1
Hyderabad	3	3	1	1	1	---	3	3	1	3	3	3
Mitiari	3	4	1	1	1	---	3	1	1	1	1	1
Nawabshah	4	4	1	1	1	---	3	2	3	1	2	3
Naushahro feroze	3	4	1	1	1	---	4	1	1	1	1	1
Khair pur	4	4	1	1	1	---	3	2	4	1	2	1
Sukkur	3	3	1	1	1	---	4	2	4	2	2	1
Ghotki	3	4	1	1	1	---	3	3	4	1	3	3
Shikarpur	2	3	1	1	1	---	3	2	1	3	1	2
Kashmore	2	5	1	1	1	---	4	1	1	3	1	3
Jacobabad	3	5	1	1	2	---	4	1	1	4	1	3
Larkana	3	3	1	1	2	---	3	1	1	3	1	2
Kambar Shahdadkot	5	5	1	1	3	---	3	1	1	3	1	3
Dadu	5	4	1	1	3	---	4	1	1	3	2	3
Jamshoro	5	3	1	1	3	---	2	2	1	1	2	1
Sanghar	4	4	2	1	1	---	2	1	3	1	1	3

Overview of CBDRM

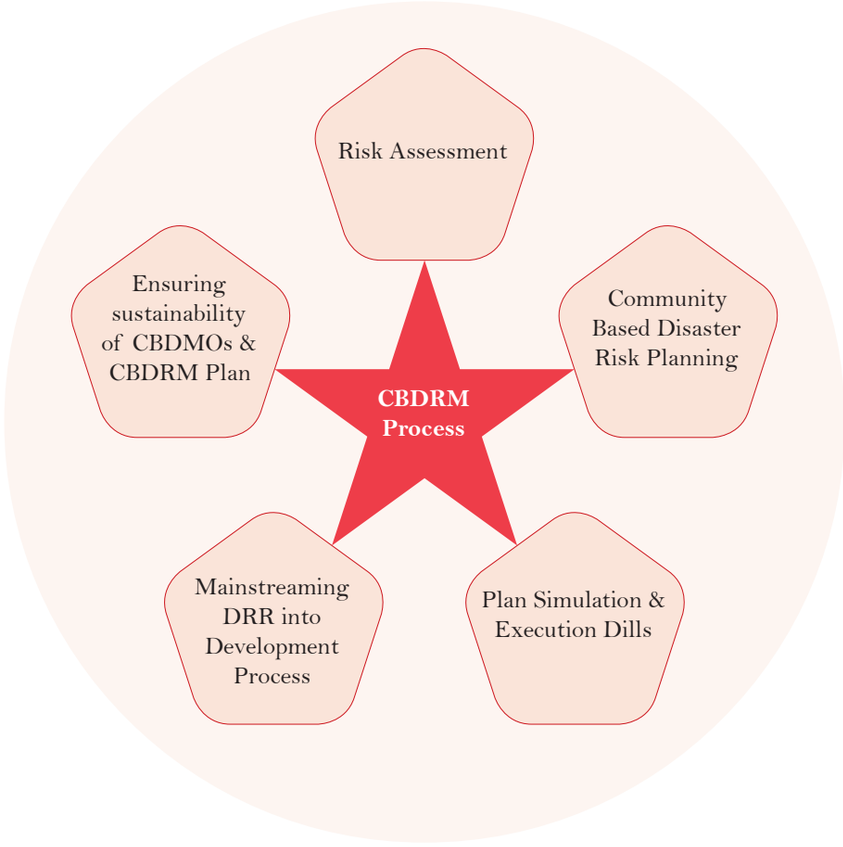
Although it is a universally accepted reality that it is the basic responsibility of the government and its functionaries to provide all necessary facilities, including lifesaving services, to the masses, yet the role and importance of people's participation in this process is vital to its success, especially long term success. Even a development project, designed to facilitate the public, can become a major source of their problems if the community and its interests, needs and customs are not incorporated in planning and implementation stages. For a long term success and sustainability, all government initiatives must be people centric and should keep the community on board in all the phases. Similarly disaster management practices and interventions can only be effective when they cater for the necessities, culture and point of view of the people who are affected or may be affected by the disasters. Hence the current disaster management approaches promote partnerships with the local communities and governments because all the efforts are to be channelized through these tiers of disaster management system and no initiative can achieve success if communities are unable to or unwilling to cooperate and participate in them. Community Based Disaster Risk Management (CBDRM) is the result of this realization and aims to create opportunities and build partnerships with the communities to establish disaster resilient societies. This approach has certain advantages:

- By building the capacity of the community, CBDRM automatically reduces their vulnerability to any disaster and hence the overall disaster risk is significantly decreased.
- It increases resilience to disasters at community level, hence reducing the losses in case a disaster strikes. Instead of hopelessness and defeated mentality, it infuses hope and fighting spirit in the community which proves to be vital in the disaster situation.
- If masses are capable to take on and absorb the shocks of disaster and manage to avoid major damages, it makes the individual economies disaster resilient which becomes a valuable asset for the national economy also.
- Prevention, mitigation, risk reduction and risk management strategies and plans can be put to test at community level, as a pilot project and their success or failure can lead to treasured conclusions for provincial and federal level planning and strategy making.

- Although it is a fact universally acknowledged that CBDRM is the key to success in Disaster Risk Management, yet it must be realized that owing to their inherent lack of adequate resources, the capacity of community based disaster risk management system is limited and it should be duly supported and augmented by governments at all levels because it is vital to the success of national or provincial disaster management efforts.

CBDRM Process

Community Based Disaster Risk Management (CBDRM) is generally divided into five stages which are shown in the figure below. The process starts with sensitizing the community about their capacity and duty towards DRM process and ends with raising a community which is trained, has system in place and is capable to take on minor localized disasters at their own and can also trigger and support the government system for prompt action in case of a major disaster.



Risk Assessment

The community based disaster management organization should start the planning process by planning the risk assessment of the area. It includes hazard, vulnerability, exposure and capacity assessment of the area. Through this process, the organization will not only come to know about the type, gravity and extent of the risk involved but it will also have the knowledge of the elements at risk, the historical data of the risk and they will also identify their resources which can help them reduce the losses in a disaster situation. Moreover, they will also analyze the gaps between their present capacity and the capacity that they should have to successfully avert the possible damages.

Community Based Disaster Risk Planning

Initially with external help, the community should plan to structure the community based disaster management organization, should build the capacity of the human resource available as per requirements and should formulate a local disaster management plan as per the risk assessment carried out.

Plan Simulation and Execution Dills

During this phase the chalked out plan is deliberated upon in detail looking into all its pros and cons, requirements and obligations and socio-economic challenges and opportunities. Then the organization identifies and takes all stakeholders on board identifying their respective roles and responsibilities before the plan is put to test in a mock exercise to measure its accuracy and adequacy in the real time situation and it is amended and refined if required and then finalized for proper drills and practices.

Mainstreaming DRR into Development Process

Fighting disaster and getting ready for it is not a one-time activity. It is not only a process to be implemented but is also a culture to be adopted. Disaster Risk Reduction should be made a part of the community life, should be infused in their culture, should be blended with their values, customs and mores and should be mainstreaming in the local level development planning process by developing requisite linkages with the government system and processes.

Ensuring sustainability of CBDMOs and CBDRM Plan

Capacity Building and resource provision to the CBDMOs should be done with the purpose to develop them into self-sustained units. These units should be formed keeping in mind the geography, demography, religious sentiments and socio-political

currents in the area. It should make best use of human, as well as, other physical resources in a way that it is socially acceptable, politically representative , officially endorsed and economically viable enough to sustain itself.

CBDRM in Pakistan

Although disaster management and emergency services were present in some form but it was only after massive infrastructure damages and human losses in 2005 earthquake that the seriousness of need to create institutions and systems for disaster management was realized in Pakistan. Legislative and institutional mechanism was put in place from federal to provincial and district levels and gradually plans and policies were formulated for effective disaster management, risk assessment and analysis, hazard mapping, disaster risk reduction, early warning systems, public awareness initiatives and CBDRM. These strategies have not only changed the government perspective about disaster management but it has also changed the public response towards it. Now the public take themselves as stakeholders in the system and realize the importance of their participation in disaster management plans and procedures and hence with the help of NGOs, donor agencies and government institutions community based disaster management initiatives were planned and promoted. Independent and vibrant media has also played a vital role in promoting CBDRM approach in the country and masses making it acceptable to all.

Community Based Disaster Risk Assessment

Studying disaster risk means analyzing hazard, vulnerability, exposure and capacity of certain community, area and infrastructure. Community based disaster risk assessment means training and capacity building of the community to devise and practice methods to assess the risks faced by a community. Different hazards pose different types of dangers. Floods, for example, cast losses to housing sector, lives, agriculture and livestock, industry and health facilities; whereas earthquakes damage houses, human lives and vital infrastructure. Disaster risk assessment evaluates nature, extent, duration and dynamics of hazards, vulnerabilities of the people exposed to these hazards and gauges the local capacities and resources to counter the dangers posed by these hazards with the purpose to augment coping capacities.

Purpose of Risk Assessment

- To identify possible hazards and vulnerabilities of the community and surrounding areas.
- To analyse these and to estimate and assess both the probability of occurrence and the possible potential damage.
- To identify and study possible weaknesses and gaps in existing protective and adaptive strategies.
- To formulate realistic recommendations for measures to overcome weaknesses and reduce the identified and assessed disaster risks and to agree these with those affected.
- To ensure and enhance the feasibility, effect and efficiency of protective measures by working from the risk assessment to:
- Balance various interests,
- Consider the reasonability, cost effectiveness and practicality of measures
- Make possible social agreements on measures to reduce disaster risks.
- To develop CBDRM plan by using the findings of hazard and risk assessments.

- To plan sessions and practices on CBDRM plan by identifying the hazards at regional level.

Hazard Assessment

Hazard is the natural or man-made phenomenon which may cause damage to lives, assets and infrastructure and if no mitigation and prevention measures are taken, it may turn into a disaster. During hazard assessment process, the community is trained to find answers to the following questions:

- What is the nature and intensity of hazards present in a specific area?
- What are the elements at risk? (Communities, assets, economies, bridges, hospitals, housing, schools, etc).
- What can be the possible extent of loss caused by these hazards?
- What is the duration of these hazards and how can they interact with each other to pose a compound threat?

During the hazard assessment, the communities study the past experiences of the hazards in that specific area, their impact, frequency and losses, identifying the most damaging disaster in the past. They assess the speed and duration of a hazard to strike and whether the dangers of a hazard striking is increasing, decreasing or remaining constant. They evaluate the quality, efficiency, timeliness, means, symbols and effectiveness of the early warning systems, if present in the area. They identify the areas, communities, economic assets and infrastructure exposed to the hazards and how much loss they have borne in the past.

Vulnerability Assessment

It is an accepted fact now that there is no such thing as natural disaster because the disasters, natural or man-made, become disastrous because of some vulnerability or ill preparedness of the communities. There can be many reasons and dynamics of vulnerabilities of a society. During assessment of vulnerabilities physical, economic, social, political and environmental vulnerabilities are studied from geographical, geological, socio-political and psychological perspectives identifying the reasons behind them. Vulnerability assessment can never be effective without

active participation of the communities because building their capacities is vital to reduce their vulnerabilities. Some assets or communities can be exposed to certain hazards but not vulnerable because of their characteristics and on the contrary, some other assets may be vulnerable but not exposed to the hazards. The examples can be a housing colony built in flood prone zone but as it is built in accordance with flood resistant building code, so it is not under risk. On the other hand, a house may be very poorly built but as it is not in an earthquake prone zone, hence disaster risk is very low. During the assessment process, community tries to find answers to the following questions:

- Why different communities, assets, infrastructure and economies are at risk?
- What is the nature of the vulnerabilities? Whether the elements are physically, socially, economically or environmentally vulnerable?
- What are the underlying reasons behind these vulnerabilities? These must be identified to find out the mitigation measures for reducing the vulnerabilities and hence the risks.
- Why the government based disaster management system in unable to reduce the risks and what are the loopholes in the present disaster risk reduction system and measures?
- How will a disaster exacerbate the already existing vulnerabilities? The destruction of communication, education, health and other infrastructure may increase the vulnerabilities.
- What are the vital lifelines of the community that are vulnerable to looming hazards?

Capacity Assessment

Capacity consists of all the knowledge, expertise, resources, steps, laws, plans and strategies that can be used to reduce the disaster risk and reduce the post disaster losses. The assessment of capacity is necessary because it's only then that capacity can be compared with the hazard and vulnerabilities and appropriate decisions can be taken about augmenting the capacity and filling in the gaps. The most important aspect of community capacity is, however, readiness or sense of responsibility of the community because disaster resilience is not possible without a resilient and responsible community. The capacities can be generally categorized in following types:

Economic Capacity

Economic capacity of a community means the economic conditions of the people and means of livelihood available. If the region offers multiple means of earning livelihood and people are reasonably well off, it automatically enhances their coping capacities. On the other hand if the whole region is dependent on one type of income and the considerably large portion of society is under the poverty line, then it reduces the overall coping capacity of the community and their vulnerability and hence disaster risk increases.

Physical Capacity

Physical capacity includes the quality of housing in a community, structural disaster mitigation measures already present in the community, physical resources and equipment to be used for risk mitigation and disaster response. These resources include disaster resistant building constructed in compliance with the building codes, any dams, dikes or other physical structures that keep the community and assets safe from disasters and transport or any other equipment which can be used before or during disasters. These resources enhance the ability of the community to reduce the damages caused by disasters.

Social Capacity

Social capacity includes the trained human resource or a human resource that is mentally ready to take the disasters on. It also contains a society that is united in itself and is willing to take responsibilities. It also means a mass of people which is better organized and specific people have specific responsibilities and they are trained for their assigned jobs and necessary drills have been done. Such communities are at a great advantage and they carry out their assigned tasks as per the practiced procedures and hence reduce the disaster risk and losses. Similarly a community, with better relations to each other, to the local and district government authorities and with the societies around it, is better placed to face a disaster without severe losses. Also if a society has an effective government or community based disaster management system or organization, it must be assessed as an important asset.

Natural and climatic Resources

Natural forests, sources of clean drinking water, raised ground in the vicinity and some natural resources, if present, can be useful in a disaster situation and that is why they must be assessed and evaluated for their possible utility, if required. In certain cases, if forests and sources of clean drinking water are depleted or vulnerable

to disasters, the same must be improved upon and used as mitigation measures. For example, mangroves forests are a known mitigation measure against sea intrusion and hill forests are an effective measure to reduce flash floods losses.

Lifeline Infrastructure and facilities

Better communication infrastructure, health facilities, education infrastructure and transportation system can prove a vital capacity in times of disaster. Communication infrastructure can help in mitigation efforts and is always critical in response phase. Health facilities can save many lives in case of a disaster, whereas transportation, education and other necessary facilities are lifesaving assets from disaster perspective and must be identified, evaluated and improved to reduce the disaster risks.

While assessing the capacities, following must be kept in mind:

- Community must identify all those assets, housing, facilities and resources which are safe from the possible disasters and can be used as vital support in a disaster scenario. For example, a simple high ground can be an asset in case of floods and a wide open ground can save lives during earthquake.
- Similarly, systems, mechanisms and strategies which remain intact during disaster should also be identifies and assessed for possible use in emergency situation.
- Communities should identify laws, socio-economic and environmental laws and traditions and values which prove helpful during disasters. Also certain values and practices can be mainstreamed in local culture if found useful during disasters.
- Even religious beliefs and healthy attitudes should be identified and encouraged to promote disaster risk reduction at local level.

Tools used for Disaster Risk Assessment

Participatory risk assessment tools go a long way in boosting up the community based disaster risk management efforts and systems. These simple tools do not require a specialized technical expertise and local knowledge of the community can prove instrumental in this regard. Societies, which experience regular disasters, develop these practices naturally without formally placing it as a law. CBDRM approach makes these practices more organized, formal and systematic. Generally used participatory disaster risk assessment tools are precisely discussed below:

Disaster Risk Mapping

Using internet, government Maps, Google images, GIS tools, Maps of structures, drawings, designs, observations and instruments, the hazards, vulnerabilities and capacities of the communities and the surrounding areas, disaster risk mapping is done. This tool is in vogue all over the world and even in Pakistan hazard mapping has been done by NDMA and relevant PDMAs.

Historical Profile

Through historical profile, community collects data about disasters in the area, the losses incurred during these disasters, the areas vulnerable to different hazards, the extent of vulnerability and what mitigation and prevention measures proved effective in the past. Through this historical profiling future estimation and planning of prevention, mitigation and response measures are planned.

Seasonal Calendar

This is a simple but comprehensive method to formulate a calendar showing the timing and duration of different hazards that some specific area is vulnerable to. The historical data analysis and disaster risk mapping can also be used for preparing the calendar which helps the community to take precautionary measures before the hazard actually strikes. In the context of Sindh province, through this calendar the community can plan cropping patterns, harvesting and sowing of crops and planning other economic activities.

Disaster Ranking

Through this tool, the hazards for the community are identified and then they are ranked with respect to their severity and the past losses. Then according to this ranking, vulnerability and capacity assessment is carried out and finally prevention and mitigation strategy is chalked out for the most serious dangers.

Transact Walk

This is the simplest of the methods and simple people with decent local knowledge and little training can just walk around and identify and enlist vulnerabilities and capacities of the community and plan prevention and mitigation measures later on.

Participatory Disaster Risk Management Planning

Traditional vs CBDRM Approach

CBDRM has changed the basic approach towards disaster risk management and with it the roles and responsibilities of different stakeholders have significantly changed. This is a people and community centered approach with which people participate actively in the disaster management process and ownership at public level increases. Following are the major changes brought by this approach:

- Traditionally people affected by disasters used to be helpless victims whereas in CBDRM approach people affected by disasters are active actors in rebuilding their lives and livelihood. This change gives new impetus and effectiveness to the system and processes.
- Earlier victims were passive recipient of external aid however according to the new approach people capacities are used and built on through their participation. This new approach is more beneficial in the long run and goes a long way in mainstreaming DRR into culture and traditions.
- Previously damage and needs assessment was rapidly done by external people but now assessment covers capacity and needs done together with the community. This change leads to a more realistic assessment with the help of local input.
- General approach focuses on technical solutions and material aid; whereas in CBDRM approach the focus is on assisting communities to address vulnerability issues. With this transformation, the short term solution has been replaced by a long term sustainable solution.
- Previous initiatives used to focus on individual households but now the focus has shifted to strengthening community organizations and structures. Sustainability of the DRM measures is enhanced significantly with this modification because whole society and its resources are integrated in it.
- Disaster management used to be the responsibility only of relief institutions, mostly government, but in CBDRM disaster risk reduction starts from community level sensitization, community participation and mainstreaming DRR into socio-economic, political and development initiatives.

- The aim, in traditional approach, was to respond to disasters to meet emergency needs and bring life to pre-disaster level, while the aim, in the new approach, is to reduce vulnerability and build capacities for more resilient communities.

Role and Importance of Planning at Community Level

Role of Planning at Community Level

No disaster management strategy can successfully and comprehensively handle disaster issues of a country till the time people at large, the most important stakeholders, are taken on board in the whole system. Community needs to be consulted during each stage of planning and execution because otherwise the plan might be devoid of ground realities and its success would be doubtful as its fruits would not reach the common man. Disaster management does not merely mean building dams, preparing building codes and building bridges but it is an all-inclusive process of planning information gathering, strategy making for risk assessment and mapping, sketching the policies and processes for risk reduction, prevention, mitigation, response and mainstreaming efforts, creating socio-political consensus and financing and finally implementing these strategies with the help of all stakeholders, using all their abilities and capabilities to promote vibrant resilient societies. This wholesome process should start at grass root community level and then be consolidated at higher levels to finalizing it at federal level for making it people centric, long lasting, reality based and sustainable.

Importance of Planning at Community Level

- It promotes awareness among the general public giving them opportunity to understand the dangers around and be a part of all initiatives to reduce these damages.
- It massively reduces disaster risks because of the planning at local level and implementation with the help of the local community.
- The capacity of the masses is built and value is added to it and their contribution is resultantly enhanced.
- CBDRM approach focuses on the common man and builds his capacity and makes him a responsible citizen of the society. This changes the general attitude of the

society towards disasters and instead of giving up approach they start adopting proactive fighting spirit which is beneficial during disasters.

- It enhances the general awareness of the public about the dangers they will have to face and hence they are better prepared to do so with better use of external help.
- It makes the best use of folk wisdom and local traditions and values to the objective of realistic disaster management planning.
- With trained and value added community, the quality, response, speed and hence effectiveness of the emergency services would be improved.
- Development planning based on CBDRM processes and mainstreaming DRR into development process, results in sustainable development.

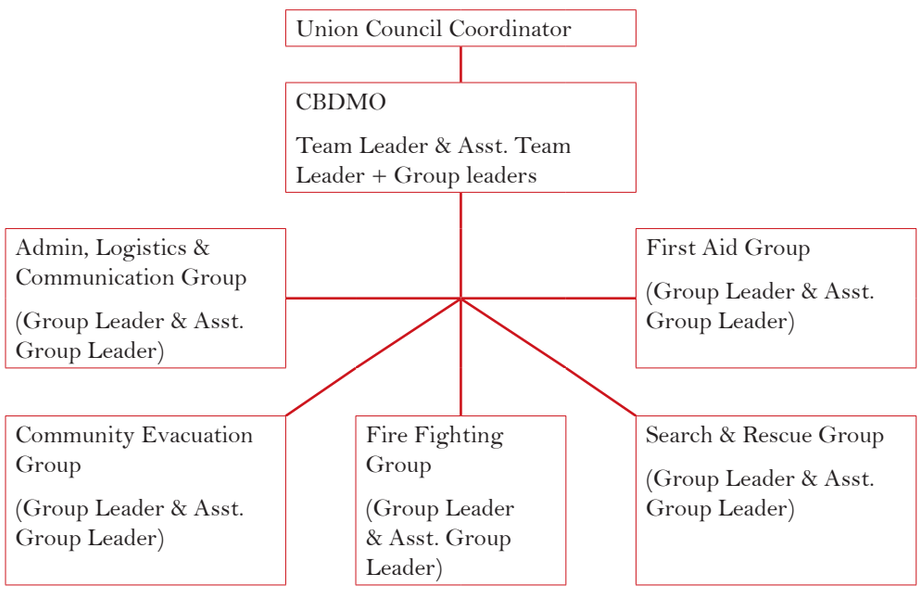
CBDRM Principles

- People's participation is a must. As this approach is people centric, it efficiently makes use of the talent, knowledge and capabilities of the general public.
- Priority is given to the most vulnerable people. The vulnerable portion of the society is not only identified well in this approach, but it takes better care of their needs before, during and after disasters.
- Interventions are based on Vulnerability and Capacity Assessment (VCA).
- Different perceptions of risk are recognized. As local folk wisdom is combined with the modern scientific research, in this approach, it caters for different perceptions of disaster risk and offers a comprehensive solution to the problem.
- Risk reduction measures are community specific. They are localized primarily, though they are integrated with and are streamlined in the overall country wide DRR strategies.
- CBDRM activities are managed/operated/sustained by the communities themselves. Though initially the communities need external expertise and resource help, yet in the long term the processes are streamlined in their culture and they develop into a self sufficient disaster management unit, with little financial help invariably.

Community Based Disaster Management Organizations (CBDMOs)

Major Responsibilities of CBDMOs, as envisaged by NDMP, are:

- 'First responders' at the local level in a crises situation
- Regularly update the local leadership about activities and plans
- Organize periodic simulations, drills and exercises
- Assess risks and develop plans to mitigate risks and present to the local leadership for approval and implementation
- Preparation of Disaster Management Plan in the community
- Proposed structure of CBDMO can be as follows:



Responsibilities of Each Group

- Union Council Coordinator
  - Supervise activities of the CBDMO

- Attend meetings of CBDMO Leadership/General body meetings
- Deploy CBDMO members on emergency duty to perform critical operation in case of any emergency situation
- Ensure the follow up of the Action Plan for the given year
- Arrange Equipment and other facilities for CBDMO

- Team Leader
  - Decision-making and planning
  - Organize Operational Groups
  - Assign resources
  - Evaluate progress
  - Arrangement of equipment/supplies
  - Arrangement of food and/or water during emergency/disaster
  - Gather facts
  - Assess disaster sites
  - Develop and maintain links with the government responding departments
  - Co-ordinate and communicate with operational groups
  - Arrange transportation to safer places in case of evacuation
  - Documentation
- Assistant Team Leader
  - Assist the leader in his duties and lead the team in the absence of the Team Leader
- Administration, Logistics & Communication Group
  - To collect family profiles of the community
  - To identify potential hazards in houses
  - To identify potential crises and prepare effective strategic plan to address them on time

- To develop comprehensive information and communication strategy
- Responsible to disseminate information regarding any emergency
- To provide all information and data to Emergency Response Teams and other agencies for timely response
- To make an assessment of the disaster and its impact and also to share with concerned agencies
- On the basis of information and data available, undertake an effective and efficient recovery, rehabilitation and re-building/reconstruction

- Community Evacuation Group
  - Determine the population for which the evacuation plan is to be made.
  - Setting up local evacuation communities, assigning duties and responsibilities.
  - Identification of shortest routes and alternative routes out of the village, hospitals and schools.
  - Safe assembly area or areas for assembling the community before evacuation.
  - Forming groups of people to be transported out of the endangered area.
  - Means and procedures of transportation of valuables and the cattle etc.
  - Identifying critical items, like medicine, edibles and water, to be taken along during evacuation.
  - Necessary documents, like ID cards, educational certificates and property ownership documents, to be identified for taking along duration evacuation.
  - Evacuation drills on regular basis.
- First Aid Group
  - Head-to-toe assessment of victims
  - Opening airways
  - Controlling bleeding
  - Immobilization of spinal injury victims
  - Treatment of wounds

- Treatment of fractures
- Triage procedure
- Transportation of victims

- Fire Fighting Group
  - Fight small fires
  - Shut off utilities
  - Isolate hazardous materials
- Search & Rescue Group
  - Rescuers safety
  - Search methodology
  - Search for victims
  - Rescue victims
  - Evacuate victims

Mainstreaming DRR & CCA at Community Level

Since the late 1990s, there has been increasing recognition of the need to 'mainstream' disaster risk reduction into development – that is, to consider and address risks emanating from natural and human induced hazards and climate change in medium-term strategic frameworks, sectoral strategies and policies of the countries and in the design of individual projects in hazard-prone countries. The rising interest in mainstreaming disaster risks has also been fuelled by a gradual upward rise in reported disaster losses, primarily due to the increasing vulnerability to natural and man-made hazard events of economic and social assets and the wellbeing and livelihoods of populations. Between the 1950s and 1990s, the reported global cost of disasters increased 15-fold in real terms while numbers affected rose from 1.6 billion over the period 1984–1993 to almost 2.6 billion during the subsequent decade.

The need to mainstream disaster risk reduction into development was formalized in January 2005 when the Hyogo Framework for Action 2005–2015 was adopted by the World Conference on Disaster Reduction with 168 nations and multilateral institution signatories. The Hyogo Framework is centered around three principal strategic goals, the first of which is "the more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction". Mainstreaming is an ongoing process not a one-off technical activity. Successful mainstreaming requires more than just developing appropriate approaches and tools. A change in organizational culture is required to ensure integration at all levels of the organization and across all programs and climate change adaptation. Mainstreaming has three Purposes:

- To make certain that all the development programs and projects are designed with evident consideration for potential disaster risks and to resist hazard impact.
- To make certain that all the development programs and projects do not inadvertently increase vulnerability to disaster in all sectors: social, physical, and economic and environment.
- To make certain that all the disaster relief and rehabilitation programs and projects are designed to contribute to developmental aims and to reduce future disaster risk.

Mainstreaming DRR Mitigation Techniques at Local Level

Despite efforts to create national agencies responsible for disaster prevention and mitigation, these agencies tend to focus mainly on post-disaster emergency management and often lack the policy mandate for DRR and resources. DRR mitigation measures can be of two types:

Structural Mitigation Measures to Reduce Disaster Risk

Disaster prevention and mitigation techniques can reduce the economic and social impacts of natural disasters. Structural measures are the most traditional approach used to reduce disaster risk through proper engineering practices. Examples include designing electrical power systems and transportation infrastructure to withstand weather and earthquakes; sinking transmission lines for protection from hurricanes; and, building dams to minimize floods. Other flood mitigation measures include: construction of floodways, spillways, hydraulic control structures, dykes, dams, control gates, drainage system improvements (including river-dredging) and flood detention basins. Simple mitigation techniques, requiring little economic investment, can be undertaken by the local communities; whereas bigger projects can be left on to the government disaster management and development agencies. The mitigation measures to be taken on by the local people can be as simple as small retrofitting in the houses to make them disaster resilient or improving the drainage system.

Nonstructural Mitigation Measures to Reduce Disaster Risk

Nonstructural mitigation measures are non-engineering activities that reduce the intensity of and vulnerability to hazards. Nonstructural mitigation measures include such activities as land use planning and management; zoning ordinances and building codes; public education and training; and coastal, upstream and mountain reforestation. Nonstructural measures can be encouraged by governmental and private-industry incentives, such as preferential tax codes and deductibles, or by adjusted insurance premiums that reward private loss-reducing measures. Numerous parties can implement nonstructural mitigation measures: governmental authorities with the power to legislate and enforce building codes and zoning requirements; NGO's that initiate neighborhood loss-prevention programs; and private sector enterprises that provide incentives for loss-reducing measures. Nonstructural mitigation measures are particularly appropriate for developing countries because

these remedies usually require fewer financial resources. Also these techniques should be devised, coordinated and executed by the community based disaster management organizations because these cannot effectively be used without active participation of the local populace. Hence leaving the major structural mitigation measures to the government organizations, the CBDMOs should take on the non-structural measures with the aim to build disaster resilient communities.

Mainstreaming Climate Change Mitigation & Adaptation

Mainstreaming Climate Change is a relatively simple concept, but is often poorly defined and, therefore, difficult to implement. However, this will be particularly challenging in the context of adaptation, where indicators and activities are highly context-specific. Mainstreaming CCA should mean that climate change issues influence core development activities and are accounted for in routine sector planning and budgeting activities. Possible climate change mitigation strategies can be as follows:

- Promotion of climate smart agriculture.
- Water Conservation in agriculture.
- Sustainable land use practices.
- Changed cropping patterns.
- Mitigation measures for climate change related disasters.
- Food security measures.
- Reforestation of sea shore.

Mainstreaming DRR & CCA into Local Economies

Disasters and climate change is becoming an increasing threat to the world in general and Pakistan and Sindh province in special. As household economies are the most vulnerable to this situation, mainstreaming DRR and CCA at local level economies and livelihood options is a necessary part CBDRM effort. Following

possible interventions can be made to make livelihoods disaster and climate change resistant:

- Development of small-scale irrigation and water harvesting schemes in arid, semi-arid, and dry sub-humid areas.
- Improving and enhancing water resource management practices especially in coastal areas.
- Promotion of on-farm and homestead forestry and agro-forestry practices in arid, semi-arid, and dry sub-humid areas.
- Community-based sustainable use and management of wetlands in selected areas.
- Realizing food security through multi-purpose small scale water development projects in Sindh.
- Introducing and promoting kitchen gardening and small scale tunnel farming of vegetables etc.
- Introducing multiple livelihood options by endorsing small scale poultry farming and cattle farming.
- Changing local economic patterns by encouraging cottage industry making the best use of women human resource. This would go a long way in empowering the women and gender mainstreaming, as well as, mainstreaming the vulnerable groups, along with increasing family income and putting an end to one source of income.

Mainstreaming DRR & CCA into Local Culture

Long term mitigation and prevention measures against disasters and climate change is gradual molding of local culture to mainstream CCA and DRR into customs, values and the way of life of the community. Making these processes a natural part of local culture is the most effective way to build permanent disaster and climate change resistance in the communities. This job is naturally done by the societies historically but only after incurring decades of human and material losses. Making it a part of CBDRM mechanism would not only systematically diagnose the risks but will also suggest mitigation and adaptation steps, finally changing the society forever making it safer. For example, communities living in the river beds

gradually develop mitigation techniques and livelihood patterns which are flood resistant to a reasonable level or communities living on sea shore develop such cultural changes for a safer resistant community. For this purpose, historical knowledge of the relevant society and its culture is a must. It is only then that adequate measures can be suggested to mold the culture.

As culture encompasses all the spheres of life, the intervention also should comprehensively study hazards, vulnerabilities, resources and capabilities of the communities and then recommend long term cultural modifications to sponsor safer communication infrastructure, disaster and climate change resistant housing and most of all robust multi-source community economies to absorb the possible shocks. Some probable steps can be as follows:

- Using Dera/Aotaq or mosque for disaster risk awareness and planning.
- Children play area and schools must be used to instill disaster awareness and resistant techniques in the future generations. Disaster awareness games can be developed for the purpose.
- Disaster awareness can be integrated with and made part of local folk poetry or music for lasting effects.
- With minor changes, giving a trend of disaster resistant housing, using local material and suiting local weather patterns.
- Molding cropping patterns to introduce variety of different new water conserving crops which have a comparatively better marketability also. Even the crops that suit the rain patterns of the area may be adopted, not sticking to centuries old traditions. Similarly, water conserving tree varieties can also be introduced.
- Mainstreaming water conserving techniques for the households, as well as, for agriculture.

Community Based Emergency Response Management

Along with preparedness at government agencies and non-government organizations (NGOs) level, the local population should be made aware of the dangers they are faced with and the possible way outs from them. This will enable them to help themselves in emergencies and save precious lives and losses before any external help can reach them. The expert level search and rescue may come into play later on but the initial help must be given by the people in the close vicinity because in emergency response time is the key. Therefore community based emergency response management is the key to CBDRM.

Emergency Response Management

It is the basic duty, as well as need, of every citizen to learn the basic principles, practices and procedures of emergency response management for his own safety and for the safety of the his family and the community he belongs to. If every citizen is able to perform this basic duty at small level, this would be a major achievement at larger national level. Following are the steps of emergency response management:

Pre-Emergency Phase

In spite of all the good intentions and aspirations, being untrained, people of Pakistan try to handle the emergency situation emotionally and not scientifically and technically. The situation even gets worse when it is coupled with the inefficiency of the public sector emergency response management, especially at village level and in rural areas. The society only realizes the need when a major catastrophe has already hit the country and the loss has already been inflicted and the same is forgotten before it is repeated again. So along with institutional mechanism at government level, the mass level awareness and training is a must. At individual level, every citizen must:

- Know the signs and symbols of danger.
- Be able to take necessary steps during emergency and save his life.
- Know about first aid and should have lifesaving basic medicine at home.

- Can provide necessary information and instruction to his family to close relatives about emergency response
- Can help others during emergencies.

At community level, following must be done:

- Taking into consideration the past disasters, prepare for emergency response in future.
- Combining modern rescue techniques with traditional folk wisdom.
- Preparing a local emergency management plan.
- Launch awareness campaigns about emergency response management, with the help of government and private disaster management organizations.
- Preparation of evacuation plan in emergencies at village and union council level.
- Arrange emergency response drills.

During Emergency Phase

Emergency means a situation which is not only sudden but it is difficult for the people to cope with it using their normal strengths and resources. However, if proper deliberation, planning and drills are carried out, then it becomes comparatively easy for the community to go through an emergency situation with minimum possible damage. The success of during emergency response basically depends on the planning and preparation done in the pre-emergency phase because during emergency the community has to execute the plan already chalked out and practiced. Hence this stage is the litmus test for the previous stage performance effectiveness and it tells how adequate the plan was and how far it succeeded in achieving what it was supposed to achieve.

Moreover, at times during emergencies, things do not happen as it was envisioned and the plan needs prompt modifications. In such conditions, only a well trained and well equipped team can take a timely action and adapt to the changing situation up to certain level. In Pakistan emergency infrastructure and facilities are absent in far flung rural areas, therefore the importance of community based emergency response management planning, capacity building and practicing cannot be denied.

Post-Emergency Phase

In post-emergency phase, after search and rescue measures, following steps are taken:

- Basic amenities are to be restored in the affected areas. Facilities like electricity, water and gas supplies, etc. are to be restored as soon as possible after the disaster strikes.
- Provision of medical help, food, clean drinking water and housing facility to the displaced people till the time they can return to their homes.
- Rapid damage and need assessment is to be done soon after the disaster and the role of community participation is vital to its success because this is the only way of collecting correct information and estimates.
- Identifying the secondary risks for the affected people and spreading awareness about these and putting in place prevention mechanisms about them.
- Pointing out loopholes in the existing emergency management plan, so that the short comings are made good for the future

It must be noted here that although community participation is equally important in post-emergency phase, yet in this phase communities cannot survive with their own resources and state and NGOs must be made part of the plan at this phase.

Community Based Early Warning System

Early warning means informing the community about the coming dangers of a disaster striking, necessary actions to be taken during disasters, vulnerable localities and assets and possible requirements during a disaster. It should be clear, simple, easily understood and routed through official credible sources. These warnings are normally issued by the government disaster management departments and it shows the extent of the danger posed by the looming disaster, possible duration of disaster, areas under threat, recommended measures to be taken by the people and evacuation plan, if required. Though this is an activity to be carried out by government agencies yet participation of the community is necessary for dissemination and effectiveness of the warning.

Contents of Early Warning

- Details about nature, extent, timing and duration of the hazard to strike the specific area or community.
- Elements at risk i.e. people, housing, road infrastructure, bridges, markets, schools, hospitals, mosques and economic assets.
- Nature of danger to be faced i.e. wind speed, volume of water, canal and dike breaches, houses inundation, flash floods or spreading epidemics.
- Environment losses, water resources to be compromised, crops losses and air pollution

Instructions to be included in Early Warning

- To remain inside in case of cyclone, wind or rain storm.
- Strengthen dikes with sand bags or stones in case of floods.
- Water conservation, water rationing and food conservation in case of drought.
- Evacuation instructions when required.
- Certain precautionary measures in case of epidemic spread.

Sources of Early Warning

- Community, District, provincial and national disaster management committees.
- Pamphlets, advertisements and picture messages.
- Cable Networks.
- Print and electronic media.
- Mosques.
- Conventional and non-conventional media.
- Mobile text messages.
- Internet messages, emails and other social media.

Capacity Building of Local Communities

- Establishment of community based early warning committee.

- Identifying roles and responsibilities of committee members.
- Capacity Building of Committee members.
- Capacity Building of the general public.
- Training of volunteers, especially incorporating women.

Provision of Basic Life Support and Fire Safety

Before being taken to better established medical facilities, medical first aid is provided to the people when they suddenly fall ill, meet some accident or fall a prey to disaster. If it is provided properly by a trained individual, it can save lives as it does not let the condition of the affected people deteriorate before professional medical help can be reached. If the same is provided by an untrained person, however, it may even deteriorate the condition of the patient and in a country like Pakistan inadequate or non-provision of medical help takes more lives than the disaster itself. It must be clarified here that for provision of basic medical help, the person does not need to be professional doctor but he or she only be trained in provision of basic medical help.

What Basic Medical help Provider must know?

- What is the nature of illness or injury and what can be done immediately?
- What help can be provided in case of burns and how bleeding can be stopped or at least reduced?
- What can be done if somebody gets a heart attack or there is a case of breathing problems or if something is stuck in throat?
- How to rescue a drowning person?
- How to carry a person with a broken bone?
- What help can be provided to a victim of a heat stroke?
- What to be done in case of snake bite?
- How to help a person suffering from extreme cold or heat?
- What help should be provided to the people rescued from building collapse?

Characteristics of Medical First Aid Provider

- Properly trained in provision of medical first aid provision.
- Healthy, active, regular and punctual so that he can manage to reach the venue in time.
- Better decision making to decide what kind of help is to be provided.
- Trained in making efficient use of untrained manpower.
- Capable to find out alternatives, in case necessary instruments for medical first aid are not available.
- Self-confident and courageous so that he does not lose heart to face a difficult situation.

Triage (Ranking the affected people on the basis of severity)

- People who do not need help. They include people who are either dead or so seriously ill and cannot be retrieved. It proves as a test case for the first aid provider because his poor decision making might push a retrievable patient to death or maybe he wastes time on a patient who is not retrievable while a retrievable person loses life.
- People who need instant medical first aid. People who are bleeding, shivering, nose bleeding, seizers, fractures, sprains and strains and showing signs of life.
- People who can wait for medical first aid. People, who are injured but not seriously and without first aid, can survive till the arrival of professional medical help.
- Steps of Triage.
  - Stop, look, listen and think.
  - Size-up the situation: be certain it is safer to enter.
  - Tag each person 'minor' it he can walk and visually check each person as they walk.
  - Start where you stand (follow a systematic route).
  - Evaluate each victim and tag them:
    - Minor. No injuries or very minor injuries.
    - Delayed. No immediate life threatening conditions.

- Immediate. Will die without immediate medical help.
- Dead. Try two (2) times to open airways.

- Treat immediate victims.
- Airway management.
- Bleeding control.
- Treat for shock.

Community Evacuation Plan

In the wake of looming danger of hazard turning into disaster, people are evacuated from the area to reduce the human losses. Accordingly, on the basis of risk assessment, evacuation plan is drafted at community level and it includes early warning system, preparation for evacuation and final evacuation. Basically it is the responsibility of the government to issue early warnings and trigger evacuation after careful assessment of the disaster situation because it is only government which can visualize the scene from a larger perspective and safeguard peoples' properties and assets during evacuation. The most critical factor in evacuation is timeliness of the early warning and the participation of the local community and use of schools is very important to spread awareness and enhance capacity of the community.

Managing Evacuation

Evacuation is required in following situations:

- Floods or Cyclones.
- Spreading Urban or Forest fire.
- Massive Earthquake and looming aftershocks.
- War, Military Operation, Civil War or Terrorism.

Evacuation consists of the following stages:

- Early Warning
- Evacuation Instructions.
- Executing Evacuation.

- Camp site, Camp Coordination and Camp Management.
- Return back to the area and Rehabilitation.

Planning Community Based Evacuation

Normal life cycle and activities are seriously disturbed in a disaster scenario. At times disasters are so sudden that it does not allow a planned evacuation and evacuation needs to be planned and practiced for a smooth and speedy evacuation when required. Following factors should be kept in mind while preparing an evacuation plan:

- Determine the population for which the evacuation plan is to be made.
- Setting up local evacuation communities, assigning duties and responsibilities.
- Identification of shortest routes and alternative routes out of the village, hospitals and schools.
- Safe assembly area or areas for assembling the community before evacuation.
- Forming groups of people to be transported out of the endangered area.
- Means and procedures of transportation of valuables and cattle etc.
- Identifying critical items, like medicine, edibles and water, to be taken along during evacuation.
- Necessary documents, like ID cards, educational certificates and property ownership documents, to be identified for taking along duration evacuation.
- Evacuation drills on regular basis.

Evacuation Drills

Preparing evacuation plans will not serve the purpose till the time evacuation is practiced on a regular basis. Like fire drills are arranged on a regular basis, similarly, drills of the community evacuation plan should also be carried out especially in schools, hospitals, offices and other buildings.

Emergency Evacuation

In spite of all planning a disaster can occur so swiftly that no early warnings can be given and prepared evacuation plan cannot be acted upon. In this situation evacuation is done in emergency and following things must be catered for:

- Without considering taking anything along, just leave the endangered area.

- Ensure that everybody in your family leaves the place.
- Try to follow the evacuation drills as much as possible.

Evacuation Committees

Role of community based evacuation committees is vital in a disaster scenario and they have specific functions to perform before, during and after evacuation.

Before Evacuation Responsibilities

- Planning evacuation, including early warning.
- Arranging awareness Campaigns, Training and evacuation drills for the local community.
- Liaison and coordination with the government disaster management authorities to make the best use of their resources and facilities.

During Evacuation Responsibilities

- Passing on evacuation instructions.
- Finalizing evacuation arrangements including transportation, guiding to identified evacuation routes and taking special care of vulnerable groups.
- Ensuring an organized evacuation.
- Guiding the evacuation activities and ensuring search and rescue.

After Evacuation Responsibilities

- Before returning home it must ascertained through credible sources that situation is perfectly normal.
- Housing, routes and generally the whole area must be assessed for safety before entering buildings and locality.

Community Based Search and Rescue

In case of floods, earthquakes, cyclones, building collapse and land sliding, search and rescue play important role in saving lives of the affected people. In certain cases people are to be evacuated to safer places. Although extremely trained human resource and modern technical equipment is required for search and rescue,

yet local people should be trained to take on this task on self-help basis till the time trained search and rescue teams arrive. Also the local people have better on ground knowledge of the area, people in the area and housing and their role, in aid to the government search and rescue teams, remains vital even after the arrival of concerned teams. Training the local community is necessary, also because without training they naturally and instinctively try search and rescue on their own and may exacerbate the losses. Also in case of wide scale disasters, the government cannot handle the situation with all their capacity and trained local population proves to be a vital help.

Planning Community Based Search and Rescue

Search and rescue is an important part of response after disaster and at community level, it must be properly planned to make it effective. Keeping in mind the nature and possible losses due to different nature of disasters, the resources of the local community should be mapped and following factor must be kept in consideration while planning it:

- Listing and grading hazards as per their severity.
- Making a list of vulnerable and poorly built buildings.
- Seeing the nature and danger embedded in the hazard, list the resources and equipment which can be used in case of a disaster.
- Establishing contact and putting in place mechanism for remaining contact with the government agencies responsible for search and rescue.
- Enlisting the volunteers and keeping their record and giving them specific responsibilities in a disaster scenario.

Search and Rescue Techniques

Search and rescue involves scene safety, building size-up, team safety, lifting and cribbing and carries and drags. It is pertinent to mention that during the search and rescue activities priority must be given to the vulnerable groups i.e. Women, children and the elderly people.

Rescuing People from Building collapse and Debris

- On reaching the disaster site, the rescuer should call for the people inside, ask about their location, about other people there and inform them about the situation outside and try to soothe them by telling that search and rescue teams have arrived and they would be rescued.

- For a single storey building search and rescue should be done from one side to the other and for a multi storey building it is done from top to bottom or from bottom to top. Inspecting the available building maps and identify the places where people can take refuge.
- If professional search and rescue teams are taking time in reaching the site, trained volunteers should take on the task with the help of local resources and be careful in removing the debris because it, at times, disturbs the balance and may cause more loss of live.
- Make a human chain for removing debris.
- Do not let the crowd gather around the building and create minimum noise so that any sound from the debris can be heard and people can be rescued. Even if no sound is coming from the debris, do not assume that that there is nobody alive.
- The people rescued must be shifted away from the site.

Search and Rescue from Urban Fire Site

- In an urban fire situation, many deaths are caused because of breathing problems due to smoke. Hence while conducting search and rescue in such a situation, this factor must be kept in mind.
- Switch off electricity and natural gas sources.
- Elements like oil, gas, electric wires and dry woods that easily catch fire should be placed away from fire to starve the fire and keep it from spreading.
- People stuck inside the building may be told to reach the windows or sources of oxygen to keep them from choking to death.
- If water is not abundantly and instantly available, use sand or clay to put out the file.
- If clothes of somebody are on fire, the technique is stop, drop and roll or to wrap thick cloth around the body to put out the fire.

Search and Rescue in Urban, River or Flash Floods

- Although professionally trained and adequately equipped teams are required for this purpose yet capacity of the local people is critical because of their knowledge of the people and area and time to be saved in such a situation.

- Try to save the drowning people by throwing rope or air filled rubber tube to them.
- Shift the general public and rescued people to safe high grounds or higher buildings which cannot be inundated in water.
- Whereever the people are they must fix a flag on a higher building or ground so that rescuing teams can trace them easily.
- Using local procedures try and empty stomach of the rescued people from water.

Community Based DRM Awareness and Capacity Building

The best prevention and mitigation measure to reduce disaster risk is to train and build capacity of the general people and build disaster resilient communities. Communities, institutions and governments in Pakistan were oblivious of this requirement and duty in the past but now due to recent mega disasters and changing paradigms of disaster management, there is an increasing realization that trained and empowered communities are a key to a successful disaster management strategy. All sections of the society are to be made stakeholders in the process and are to be sensitized and trained in this regard. Following are the essential elements regarding community based awareness and capacity building:

Setting Objectives

Clear, specific and distinctive objective must be framed before starting the campaign. Clearly stipulated aims and objectives are the first step towards launching a successful awareness campaign. Its contents will be framed in accordance with the set objectives.

Awareness about the nature of the Hazard

The campaign must carry information about the nature, severity, dangers, extent, timing and duration of the hazard about which the campaign is being launched. This is the most vital information to be disseminated.

Preparation of messages for special communities

Social perspective must be kept in mind while preparing the campaign. The message must be socially acceptable, clearly stipulated and in simple and relevant

language which suits the specific community. Special persons and communities, especially, must be kept in mind while preparing messages for them.

Using Different means of communication

Like language, the means of communications is also very important because message would be effectively transmitted to the target population only when the suitable means of communication is selected for the purpose. The means of communications can be radio, television, cable network, email, social media, mobile messaging, posters, newspapers, advertisements, pamphlets, different competitions in schools and communities, reaching out to people through door to door campaign, mosques and schools, TV dramas and purpose based cartoons.

Stakeholders in Awareness Campaign

- Government and non-government institutions.
- Educational and research institutions.
- National and international media.
- Trade organizations.
- Local and elected representatives.

CBDRM Planning for Riverine & Urban Flooding, Sea Intrusion, Drought and Cyclone

Since CBDRM process starts with the assessment, so it is important for communities, exposed to the selected hazards, to develop and maintain historical profile including their frequency and intensity in their respective communities. Mapping the extent and duration of previous disasters and predictions, based on information provided by technical government agencies and indigenous knowledge, is also critical for communities to maintain.

Risk Assessment

- Historical data of previous disasters (at least 20 years).
- Nature, duration, intensity, frequency and losses (human, property and livestock).
- Identification of exposed elements (river banks, canals, major drainage facilities, houses)
- Assessment of vulnerabilities of elements at risk.
- Reasons for the vulnerabilities.
- Gauging local capacities (Transport, trained human resource, utility equipment, etc.)
- Listing and assessment of life line services and infrastructure (Roads and communication network, hospitals, schools, high ground, etc.)
- Livelihood options.
- Assessment of vulnerable groups (Children, women, elderly people and the poor).

CBDRM Planning

- Sensitization the community about local collective efforts.
- Formation of Committees (Vigilance, Flood Mitigation, Early Warning, evacuation, Coordination, resource Mobilization and Capacity Building etc)
- Defining the roles and responsibilities of different community committees..
- Resource Mapping
- Developing SOPs and triggers
- Evacuation routes
- Camping sites
- Identification of mitigation and prevention measures.

Plan Simulation and Drills

- Sharing the plan with all stakeholders of community.
- Involving notables and community elders including moderate religious and ethnic figures.
- Arranging frequent drills involving the men, women and children specially school children.

Mainstreaming DRR & CCA in to Development Process and Culture

- Undertake the structural Interventions on regular basis (Strengthening the vulnerable points).
- Campaign for planting the trees
- Volunteer removal of encroachments from the river beds and flood water ways.
- Implementation of flood resistant building codes.
- Introduction and promotion of alternative livelihood options.

- Climate Change adaptation measures especially livelihood adaptation.
- Liaison with concerned government departments for DRR and CCA compliant communities, housing, infrastructure, livelihoods, culture and development.

Sustainability of Plan

- Use of Humanitarian response facilities in Pakistan
- Involvement of literate and technically skilled individuals from community to update the plan on bi-annual basis
- Sharing the plan with local authorities for input and validation of data and plan financing
- Regular interaction of various committees and the masses
- Taking all stakeholders on board to make the plan sustainable on a long term basis.

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Asian Disaster Preparedness Center
SM Tower, 24th Floor 979/69 Paholyothin Road
Samsen Nai, Phayathai, Bangkok 10400 Thailand
Tel: +66 2 298 0682-92
Fax: +66 2 298 0012
E-mail: adpc@adpc.net
Web: www.adpc.net