

Chapter 1 *Getting Acquainted with Disaster Management-* **Becoming A Disaster Manager**

In your class VIII textbook “Together Towards a Safer India - Part 1” you studied the basic concepts and preparedness measures that need to be taken up for some of the major natural and human induced hazards that affect India. In class IX you will study not only these hazards but also the ways in which the effect of these disasters may be mitigated.

Let us try to understand the disasters - both natural and man-made and how they may be combatted.

Read the story - Tsunamijishermen struggle to cope.....

Story from BBC NEWS:

http://11news.bbc.co.uk/go/pr/fr//2/hu/south_asia/4534868.stm

Early morning In the heart of the southern SriLankan town of Galle, it's business as usual in the main fish market. Fish sellers call out to prospective customers to take a close look at the fresh catch laid out on stone blocks - lobster, jumbo prawns, kingfish and tuna. It's busy, noisy and far removed from the scene in December 2004, when the entire market was buried under a pile of rubble. But not everyone is happy and not every thing normal.



“Business is not good at all,” says Jayanta Gamage, a Fish seller. He explains that although the market has been rebuilt, the infrastructure supporting the industry is only slowly coming back to shape.

Jayanta Gamage says business has not picked up

“Many frshermen who used to supply fish to us from further down the coast simply sell their stock on the highway, because they are unable to get it across to us intime,” he says.

There are relatively fewer refrigerated trucks which transport the fish along the coast to the lucrative markets in Galle and Colombo. As for the wholesalers and middlemen, who form the crucial link between supplier and buyer - many of them are still to get back on their feet after the tsunami.

A drive further down the supply chain, to the fishing village of Weligama, illustrates the problem.

S.H. Ranjith, 40, has been a fisherman since he was 15. Owner of a fleet of boats, he lost six of them in the tsunami. "I got some help from NGOs and the Government who supplied me some nets and the engines for the boats," he says. "The rest of it was financed by my life savings and money I borrowed."

"It's only now that we have managed to look at livelihood programmes," says MGS Dhammasena, the District Tsunami Rehabilitation Coordinator.

Mr Dhammasena and other government officials also point out that the tsunami had left the entire administrative machinery in disarray.

"Many of us also lost family of our homes and possessions," he said. "Of course it's going to take time to get things going."

Based on your reading the story of the Sri Lankan fishing community, discuss the following questions with your partner :

1. What is the difference between a hazard and a disaster ?
2. What impact do disasters have on the society ?
3. When does a hazard become a disaster ?
4. How can the effect of disasters be reduced ?

Let us now study these terms in detail.

What is a Hazard ?

Hazard is a dangerous event, natural or human induced that could cause injury, loss of life or damage to property, livelihood or environment.

A hazard could be natural like earthquake, tsunami, volcanic eruption etc. Some of the hazards like floods, landslides, droughts are socio-natural hazards since their causes are both natural and human induced. For example; flooding in an area can take place because of excessive rain which is a natural phenomenon or because of lack of proper drainage facility which is because of human negligence. Some of the hazards are human-induced. Examples of some human-induced hazards are industrial accidents, rail, road and air accidents, terrorist attacks, dam failures, leakage of toxic waste, war and civil

strife etc. A community may be prone to multiple hazards for example; Gujarat is prone to earthquakes, but it is also frequently affected by floods and cyclones.

Activity 1 : Collect information about your area and identify the different hazards that your area is prone to and list them in to three broad headings i.e. natural, socio-natural and human-induced. Your teacher will now divide the class into three groups and ask each group to choose one of the following topics. After discussion, one student from the group will read out their findings on the topic.

Group I : Natural hazards

Group II : Socio-natural hazards

Group III : Human-induced hazards

What is a Disaster ?

A disaster whether natural or human-induced, is an event which results in widespread human loss. It is accompanied by loss of livelihood, property causing suffering and loss in a definite area, as shown in the picture.

Some of the common features that are normally seen in areas affected by disasters are :

Disruption in the normal functioning of the society, thereby affecting a large number of people.

Large scale loss to life, property, livelihood, thereby affecting the community which requires external aid to cope up with the losses.

A big blow to the country's economy.



*Village affected by Orissa Super Cyclone,
29th October 1999*

One of the recent examples of a hazard turning into a disaster is that of cyclone 'Sidr', which hit Bangladesh on 15th November, 2007.

Cyclone 'Sidr' hit Bangladesh on the evening of 15 November, 2007. The cyclone, originated from a depression over the Bay of Bengal on 11 November, hit offshore islands at 1830 hours and made landfall across the southern coast from Cox's Bazaar toward the Satkhira districts at 2030 hours local time. Heavy rains were experienced throughout the country, including the capital Dhaka. The first area hit by Cyclone 'Sidr' was Hiron Point and part of the mangrove forest Sundarbans in Bagerhat and Dublar Char Island in Barguna. According to the Bangladesh Meteorological Department, Cyclone Sidr had a radius of 500 kilometres with the eye of the storm 74 kilometres wide and wind speeds reaching between 220-240 kilometres per hour. The storm caused extensive damage, killing more than 3000 people and affecting more than 27 in 25 districts of Bangladesh. Immediate assessment reveals the need for food, clothing, shelter and intensive health care for those affected and the longer term perspective calls for rehabilitation of livelihood, infrastructure, health and educational services and increased shelter capacity. Many aid agencies, governments (like Government of India, UN Agencies and many NGOs) have come forward to support those affected and bring life back to normalcy.

The above news item clearly indicates that the cyclone was a disaster, as normal life in the southern district of Bangladesh was total disrupted and the country was in need of external aid to cope with the disaster.

Activity 2 : Look for more news articles on some of the recent disasters that have occurred in the recent past (earthquake in China, cyclone in Myanmar, serial bomb blasts in Jaipur etc.). Prepare a short write up on their social and economic impact on the community.

Study the following data for disaster occurrences between 1995 and 2004. It is evident that floods followed by wind storms and droughts are the most common natural hazards leading to disasters.

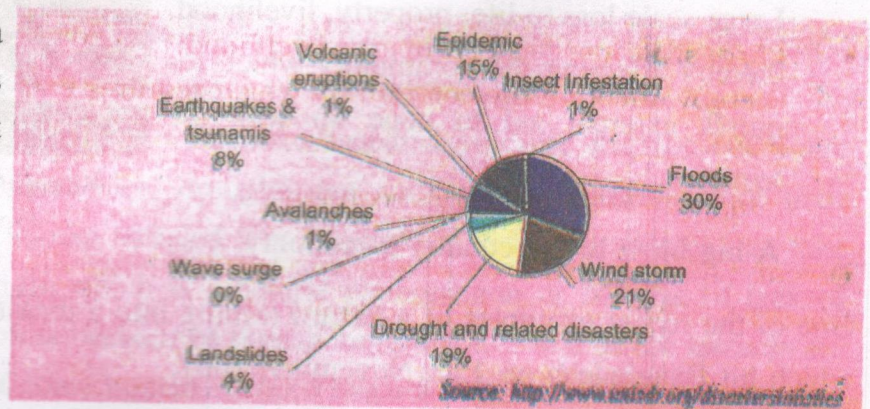


Figure 1.1: World distribution of disasters triggered by natural hazards.

Types of Disasters

Disasters can be categorized into various types based on the speed and origin/cause.

a. Based on the speed, a disaster can be termed as slow or rapid.

i. Slow onset disaster : A disaster that prevails for many days, months or even years like drought, environmental degradation, pest infestation, famine are some examples of a slow onset disaster.

ii. Rapid-onset disaster : A disaster that is triggered by an instantaneous shock. The impact of this disaster be short-lived or long-term. Earthquake, cyclone, flash flood, volcanic eruption are some examples of rapid onset disasters. (Source: Reducing Disaster Risk, UNDP, 2004).

b. Based on the cause, disasters can be natural or human-induced.

i. Natural disasters : A natural disaster is an event that is caused by a natural hazard and leads to human, material, economic and environmental losses, which exceed the ability of those affected to cope.

Some examples of natural disasters are the 2004 Indian Ocean tsunami, the 2008 earthquake in China, the 2007 cyclone in Myanmar, the recurrent droughts in Rajasthan and the annual floods in both rural and urban areas of northern and western India.

ii. Human-Induced disasters : A serious disruption of normal life triggered by a human induced hazard causing human, material, economic and environmental losses, which exceed the ability of those affected to cope.

Some examples are the 1984 Bhopal Gas tragedy, the 1997 Uphar Cinema fire in Delhi, Rajdhani Express train derailment in 2002, Kumbakonam school fire tragedy in 2003 Jaipur serial blasts in 2008, etc.

When does a HAZARD lead to a DISASTER ?

A disaster occurs when the impact of a hazard on a section of society is such that the people are unable to cope with the event, causing death, injury, loss of property and/or economic losses.

If an earthquake strikes a desert uninhabited by human beings, it would not cause direct and immediate damage to the society and thus, would not be termed as a disaster. On the other hand, the earthquake that struck Bhuj (Gujarat) in 2001 and killed more than 10,000 people, became a disaster owing to its immediate impact on the society.

What is Vulnerability ?

Vulnerability is the condition determined by physical, social, economic and environmental factors or processes, which increases the susceptibility of a community to the impact of hazards. (Source: Living with Risk, UN ISDR-2002).

During the Gujarat earthquake (2001), for example, people living in the old city of Bhuj with narrow roads, newly-constructed unsafe high-rise buildings and a high density of population faced more injuries and loss of life during the earthquake, than those living in the suburbs. The people in suburbs had broader roads and single/double-storied buildings and a lower density of population, which helped quick exit from falling buildings during the earthquake. Thus, we can say that people living in the old city of Bhuj were more vulnerable than those living in suburbs.

Among those who are more vulnerable to disasters are people who are socially and economically under-privileged. (For example, people living in low lying areas are prone to floods which thereby damage their houses and affect their livelihood.) Lack of resources also limits their ability to respond and cope with the disaster. In terms of vulnerability, young children, elderly, physically challenged are the ones who are likely to be affected more.

What is Risk ?

Risk is the probability of harmful consequences, or expected losses, such as deaths, injuries, loss of property and livelihood, disruption in the economic activity and environmental degradation resulting from interactions between hazards and vulnerable conditions. (Source: Reducing Disaster Risk, UNDP 2004).

After the 2004 tsunami, the village of Samiyarpettai in Tamil Nadu, reported fewer deaths in comparison with the other neighbouring villages. This was because the community members were better trained in search and rescue, evacuation and first aid. This helped them to respond effectively during the disaster thereby saving a large number of precious lives.

Activity 3 : List out people and structures that were vulnerable and at risk during the tsunami that hit the southern coast of the country on 26th December, 2004.

● **fishermen**

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Risks often exist within social systems. For example, better employment opportunities attract people from the rural areas to cities. However, lack of adequate financial resources and high land prices in the city often force these immigrants to settle in slums that are unsafe and vulnerable. During the recurrent urban floods in Mumbai, the poor living in slums faced higher adverse effects of floods (both immediate and long-term) than the others in the city. These effects included loss of daily wages, damage to workspace in homes, electrocution, water-borne diseases and others. As they do not own property they do not have insurance and are not always compensated by the government and aid agencies for their losses. Thus, their social position contributes to higher disaster risk during floods.

Now that we have had a clear idea of various terminologies that are normally used, let us now try and understand the meaning of the term 'Disaster Management'.

What is Disaster Management ?

Disaster Management covers the range of activities designed to maintain control over disasters/emergency situations and to provide a framework for helping people to avoid, reduce the effects of, or recover from impact of a disaster. These activities may be related to preparedness, mitigation, emergency response, relief and recovery (reconstruction and rehabilitation) and may be conducted before, during or after a disaster. (Source : Living with Risk, UNISDR2002).

There are different **phases** of Disaster Management. Study the diagram given below to learn the various phases of Disaster Management.



Disaster Strikes

Andhra Pradesh the largest state of India was severely battered by a cyclonic storm with a wind speed of over 200 kmph on 15th November, 1977 killing more than 10,000 lives and leaving more than 50,000 people homeless. A large number of people mainly the fishing community lost their livelihood. The total economic loss was around 3.78 billion rupees.



In 1990, Andhra Pradesh was struck by another severe cyclone. Though the impact on the houses was greater than 1977 due to increased population, the number of casualties was far less because of effective mitigation preparedness measures.

Cyclone 1977		
Death toll	People homeless	People affected
10,451	55,00,000	90,37,400

Cyclone 1990		
Death toll	People homeless	People affected
969	63,40,000	26,00,000

Phases of Disaster Management

Emergency Response & Relief

Immediately after government, community and NGO's extended relief to those affected. This included search and rescue, provision of food clothing, shelter and medicine to those affected.



Preparedness

Soon after the cyclone, emphasis was laid on community preparedness measure which were carried out by the Government/NGOs. Village Disaster Management Teams were formulated and trained and a large number of cyclone shelters & mounds were constructed in strategic location so as to accommodate villagers in case another cyclone strikes that area.



Rehabilitation and Reconstruction

Soon after the initial response and relief phase, rehabilitation and reconstruction initiatives were taken up by the Government, NGOs like construction of houses, roads and bridges, restoration of power and communication. This also included economic rehabilitation through livelihood support.

Mitigation

Implementation of effective preparedness of mitigation measure can reduce the adverse impact of disasters. Mitigation measures include promoting mangrove plantation, relocation of villagers to safer lands, practicing and promoting cyclone resistant construction techniques.

These phases are normally carried out simultaneously after a disaster. As soon as a disaster strikes a locality, immediate **response and relief¹** activities are carried out by the Government, Non Government Organisations [NGOs], various religious bodies like the Jain trust, Gurudwara Committee etc. This includes search and rescue of those affected, First Aid, provision of food, clothing, shelter, medicine to those affected etc.

Soon after the initial response and relief phase, **rehabilitation and reconstruction²** initiatives are taken up by the Government, NGOs and various other agencies which would help the affected community to come back to normalcy. Roads, permanent houses, power and communication networks are restored. This phase of disaster management also includes economic rehabilitation for those who have lost their livelihood.

As long term measures to reduce the impact of disasters, various structural and non-structural initiatives are taken up. Some of the structural measures include construction of disaster resistant buildings, raising the river embankments etc, and some non-structural measures include raising awareness and preparation of plans at the community level for better preparedness. These measures are termed as **mitigation³** measures. If effective **preparedness⁴** measures are taken into account, the impact of disasters can be reduced to a large extent and the community is better equipped to combat disasters.

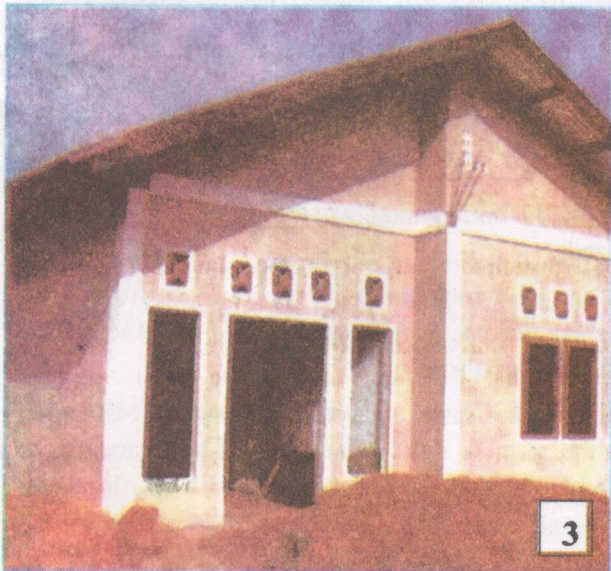
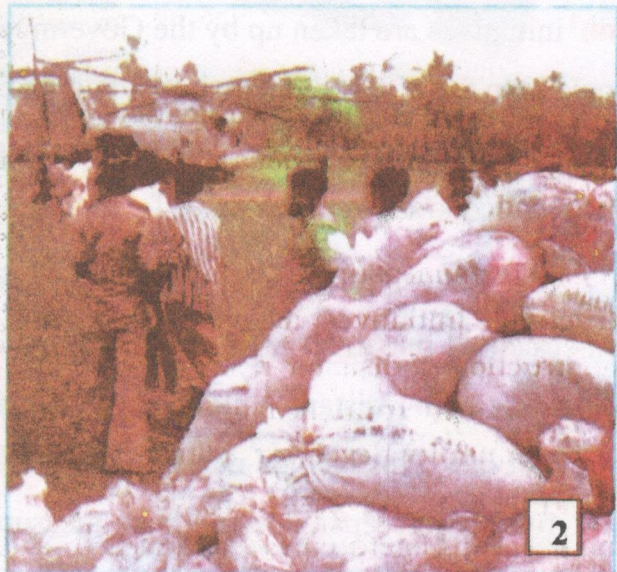
1. Response and Relief : Immediate measures taken up in anticipation of, during and immediately after a disaster to ensure that the effects are minimized.

2. Rehabilitation & Reconstruction : The operations and decisions taken after a disaster with a view to restore an affected community to its former living conditions, while encouraging and facilitating the necessary adjustments to the changes caused by the disaster.

3. Mitigation : Any action taken to minimize the extent of a disaster or potential disaster. Mitigation can take place before, during or after a disaster, but the term is most often used to refer to actions against potential disasters, Mitigation measures are both physical and structural, such as flood defences or strengthening buildings as well as non-structural, such as training in disaster management, regulating land-use and public education, among others.

4. Preparedness : Activities and measures taken before a hazard event to ensure effective response to the impact of hazards. It involves measures that enable governments, community and individuals to respond rapidly to disaster situations and cope with them effectively.

Activity 4 : Given below are pictures bases on the various phases of disaster management. Identify the various steps that are shown in the pictures and arrange them in the order of occurrence.



EXERCISE

1. Read the following two contrasting situations :

- a. Coastal Orissa is one of the most cyclone prone areas of India. On 29th October, 1999 a Super **Cyclone** of **wind** speed exceeding 250 kmph lashed across the **densely populated** coastal district of Orissa. **Torrential rain** persisted for more than two days. The **storm surge** with the height of almost 10 meters pushed its way more than 20 km inland, submerging vast areas, **devastating everything in its path....people, cattle, homes, trees, electric poles....**
- b. **The flag** in the bright colour signaling evacuation went up. Kabir was perched over a **large mound of earth** looking at this village. Slowly, the population was moving out, some carrying pink plastic bags and some with children and disabled people on their backs, being led by Mir, the **Earth Warning and Evacuation Task Force Member (TFM)**. They would all be together again in the huge **multi-purpose cyclone shelter** till the cyclone alert was called off. As the cattle were being herded to the mound, (that was created by the villagers last summer), with ropes to secure the animals. Kabir left to take a last look at the **food, water and medical supplies in the shelter**, that was **pre-positioned a few days ago, after receiving the warning**. He put this Shelter Management TFM badge on his arm as he picked up the activity kits for the children who always looked up to him for entertainment. It was 1991, Bangladesh, one of the most cyclone prone countries in the world, experienced a cyclone with wind speed reaching 250 km. per hour, killing around 1,40,000 people.

Match each of the items in column A with one of the items in column B (you may have more than one item on the left matching with the same item on the right).

Column A		Column B
1.	Cyclone	A. Disaster Management
2.	Wind (Gales)	B. Hazard Characteristics
3.	Densely populated	C. Community Bases Disaster Management
4.	(Torrential) Rain	D. Disaster Mitigation
5.	Storm Surge	E. Emergency supplies
6.	Flag	F. Hazard
7.	Large Mound of Earth	G. Disaster
8.	Early Warning and Evacuation Task Force Member	H. Vulnerability
9.	Food, water and medical supplies in the shelter	I. Early Warning System
10.	Multi-purpose cyclone shelter	
11.	Devastating everything in its path...people, cattle, homes, trees, electricity poles.	
12.	Pre-positioned (food, water and medical supplies).....warning.	

Now compare your answers with each other-

(Some options: 1-F, 2-B, 3-H, 4-B, 5-B, 6-I, 7-D, 8-C, 9-E, 10-E, 11-G, 12-A)

- Can a disaster be prevented ? Enumerate some of the ways through which impact of a disaster can be reduced.
- List the hazards in the mountain areas, coastal regions and plateau areas of India.
- List out at least 10 risk inducing factors in your home, school or office.
- What do we understand by mitigation ? Why is it important ? Give three examples of non-structural mitigation.