



# Reporting Disaster and Disaster Preparedness

A Training Handbook

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**Reporting Disaster and Disaster Preparedness**

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# **Reporting Disaster and Disaster Preparedness**

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Environmental Planning and Disaster Risk Management (EPDRM) in India aims at supporting partner institutions and facilitators in conceptualizing, establishing, managing and demoperating prototype national capacity building systems with a view to promoting sustainable resource management and facilitating adjustments in disaster risk management to climate change. By establishing a cascade system comprising national training providers, key zonal institutions and state-level institutions and developing standardized modular capacity building programmes, the programme will contribute to capacity building at training institutions and governmental authorities involved in disaster risk management and disaster mitigation and response.

Disaster risk management is a task that requires contribution from all the actors- government, civil society etc. Media plays a very important role before, during and after a disaster. The main objective of the media component of the EPDRM programme is to support the media to better and more efficiently perform their roles, functions and tasks in the context of Disaster Risk Management (DRM), i.e. information to the public, awareness building with regard to disaster risks and preparedness, warning in case of disasters, information on response, relief and reconstruction.

 <http://www.hrdp-net.in/>

 <http://www.media4drr.in/>

 <http://www.facebook.com/groups/media4drr/>

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# Preface

The Indian Subcontinent is one of the regions of the world that are most threatened by natural and man-made disasters. Predicted negative impacts of climate change not only further add to the stress on the ecosystems and human lives but also create a need for more efficient and timely disaster management strategies. Disaster risk management (DRM) is a task that requires contribution from a variety of actors, including –government at national, district and local level, NGOs, industry and business and civil society. Media plays a very important role before, during and after a disaster.

The main objective of the media component of the Environmental Planning and Disaster Risk Management (EPDRM) programme of GIZ in India is to enable journalists to better and more efficiently perform their roles, functions and tasks in the context of DRM, i.e. information to the public, awareness building with regard to disaster risks and preparedness, warning in case of disasters, information on response, relief and reconstruction. In order to achieve this objective, the project has been planned under different components, viz., orientation workshops for the practicing journalists in different high-on-disaster-risk states; facilitating a virtual platform for information exchange and knowledge sharing among participants from the orientation workshops as well as other experts; and developing curriculum on reporting disaster for the journalism students of various Indian journalism institutes. Orientation work-shops were conducted in seven states (Tamilnadu, Odisha, Gujarat, Sikkim, Uttarakhnad, Assam and Punjab) during 2010-2011. A Facebook community and a web portal have been established to facilitate the virtual exchange among the journalists and thematic experts.

In order to extend awareness and capacity building activities related to disasters to journalists, the project also facilitated development of a curriculum on reporting disaster to be used in journalism departments of universities and media training institutes. A core-group of experts and trainers from media training institutes, as well as from other relevant organizations was formed, which deliberated upon the overall structure and outline of the DRR curriculum required to be introduced to the students of journalism. A team of authors and editors had then put together the contents of the curriculum along with guidance on how to use the contents, which is being produced in the form of this handbook. This curriculum was piloted in September this year, with journalism students in the North Eastern Region of India, and inputs on the training methods used were also received from faculty members during a ToT of this curriculum.

This Training Handbook on "Reporting Disaster and Disaster Preparedness" provides basic concepts, case studies, and examples that can be customized as a module in a course or an entire course as part of the overall curriculum of a journalism course in Indian universities and institutes. We, as GIZ, hope that the Handbook will find wide acceptance among journalism faculty, students and support them in their preparedness for disaster reporting.

**Dr. Dieter Mutz**  
November, 2012



# How to use this training handbook

This training handbook on “Reporting Disaster and Disaster Preparedness” is meant to provide training methods and material for the trainers imparting training at Indian journalism schools, universities and institutes, to the journalism students.

The training handbook is divided into nine modules, providing information on various aspects of disaster risk reduction reporting. Each module indicates, in the beginning, the duration of the training. The unit of time for the purpose of this training has been kept at 45 minutes. Based on the experience of the authors and editors, each module has been assigned the number of units required to complete a module during the training. However, this is a very general estimate of the time requirements. The actual time needed to complete the module may vary according to the class size, background information available with the students on the issue areas, and other similar factors.

The material of this handbook can be delivered as separate sessions over varying time periods, ranging from 3 days to one semester. The minimum time period to deliver this course is suggested to be three days, for which a model agenda is provided as Annexure. However, for an effective learning, it is recommended to give enough time to the students for readings, case-study preparations, presentation, role plays etc and spread the course over a semester.

Each module contains two major sections in it:

1. Training methods, which suggest the appropriate and tested methodologies that can be used by the trainer for delivering the contents, viz., group discussions, lecture, role-play, field visit etc. It is assumed that the trainers will assess the time, resources available, feedback from the participants on the methodologies etc. and will customize the methods accordingly. The trainers are also encouraged to explore additional innovative methods for delivering the modules, based on the requirement of the group.
2. Training content, which is the information and knowledge available on the topic, written, contributed and peer-reviewed by thematic experts, trainers and journalists together. The contents include text, figures, tables as well as several examples from actual news reporting. For the purpose of this handbook, an effort was made to maintain each module under certain limit of pages, therefore at many places a brief overview has been provided and a reference/web-link to the detailed source of information has been provided. Trainers are advised to explore these references/links further to extract additional information, if required.

One important method suggested to the trainers in module 1 of this handbook is the role-play method, which can be used efficiently to develop interest and bring clarity on the concepts of DRR among the trainees.

The training material is enriched by several case studies and examples, specially developed for this training handbook, through a laborious process of procuring and analysing the news reports on different past and recent disasters. Trainers are encouraged to make use of these case studies in their training session to the maximum extent possible.

The training material enables the trainers to impart trainings to different specialization groups of students, and for varying duration, after necessary customization. The universities/

institutes/ trainers are also encouraged to translate this material into their local language for deeper outreach in their respective states. The material is suitable for journalism students who already have an exposure and understanding of the basics of journalism, therefore, making this material suitable for second year graduation journalism students and upwards.

The contents of this training handbook can be used in the existing form or after customization, for the purpose of teaching, training, research or any such other non-commercial purpose, with due acknowledgement to the publishers.

# Module 1

## Introduction

### TRAINING METHODS

**Training technique:** Group discussion, quiz

**Resources required:** Pen, paper, flipchart, white board, bold marker, power point, screen and projector

STEP I

#### INTRODUCING THE TERM DISASTER

**Ask trainees what do they understand by the term disaster?**

Write down on the white board what students explain. Based on the definition given by trainees – explain some working definitions of disaster from the module.



STEP II

#### DISASTER, HAZARD, VULNERABILITY – WHAT IS WHAT?

**How many types of disasters you think there are?**

Let's list them. The trainer writes the first one that comes to his/her mind, and then completes the list using module and [http://en.wikipedia.org/wiki/List\\_of\\_natural\\_disasters](http://en.wikipedia.org/wiki/List_of_natural_disasters).



STEP III

#### TESTING DISASTER KNOWLEDGE QUOTIENT

Use quiz from <http://environment.nationalgeographic.com/environment/natural-disasters/quiz-natural-disasters/>.

Take printouts/photocopies so that each trainee gets a copy. Ask them to fill in the answers followed by group discussions based on answers given by the trainees. Further, take this discussion to assess knowledge of trainees regarding disasters in India.

## Introducing the term 'disaster'

What is a 'disaster'? Most of us have some idea of what the word means. Many of us have been face to face with it, or know people who have had a first-hand experience of a disaster – a cyclone, an earthquake, floods etc. Some of you may think that there is nothing much to learn about reporting disasters. The modules that follow tell us that though most of us have some basic knowledge about disasters, there is much that we don't know, and there is much that we can learn about new ways of reporting and analysing disasters.

Just as there are multiple definitions of what is "news", there are many ways of defining and describing a disaster. **WHAT DO YOU UNDERSTAND BY THE WORD 'DISASTER'?**

**Here are some working definitions of disaster:**

- **A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.**
- **A 'disaster' occurs when a 'hazard' impacts on 'vulnerable' people.**
- **The combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disasters.**

As we proceed, you will get a better idea of what we mean by each of these words – disaster, hazard and vulnerability. As a starting point, let us start counting the types of disasters.

**Which of these are "disasters" in your opinion and what do you know about them? Which ones impact India?**

- Tsunamis
- Floods
- Storms and tidal waves
- Volcanic eruptions
- Tropical storms
- Hurricanes
- Typhoons
- Cyclones

- Extreme malnutrition
- Displaced populations
- Epidemics

- Industrial accidents
- Transport accidents

- Extreme temperatures – heat wave
- Drought
- Famine
- Wildfires/urban fires

Here is a fun way of testing your disaster knowledge quotient.

<http://environment.nationalgeographic.com/environment/natural-disasters/quiz-natural-disasters/>

Here are two quiz questions which test your knowledge about disasters in India.

1. Which Indian state was worst affected by Cyclone Aila and when did it take place?
2. Which government agency in India is responsible for monitoring seismic activities and under-sea earthquakes around the country?

*Answer: 1. West Bengal, 2009; 2. Indian Meteorological Department*

If you scan newspapers or follow news bulletins, you may think poor people are always more prone to disasters, be it floods or earthquakes or epidemics. Why do poor communities suffer so many disasters?

Now that we have some idea of what is a disaster and who is worst affected by it, we should ask ourselves some more questions.

- What aggravates disasters?
- What are the factors that result in the increased frequency, complexity and severity of these disasters?
- What should we do to prevent disasters?
- Is there a way to reduce damages when disasters take place?

As journalists, we are not called upon to be disaster managers, but having a better idea of some of the key issues underlying these questions can help us report better.

In the sessions to follow, we will explore many important questions – linkages between disaster and development; differential impact of disasters, the basic concepts and science of disasters, legislation related to disaster management, India's disaster profile and other related topics. We will also discuss in depth how to report before, during and in the aftermath of disasters through examples and case studies. There are do's and don'ts, ethical issues as well as practical tips to help you as you go along.

### **Learning Outcome:**

**At the end of this module, the participants will be able to have a basic understanding of the term Disaster and how is it different from hazard and vulnerability.**

## Module 2: Setting the context – the nexus between disaster and development

### TRAINING METHODS

**Training technique:** Amphitheatre

**Resources required:** Flip chart, whiteboard, stick pads, projector, screen, audio-visual facilities, Powerpoint presentation

#### STEP I

### SETTING THE CONTEXT

**Training technique:** Interactive discussion

**Resources required:** Stick notes, pen

Ask trainees to pen down three disasters that they remember on a stick pad.

Collect all the notes and paste on the white board.

Take out common disasters that most of the students remember.

Ask them why they remember these specific disasters<sup>1</sup>, and use this point to discuss why some disasters get more attention than others.



#### STEP II

### ROLE OF MEDIA IN DISASTER RISK REDUCTION AND CHALLENGES FACED

**Training technique:** Group discussion

**Resources required:** Flipcharts, bold markers

Ask trainees what kind of stories they remember from the above mentioned disasters (most of the trainees may talk about stories covered during the event) and take this discussion forward to explain the role media professionals can play in disaster risk reduction and challenges they face in keeping disaster story 'alive' in the media. Keep noting the main points/events on the flip charts and use flip chart to facilitate discussion.



<sup>1</sup> Keep a ready list of major disasters and some not so major



**STEP III**

**5WS AND 1H OF DISASTER RISK REDUCTION**

**Training technique: Group work**

**Resources required: Flipchart, bold markers**

Start discussion with trainees on why disasters happen (use recall method for difference between hazard and disaster from previous module), what are the causes and consequences, who are affected, when and where are disasters more likely to take place. After setting context and introducing the topic, divide trainees into a group of 3-4/5-6 in each group (size of the group may vary depending on the total size of the group). Make sure that you have at least 5 groups in all. Assign each group a sheet from the flip chart and a bold marker.

Of the five groups, group I will focus on Why; group II on what; group III on who; group IV on where and when and group V on how are events related to covered in the media (including social media).

Use these flipcharts to explain causes of disasters, its impact on communities and overall development; need to cover such issues in the media and how media covers disaster related issues. Also, use these flipcharts to establish linkages within the Ws and H of disaster risk reduction.



**STEP IV**

**INTRODUCING STORIES ON DISASTER RELATED ISSUES**

**Training technique: Lecture based and group discussion**

**Resources required: examples (print and television) of stories on disaster related issues**

Keep a stack of examples from both print and television media to illustrate what kind of stories have been covered in the media. Take examples from both national and international media. Take five stories<sup>2</sup> capturing face of the disaster from different angles and perspective. Take first example and give students 5-10 minutes to read the article, and thereafter discuss the story on disaster as an issue and journalistic skills used (sources, ethics, code of conduct etc.). Repeat the same technique for other print and television stories. The idea is to establish a connection among trainees and the topic and help them elucidate on what's available and what can be done.

<sup>2</sup> Keep sufficient photocopies of each story, so that each trainee has his/her own copy.

## Setting the context

Rightly or wrongly, some disasters get more attention than others. There are many reasons why this is so. To most media persons, and media houses, the ‘who’ and ‘where’ of disasters can be more important than the ‘why’. The level and intensity of coverage of a disaster is greatly dependent on proximity, levels of interest of readers/viewers and the economic stakes involved, rather than the scale of the actual suffering, although of course there are some disasters so huge that they make it to the front pages or prime time television irrespective of where they take place or who is affected.

The challenge facing journalists is how to communicate the face of disaster over and beyond the immediate event and how to make disasters in a faraway place seem closer. This means taking on board the pre-disaster scenario, including what is being done or not done in terms of disaster preparedness, comparing it to other places which have faced similar situations, capturing the multiple dimensions of the disaster, and tracking the aftermath. The ultimate goal is to harness the power of media to reduce the vulnerability of communities to disasters and build safer and more resilient communities. Getting editors to continuously focus on such issues so that they remain ‘alive’ and act as a warning to policymakers is the big challenge.

The risk of disasters occurring worldwide is increasing due to the expansion of slums, the increasing vulnerability of rural livelihoods to deteriorating ecosystems. These are compounded by the threat of climate change with its resultant impact on water supply, agriculture and biodiversity.

The risk of disasters occurring worldwide is increasing due to the expansion of slums, the increasing vulnerability of rural livelihoods to deteriorating ecosystems. These are compounded by the threat of climate change with its resultant impact on water supply, agriculture and biodiversity. While hazards are largely unavoidable, especially with the growing threat of climate change, they only become disasters when communities’ coping mechanisms are unable to manage their impacts. The world’s poorest and most vulnerable people therefore are those most at risk during disasters. Disasters not only destroy individual lives and families, they have an enormously debilitating impact on the development of resource-poor communities. That is why it is vital for the media to understand that disaster reportage is not a one-shot story. Disasters disrupt and disruptions can have long-term impacts on livelihoods, health, education, gender dynamics and other areas. But it is important to point out that disasters also offer an opportunity to build back better or set things right not only for the benefit of the affected populations but others. This is one way of ‘mainstreaming’ a disaster story to make it interesting to a wider constituency and give it a longer shelf life.

Disasters and development are closely linked. Disasters can both destroy development initiatives and create development opportunities. Development schemes can both increase and decrease vulnerability. Disasters set back years of development initiatives e.g. transport and utility systems are destroyed by a flood. But rebuilding after a disaster provides significant opportunities to initiate development programmes. A self help housing programme to rebuild housing destroyed by an earthquake teaches new skills, strengthens community pride and leadership and retains development dollars that otherwise would be exported to construction companies. But development programmes can also increase an area’s susceptibility to disasters. A major increase in livestock development leads to overgrazing, which contributes to desertification and increases vulnerability to famine.

Disasters were conventionally seen in the context of emergency response – not as a part of long term development programming. When a disaster did occur, the response was directed to emergency needs and cleaning up. Communities under disaster distress were seen as unlikely places to institute development. The post-disaster environment was seen as too turbulent to promote institutional changes aimed at promoting long term development

**BOX 2.1:**

The relationship between disasters and development can be summed by the following concepts:

- Development can increase vulnerability
- Development can reduce vulnerability
- Disasters can set back development
- Disasters can provide development opportunities
- Disaster effects vary with the hazard type causing the disaster
- Vulnerability varies between different societies and economies

Social media has been a game changer impacting disaster management and disaster reportage. Journalists are now on Facebook and Twitter. So are humanitarian agencies such as Médecins Sans Frontières (MSF). A striking example of how this can help was the massive and rapid global response to the devastating earthquake in Haiti on 12 January 2010 when a 7.0 strength quake killed an estimated 200,000 people and levelled the capital Port-au-Prince in 15 seconds. Within hours of the earthquake, organisations engaged in disaster management had launched full-fledged online campaigns to inform the world of the actions they were taking to support the victims and how the public could help. Non-governmental organisations tapped their supporters through Facebook, followers on Twitter, subscribers on RSS feeds and text messages.

Technology has made it easier for the government and non-governmental institutions engaged in disaster relief and management to tell their tale. This narrative, whether transmitted through booklets or on the YouTube, contains valuable information. But it is easy to miss the emerging concerns in the flood of statistics. It is the media's job to remain vigilant, ask the right questions, and turn the spotlight on the gaps, alongside the stories of individuals who see opportunities when faced with barriers, and institutions that forge partnerships to build resilient communities.

While news is going online within seconds, official response to a disaster typically takes much longer. Therefore, the first few reports from disaster zones often focus on official neglect, mismanagement and so on. One reason for this is a communication gap between officials and the media in the immediate aftermath of a disaster. The nomination of an official to provide a continuous flow of credible information can minimise this gap.

With time, public and media pressure usually fuel an improved response from government agencies. The situation on the ground looks better, generating more 'positive coverage'.

Today, there are new tools available to help a journalist or a development professional get information across to the public faster than before. This, in turn, has spurred the amateur, now called the 'citizen journalist', to provide independent reports and analyses on many areas of public interest, including post-disaster situations. Technology is one among many factors that can promote better coverage of a disaster.

An equally relevant issue in this context are the changes within the traditional media. While the number of disasters is increasing, newspapers are closing down or reducing the number of pages, reporters are being laid off, and news gathering budgets are being slashed. India may have been less affected than many countries in the industrialised world but it has not been immune to these shocks.

Against such a backdrop, field trips to disaster sites to do follow ups, tracking nuances which may have been missed out in the hurry of reporting the immediate, are less likely. More likely are trips sponsored by aid agencies, NGOs and corporates with stakes in the disaster, and with an eye on publicity. The end result is 'positive coverage' – not necessarily bad, and on occasions worthwhile as it draws attention to issues/personalities making a contribution. But there is a danger that this can lead to selective and stereotypical portrayal of a calamity; with preferential treatment towards those who have the resources to fund the roving reporter.

Despite these changes, the key issue is still information. Disaster affected people need information as they need shelter, water, medicine and food. Information can save lives, livelihoods and resources. Yet aid organisations focus mainly on gathering information for them selves and not enough on exchanging information with the people they aim to support.

The media plays a critical role in disseminating information, and the media in turn needs timely information. There is a strong case for officials, development practitioners and the media persons to better understand one another's needs and collaborate in disaster management.

How fast and accurately disaster managers can get information across to the media determines the images of the disaster that go out to the public. Logistics may not always permit offering as much information as the media seeks. But even amid constraints, a lot is possible.

### **Asian tsunami, the turning point in capturing the face of disaster**

The 26 December 2004 Asian tsunami marked a turning point in the history of disaster coverage. The tsunami struck just off Sumatra, Indonesia, in a fault line running under the sea. The rupture caused massive waves, or tsunamis, that hurtled away from the epicentre, reaching shores as far away as Africa. At least 230,000 people were killed and the livelihoods of millions were destroyed in over 10 countries. But Asia which has the largest TV audience in the world and fastest growing internet and mobile phone markets failed to provide any public warning of the disaster. The tsunami communication failures triggered much soul searching in the global humanitarian community and led to greater awareness about information as a vital form of aid in itself.

Government agencies as well as the media in Indonesia, Thailand, Sri Lanka, India and the Maldives – the countries worst hit by the 2004 tsunami – had not done a good job of educating the people on the possibility of a tsunami and its consequences nor did they provide early warning after the earthquake had been detected. But once disaster struck, traditional and new media did a good job of spreading the word.

### **How does one communicate the face of disaster?**

There are many ways of capturing the face of a disaster. The starting point is to recognise that media is the vital link between the scene of the disaster and the rest of the world. Often once the media glare moves away from the site of a disaster, official concern also fades. It is vital for journalists to keep reporting the aftermath of a disaster.

## Victims or survivors?

Media portrayal of people affected by a disaster is key to the world looking at the people as victims or survivors. This image often decides how much aid reaches a disaster area. The coverage of women and children in any disaster situation is a case in point. Most media reports paint women as victims or limits them to portraits of bereavement. But there are stories which also show that the disaster affected can be agents of change. The images portrayed by the media have an impact that can be either empowering or disempowering. Disasters produce victims. But a victim does not remain in the same frame of mind for ever. Aided or unaided by external agents, tapping into inner resources, the 'victim' often evolves into a 'survivor'.

The tale of such a survivor/survivors against the canvas of devastation, official action/inaction, volunteer rescue and relief effort, makes a powerful story, e.g. in Uttarakhand, seismic retrofitting of four Government Inter Colleges in Dehradun and Tehri being undertaken presently in collaboration with NTU Singapore and IIT Roorkee. More than 6,000 masons have been trained in earthquake safe construction and guidelines have been prepared for the purpose.

A disaster in one part of the world can be used as a peg to examine disaster mitigation measures or the lack of them nearer home. For example, one obvious story in the wake of an earthquake is to check if infrastructure built after the disaster incorporates quake resistant building technology and how this is monitored. **There is a model role play in Annexure 1.**

Disasters expose the fault lines of society and exacerbate existing problems. Communities which live on the margin and lack education and awareness are the worst hit. Lack of awareness among disaster hit communities of their rights also impacts access to relief and also what is done to minimise losses from disasters in future. Sometimes infrastructure built in the aftermath of a disaster, like a counselling centre, lies unused because the community was not sufficiently involved and they do not demand that such facilities be equipped with resources and manpower.

### Learning Outcome:

**At the end of this module, the participants will be able to place disasters in the overall context of development, and appreciate the role that media can play in bringing forward this context.**



## Module 3:

# An overview of conceptual and technical aspects of disaster management

### TRAINING METHODS

**Training technique:** Lecture based using Powerpoint presentation

**Resources required:** White board, projector, screen, laptop, Powerpoint presentation for module 3 (3 parts)

### STEPS

Start the lecture with advantages of mass media in educating, warning, informing and empowering people to take practical steps to protect themselves from natural hazards. Following from here, use Powerpoint presentation to introduce basics of disaster management – trends, definitions etc.

Use Powerpoint to start discussion on natural and non-natural disasters, disaster continuum and use the white board to highlight the key point. At the end of the lecture, use these points on white board for recall.

## Introduction

The media forges a direct link between the community and emergency organisations and plays a very important role in disseminating vital information to the community before, during and after disasters. The media assists in the management of disasters by educating the public about disasters; early warning; gathering and transmitting information about affected areas; alerting government officials, relief organisations and the public to specific needs; and facilitating discussions about disaster preparedness and response for continuous improvement. To help the media fulfil these roles, direct working relationships between the media and disaster management organisations should be established and maintained.

Experience shows that regular interactions with the media before a disaster aids the effective flow of information and lays the groundwork for effective working relationships in the aftermath of a disaster. Therefore it is of paramount importance that media professionals are aware and oriented towards the various facets of disaster management which would enable objective, analytical and purposeful as well as impactful disaster related reporting.

Reducing loss of life and property caused by natural hazards is a compelling objective now receiving worldwide attention. It is now increasingly believed that the knowledge and technology base potentially applicable to the mitigation of natural hazards has grown so dramatically that it would be possible, through a concerted cooperative and coordinated effort, to save many lives and reduce human suffering, dislocation, and economic losses simply through better information, communication and awareness.

Timely mass media communication about impending disasters can lead to appropriate individual and community action, which is the key to implementing effective prevention strategies including evacuation and survival of people. Such communication can educate, warn, inform, and empower people to take practical steps to protect themselves from natural hazards.

The role of media, both print and electronic, in informing the communities and the authorities during emergencies thus becomes critical, especially the ways in which media can play a vital role in public awareness and preparedness through educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, helping relief organisations and the public focus on specific needs; and even in facilitating discussions about disaster preparedness and response. During any emergency situation, people seek up-to-date, reliable and detailed information.

Reliable and timely information provided through the media can help people overcome any kind of fear and fatalism during and after an emergency. Indeed, the availability of reliable and timely information and knowledge about an event and the resulting needs help to improve solidarity and also create an atmosphere conducive to collective response for sharing the humanitarian challenges created by disasters.

## 10 disaster-related statistics and trends that one should know before writing a disaster risk reduction story (Source: UNISDR)

### 1 MORE THAN 226 MILLION PEOPLE ARE AFFECTED BY DISASTERS EVERY YEAR

In 2010 alone, 373 disasters resulted in the deaths of 226,000 and affected 207,000 persons. Over the decade 2000-10, 400 disasters accounted for 98,000 deaths and 226 million affected each year. In total, 1,077,683 people lost their lives while 2.4 billion were affected by disasters during the decade. (Source: Centre for Research on the Epidemiology of Disasters, CRED).

*Trend: More people will be at greater risk in the future as more people will be living in unsafe urban settlements, especially in coastal areas exposed to floods, cyclones and storms. The trend shows a constant increase, even excluding major events with over 10,000 deaths such as the tsunami in the Indian Ocean in 2004, Cyclone Nargis in 2008, and the Kashmir, China and Haiti earthquakes in 2005, 2008 and 2010 respectively.*

### 3 FLOODS AND STORMS ARE HAZARDS THAT AFFECT MOST PEOPLE

Disasters resulting from such natural hazards as cyclones, storms, floods and landslides affect most communities. Such weather-related disasters represented about 81 per cent of all events, 72 per cent of all economic losses and 23 per cent of fatalities for the period 2000-10. On average, about 37 million people are affected every year by cyclones, hurricanes and typhoons, nearly 366,000 by landslides and 102 million by floods (Source: CRED).

*Trend: More people are living in climate risk hotspots. Of the 33 cities that will have at least eight million residents by 2015, 21 are in coastal areas. Coastal flooding is expected to increase rapidly due to sea level rise and weakening of coastal ecosystems such as coral reefs impacted by sea temperature rise.*

### 5 POOR PEOPLE ARE THE MOST VULNERABLE

Poor people are more affected by disasters than any other economic group. This is true both in developing and developed countries. All countries are vulnerable to natural hazards, but most of the 3.3 million deaths from disasters in the last 40 years have been in poorer nations. Poor people are also the ones who suffer the greatest long-term consequences of disasters as they have no insurance and no means to recover quickly; they often lose their homes, jobs and livelihoods, which make them more vulnerable to the next disaster.

*Trend: As more poor people concentrate in urban slums, the numbers vulnerable to disasters will also increase. Three billion of the world's people live in poverty on less than US\$2 per day and 1.3 billion on less than US\$1 per day. According to UN-Habitat, by 2030, nearly three billion people will live in slums.*

### 2 EARTHQUAKES AND DROUGHTS ARE THE BIGGEST KILLERS

More than 680,000 people died in earthquakes between 2000 and 2010, mainly due to poorly constructed buildings and infrastructure. Collapsing buildings and fires following an earthquake are often the prime causes of death. The highest risk levels occur in middle-income countries that have not adequately planned or regulated urban growth. Earthquakes are the deadliest disasters in all continents, but droughts remain the highest disaster killer in Africa. Since 1980, drought and associated famine have claimed nearly 558,000 lives and affected more than 1.6 billion people (Source: CRED).

*Trend: As cities continue to grow and as more people crowd into poorly built housing settlements, the trend of earthquake related deaths will probably continue to rise. In the years to come, climate change will also be a major trigger for more droughts throughout the world.*

### 4 ASIA IS MOST AT RISK

Asia continues to be the most affected continent, with more than 62.5 per cent of deaths caused by disasters and 89.7 per cent of the affected people. Africa, Asia and the Americas together account for 87 per cent of the total deaths associated with disasters during the period 2000-10. Europe and North America are less affected in terms of death and injury but more in terms of economic impacts. The 66 disasters reported in Europe in 2007 accounted for 28 per cent of the world's economic losses from natural hazards but five per cent of people killed globally. (Source: CRED)

*Trend: According to the fourth report of the Intergovernmental Panel on Climate Change in 2007, nearly 200 million people today live in coastal flood zones; in South Asia alone, the number in such areas exceeds 60 million people.*

## 6 WOMEN, CHILDREN AND DISABLED ARE AMONG THE MOST VULNERABLE

Women and children are 14 times more likely to die than men during a disaster, according to the International Union for Conservation of Nature. In industrialised countries, more women than men died during the 2003 European heat-wave; many more African-American women were affected by Hurricane Katrina in 2005 than men. In many countries, women have sub-ordinate positions, restricted mobility, less educational opportunity, less voice in decision making and poorer employment, all of which increase their vulnerability. During Hurricane Mitch, in 1998, a disproportionate number of street children in Central America were affected. Save the Children reports that more than 50 per cent of all those affected by disasters worldwide are children.

*Trend: There has been some progress with women and children vis-à-vis awareness raising and preparedness. But as long as these two groups continue to be largely excluded from disaster risk reduction decision making and education, progress will remain poor.*

## 8 SMALL-SCALE DISASTERS CREATE LONG-TERM IMPACTS

Tens of thousands of small-scale disasters occur each year throughout the world because of flooding, landslides, fires and storms. The impact of small disasters can be just as damaging as large ones, causing injury and death, undermining livelihoods and leading to chronic poverty. This is very relevant in the context of the Indian subcontinent.

*Trend: Small-scale disasters are often poorly reported but have an increasingly large impact on development and poverty.*

## 7 ECONOMIC DAMAGE FROM DISASTERS IS ON THE RISE

From 2000 to 2010, economic damage as a result of disasters came to about US\$1 trillion; in 2010 alone, the total estimated damage was US\$109 billion. Damage in the past two decades is significantly greater than in earlier decades. This could reflect greater exposure, or better reporting, or both. Rich countries (United States, Europe, and increasingly Asia) incur greater absolute damage as the value of their infrastructure is higher. The damage is least in Africa, where the poor possess little. The 2005 Indian Ocean tsunami cost US\$10 billion whereas Hurricane Katrina cost more than US\$130 billion in the United States. The average cost of a disaster in a highly developed nation is US\$636 million, a medium-developed nation US\$209 million and low-income nation US\$79 million.

*Trend: A joint report from the World Bank and United Nations indicates that annual global losses from natural hazards could triple to US\$185 billion by the end of this century, even without calculating the impact of climate change. Climate change could add another US\$28-68 billion more in damages each year as tropical cyclones alone are predicted to become more severe and frequent.*

## 9 LESS THAN 0.7 PER CENT OF THE TOTAL RELIEF AID GOES TO DISASTER RISK REDUCTION

According to World Bank, only 0.1 per cent of international humanitarian aid went to disaster prevention in 2001 and 0.7 per cent in 2008. At the Second Session of the Global Platform on Disaster Risk Reduction in 2009, participants agreed to target the equivalent of 10 per cent of humanitarian relief funds for disaster risk reduction work. Similarly, a 10 per cent figure has been proposed as a target share of funding for post-disaster reconstruction and recovery projects as well as national preparedness and response plans. Calls were made for at least one per cent of all national development funding and all development assistance funding to be allocated to risk reduction measures.

*Trend: Disaster risk reduction is often seen as a long-term solution, whereas it is really a short-term solution with immediate returns that will considerably reduce poverty, climate change impacts and disaster risks.*

## 10 PREVENTION PAYS

Chile's 8.8-magnitude earthquake in 2010 killed only one person out of every 595 affected (on account of implementation of sound building codes and other disaster risk reduction interventions); Haiti's earthquake, while 500 times less powerful, killed one in every 15 affected. Despite the great loss of life as a result of the earthquake and tsunami in Japan in 2011, more lives would have been lost and damage would have been far greater had the Japanese government not invested 5 per cent of their annual budget in disaster risk reduction (DRR) in the past 15 years; investments made in building codes and preparedness measures after a 1995 earthquake in Japan saved lives in 2011.

*Trend: Investing in DRR is a triple win – it helps reduce the impacts of hazards, decreases poverty and allows communities to adapt to climate change. DRR is not about asking for more money but for using development and humanitarian aid money in different and innovative ways to promote risk resilience.*

## Basics of Disaster Management

India's geo-climatic conditions as well as its high degree of socio-economic vulnerability make it one of the most disaster prone countries in the world.

A disaster is an extreme disruption of the functioning of a society that causes widespread human, material or environmental losses that exceed the ability of the affected society to cope with its own resources. Disasters are sometimes classified according to whether they are "natural" or "human-made". Disasters caused by floods, droughts, tidal waves or earth tremors are generally considered natural disasters. Disasters caused on account of industrial or chemical accidents, environmental pollution, transport accidents and political unrest are classified as human-made or human-induced.

A more contemporary and social understanding of disasters, however, views this distinction as artificial since most disasters result from action or inaction by people and their social, political, economic, and cultural structures. This happens by people living in ways that degrade their environment, developing and over populating centres of habitation (rural and urban).

### Etymology

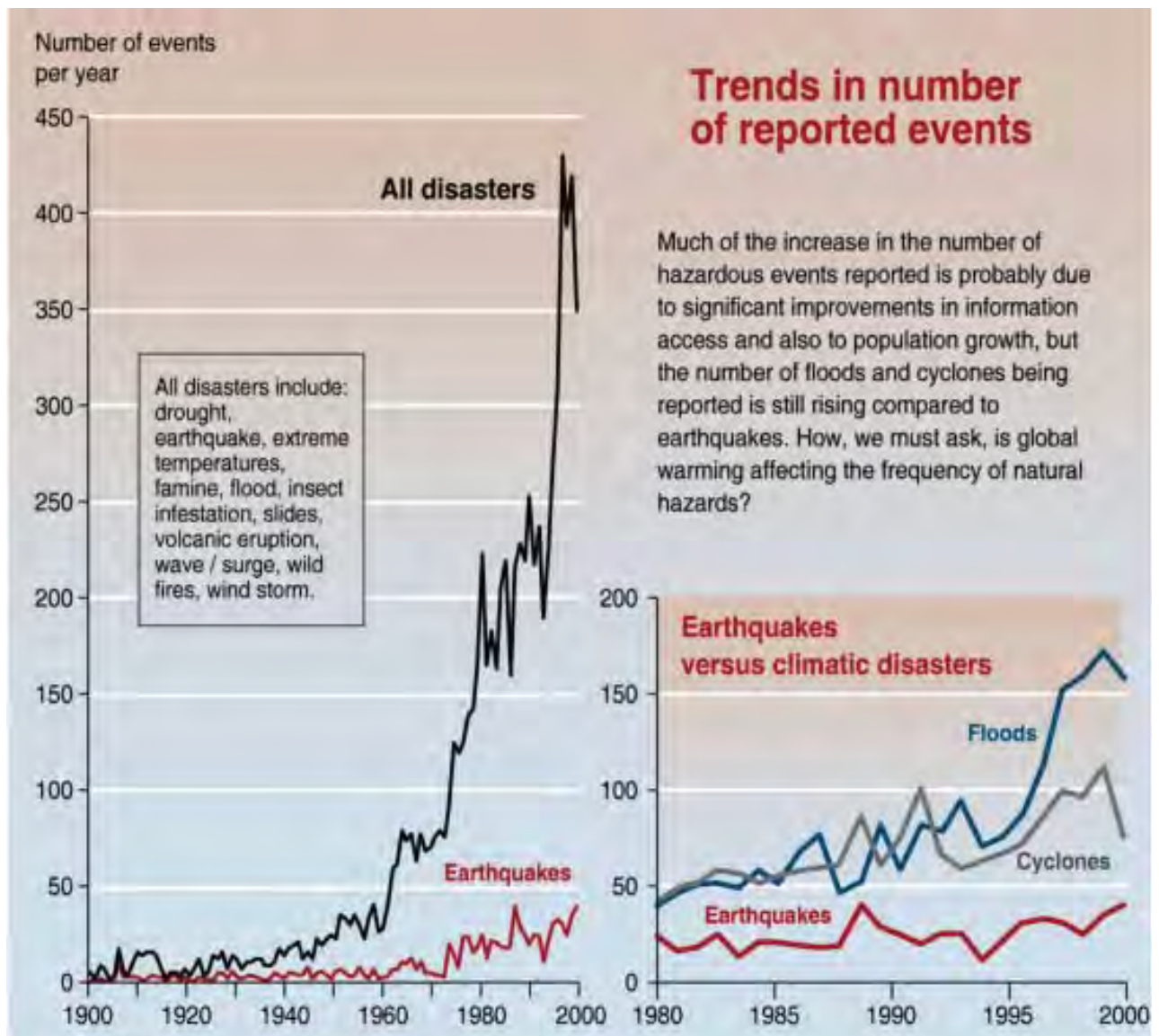
The term 'disaster', meaning 'bad star' in Latin, is defined as an impact of a natural or human-made hazard that causes human suffering or creates human needs that the victims cannot meet without assistance. The word's root is from astrology and implies that when the stars are in a bad position, a bad event is about to happen. In a recent document published by the United Nations Development Programme (UNDP) in the Americas, a disaster is defined as "a social crisis situation occurring when a physical phenomenon of natural, socio-natural or anthropogenic origin negatively impacts vulnerable populations ... causing intense, serious and widespread disruption of the normal functioning of the affected social unit".

**India's Disaster Management Act 2005**, defines disaster as *"a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such nature or magnitude as to be beyond the coping capacity of the community of the affected area."* Officially, United Nations defines disaster as *"the occurrence of sudden or major misfortune which disrupts the basic fabric and normal functioning of the society or community"*.

With growing population and infrastructure the world's exposure to natural hazards is witnessing a steep increase. This is particularly true as the fastest population growth is in coastal areas (with greater exposure to floods, storms and tidal waves). To make matters worse any land remaining available for urban growth is generally risk-prone, for instance flood plains or steep slopes subject to landslides. The graphs above show a steep increase in disasters. This raises several questions.

- Is the increase due to a significant improvement in access to information?
- What part does population growth and infrastructure development play?
- Is climate change behind the increasing frequency of natural hazards?

Figure 1: Trends in natural disasters (Source: Centre for Research on the Epidemiology of Disasters (CRED))



#### Emerging trends in disaster impact, hazards and vulnerability patterns

- More than 90 per cent of natural disaster related deaths are in developing countries
- The global trend is of fewer deaths but higher economic losses due to disasters
- Hazards and vulnerability are constantly shaped by dynamic and complex socio-economic and ecological processes and get compounded by stresses within individual societies.

There are many reasons for escalation in the frequency of disasters, such as new settlement patterns, population growth, increased rural-to-urban migration, emerging poverty levels and trends, the impact of development processes, new forms of vulnerabilities related to technological and industrial developments, emergence of virulent biological threats, ecological degradation, phenomena like El Niño/La Niña, climate change and the potential for rising sea levels, affecting the patterns and intensity of hydro-meteorological hazards.

**Table 1: Types of natural and non-natural disasters**

i. Water and climate related disasters	a) Floods and drainage management b) Cyclones c) Tornadoes and hurricanes d) Hailstorm e) Cloud burst f) Heat wave and cold wave g) Snow avalanches h) Droughts i) Sea erosion j) Thunder and lightening k) Tsunami
ii. Geological related disasters	a) Landslides and mudflows b) Earthquakes c) Dam failures/ Dam bursts d) Minor fires
iii. Chemical, industrial and nuclear related disasters	a) Chemical and industrial disasters b) Nuclear disasters
iv. Accident related disasters	a) Forest fires b) Urban fires c) Mine flooding d) Oil spills e) Major building collapse f) Serial bomb blasts g) Festival related disasters h) Electrical disasters and fires i) Air, road and rail accidents j) Boat capsizing k) Village fire
v. Biological related disasters	a) Biological disasters and epidemics b) Pest attacks c) Cattle epidemics d) Food poisoning

Source: High Powered Committee Report-1999

Note: After 2004, Tsunami has also been included in the list of disasters.

## Types of natural and non-natural disasters

Disasters are often classified according to their causes (natural vs. human-made), and speed of onset (sudden vs. slow)

### A. Causes

**1) Natural Disasters:** These types of disasters are caused by biological, geological, seismic, hydrologic, or meteorological conditions or processes in the natural environment e.g. cyclones, earthquakes, tsunamis, floods, landslides, and volcanic eruptions.

#### ***Cyclones, Hurricanes or Typhoons:***

Cyclones develop when a warm ocean gives rise to hot air, which in turn creates convectional air currents. Cyclones occur when these conventional air currents are being displaced. The term hurricane/typhoon is a regionally specific name for a “tropical cyclone”. In The Pacific Ocean they are called ‘typhoons’; in the Indian Ocean they are called ‘cyclones’; and over the North Atlantic and Caribbean Basin, they are called ‘hurricanes’.



**Earthquakes:** An earthquake is a trembling or shaking movement of the earth's surface, resulting from plate movements along a fault-plane or as a result of volcanic activity. Earthquakes can strike suddenly, violently, and without warning at any time of the day or night. The following terminologies are associated with earthquakes: epicentre, fault, magnitude and seismic waves. The intensity of the earthquake is measured in either Richter scale or magnitude moment scale.



**Tsunami:** A tsunami is an ocean wave generated by a submarine earthquake, volcanic eruption or landslide. It is also known as a seismic sea wave. It is not a tidal wave.



**Floods:** This phenomenon occurs when water covers previously dry areas, i.e. when large amounts of water flow from a source such as a river or a broken pipe onto a previously dry area, or when water overflows banks or barriers. Floods can be environmentally important to local ecosystems. For example, some river floods bring nutrients to soil such as in Egypt where the annual flooding of the



Nile River carries nutrients to otherwise dry land. Floods can also have an economic and emotional impact on people, particularly if their property is directly affected. Having a better understanding of what causes flooding can help people to be better prepared and to perhaps minimise or prevent flood damage.



**Landslides:** The term landslide refers to the downward movement of masses of rock and soil. Landslides are caused by one or a combination of the following factors: change in slope gradient, increasing the load the land must bear, shocks and vibrations, change in water content, ground water movement, frost action, weathering of rocks, removal of, or changing the type of vegetation covering slopes. Landslides can also be triggered by such as rains, floods, earthquakes, as other natural hazards well as human-made causes, such as grading, terrain cutting and filling, ill-planned road building etc. They can occur in developed areas, undeveloped areas, or any area where the terrain has been altered for roads, houses, utilities, buildings etc.

**2) Human-Made Disasters:** These are disasters or emergency situations of which the principal, direct causes are identifiable human actions, deliberate or otherwise. Apart from “technological disasters” this mainly involves situations in which civilian populations suffer casualties, loss of property, basic services and means of livelihood as a result of war, civil strife or other conflicts, or policy implementation. In many cases, people are forced to leave their homes, giving rise to congregations of refugees or externally and/or internally displaced persons as a result of civil strife, an airplane crash, a major fire, oil spill, epidemic, terrorism, etc.

## B. Speed of Onset

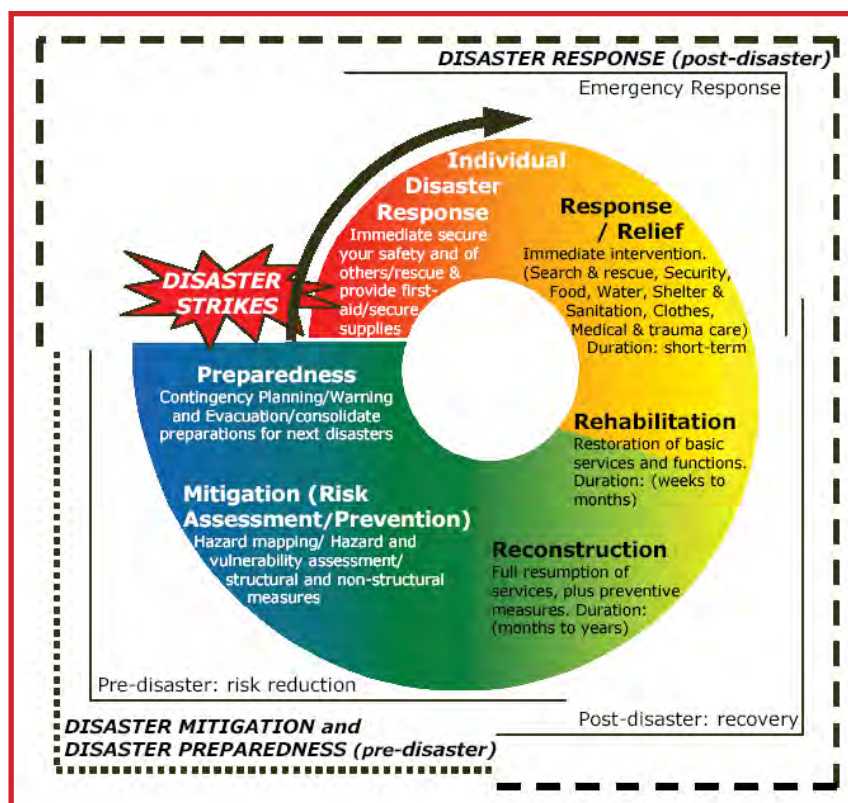
- 1. Sudden onset:** little or no warning, minimal time to prepare. For example, an earthquake, tsunami, cyclone, volcanic eruption etc.
- 2. Slow onset:** adverse event slow to develop; first the situation develops; the second level is an emergency; the third level is a disaster. For example, drought, civil strife, epidemic etc.

## The Disaster Continuum

Disaster management can be defined as the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels. There are three key stages of activity in disaster management.

1. Before a disaster strikes (pre-disaster):	2. During a disaster (disaster occurrence):	3. After a disaster (post-disaster):
<p>Activities taken to reduce human and property losses caused by the hazard and ensure that these losses are also minimised when the disaster strikes. Risk reduction activities are taken up in this stage. They are termed mitigation and preparedness activities.</p>	<p>Activities taken to ensure that the needs and provisions of affected people are met and suffering is minimised. Activities during this stage are called emergency response activities.</p>	<p>Activities undertaken for early recovery and an effort to ensure the earlier vulnerable conditions are not repeated. These are called response and recovery activities.</p>

Figure 2:  
The disaster continuum - Source: CBDRR Course Book, UNICEF – RedR, Training handbook, 2008



## Disaster Management Cycle

Disaster management is a cyclical process; the end of one phase is the beginning of another (see diagram above), although one phase of the cycle does not necessarily have to be completed in order for the next to take place. Often several phases are taking place concurrently. Timely decision making during each phase results in greater preparedness, better warnings, reduced vulnerability and/or the prevention of future disasters. The complete disaster management cycle includes the shaping of public policies and plans that either addresses the causes of disasters or mitigates their effects on people, property, and infrastructure.

**Disaster Mitigation** (*Source: Virtual University for Small States of the Commonwealth*):

Mitigation refers to all actions taken before a disaster to reduce its impacts, including preparedness and long-term risk reduction measures. Mitigation activities fall broadly into two categories:

- 1. Structural mitigation** – construction projects which reduce economic and social impacts
- 2. Non-structural mitigation** – policies and practices which raise awareness of hazards or encourage developments to reduce the impact of disasters

Mitigation includes reviewing building codes; conducting vulnerability analysis updates; zoning and land-use management and planning; reviewing of building use regulations and safety codes; and implementing preventative health measures. Mitigation can also involve educating people on simple measures they can take to reduce loss or injury, for instance fastening bookshelves, water heaters, and filing cabinets to walls to keep them from falling during earthquakes. Ideally, these preventative measures and public education programmes will occur before a disaster.

**Disaster preparedness:** Disaster preparedness measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems (this could also include emergency stockpiling). Preparedness measures could include public information/education, contingency/preparedness plans, emergency exercises/training, early warning systems, emergency communications systems, evacuations plans and training, resource inventories, emergency personnel/contact lists, mutual aid agreements etc. As with mitigation efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans.

Basically disaster mitigation and preparedness go hand in hand. Disaster preparedness (DP) for example includes implementation of mitigation measures to ensure that existing infrastructure can withstand the forces of disasters or that people can respond in their communities and at the same time protect themselves.

### BOX 3.1: TERMINOLOGIES

**Mitigation:** Measures put in place to minimise the results from a disaster. Examples: building codes and zoning; vulnerability analyses; public education.

**Preparedness:** Planning how to respond. Examples: preparedness plans; emergency exercises/training; warning systems.

**Response:** Initial actions taken as the event takes place. It involves efforts to minimise the hazards created by a disaster. Examples: evacuation; search and rescue; emergency relief.

**Recovery:** Return of the community to a state of normalcy. Ideally, the affected area should be put in a condition equal to or better than it was before the disaster took place. Examples: temporary housing; grants; medical care.

**Emergency preparedness:** Actions taken before the onset of a disaster so that a government can successfully discharge its emergency management responsibilities, such as establishing authorities and responsibilities for emergency actions and garnering the resources to support them.

**Logistical readiness:** A satisfactory state of readiness to mobilise resources in the most efficient and effective manner in order to minimise losses as a result of a disaster.

**Response mechanism:** The means by which disaster relief is coordinated and mobilised from governmental and non-governmental organisations to victims of a disaster

**Disaster Preparedness:** A continuous and integrated process involving a wide range of activities and resources from multi-sectoral sources.

### BOX 3.2: TERMINOLOGIES

**Development:** A step or stage in growth or advancement in society, economics or in politics for a better lifestyle.

**Evacuation:** Removal from hazardous place to another that is safe.

**Humanitarian:** The act of promoting the welfare of humanity, especially through the elimination of pain and suffering.

**Logistics:** The branch of civil defence or agency that have to do with procuring, maintaining, and transporting materiel, personnel, and facilities

**Recovery:** The return of buildings and infrastructure to a normal or improved state after a setback or loss.

**Relief:** Private or public help in the form of money, food, clothing, shelter, or medicine, provided to people who are temporarily suffering from the effects of disaster and are at the time completely helpless.

**Reconstruction:** A community or structure that has been reorganized, reformed, or restored after being impacted by a disaster or other hazard.

**Rehabilitation:** To restore buildings, or parts of towns, to their former condition or better.

**Response:** Actions taken in reaction to a disaster or similar hazards.

**Security:** Safety measures that provide a sense of protection against loss or harm from disaster or uncertain circumstances.

**Warning:** Advice given to somebody or persons to be careful of impending danger

### Some important DP measures:

- **Develop and test warning systems regularly and plan measures** to be taken during a disaster alert period to minimise potential loss of life and physical damage
- **Educate and train officials and the population** at risk to respond to the disaster
- **Train first-aid and emergency response** teams
- **Establish emergency response** policies, standards, organisational arrangements and operational plans to be followed by emergency workers and other response entities after a disaster.

**Response and recovery:** Disaster response is the sum of actions taken by people and institutions in the face of disaster. These actions commence with the warning of an oncoming threatening event or with the event itself if it occurs without warning. The focus in the response and recovery phases of the disaster management cycle is on meeting the basic needs of the people until more permanent and sustainable solutions can be found.

**Disaster recovery:** Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counselling programmes and economic impact studies. Information resources and services include data collection related to rebuilding and documentation of lessons learned. Additionally, there may be a need to provide food and shelter to those displaced by the disaster. **Recovery activities** are classified as **short-term** and **long-term**.

### Disaster: a humanitarian and development issue

*“One flood means that development goes back six steps in Assam. If you have progressed 100 per cent then the flood means you go back 600 per cent.” Rabindranath, Feb 2007, Director, Rural Volunteers Centre and Oxfam Partner in Dhemaji district of Assam, which witnessed severe floods in 2001, 2003, 2004, and in 2007.*

In all disasters, it is the poor who suffer and die in the greatest numbers. People living in poverty are the hardest hit by disasters, and disasters in turn create poverty.

Disasters wipe out years of development work at a single stroke. The cost to communities in human and economic terms is enormous. Good preparedness, including programmes based on sustainable development at the community level, does more to diminish the impact of

disasters than any response work done after the event. Development gains are not possible without addressing risk factors in the planning process. Examples of high risk include building a school on a flood plain, constructing a hospital without adhering to sound building codes, locating a nuclear reactor near an earthquake fault line, rebuilding on flood prone land, or livelihood programmes that don't fully consider the environmental context.

### The four cornerstones of disaster risk reduction

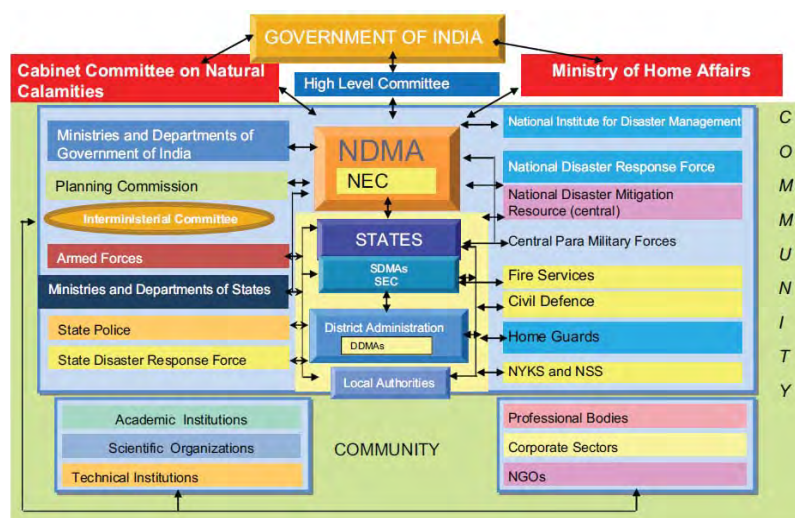
Disasters have socio-political factors. Actions aimed at reducing risk should address the social factors that determine vulnerability as well as changes in the political environment that could increase the resilience of communities. Four parallel and complementary lines of actions can be considered to reduce exposure to disasters and achieve a more sustainable approach to development:

1. Community / stakeholder participation
2. Public policy actions
3. Safer construction and urban development
4. Development of a culture of prevention

### Institutional structure for disaster management in India

The institutional structure for disaster management in India is in a state of transition. On 23 December 2005, the Government of India enacted the Disaster Management Act, which envisaged the creation of the National Disaster Management Authority (NDMA), headed by the Prime Minister, State Disaster Management Authorities (SDMAs) headed by the Chief Ministers, and District Disaster Management Authorities (DDMAs) headed by the District Collector or District Magistrate or Deputy Commissioner as the case may be. This was meant to lead to a paradigm shift, from the erstwhile relief-centric response to a proactive prevention, mitigation and preparedness-driven approach for conserving developmental gains and to minimise loss of life, livelihood and property.

Figure 3: National disaster management framework



### TRADITIONAL KNOWLEDGE:

Traditional knowledge is developed through thousands of years of experience of coping with nature and observing a feedback mechanism by the indigenous communities over a place. It is an extremely useful resource that must be utilized in developing effective Disaster Risk Reduction (DRR) strategies. Following are some examples:

- After the Kashmir Earthquake in 2005, existing construction practices of the Region were assessed to find appropriate earthquake resistant features. In cases where traditional knowledge had been applied, using either Taq system or Dhajji-Dewari technique, the houses and buildings were able to withstand the earthquake.
- The people of Nadeswar Village in Assam cope with flood and soil erosion by planting of bamboo along the river to prevent major damages from floods.
- The Dagupan City (Philippines) flood warning system, a combination of indigenous and modern scientific knowledge, is an effective response to the perennial problem of flooding in the city.

[Source: UNISDR (2008).

Document available at [http://www.unisdr.org/files/3646\\_IndigenousKnowledgeDRR.pdf](http://www.unisdr.org/files/3646_IndigenousKnowledgeDRR.pdf)

## Disaster Management Framework

Shifting from relief and response made, disaster management in India started to address the issues of early warning systems, forecasting and monitoring set up for various weather related hazards. A structure for flow of information, in the form of warnings, alerts, and updates about the oncoming hazard, also emerged within this framework. A multi-stakeholder high powered group was set up by involving representatives from different ministries and departments. Some of these ministries were also designated as the nodal authorities for specific disasters.

Following a **High Powered Committee Report on Disaster Management** for establishment of a separate institutional structure for addressing disasters and enactment of a suitable law for institutionalizing disaster management in the country, multi-level links between these ministries and the disaster management framework have emerged.

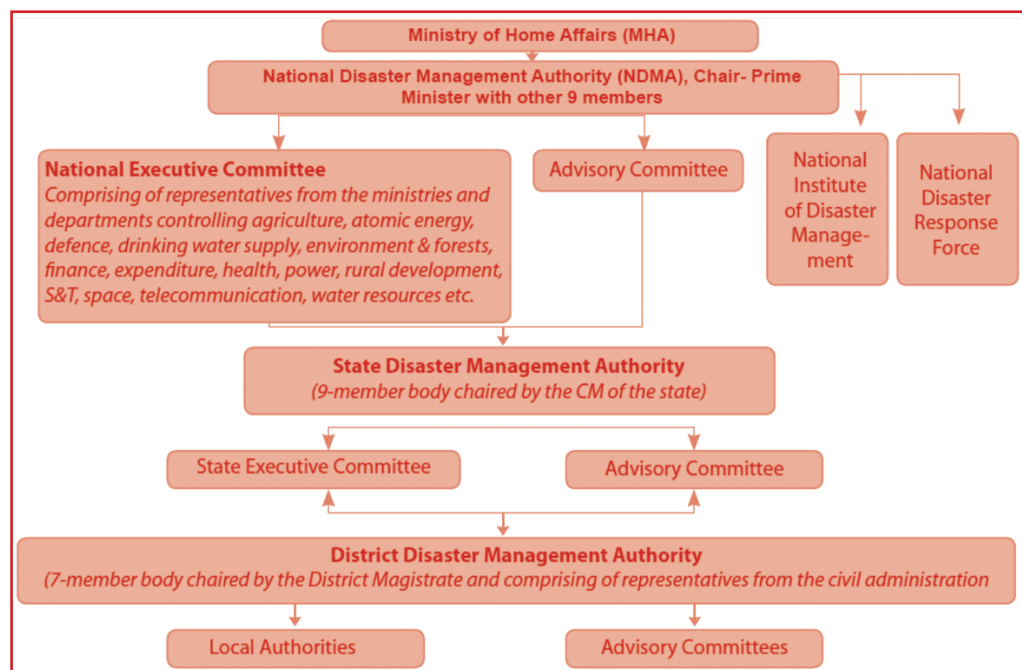
### Present Structure for Disaster Management in India

The institutional structure for disaster management in India, following the implementation of the Act, is evolving; while the previous structure also continues. Thus, the two structures co-exist at present. The National Disaster Management Authority has been established at the centre, and the SDMA at state level and district authorities at district level are gradually getting formalized.

Over and above this the **National Crisis Management Committee**, part of the earlier set up, also functions at the Centre. The nodal ministries, as identified for different disaster types of function under the overall guidance of the **Ministry of Home Affairs (nodal ministry for disaster management)**; this makes the stakeholders interact at the different levels within the disaster management framework.

Within this transitional and evolving set up, two distinct features of the institutional structure for disaster management may be noticed. Firstly, the structure is hierarchical and functions at four levels – centre, state, district, and local. In both the steps – one that existed prior to the implementation of the Act, and other that is being formalized post-implementation

**Figure 4: Disaster management structure in India**



of the Act – there are institutionalized structures at the centre, state, district, and local levels. Each preceding level guides the activities and decision making at the next level in hierarchy. Secondly, it is a multi-stakeholder set up, i.e., the structure draws involvement of various relevant ministries, government departments and administrative bodies.

## Disaster Management (DM) Act, 2005

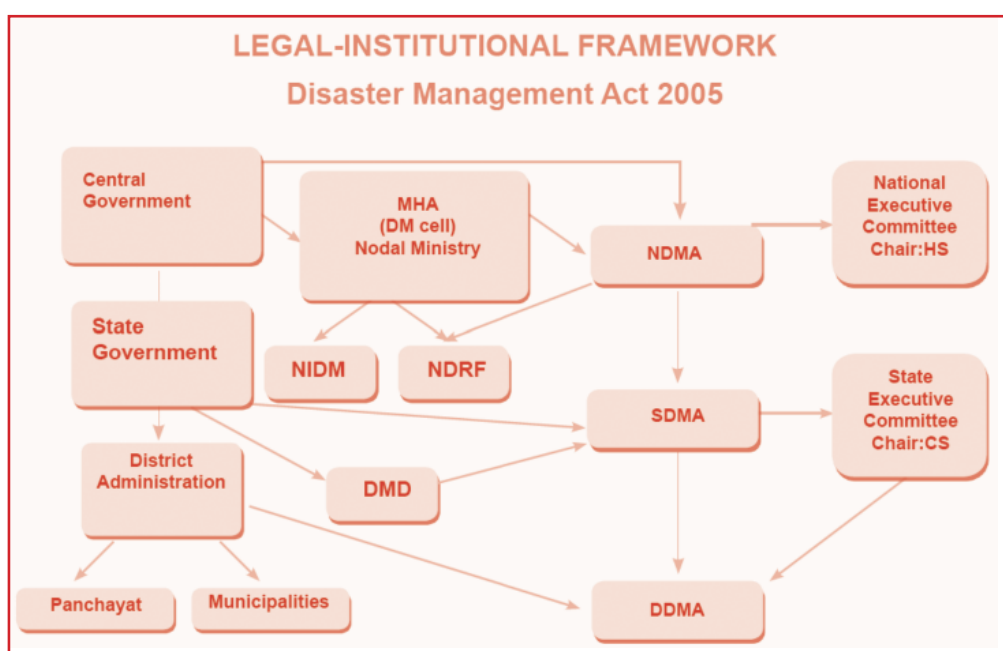
The Act lays down institutional, legal, financial and coordination mechanisms at the National, State, District and Local levels. These institutions are not parallel structures and will work in close harmony. The new institutional framework is expected to usher in a paradigm shift in DM from relief-centric approach to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation.

After the enactment of 73rd and 7th Amendments to the Constitution and emergence of local self-government, both rural and urban, as important tiers of governance, the role of local authorities has become very important. The DM Act 2005 envisages specific roles to be played by the local bodies in disaster management.

### Legal-Institutional Framework:

A legal institutional framework developed based on the provision of the Act across the country, in vertical and horizontal hierarchical and in the federal set up of the country, depicts the response mechanism which has been put into place.

Figure 5: Legal institutional framework



### Learning Outcome:

At the end of this module, the participants:

- have a clear understanding of the basic concepts of disaster and disaster management
- are able to identify various elements of disaster management cycle and disaster risk reduction.
- Can describe the legal-institutional landscape for disaster management in India

## Module 4:

### Which disaster to expect and when

#### TRAINING METHODS

**Training technique:** Lecture based, interactive group discussion

**Resources required:** White board, bold markers, Powerpoint presentation

#### STEPS

Start discussion asking question to the trainees, 'why they think India is prone to various disasters and use power points to explain hazard and vulnerability profile of the country. Again, use white board to highlight key point and use them at the end to recap.

Disasters- natural and manmade, and their impacts on the human beings are closely related to certain other processes happening in the same ecosystem. Therefore, in order to understand the vulnerability and impact of disasters, it is important to first explore the interlinkages between disaster, ecosystems, and climate change, and to look into some important issue areas as follows.

## Main factors responsible for increased frequency of disasters

### 1) Biodiversity loss and Ecosystem degradation

An Ecosystem is a dynamic complex of biological communities and their nonliving environment interacting as a functional unit. Stable and resilient ecosystems support vast array of 'functions' or benefits to people known as "Ecosystem Services". Ecosystem services fall in many categories, viz, provisioning (food, fibre, medicines), cultural and spiritual (sacred forests, recreation etc), supporting (soil nutrients and productivity etc), and the fourth types that is closely relevant to our topic is the regulatory services, which include air quality maintenance, climate regulation, carbon sequestration, regulation of human diseases, plant pest and disease control, water purification, natural hazard and disaster risk reduction (mitigating the threat from landslides, floods and even Tsunami), pollination etc.

Economic valuation of hurricane protection function of Bhitarkanika Mangroves in Orissa reveals that average opportunity cost of saving a human life by retaining mangroves was 11.7 million rupees.

*The 2009 UN International Strategy for Disaster Reduction (UN ISDR) Global Assessment Report identified ecosystem degradation as one of the main drivers of disaster risk worldwide. Environmental degradation reduces the capacity of ecosystems to meet people's need for food and other products, and to protect them from hazards through services such as flood regulation, slope stabilization, and protection from storm surges. Additionally, ecosystem degradation reduces the ability of natural systems to sequester carbon which increases the incidence and impact of climate change and climate change related disasters.*

Following box presents some examples that establish the value of ecosystem services in disaster risk reduction:

#### Box | Value of Ecosystem Services in Disaster Risk Management: Some Examples

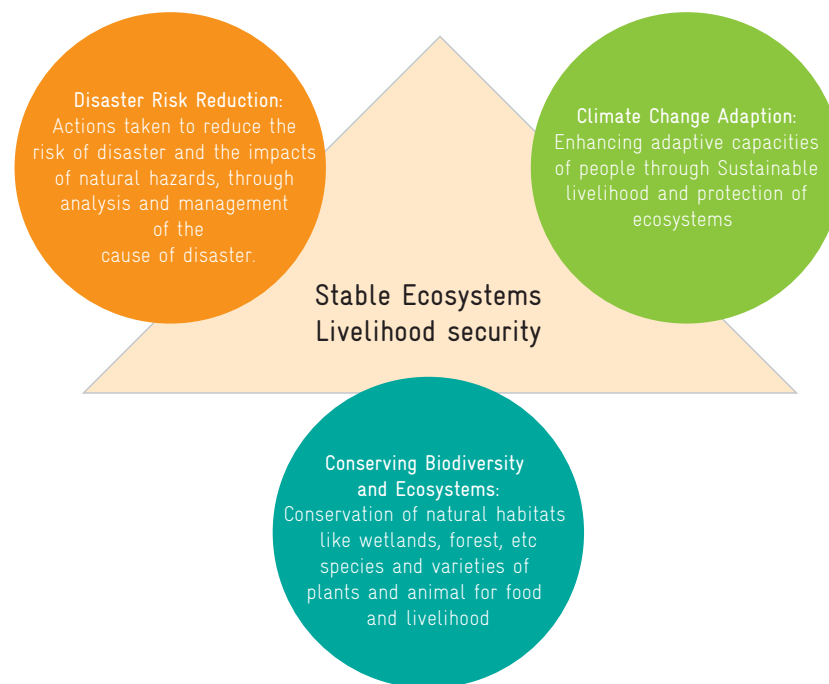
- In the Maldives, degradation of protective coral reefs necessitated the construction of artificial breakwaters at a cost of US\$ 10 million per kilometer (SCBD, 2009).
- In Vietnam, the Red Cross began planting mangroves in 1994 with the result that, by 2002, some 12,000 hectares of mangroves had cost US\$1.1 million for planting but saved annual levee maintenance costs of US\$ 7.3 million, shielded inland areas from a significant typhoon in 2000, and restored livelihoods in planting and harvesting shellfish (Reid and Huq, 2005; SCBD, 2009).
- In the United States, wetlands are estimated to reduce flooding associated with hurricanes at a value of US\$ 8,250 per hectare per year, and US\$ 23.2 billion a year in storm protection services (Costanza et al., 2008).
- In Orissa, India, a comparison of the impact of the 1999 super cyclone on 409 villages in two tahsils with and without mangroves showed that villages that had healthy stands of mangroves suffered significantly less loss of lives than those without (or limited areas) healthy mangroves, even though all villages had the benefit of early warnings and accounting for other social and economic variables (Das and Vincent, 2009).

[Source: IPCC, 2012: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*]

However, many crucial ecosystem services, including natural hazard protection, are on decline during the past 50 years- as reported in the Millennium Ecosystem Assessment report in 2005<sup>1</sup>. Ecosystem management for disaster risk reduction has been prioritized in both the 2009 and 2011 ISDR Global Platform for Disaster Risk Reduction Chair Summary, and cited most recently in the latest IPCC release of the Summary for Policy Makers of the new Special Report on Extremes<sup>2</sup>. International Union for Conservation of Nature and Natural resources focuses on reducing the disaster risk through ecosystem and biodiversity conservation<sup>3</sup>.

Further, climate change risk is expected to increase the frequency and intensity of hazards and extreme events, especially in the mountain and coastal areas. Large areas may get affected by floods and landslides as well as dry spells and will further increase the vulnerability of the communities. Since climate change is also responsible for increasing the frequency and intensity of certain types of disasters, a clear understanding of the relationship between the three issues (Figure 6) and addressing these during strategic planning of disasters becomes important.

**Figure 6: Relation between disaster risk reduction, climate change and conservation of biodiversity and ecosystems**



## 2) Climate change

“Climate change” refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC 2012<sup>4</sup>). Climate change is creating new

1 Millennium Ecosystem Assessment [www.millenniumassessment.org/en/index.aspx](http://www.millenniumassessment.org/en/index.aspx)

2 <http://www.ipcc-wg2.gov/SREX/>

3 [http://www.iucn.org/about/work/programmes/ecosystem\\_management/disaster/about\\_drr/](http://www.iucn.org/about/work/programmes/ecosystem_management/disaster/about_drr/)

4 IPCC, 2012: Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 1-19.

hazards such as glacier recession, sea level rise and extreme weather events in frequency and intensity never seen before. This aggravates the existing disaster risks and vulnerabilities and exposes millions of people never affected before around the world.

### **The facts:**

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In its 2007 Fourth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) predicted that by 2100:

- Global average surface warming will increase by between 1.1°C and 6.4°C.
- Sea level will rise by between 18cm and 59cm; sea-level rise, coupled with coastal storms, will increase the risks of flooding and threaten protective ecosystems.
- Oceans will become more acidic and warmer.
- Extreme heat-waves and heavy rainfalls will become more frequent. One can see the effects on the Indian Subcontinent as well.
- More heat-waves will increase death rates among the elderly, very young, chronically ill and socially isolated.
- Higher latitudes will experience more precipitation; subtropical land areas will become more arid.
- Tropical cyclones (including typhoons and hurricanes) will become more intense, with higher peak wind speeds and heavier precipitation, as tropical sea surface temperatures increase.
- Regions hardest hit will include the Arctic, sub-Saharan Africa, small islands, developing states, Asian deltas and coastal zones.
- Increased drought in some regions will lead to land degradation, crop damage and reduced yields; livestock deaths and wildfire risks will increase, and people dependent on agriculture will face food and water shortages, malnutrition and increased disease, with many being forced to migrate. This is very relevant in the Indian context.
- Greater rainfall in some areas will trigger more floods and landslides, with consequent disruption to agriculture, urban settlements, commerce and transport. Our metro and mega cities are facing this more frequently these days.(Delhi, Mumbai, Kolkata, Jaipur, etc.)
- Increases in the number and intensity of powerful cyclones will affect coastal regions and threaten very large additional losses of life and property.
- As temperatures rise, glaciers recede, increasing the risk of lake bursts and disastrous floods; farmers and towns downstream that depend in the summer months on glacial melt water will increasingly be at risk.

Different efforts are being made to tackle the problem of climate change, mainly in two directions: by reducing carbon emissions (called 'mitigation strategies') that are the culprit for the whole problem, and also by enhancing adaptive capacities of the communities and people who are affected/likely to be affected by the adverse impacts of climate change (called 'adaptation strategies'). One significant area of work in the direction of adaptation is to reduce the risk of disasters – predicted to become more severe and more frequent due to climate change.

Though the objective of both climate change adaptation and Disaster risk reduction is reducing the vulnerability of the local communities, some CCA interventions may unintentionally leave people even more vulnerable than before to the impacts of climate change and vice versa. This may be sometimes due to lack of understanding of the interlinkages between climate change and disasters, and sometime, it may be due to difficulty in bringing synergies between the two types of activities being handled by different departments/ ministries.

It is, therefore, critical that this understanding is strengthened among the community members, so that they are not only aware of the linkages but can also watch and support synergistic implementation of climate change and disaster management related interventions.

Role of journalists become very important for spreading awareness as well as to follow the impacts of specific interventions, so that timely corrections, if needed, can be made by the authorities and agencies carrying out those interventions.

### 3) Rapid and unplanned urbanization

The rapid growth of cities, combined with climate change and the urban population explosion, will create new stresses for urban settlements and make city dwellers increasingly vulnerable.

#### The facts

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- One out of every two people now lives in a city; this proportion will go on rising; by 2030, 5 billion of the planet's expected 8.1 billion population will be urban.
- One in three of the urban population lives in marginal settlements or crowded slums with inadequate access to clean water, sanitation, schools, transport and other public services. This is relevant for many of our tier 1 and tier 2 cities.
- One city dweller in four lives in absolute poverty; by 2030, two-thirds of human-kind will live in cities and three billion in slums.
- Eight of the 10 most populous cities on the planet are vulnerable to earthquakes; 6 of the 10 are vulnerable to floods, storm surges and tsunamis.
- Ineffective land-use planning, inadequate enforcement of building codes and faulty construction standards put millions at risk.
- By 2015, 33 cities will have at least 8 million residents; of these, 21 are in coastal areas and particularly vulnerable to meteorological hazard driven by climate change e.g. Dhaka, Shanghai, Manila, Jakarta, and Mumbai.
- Cities with weak governance and small and medium-sized urban areas are more vulnerable to disasters as they have weaker capacities to manage urban growth, deforestation and destruction of coastal systems.

### 4) Poverty

Poverty and socio-economic inequalities are aggravating disaster factors. They not only make poor people more vulnerable to disasters but they trap them in a vicious circle of poverty.

#### The facts

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- Disasters hit poor people the hardest. It is not only true in developing countries but also in developed countries. Levels of vulnerabilities are highly dependent upon the economic status of individuals, communities and nations. The most affected people during the Katrina hurricane in the United States were the poor communities. During the hurricane season in 2008, Haiti was the hardest hit among the Caribbean states.
- Fifty-three per cent of affected people by disasters live in developing countries while 1.8 per cent lives in developed countries. Over 95 per cent of the people killed by disasters lived in middle and low-income countries, using World Bank classification based on gross national income (GNI) per capita.

- Disasters affect poor countries and poor communities disproportionately. The World Bank reports, “This disproportionate effect on developing countries has many explanations. Lack of development itself contributes to disaster impacts, both because the quality of construction often is low and building codes, and registration processes, and other regulatory mechanisms are lacking, as well as numerous other development priorities displace attention from the risks presented by natural events” ( Hazards of Nature, Risks to Development, World Bank 2006).
- A country’s level of development has a direct impact on the damage natural hazards inflict on populations. Less-developed countries suffer most, as they are more frequently hit and more severely affected. Their weak infrastructure and limited capacity for prevention makes them more vulnerable than wealthy, industrialized nations.
- One half of the world population is vulnerable to disasters because of their social living conditions. Slums and poor urban settlements are the most exposed to disasters.
- Extensive research shows the poor are more likely to occupy dangerous, less desirable locations, such as flood plains, river banks, steep slopes and reclaimed land because the price is lower.
- Poor people tend to live in poorly built and unprotected buildings that will be the first to collapse in any disaster.
- Losses from disasters are most devastating to the poorest people. Disasters have long-term consequences on poor people as they have less means to recover. Poor people not only lose their family members, houses, main source of income and livelihoods when disasters happen but also become more vulnerable to future disasters.

### Assignment for the students

*Identify one specific intervention in your surroundings, which is not directly intended at disaster risk reduction, but is likely to decrease the negative impacts of the disasters as well as an additional benefit*

## The Indian Scenario

Due to its geo-climatic and socioeconomic conditions, India is prone to various disasters. Between the 1970s and 2010s, the country has been hit by 431 major disasters resulting in enormous loss of life and property. While the political and economic position of India has improved, the country continues to face many economic, environmental and health challenges that threaten the well-being of its population. According to the 2011 UNDP Human Development Index, India is ranked 128 out of 177 countries. Around 400 million of the population is still living on less than US\$1 a day, with many, especially in rural areas, lacking access to basic necessities.

The country remains extremely vulnerable to both seismic and hydro-meteorological hazards such as floods, cyclones, droughts and landslides. The vulnerability to disasters is aggravated by social, cultural, economic, institutional and political factors. Deforestation is adding to environmental instability and contributing to global warming and climate change. There is evidence that climate change is increasing the severity and frequency of natural disasters such as floods and cyclones, and causing new and increased health problems. Due to ad hoc governance, there is rapid and unplanned urbanisation which leads people to work and live in unsafe environments more vulnerable to natural disasters. Access to information is poor, especially for marginalised people, who are deprived of their ability to make informed decisions

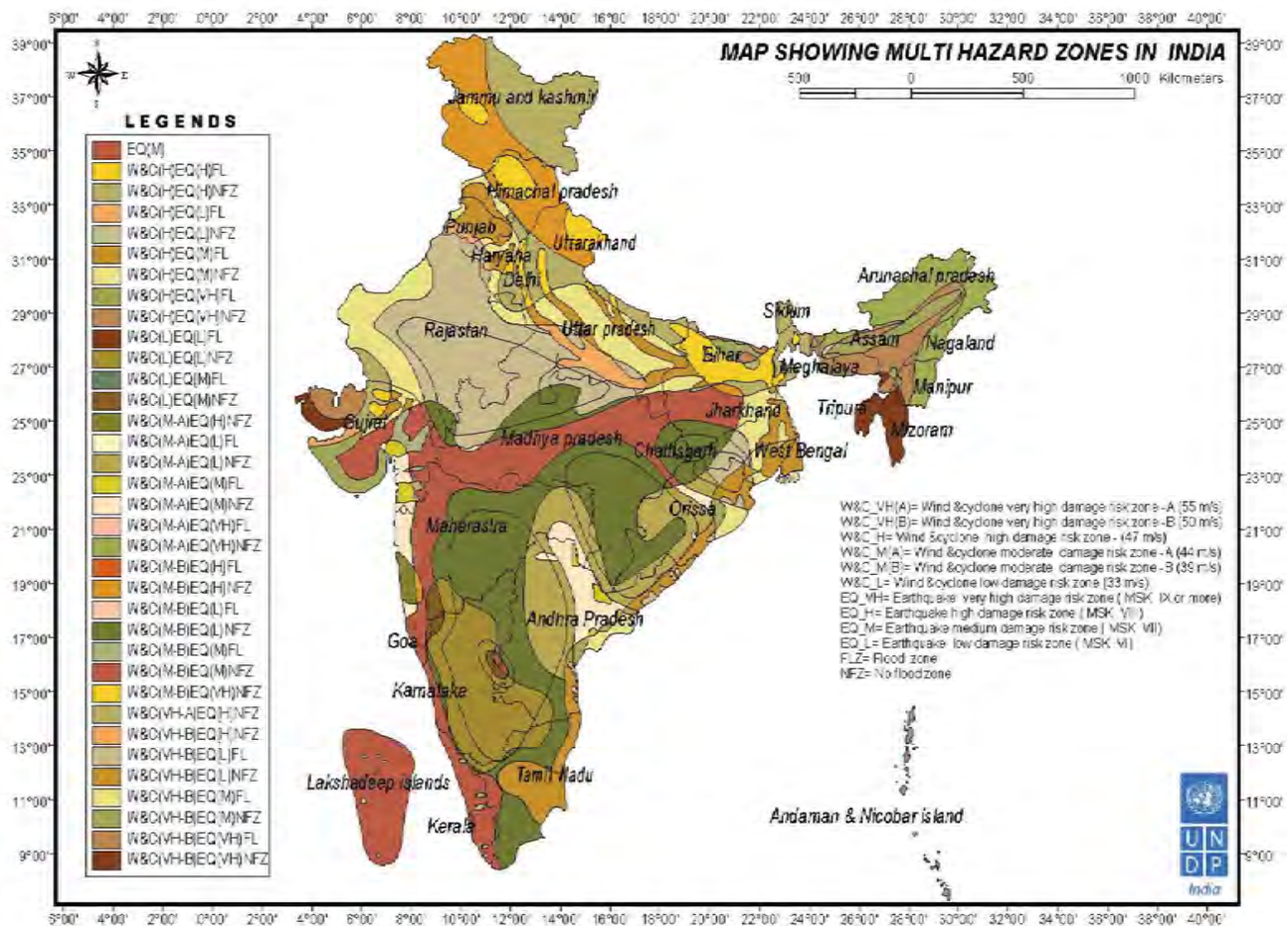
both in relation to risks but also in their response. Disasters cost lives, destroy communities and livelihoods and leave a lasting impact not only on the physical infrastructure but also on peoples' psychosocial well-being. The Indian government has taken concrete steps to address these mounting risks and has set up a National Disaster Management Authority under the Ministry of Home Affairs. With a similar set up in the states and districts, the government is gearing up for overall coordinated response.

According to Prevention Web Statistics, 143,039 people were killed and about 150 crore were affected by various disasters in the country between 1970 and 2010. The disasters have caused loss of property and other infrastructures worth over Rs 250,000 crore.

## Vulnerability Profile of India

Out of 35 states and union territories in the country, 27 are disaster prone. Almost 58.6 per cent of the landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12 per cent of land) is prone to floods and river erosion; of the 7,516-km coastline, close to 5,700 km is prone to cyclone and tsunamis; 68 per cent of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches.

Figure 7: Multi hazard map of India



Disclaimer: This map was collated based on the data/information compiled by the Ministry of Urban Development and Poverty Alleviation, UNDP has not verified the accuracy of information of the Map. Source: BMTPC, India

## Hazard profile of India

**India is one of the ten most disaster prone countries in the world. The country is prone to disasters due to a number of factors; both natural and human induced, including adverse geo climatic conditions, topographic features, environmental degradation, population growth, urbanisation, industrialisation, non-scientific development practices etc. The factors either in original or by accelerating the intensity and frequency of disasters are responsible for a heavy toll of human lives and disrupting the support system in the country.**

The basic reason for the high vulnerability of the country to natural disasters is its geo-graphical features. The five distinctive regions of the country, i.e., Himalayan region, the alluvial plains, the desert, the hilly part of the peninsula and the coastal zone have their own specific problems. While the Himalayan region is prone to disasters like earthquakes and landslides, the plains are affected by floods almost every year. The desert is affected by droughts while the coastal zone is susceptible to cyclones. The geo-tectonic features of the Himalayan region and adjacent alluvial plains make the region susceptible to earthquakes, landslides, water erosion etc. Peninsular India is considered to be the most stable portion, but occasional earthquakes in the region show that geo-tectonic movements are still going on within its depth.

Floods top the list of disasters in India on an annual basis. The protection mechanisms in the country against these floods are inadequate. The western part of the country, including Rajasthan, Gujarat and some parts of Maharashtra are hit very frequently by drought. Around 68 per cent of the land area in India is prone to drought. Of this, 35 per cent receives rainfall between 750 and 1,125 mm a year and is considered drought prone and 33 per cent receives less than 750 mm and is considered chronically drought prone. If the monsoon is poor, drought spreads to other parts of the country as well. India is exposed to 10 per cent of the world's tropical cyclones. About 71 per cent of this area is in ten states (Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal, Kerala, Orissa, Puducherry).

Various human activities like increasing demographic pressure, deteriorating environmental conditions, deforestation, unscientific and unplanned development, faulty agricultural practices and grazing, unplanned urbanisation, construction of large dams etc. are also responsible for accelerated impact and increase in frequency of disasters in the country.

In recent years, India is witnessing an ascending trend in the occurrence of heat and cold waves, especially in the wake of the climate change phenomenon. Uttar Pradesh and Bihar rank the highest in terms of casualties on account of cold waves in India primarily due to slow pace of development and lack of adequate and appropriate shelters for workers and farmers. Thunderstorms and hailstorms usually affect central, north, north-eastern and north-western parts of the country.

India has been divided into four seismic zones according to the maximum intensity of earth-quake expected. Of these, zone V is the most active which comprises of whole of Northeast India, the northern portion of Bihar, Uttarakhand, Himachal Pradesh, Jammu and Kashmir, Gujarat and Andaman & Nicobar Islands. Six major earthquakes have struck different parts of India between 1995 and 2010.

As far as man-made disasters are concerned, it is estimated that currently there are over 1,949 industrial units in India considered Major Accident Hazards, besides many more small and medium industrial units.

## Economic losses due to disasters

The economic loss to India due to disasters is estimated to be 2 per cent of the GDP. During the last two decades of the 20th Century, natural disasters in India had killed more than 5,000 people per year.

**Table 2: Hazard Profile of India (Adapted from UNDMT Preparedness Plan Document 2010)**

Type	Likelihood (5=existing or certain)	Potential Humanitarian Consequences	Potential Scale
<b>Natural Disasters</b>			
Floods	5	<ul style="list-style-type: none"> <li>• River floods, caused by rainfall, are by far the most frequent and often the most devastating disasters in India. Nearly 75% of the total rainfall occurs over a short monsoon season (June – September). Over 8% of Indian land is considered prone to floods.</li> <li>• Floods are a perennial phenomenon in at least five states – Assam, Bihar, Orissa, Uttar Pradesh and West Bengal. Due to climate change effects, floods have also occurred in recent years in areas that are normally not flood prone. In 2006, drought prone parts of Rajasthan experienced floods.</li> <li>• Widespread human and material losses, collapse of infrastructure and services may be major consequences of the floods. Hundreds of thousands may be displaced, often in isolated and not easily accessible areas.</li> </ul>	Annually: 20 to 80 million affected people, up to 200,000 long-term displaced.
Earthquake	4	<ul style="list-style-type: none"> <li>• 60% of India's territory is vulnerable to earthquakes.</li> <li>• All eight states in the north-east – Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Sikkim, Tripura and Meghalaya; Andaman &amp; Nicobar Islands; and parts of six other states in the North/North-West (Jammu and Kashmir, Uttarakhand, Bihar) and West (Gujarat), are in Seismic Zone V.</li> <li>• Wide-spread human and material losses, collapse of infrastructure and services may be major consequences of an earthquake. Hundreds of thousands may be displaced, often in remote mountainous areas.</li> </ul>	Up-to 1 million population affected
Landslides	5	<ul style="list-style-type: none"> <li>• Landslides in India are another recurrent phenomenon. Landslide-prone areas largely correspond to earthquake-prone areas, i.e. North-west and North-East, where the incidence of landslides is the highest.</li> <li>• Landslides cause casualties and loss of property, and typically disrupt road and communication networks, as well as many basic services.</li> <li>• Although relatively a minor disaster, it's been noted by government and other sources that the number of landslide casualties is on sharp increase as a result of overpopulation, unregulated construction, and environmental degradation.</li> </ul>	thousands affected
Cyclone	4	<ul style="list-style-type: none"> <li>• South Asia is considered to be the worst cyclone-affected part of the world, as a result of low-depth ocean bed topography and coastal configuration. The principal dangers from a cyclone are: (i) gales and strong winds (ii) torrential rain (iii) high tidal waves/storm surges. Most casualties are caused by coastal inundation by tidal waves and storm surges.</li> </ul>	200,000 – 1 million population affected
		<ul style="list-style-type: none"> <li>• Cyclones typically strike the East Coast of India, along the Bay of Bengal, i.e. the states of West Bengal, Orissa, Andhra Pradesh and Tamil Nadu, but also parts of Maharashtra and Gujarat on the Arabian Sea West Coast. Cyclones can be to an extent predicted and thus the loss of life minimized. Yet, they can devastate property and livelihoods of the communities affected.</li> </ul>	

Type	Likelihood (5=existing or certain)	Potential Humanitarian Consequences	Potential Scale
Cold Waves	5	• Cold waves are recurrent phenomenon in North India. Hundreds of people die of cold and related diseases every year, most of them from poor urban areas in northern parts of the country.	1,000 – 10,000
Drought	4	• Drought is another recurrent phenomenon which results in wide-spread adverse impact on people's livelihoods and young children's nutrition status. It typically strikes arid areas of Rajasthan (chronically) and Gujarat. Drought is not uncommon in certain districts of Uttar Pradesh, Madhya Pradesh, Orissa, Maharashtra, Andhra Pradesh etc. Although a slow onset emergency, drought has caused severe suffering in the affected areas in recent years, including effects on poverty, hunger, and nutrition etc.	0.5 – 10 million
<b>Other emergencies (Epidemics)</b>			
Measles, Japanese encephalitis or other disease outbreak	5	• A large number of people, and especially children, can be affected by the diseases, which lead to increased morbidity and mortality. Japanese encephalitis typically reappears in susceptible areas such as rice fields, and areas with poor sanitation.	Small to medium
Outbreak of cholera/ gastroenteritis	5	• A large number of people can be affected by the diseases, which lead to increased morbidity and mortality. The highest threat of cholera is in the states of Assam and Orissa.	Small to medium
Post-flood epidemic (lepto-spirosis, dengue, etc.)	5	• A large number of people can be affected by the diseases, which lead to increased morbidity and mortality.	Small to medium
Avian/Swine flu	5	• Given the high level of global travel, the pandemic virus may spread to large territories within weeks to months, leaving little or no time to prepare. Given the population size, the virus risk of human-to-human transmission is very high. Vaccines, antiviral agents and antibiotics to treat secondary infections may be in short supply and be unequally distributed	Small to large / pandemic

## More impacts of Climate Change

India is among countries most threatened by climate change with experts warning that rising temperatures will lead to more floods, heat-waves, storms, rising sea levels and unpredictable farm yields. Here are the main potential effects:

### 1) Monsoon

Various studies reflect that surface air temperatures in India are going up at the rate of 0.4 degrees Celsius every 100 years, particularly during the post-monsoon and winter seasons. While mean winter temperatures could increase by as much as 3.2 degrees Celsius in the 2050s, summer temperatures could go up by 2.2 degrees Celsius in the 2050s, increasing climate variability.

Extreme temperatures and heat spells could alter patterns of monsoon rains, vital for India's agriculture and water needs. There is a warning that India will experience a decline in summer rainfall by 2050. The monsoon accounts for almost 70 percent of the country's total annual rainfall. Winter rains are also predicted to fall by 10-20 percent.

Higher temperatures will lead to faster melting of Himalayan glaciers and as the melting season coincides with the monsoon season, any intensification of the monsoon is likely to contribute to floods in the Himalayan catchment. This will prove challenging for the Himalayan states in North and North East India.

## 2) *Agriculture*

Agriculture will be adversely affected not only by an increase or decrease in the overall amounts of rainfall, but also by shifts in the timing of the rainfall. Higher temperatures will further reduce the total duration of a crop cycle, leading to a lower yield per unit area, especially for India's wheat and paddy crops.

Soil erosion, increased numbers of pests and weeds brought by climate change will also affect agriculture in India. For instance, the amount of moisture in the soil will be affected by changes in factors such as rainfall, runoff and evaporation.

## 3) *Rising Seas*

A 10-year study in and around the Bay of Bengal indicates the sea is rising by 3.14 mm a year in the mangrove swamps of the Sunderbans delta against a global average of 2 mm, threatening the low-lying area which is home to about four million people.

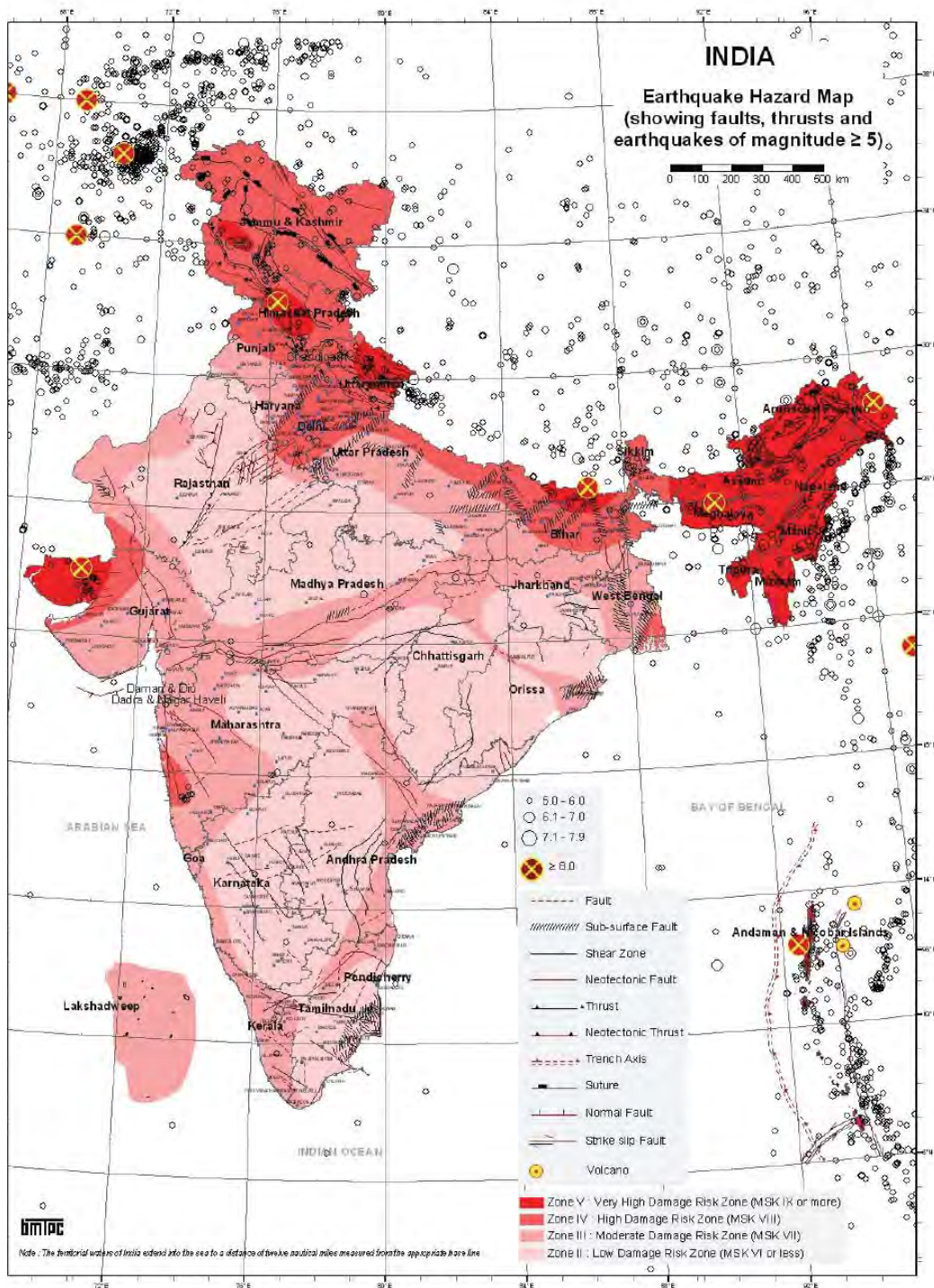
A trend of sea level rise of 1 cm per decade has been recorded along the Indian coast. The major delta area of the Ganga, Brahmaputra and Indus rivers, which have large populations reliant on riverine resources, will be affected by changes in water regimes, salt water intrusions and land loss.

## 4) *Health*

Rise in temperature and change in humidity will adversely affect human health in India. Heat stress will lead to heat cramps, heat exhaustion, heat stroke and weaken immune systems. Increased temperatures can increase the range of vector-borne diseases such as malaria, particularly in regions where minimum temperatures currently limit the spread of such diseases. This may also lead to resurgence of some endemic diseases.

**Table 3: Nodal agencies responsible for forecasting different disasters**

Disasters	Agencies
Cyclone	Indian Meteorological Department
Tsunami	Indian National Centre for Oceanic Information Services
Floods	Central Water Commission
Landslides	Geological Survey of India
Avalanches	Snow and Avalanche Study Establishment
Heat & Cold Waves	Indian Meteorological Department



BMTPC : Vulnerability Atlas - 2nd Edition; Peer Group; MoH&U&P; Map is Based on digitised data of SOL GO; Seismic Zones of India Map IS:1803 - 2002, BIS, GOI; Seismotectonic Atlas of India and Its Environs, GSI, GOI

Source: BMTPC

### Learning Outcome:

At the end of this module, the participants will be,

- able to understand the concept of vulnerability and hazard in the context of disasters,
- to clearly see the relation of disaster related vulnerability with other ecological processes and development issues.

## Module 5: Case Studies

### TRAINING METHODS

**Training technique:** Group work

**Resources required:** Paper, pen, flip charts, white board, bold marker audio-visual equipment, projector, screen

### STEPS

Divide trainees into groups and assign a case study (Sikkim earthquake, Mumbai floods, Jaitapur nuclear power plant) to each group. Introduce briefly each case study and assess how much trainees know about the mentioned bases. Also, briefly touch upon the coverage of disasters in the media. Give trainees the material to read overnight and ask each group to present case study in the next session on the following points:

- Introducing the case study
- Facts and figures
- Losses – human, economic, infrastructure etc
- Relief and rescue
- Coverage of disaster in the media – pre, during and post
- Do's and Don'ts Best practices

In the next session, ask each of the groups to present their case study and be a facilitator to further focus group discussion. End of each case study, ensure that the trainees understand Dos and Don'ts of reporting disaster.

## CASE STUDY I: SIKKIM EARTHQUAKE, 2011

### Earthquakes

An earthquake is the result of a sudden release of energy in the earth's crust that creates seismic waves. The sudden upheaval is caused by the stresses built beneath the surface over time. The seismicity or seismic activity of an area refers to the frequency, type and size of earthquakes experienced over a period of time. Occasionally, this stress is released resulting in the sudden shaking of earth that can cause huge devastation in terms of loss of life and property. Earthquakes are caused mostly by rupture of geological faults, but also by other events such as volcanic activity, landslides, mine blasts, and nuclear tests. An earthquake's point of initial rupture is called its focus or hypocentre. The epicentre is the point at ground level directly above the hypocentre.

The magnitude of most earthquakes is measured on the Richter scale, and it is calculated from the amplitude of the largest seismic wave recorded for the earthquake, no matter what type of wave was the strongest (Source: UPSeis). The intensity of shaking is measured on the modified Mercalli scale. Magnitude 3 or lower earthquakes are almost imperceptible, while quakes of magnitude 7 and over potentially cause serious damage over large areas, depending on their depth. The largest earthquakes in historic times have been of magnitude slightly over 9, (magnitude 9.5, Chile, 22 May 1960) although there is no limit to the possible magnitude. The most recent large earthquake of magnitude 9.0 or larger was a 9.0 magnitude earthquake in Japan in March 2011. It was the largest Japanese earthquake since records began.

In the past decade, nearly 60 per cent of the people killed by disasters died because of earthquakes and it continues to remain a serious threat to millions of people worldwide, especially as eight out of the 10 world's most populous cities fall on earthquake fault-lines, according to the Centre for Research on Epidemiology of Disasters (CRED) and United Nations International Strategy for Disaster Reduction (UNISDR)). The Indian sub-continent is also highly prone to earthquakes. As per the seismic zoning map, brought out by the Bureau of Indian Standards (BIS), over 65 per cent of India is prone to earthquakes of intensity 7 or more. In fact, some of the most intense earthquakes of the world have occurred in India.

### The Sikkim earthquake

In recent times, India has witnessed several major earthquakes – Latur in 1993, Bhuj in 2001 and Kashmir in 2005. Then, in 2011, the least populated state of India Sikkim was hit by two natural calamities in quick succession. The first, a 6.8 magnitude earthquake on 18 September claimed 116 lives (Source: IBNLIVE). The second was flash flood on 22 September. The region has experienced 18 earthquakes in the past 35 years (Source: Vervaeck, 2011).

The epicentre of the quake was in the Kanchenjunga Conservation Area, near the border of Nepal and Sikkim. According to preliminary estimates, 14,499 houses were destroyed while 5,327 more were severely damaged. Another 19,370 were partially damaged, forcing 61,245 people to live in tents and temporary shelters (Vervaeck, 2011).

Tremors were also felt in Nepal, Bangladesh, China and Bhutan. Severe damage to infrastructure, life and property estimated at around Rs one lakh crore (Source: PTI) were reported from all regions of Sikkim. The damage was increased by the failure of un-engineered structures (Source: Seeds, 2011). Heavy rains after the earthquake initiated fresh landslides.

Four days after this, flash floods broke out in the region to cripple an already suffering.

**“although India has dedicated emergency response teams, there is a sense that they don't automatically click into gear when disaster strikes”**

The Asian Age, 20 September, 2011

<http://www.asianage.com/editorial/disaster-response-much-be-done-180>



Earthquake survivors run past a school building in Chungthang, damaged in the 2011 Sikkim earthquake

population (Source: isikkim). Initial airborne relief was made difficult due to bad weather. Several areas plunged into darkness due to major power failures, while damaged mobile towers resulted in broken communication links. Restoration of electricity and communication remained a challenge even a week after the earthquake.

The central and state governments reacted by conducting aerial tours and assessment visits to the affected areas and later announcing monetary relief. According to The Wall Street Journal, “Over 5,000 army personnel, 7,000 Indo-Tibetan Border Police officials and five relief teams of the National Disaster Response Force were deployed for rescue operations”.

Army columns in small teams were deployed in rescue mission across Sikkim. The columns comprised medical teams with first aid, engineer detachments and relief and rescue units. The Border Roads Organisation (BRO) was also mobilised for restoring normal traffic on NH-31A which connects Sikkim to the rest of the country. The Indian Air Force rushed five cargo planes with relief material and personnel (Source: Zeenews). Immediately after the quake the authorities set up 100 relief camps for the survivors to provide food and shelter.

**“Disaster coverage is often like a Salman Khan movie – one high-impact image after another, chilling and thrilling alternately. Soon it is all over, and it is time to get back to our ordinary lives”**

Patralekha Chatterjee

26 September 2011

[http://www.dnaindia.com/analysis/column\\_patralekha-chatterjee-why-cant-we-ever-learn-from-our-diasaters\\_1591577](http://www.dnaindia.com/analysis/column_patralekha-chatterjee-why-cant-we-ever-learn-from-our-diasaters_1591577)

### Coverage of other earthquake disasters in the media

Coverage of disasters in the media varies considerably, with some disasters receiving a lot of attention, while others are neglected. The coverage of a disaster is dependent on various aspects including politics, geography, loss of life and property etc. Jonathan Baker, principal of the BBC's college of journalism says, “Whether we like it or not, the way a media organisation responds to a disaster will be driven first and foremost by how strong a story they think it is. To put it crudely: How bad is it?” The point that coverage of earthquakes is dependent on its differential impact is evident in examples below:

### 1) Latur earthquake:

On 30 September 1993, a temblor of 7.4 magnitude shook Maharashtra. The maximum damage was caused in Latur and Osmanabad districts of the state where buildings in 52 villages were badly damaged. The official figures revealed that the earthquake killed more than 20,000 people, injured around 30,000 and caused damages to the tune of Rs 6,500 crore. Though the Latur earthquake was covered widely at the time both by the Indian and the international media, it was remembered again only when Gujarat shook eight years later. A year after the quake, there was hardly any news story pertaining to the Latur quake that could be found in Indian media. However, when the Gujarat earthquake took place in 2001, there were several news reports on how the government had not learned lessons from the Latur quake.

#### Relevant websites for further studies:

[http://pqasb.pqarchiver.com/newsday/access/103146921.html?dids=103146921:103146921&FMT=ABS&FMTS=ABS:FT&type=current&date=Oct+01%2C+1993&author=By+Partha+S.+Banerjee.+SPECIAL+CORRESPONDENT.+This+story+was+supplemented+with+news+service+reports.&pub=Newsday+\(Combined+editions\)&desc=Killer+Quake+In+India%2C+20%2C000+feared+dead+and+50+villages+destroyed&pqatl=google](http://pqasb.pqarchiver.com/newsday/access/103146921.html?dids=103146921:103146921&FMT=ABS&FMTS=ABS:FT&type=current&date=Oct+01%2C+1993&author=By+Partha+S.+Banerjee.+SPECIAL+CORRESPONDENT.+This+story+was+supplemented+with+news+service+reports.&pub=Newsday+(Combined+editions)&desc=Killer+Quake+In+India%2C+20%2C000+feared+dead+and+50+villages+destroyed&pqatl=google)

### 2) Kashmir earthquake

On 8 October 2005, an earthquake of 7.4 magnitude shook Kashmir and destroyed villages in the border regions of Uri and Tangdhar. The epicentre was in Muzaffarabad in Pakistan-administered Kashmir where more than 87,000 people were killed. In India, 1,300 people lost their lives. The Kashmir quake got far more attention of the media – both Indian and international – than quakes that had caused more devastation. The disputed status of the region, the bitter relations between India and Pakistan that turned into a brief period of friendship between the two nuclear neighbours during the earthquake brought hundreds of journalists from across the world to Uri and Tangdhar. Due to political and geographical significance associated with the place of earthquake, the Indian media continued its focus on the Kashmir quake for several months. And as the earth-quake resulted in a thaw in India-Pakistan relations and several relief points were opened across the border region for the first time, the earthquake got massive coverage internationally as well. In a week's time, Indian Express – in its Delhi and J-K editions had more than 150 reports on the Kashmir earthquake.

#### Relevant websites for further studies:

[http://seattletimes.nwsourc.com/html/nationworld/2002553202\\_quakedig11.html](http://seattletimes.nwsourc.com/html/nationworld/2002553202_quakedig11.html)

<http://www.indianexpress.com/oldStory/79844/>

[http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a4CmT5rE8cbM&refer=top\\_world\\_news](http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a4CmT5rE8cbM&refer=top_world_news)

### 3) China earthquake

The Chinese earthquake of 12 May 2008, also known as Wenchuan earthquake, is the 21st deadliest earthquake in recorded history. The earthquake that had a magnitude of 8 on the Richter scale caused havoc across the Sichuan region in China. According to the official figures revealed two months after the earthquake, 69,197 people were killed by it. The earthquake injured 3,74,176 people while 18,222 went missing. It made 4.8 million people homeless as entire villages turned into piles of rubble. The China earthquake was given fairly extensive coverage by the international press. The reasons included the huge loss of life and property and the 2008 Olympic Games that were scheduled three months later in Beijing.

#### Relevant websites for further studies:

[http://www.usatoday.com/sports/olympics/2008-05-18-china-earthquake-olympics\\_N.htm](http://www.usatoday.com/sports/olympics/2008-05-18-china-earthquake-olympics_N.htm)

<http://www.telegraph.co.uk/news/worldnews/asia/china/2016887/China-earthquake-Beijing-seizes-on-rescue-for-Olympic-propaganda.html>

<http://www.npr.org/s.php?sId=90366623&m=1>

## Role media professionals could play in covering earthquakes

Many of India's highly populous cities including the national capital New Delhi are located in zones of high seismic risk. An earthquake in any part of India is likely to cause huge loss of life as India is the world's second most populous country after China. Thus it is very important for the media to cover various aspects of an earthquake before, during and after the disaster. The media could play a role of both watchdog and source of information to educate public.

The stories therefore, could range from:

Before disasters	
• early warning systems	<a href="http://ibnlive.in.com/news/predicting-earthquakes-a-day-in-advance/198349-60-121.html">http://ibnlive.in.com/news/predicting-earthquakes-a-day-in-advance/198349-60-121.html</a>
• educating public on how to prepare for disasters	<a href="http://www.metropolismag.com/pov/20111116/preparing-for-earthquakes">http://www.metropolismag.com/pov/20111116/preparing-for-earthquakes</a>
• government's plans and initiatives and efforts to handle such situations.	<a href="http://isikkim.com/2011-10-sikkim-cms-speech-at-the-national-development-council-meet-23-3/">http://isikkim.com/2011-10-sikkim-cms-speech-at-the-national-development-council-meet-23-3/</a>
During the disaster	
• the stories could be about areas worst affected,	<a href="http://www.guardian.co.uk/world/interactive/2010/jan/13/haiti-earthquake-disaster-map">http://www.guardian.co.uk/world/interactive/2010/jan/13/haiti-earthquake-disaster-map</a>
• loss to human life and property,	<a href="http://www.washingtonpost.com/world/turkey-earthquake-death-toll-rises-to-523/2011/10/27/gIQAUJYnLM_video.html">http://www.washingtonpost.com/world/turkey-earthquake-death-toll-rises-to-523/2011/10/27/gIQAUJYnLM_video.html</a> <a href="http://www.washingtonpost.com/wp-dyn/content/gallery/2010/04/14/GA2010041402077.html">http://www.washingtonpost.com/wp-dyn/content/gallery/2010/04/14/GA2010041402077.html</a>
• relief and rescue operations by government and non-government (including international) agencies.	<a href="http://www.csmonitor.com/2005/1011/p01s01-wosc.html">http://www.csmonitor.com/2005/1011/p01s01-wosc.html</a>
Post disasters	
• the stories could focus on how effective the rehabilitation and reconstruction measures were; transparency and accountability in usage of aid (governmental and international), success stories on how people survived difficult circumstances and post-traumatic stress disorder etc.	<a href="http://seattletimes.nwsource.com/html/local-news/2013838776_haiti04m.html">http://seattletimes.nwsource.com/html/local-news/2013838776_haiti04m.html</a>

Reporting on earthquakes or for that matter any disaster is challenging. Under difficult circumstances, information gap and tight deadlines, the reporter has to ensure that s/he comes up with news that is accurate. But the job of the reporter doesn't end there. It has been observed that earthquakes get a fair bit of coverage when they strike a place, some post-earthquake, however rarely any coverage pre-earthquake. Reporting a disaster has three distinct aspects – reporting before any disaster strikes an area, at the time of the disaster and after the disaster.

### Reporting before an earthquake strikes

The Himalayan region of India falls in the seismic zone V, which is most vulnerable to earthquakes. One of the important aspects of media reporting is to create awareness about disasters and thus help minimise the loss of life and property. There has been little coverage aimed at creating awareness or making the government accountable over issues such as setting up effective disaster management cells, proper implementation of laws for construction of earthquake resistant structures etc. Occasional reports can be seen when an earthquake strikes at some other place.

*One example is the article 'Disasters: Are we Prepared? Last few decades witnessed increase, both in magnitude as well as number of disasters, with greater implications world-wide...' (<http://www.greaterkashmir.com/news/2011/Oct/29/disasters-17.asp>.) The article was published after the Sikkim earthquake.*

After the 2005 earthquake, the Jammu and Kashmir government has made it mandatory for people to construct new buildings so that they are earthquake resistant. There are almost no media reports on the implementation of this law.

## Covering an earthquake

Reporters at the scene of an earthquake have to gather information under very difficult circumstances, and produce reports on very tight deadlines. Since most of the earthquake prone areas in India fall in the Himalayan region, often an earthquake is followed by land-slides thus making the affected areas inaccessible. In most cases, there is a communication breakdown, chaos and confusion that make it difficult

for a journalist to report immediately with accuracy. The government attempt to downplay the damages – of life and property – only adds to the problems of a journalist. In such circumstances, the reporter needs to go that extra mile and try to get accurate information from different sources. It is important to check death and damage figures provided by officials with other sources of information. In the immediate aftermath of a disaster, hospitals can often give a clearer picture than others. Since hospitals are the first place where injured are taken, the doctors there are often in a better position to give the figures pertaining to loss of life and injuries. Non-governmental organisations working in the area are other good sources of information. Since the NGOs have a network of volunteers spread across the region they are in a position to collect data pertaining to loss of life and property and assistance required. However, it is essential to cross-check these figures with officials, and to attribute different sources. For example:

### OFFICIAL SOURCES OF INFORMATION

- Government spokesman
- District administration
- Emergency services,
- Hospital officials and doctors
- Police

### Associated Press Archive – 8 October 2005

#### South Asian earthquake kills at least 132 in India's Jammu-Kashmir state, officials say

*The powerful earthquake that jolted South Asia on Saturday killed at least 132 people in Indian controlled Kashmir, army and police officials said. At least 115 people were killed in the frontier district of Uri, said Junaid Ahmed, a police superintendent in Kashmir's Baramulla district. Fourteen soldiers perished near the India-Pakistan border in a massive landslide triggered by the 7.6-magnitude quake, said army spokesman Lt. Col. V. K. Batra in ...*

Example 1: <http://news.bbc.co.uk/2/hi/4324302.stm>

Example 2: <http://www.tribuneindia.com/2005/20051009/main2.htm>

Example 3: <http://www.breakingnews.ie/world/cwcweyojaugb/>

## Post earthquake coverage or the follow-ups

It is often observed that the victims of an earthquake are forgotten after the initial coverage of the disaster. One can see very few follow-up reports on earthquakes in the Indian media. An example would be the recent Sikkim earthquake. Hardly any news reports appear in the media just two months later. It is important for a journalist to re-visit the place after some time to tell the stories of the people who have suffered, to find stories of hope, to show the people's resilience. These stories are an essential part of reporting disasters. Since the information gathered during the earthquake is sketchy, it is important to follow up so that a clear idea about loss of life and property can be obtained, plus the reasons for the damage being more or less than expected. How were the structures razed to the ground different from those that survived the quake? These reports are important for policy makers to plan for a better future. It is usually media coverage that pushes governments and non-profit organisations to initiate long-term relief and rescue operations. Four years after the 2005 Kashmir earthquake, BBC world Service Trust launched a two year capacity building programme for young journalists in Kashmir on how to cover disasters. This resulted in several follow-up stories by these journalists, revealing aspects of the earthquake that had gone unnoticed for four years.

Though the Kashmir earthquake got a fair bit of coverage for quite some time, reports on how to build better were missing from most of the Indian media. Some attention was paid to the issue only when an earthquake struck Sikkim.

### Examples of coverage of Sikkim earthquake

While the majority of news coverage focused on damage caused due to earthquake and relief and response measures taken by various agencies, a few focused on the need for disaster preparedness and its status within the country. Many other news reports emphasised the challenges posed by the Sikkim earthquake, whereas others laid importance on the need for several preventive measures against disaster's devastation. Quite a few news reports brought out people's anguish about the government's systems and policies. Writing in the Hindustan Times, Mahendra Lama, founding vice chancellor of Sikkim University in Gangtok, lashed out at government officials, claiming the "blatant lack of political sagacity" and "absence of bureaucratic resurgence" had "eaten the vitals of this region". Titled "Whose faultline is it", the piece said: "To improve infrastructure in this region, the authorities must shun their policy of incrementalism and switch to transformation". Terming the country's disaster management programme "government-centric", the piece further said that basics of disaster management must be inculcated at the grassroots level – from villages to communities and subsequently in educational institutes. "It's because of this lack of institutional commitment in such critical areas of interventions that the Northeast, where disasters occur every day, depends on other states for relief operations."

"There already exists a host of safety regulations on paper. The NDMA has mandated all new constructions to be earthquake-resistant, especially in seismic zone cities. Earthquake engineering codes and quake-safe construction guidelines have been laid down by government bodies. But the real worry is about their enforcement".

The Times of India

"Disaster coverage is often like a Salman Khan movie – one high impact image after another, chilling and thrilling alternately. Soon it is all over, and it is time to get back to our ordinary lives. Sitting in the comfort of our living room, we watch images of danger, devastation, grief, tragic moments, the thrills, and the triumph of rescue and relief workers racing against the clock to save lives in far off places. Unless the disaster strikes our backyard or affects someone close to us, we stop caring after a while," wrote Patralekha Chatterjee in the Asian Age. Coverage of Sikkim earthquake in the news media was not an exception to this. Following are some examples to illustrate how to report on disaster related issues:

**Example I:****Facts are sacred****Sikkim Earthquake: Death toll rises to 112**<http://kanglaonline.com/2011/09/sikkim-earthquake-death-toll-rises-to-112/>

This news story is a classical example of how a story about a natural calamity or disaster should not be covered. Since the relief and rescue agencies take the initial news reporting about a disaster as the basis for planning their strategy, these reports should neither exaggerate the situation nor try to downplay it. It is important for the reporters to be specific rather than relying on generalisations while reporting the damage and devastation caused by an earthquake. Here are a few examples from this report:

“Several hundreds are still believed to be stranded in the worst affected north districts of Sikkim.” What does the word ‘stranded’ mean? Are these people cut off from the rest of the country, are they under the debris with a fear that if rescue is not launched immediately they would die? If they are cut off, they would need immediate relief but if they are under the debris, the rescue operation would be the priority. Also what does hundreds mean? 200, 500, 1200, 1700? The reporter could have instead written close to 700 or approximately 500 and so on.

“Aerial pictures showed that the earthquake ripped apart the landscape in the stretch between Gangtok and Chung Thang, causing cracks, landslides and much destruction. The pictures also showed the destruction at the Teesta Dam site where several people lost their lives.” The way the writer describes the destruction, it seems as if tens of thousands of people would have died there, which was not the case.

“Around 80 per cent of the houses at Chung Thang have suffered damages with major and minor cracks. Several people have lost their lives and many families have been displaced.” What does ‘several’ mean? 2, 3, 5, 10, 20... If the number is small, the reporter should have made more of an effort to get an exact figure.

**Example II:****Accuracy****Sikkim earthquake toll climbs to 66, rescue work hampered by landslide**[http://articles.timesofindia.indiatimes.com/2011-09-19/india/30175140\\_1\\_sikkim-singtam-gangtok](http://articles.timesofindia.indiatimes.com/2011-09-19/india/30175140_1_sikkim-singtam-gangtok)**Sikkim earthquake: Landslides hamper rescue efforts, toll 40**[http://articles.timesofindia.indiatimes.com/2011-09-19/india/30175555\\_1\\_sikkim-gangtok-ndrf](http://articles.timesofindia.indiatimes.com/2011-09-19/india/30175555_1_sikkim-gangtok-ndrf)

Both appeared in The Times of India. The first is from PTI, filed at 6 a.m. on 19 September, and gives the death toll as 66. The second copy is from the newspaper’s own correspondent, filed at 11.55 a.m., and gives a death toll of 40. What is the reader supposed to understand? The confusion would be cleared if both correspondents had clearly mentioned the sources of their information.

**Example III:****Feature/news report with human interest****No links to Chungthang anymore, three bring back stories of horror**<http://www.indianexpress.com/news/no-links-to-chungthang-anymore-three-bring-back-stories-of-horror/850032/0>

Tragedies are best reported through humans. The statistics of a story (like the number of people killed or injured or the number of houses damaged) don’t show the pain and agony of the people who have suffered. Their pain and sufferings are lost in the numbers. In this regard, it is important to tell the stories of humans and a good way for such reporting is personalisation – taking a character and through him telling the story of hundreds of other people who have suffered like him. News reports represent an account of what’s happening around human beings. News features help explore the issue, and are as newsworthy as hard news. Human interest stories document the experiences of individuals who are affected by particular events or circumstances. Such stories personalise the successes and challenges and emphasise the human aspect. Therefore, while reporting on disasters related issues, news features provide opportunities to explore the issue and its impact by interviewing the people involved about their struggles, victories and defeats during a particular event, and drawing conclusions from that information, as this feature did.

*A Few excerpts from the news report:*

... “It looks like a heavily bombarded area with bodies underneath mountains of boulders,” said Ghimrey.

“When we started this morning, a large number of others tried to follow us, but gave up after sensing the dangers in the path,” Limbu said.

Recalling the moment of the quake, he added: “Initially, we thought it was boulders falling, which happens regularly because of blasting at the project site. But when everything started swaying precariously, we ran out of our house (the three share a room at the project site), escaping just before it collapsed and rolled into the Teesta.”

...As it tries to press through to Chungthang, the Army is dreading what it will find.

**Example IV:**  
**News reports with statistical details**

**Sikkim earthquake: The long night after**

<http://www.indianexpress.com/news/sikkim-earthquake-the-long-night-after/849000/0>

Statistics can be complicated, but they are a fundamental part of disaster reporting. All studies deal with statistics, and having an understanding of the basic principles helps to write accurate, interesting and pithy reports. Following are some excerpts from the news report to illustrate how numbers can be used to explain a story/series of events.

“The death toll in the 6.9 earthquake that convulsed Sikkim last night crossed 70 this evening as Army columns and paramilitary personnel battled torrential rain, mist and landslides that cut off affected areas and stalled relief and rescue work.

...Officials said that when the quake struck last evening, there were several vehicles on the Gangtok–Mangan route and many of these could have been “tossed off the road” or crushed under moving mountains of debris. “We have reports of several people missing but can only act on these once the road is restored,” said an official. As many as 22 people traveling in a bus are reported missing since last evening in north Sikkim. (Here the journalist has used the term ‘several’ quoting the official.)

...As many as 105 Army columns, with an estimated 5,000 personnel, have moved into the affected areas. Their primary objective is to restore road, telecom and power links. Colonel Om Prakash, an Army spokesman, said as many as 20 blockades had been cleared on National Highway 3, linking Siliguri to Gangtok. But airdropping operations had to be abandoned because of bad weather – about 2000 packets of dry food and matchboxes sat at Bagdogra airport. Electricity and telecom links were partially restored in Gangtok. (Many numbers used but the report remains clear.)

**Example V:**  
**Different kind of reports**

*Following are some examples of how different angles could be used while reporting on disaster related issues. The list is not exhaustive*

**Sikkim quake: A daughter waits for her father**

<http://www.ndtv.com/article/india/sikkim-quake-a-daughter-waits-for-her-father-135958>

Among a large number of missing persons, the reporter has taken an engineer to depict the pain of all the families. This is a better way of telling the story of the suffering of the families, whose loved ones are still missing. The story could have been put the other way also like ‘hundreds still missing’. But that would not tell us about the uncertainty, the suffering and the pain of these families who want reunion with their loved ones or the news that they are dead. Some excerpts from the news report:

...It’s been an endless wait for the family of Subrata Ranjan Nath. Mr Nath, a senior official with a power company in north Sikkim, has been missing since a devastating earthquake rattled the state nearly a week ago.

...Officials from his company – Teesta Urja Limited - told his family about reports of Mr Nath’s car being hit by a boulder during the earthquake.

...”We are getting lots of conflicting reports and so there is lot of confusion. What we are looking for is concrete information”, Paromita, Mr Nath’s younger daughter said.

...The Army says it is trying its best to locate the missing, including Mr Nath

...But Paromita wants the government to do more to find her father.”We would like to request the Government of India to send in more resources and help to the extent they can.” As days pass by, the Naths are getting more anxious but they still haven’t lost hope.

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### **Sikkim quake unusual, say geologists**

<http://www.hindustantimes.com/Sikkim-quake-unusual-say-geologists/Article1-747926.aspx>

This is another example of how different dimensions could be covered while reporting on disaster related issues. The reporter tries to bring out information about the disaster, but also emphasises the need for preparedness. Some excerpts:

...The earthquake that rocked Sikkim on Sunday is unusual in terms of its magnitude and nature of origin, say leading geologists....But what makes it different is its “unusually greater magnitude”.

...”This is what we generally do not expect in the Himalayas,” Gahaulat told IANS. “We expect large magnitude earthquakes on the detachment having thrust motion on gently dipping planes - like the 1999 Chamoli and 1991 Uttarkashi earthquakes.”

...”But this one (Sikkim quake) makes it clearer as this is possibly the largest magnitude earthquake of this type in the Himalayas.”

...According to Gahaulat, “we need to be careful” if, in the coming days, the aftershocks occur southeast of the main shock epicentre - the way two aftershocks have occurred.

“The region where the main shock occurred has very low population density, but further southeast, population density is higher,” he cautioned

## **CASE STUDY II: DISASTER RISK REDUCTION INTEGRATED INTO A DEVELOPMENT STORY**

### **Introduction and Context**

India’s energy needs are vast and growing. In spite of being the world’s fifth largest electricity producer there are shortages and a significant section of the population does not have access to electricity. There is a need for large capacity addition, deploying all sources optimally. Nuclear power is the fourth largest source of electricity in India after thermal, hydroelectric and renewable sources of energy.

As of 2010, India had 20 nuclear reactors in operation in six nuclear power plants, generating 4,780 MW (Source: Nuclear Power Corporation of India Limited, NPCIL), while other reactors were under construction. Nuclear energy is an important clean energy option, but there are some major risks associated with nuclear power plants. If anything were ever to go wrong inside the reactor, the results could be disastrous. One of the most dangerous risks is the possibility of a nuclear meltdown. This occurs when the core overheats in an uncontrolled manner – the core simply melts. Such an event would release large amounts of radioactivity, harmful to humans and all other forms of life. Also, there are issues regarding overall safety of nuclear power plants, disposal of nuclear waste, effects of nuclear activity on humans, flora and fauna in areas near a nuclear power plant. And so far there is no viable solution for a long-term repository of nuclear waste.

In October 2011, India drew up an ambitious plan to reach a nuclear power capacity of 63,000 MW in 2032 by setting up 16 indigenous Pressurised Heavy Water Reactors (PHWR). About 40,000 MW will be generated through Light Water Reactors (LWR) with



international cooperation, NPCIL Chairman and Managing Director S.K. Jain said (PTI). But after the Fukushima nuclear disaster in Japan in March 2011, concerns about safety of nuclear power plants (NPPs) started threatening India's massive investment plans in the sector (Srivastava, 2011). Populations around proposed Indian NPP sites launched protests that found resonance around the country, raising questions about atomic energy as a clean and safe alternative to fossil fuels. Although Prime Minister Manmohan Singh, the main architect of India's nuclear programme, has repeatedly assured over the last few months that all safety measures will be implemented, many are not buying his arguments (Srivastava, 2011). A Public Interest Litigation (PIL) has also been filed against the government's civil nuclear programme at the Supreme Court. The PIL specifically asks for the "staying of all proposed nuclear power plants till satisfactory safety measures and cost benefit analyses are completed by independent agencies" (Arun, 2011).

There have been mass protests against the French backed 9900 MW Jaitapur Nuclear Power Project in Maharashtra and the 2000 MW Koodankulam Nuclear Power Plant in Tamil Nadu. The state government of West Bengal has refused permission to a proposed 6000 MW facility near the town of Haripur that intended to host six Russian reactors (Srivastava, 2011).

### Jaitapur Nuclear Power Project



Jaitapur Nuclear power plant is the proposed 9900 MW power project of the state controlled NPCIL at Madban village of Ratnagiri district in Maharashtra. French nuclear engineering firm Areva S.A. is contracted to build two of Areva's Evolutionary Power Reactors, or EPRs, of 1,650 megawatts each, and to cover the supply of nuclear fuel for them for 25 years. The complex is expected to eventually have six of the 1,650 megawatt reactors.

Five villages, Madban, Nivel, Karel, Mithgavane and Varliwada, which have a population of around 4,000, will be affected. Madban and Varliwada have been identified for the project, while Karel, Nivel and Mithgavane would become the township for the project staff. The Department of Atomic Energy (DAE) maintains that the Jaitapur nuclear power park will not lead to any displacement of people, and that much of the acquired land is unproductive (Dianuke.org, 2011).

If built, the proposed nuclear power plant will be the largest in the world. It has been in controversy on various counts. The local population has carried out several protests against it. On 4 December 2010, protests became violent when over 1,500 people were detained from among thousands of protesters, who included environmentalists and local villagers (Deshpande, Protest against Jaitapur nuclear plant, 2010). On 18 April 2011, one man was shot and killed by police and eight were injured after protests turned violent (IANS, 2011)

A resident of Madban, Premanand Tivarkar, whose land has been acquired for the project, said that till now few political leaders had taken note of their agitation; and nobody from the affected villages had demanded increased rates for the land. "It is misleading to state in the Council that we have asked for more money. That is not the case. We are totally opposed to the project and want no money," he clarified.

The Hindu  
25 July 2010

The protests have been on various counts – people who are losing their land protested about compensation, safety of the nuclear power plant and of populations near the power plant, loss of livelihood etc.

The Government of Maharashtra claimed to have completed the process of land acquisition in January 2010. However there have been reports that villagers have turned down the compensation (Hindu, 2010). Villagers were offered Rs 2.86 per square foot for barren land and Rs 3.70 per square foot for cultivable land. This was subsequently raised to Rs 4 lakhs an acre, and most recently, to Rs 10 lakhs, with the guarantee of one job for every affected family. NPCIL has labelled 65 per cent of the land as barren (Menon, 2010). The local population finds this outrageous because the land is highly fertile and produces rice, other cereals, the world's most famous mango (the Alphonso), cashew, coconut, kokum, betel nut, pineapple and other fruits in abundance. Some of the land is also used for cattle grazing and rain-fed agriculture and is hence productive (Hindu, 2010). A public Interest Litigation (PIL) has also been filed by Shashikant Keshav Joshi, one of the residents of the affected villages. The PIL was filed in the Bombay High Court alleging that Shashikant's land had been forcibly acquired, that the site of the project was earthquake prone, and that the location of the plant posed a security threat. Joshi said he was offered Rs 25 lakh as compensation for 47 hectares of land, but that he had refused it (Hindu, 2010).

The proposed Jaitapur nuclear plant is located in seismic zone 4, documents provided by the Geological Survey of India under the Right to Information Act have shown.

Members of Greenpeace, an NGO that works for the environment, said that the site being located in seismic zone 4, meant that there was a probability of quakes measuring up to 7-7.5 on the Richter scale occurring here. Greenpeace activists said by changing Jaitapur's seismic zoning from 4 to 3, the nuclear establishment was playing with the lives of millions, especially after the recent nuclear disaster in Japan following a quake.

Viju B, The Times of India

Environmentalists and social activists have raised concerns over effects of the nuclear plant on the ecology and geology of the area. Konkan has been called the "Kashmir of Maharashtra" because of its stunning beauty. Botanists say it is India's richest area for endemic plant species. An Impact Assessment Report by Tata Institute of Social Sciences (TISS) has strongly criticised the nuclear plant project. A public hearing on the environmental impact assessment (EIA) Report, prepared by the National Environmental Engineering Research Institute, was conducted by Maharashtra Pollution Control Board on behalf of the Ministry of Environment and Forests on 16 April 2010, at the plant site. The public hearing became controversial as the EIA report was not delivered for study to three of the four local village bodies a month in advance as per the guidelines (HEARTS, 2011).

Nuclear safety – both in terms of the safety of the power plant itself and safe storage of the waste from the power plants – has been the issue of protests as well. *"Madban village, closest to the proposed site (just half a kilometre away), brims with voices well aware of the perils of a nuclear power plant. There are apprehensions about the possibility of radioactive material spreading in the environment. Posters and flyers around temple walls and news stands condemn what is termed 'destructive progress'.... Radioactive waste is another contentious issue. Jain says the solid waste will be stored in lead containers buried in trenches dug into the earth. Naturally, people are worried about the impact on the groundwater table and soil. There seems to be some basis for this concern, as when TE-HELKA visited the site, Nilesh More, 25, of Sobam Foundation, Belapur,*

*What gainful employment?" retorts Govalkar. "We are not educated and we do not understand anything other than fishing." Their scepticism increased after some of them visited villages around Tarapur, north of Jaitapur along the coast, where India's first nuclear reactor is located, for which land was acquired in the 1960s. They heard stories of how the once flourishing fishing villages' fleet of 400 boats has dwindled to 20. "Three fishing harbours have vanished... Rehabilitation took decades," says Phadnis.*

*Navi Mumbai, who had come to collect soil samples, found that 20 metres down, porosity is almost 9-10 percent". (GHANEKAR, 2010)*

Besides farming and horticulture, the Jaitapur-Madban area has a sizeable fishing economy. The fishing population has also protested against the Jaitapur nuclear power plant for they think they will also be affected. The plant will daily release a huge 52,000 million litres of hot water into the Arabian Sea. Besides the rise in seawater temperature, tighter security in the coastal region would restrict fishing severely. Boat owner Majith Govalkar explains why they are opposed to the nuclear project. Their understanding is that the reactors will discharge hot water into the sea, upsetting the ecology and scaring away the fish. Given the security concerns of a nuclear plant, the government is also sure to create a security zone and ban fishing near the coast, he says. Muffazal Phadnis, another boat owner, says over 6,000 people in these villages depend directly on fishing for a living. "For the boat owners there is no other income. We do not own agricultural land," he says (Subramanian, 2011). According to the Maharashtra Macchimar Kruti Samiti, seven fishermen's villages – Sakhari Nate, Tulsunde, Ambolgad, Sagwa, Kathadi, Jambhali and Nana Ingalwadi – will be threatened by the nuclear power project.

On the other hand, nuclear scientists and many others are advocating the Jaitapur project as safe, environmentally benign and an economically viable source of electrical energy to meet the increasing electricity needs of India. The then Union Minister of State for Environment and Forests, Jairam Ramesh, said that he had a few objectives to consider while giving clearance to the Jaitapur nuclear power complex. "I tried to balance four objectives: the amount of energy required to sustain a growth rate of nine per cent; the proportion of fuel mix; strategic diplomacy, especially after the Civilian Nuclear Deal; and the environmental concerns raised by a large number of groups," he said. The clearance was granted within 80 days of NPCIL submitting the Impact Assessment Report (Deshpande, 2010). Nuclear scientist M.R. Srinivasan called the allegations of the anti-nuclear camp "totally unacceptable". According to IANS, Srinivasan said he had personally selected the site for the Jaitapur project, in coastal Ratnagiri, way back in 1984, keeping in view factors like no agriculture barring fodder grass and no human settlements (IANS, Nuclear scientist flays opposition to Jaitapur project, 2011). He raised questions on how poverty and deprivation can be eliminated if the country does not create wealth through economic development. Cement, steel, aluminium, fertilisers, and other basic raw materials and vital infrastructure like railways cannot be produced or run without electric power, he said. Serious questions have been raised about the economic costs of the Jaitapur project based on the extremely expensive European Pressurised Reactors. Each of the six 1,650 MW reactors would cost around \$7 billion assuming the capital cost of the EPR being built at Olkiluoto does not escalate beyond the latest estimate of 5.7 billion Euros. This works out to Rs 21 crores per megawatt (MW) of capacity.

"I know the environmentalists will not be very happy with my decision, but it is foolish romance to think that India can attain high growth rate and sustain the energy needs of a 1.2 billion population with the help of solar, wind, biogas and such other forms of energy. It is paradoxical that environmentalists are against nuclear energy," he said.

The Hindu

### Coverage in media

The media has overall taken an unbiased approach to nuclear power plant projects. Articles tend to take an explanatory role to elucidate the project and its various ramifications to the reader. It has been discussed both as an energy solution as well a nuclear problem.

### **Nuke energy is the only option, says Atomic Energy Commission chief**

[http://articles.timesofindia.indiatimes.com/2011-11-14/madurai/30396707\\_1\\_kudankulam-nuclear-power-fukushima](http://articles.timesofindia.indiatimes.com/2011-11-14/madurai/30396707_1_kudankulam-nuclear-power-fukushima)

Admitting that the public fear behind commissioning of the Kudankulam nuclear power plant in the light of the Fukushima and Chernobyl disasters is legitimate, former Atomic Energy Commission (AEC) chairman M.R. Srinivasan on Sunday said there was a communication gap between the scientists and locals in handling the issue.

“... It’s the most advanced form incorporated in the design of Kudankulam. Now, at least Rs 14,000 crore from the taxpayers’ money has been spent. If we don’t operate the plant immediately, it will affect the economic stability of our country,” he warned.

If the plant becomes operational, it would be able to supply steady power at less than Rs 3 per kilowatt hour. “While all other nuclear power plants in the country supply power between Re 1 and Rs 3 per kilowatt hour, Kudankulam will be able to supply steady power in less than Rs 3. If the 2,000 MW plant becomes operational, Tamil Nadu will get a lot of benefits and it will also make the state self sufficient in the power sector,” said Srinivasan.

Since options like gas, solar and wind energies are expensive, we should never say ‘no’ to nuclear energy, he said. “We can never run a factory or metro system with solar energy. It’s not a viable solution as it is expensive. Since the hydro energy sources are less, and those found in the south come under the reserved forest areas of Kerala, we can’t use that also. So nuclear energy is the only option. If we don’t go ahead with nuclear plans, we won’t be able to supply electricity to an aspiring population of India. So it’s necessary that the 15-member committee, appointed by the centre, should sit and discuss each and every point of it with the people in detail,” he said.

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### **Clean Nuclear Power Solution to Power Needs: Kalam**

<http://news.outlookindia.com/items.aspx?artid=741386>

Power hungry India should go for “clean” nuclear energy, including that from the Koodankulam atomic plant, former President APJ Abdul Kalam today said, warning that fossil fuel burnt by states would damage the earth. The fossil fuel burnt every year by all states was equivalent to 30 billion tonne of carbon dioxide, Kalam said when asked about West Bengal government’s opposition to nuclear power.

“Only clean power is the solution. Solar, nuclear, bio and hydel are clean power,” Kalam told reporters on the sidelines of IIM Calcutta’s golden jubilee celebration. Asked about the Koodankulam nuclear power issue, Kalam said, “We are a power hungry nation and 2,000 MW of clean power is ready to be pumped into the grid. If it is clean power you must go for it.”

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### **Jaitapur, India: EPR – a nuclear problem not an energy solution**

<http://www.greenpeace.org/international/Global/international/publications/nuclear/2010/Jaitapur%20media%20briefing%20headed.pdf>

Despite the EPR being celebrated by the nuclear industry as its answer to the nuclear industry’s resurrection, the only EPRs under construction reveal serious concerns about its design, safety and cost. In India, these concerns would be multiplied due to weak regulation and the proposed location. Nuclear energy is not only the most controversial and dangerous form of energy generation, it is also one of the most expensive. To raise the many billions of euros needed to build even a single nuclear reactor, utility companies rely heavily on banks and other financial market players. These projects are riddled with a range of problems, including such fundamental design fault hazards as having the operating system joined with the safety system, meaning that in an emergency if the operating system malfunctions, it can take the safety system with it. It is also questionable whether they could withstand having an aircraft crash into them.

When the plant was first conceived, reports were concerned about how the plant was going to be in an earthquake zone (zone 3).

### **‘Can’t rule out earthquakes at nuclear plant sites’**

<http://www.rediff.com/news/report/cant-rule-out-earthquakes-at-nuclear-plant-sites/20111113.htm>

Amid concerns over the Koodankulam nuclear power project, the National Disaster Management Authority has said safety measures at all atomic plants in the country were in place but admitted earthquakes at these sites cannot be completely ruled out.

...”Earthquake is a matter of great concern to us, especially in the six nuclear states of the country. The list of seismically vulnerable places is being constantly revised,” NDMA vice chairman Shashidar Reddy told PTI.

“You cannot completely rule out a quake at these sites. The challenge is to be prepared for an unlikely disaster,” Reddy added.

...As far as the safety of the nuclear plants are concerned, he said, they are designed to withstand higher intensity than is forecast for that particular place. All the measures taken by the government and other agencies are “fool-proof”, he said.

...To meet the eventuality of a disaster, NDMA has directed state governments to set up rescue teams on the lines of the National Disaster Response Force.

...”The process of setting up a state disaster response force – trained in tackling chemical, biological, radiation and nuclear catastrophes - has already begun. When our early warning systems are still in its initial stages, what we can do is prepare best for a response in vulnerable areas,” he said.

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### **Jaitapur nuclear plant site not immune to earthquake: Experts**

[http://articles.economictimes.indiatimes.com/2011-11-23/news/30433380\\_1\\_koyna-region-jaitapur-power-plant](http://articles.economictimes.indiatimes.com/2011-11-23/news/30433380_1_koyna-region-jaitapur-power-plant)

Two leading geologists have warned that a magnitude 6-plus earthquake cannot be ruled out in Jaitapur - the proposed site of India’s largest 9,900 MW nuclear power plant on the west coast that has seen protests against it for safety reasons - and that it could occur within the lifetime of the power plant.

“Since Jaitapur lies in the same compressional stress regime that has been responsible for generating both the magnitude 6.3 Latur and magnitude 6.4 Koyna earthquakes in the past five decades, it can be argued that a similar sized earthquake could possibly occur directly beneath the power plant,” they say in a report in the latest issue of Current Science published by the Indian Academy of Sciences in Bangalore.

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### **20 years, 92 quakes: Ground trembles beneath Jaitapur’s feet**

[http://articles.timesofindia.indiatimes.com/2011-03-16/india/28699015\\_1\\_jaitapur-nuclear-power-plant-earthquake](http://articles.timesofindia.indiatimes.com/2011-03-16/india/28699015_1_jaitapur-nuclear-power-plant-earthquake)

Jaitapur area falls in the seismic zone 3 category, and data from the Geological Survey of India shows that between 1985 and 2005, there were 92 earthquakes.

The biggest earthquake in Jaitapur, recorded in 1993, measured 6.2 on the Richter scale. The ground is unstable, say activists and geologists, and there is no guarantee that the government’s safeguards will protect the people and ecologically sensitive Konkan coast from a nuclear disaster should there be another earthquake.

Environmental activist Pradeep Indulkar said: “The third explosion at the Fukushima plant in Japan on Tuesday confirms that in the event of an earthquake, precautionary measures and safeguards will not avert a disaster. It is better not to have a nuclear power plant in this seismic zone.”

*The media also covered the protests that erupted in and around Jaitapur quite fairly. There were protests for different reasons -*

## **Nuclear power plant opposed**

<http://www.hindu.com/2010/01/18/stories/2010011856280300.htm>

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Opposition to the project has been strong since the beginning and a series of meetings were held last weekend too. There are no takers for the cheques the government is doling out. Vijay Raut owns about 40 to 50 acres on the project site and an orchard of Alphonso mangoes. "My father was among those who laid the foundation for the lighthouse," remarks Raut as he walks through the dry grass. "The government says this is barren land. But everything here is useful for us. The laterite rock builds our homes, the grass is used as fodder, and the land is used for grazing. There are paddy fields and occasional mango plantations. Why should we give this up?" he asks.

In the hot sun, Dipali Kuveskar and her companions are weeding her mango orchard. "I am going to lose this land which has fed me and my two sons till now. It earns us Rs. 1 lakh a year. What will I do once it's gone?" Dipali is among those who have refused to accept a cheque in lieu of land. "I am not selling my mother," she remarks.

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## **At least 20 injured in protests over Jaitapur nuclear plant**

<http://in.reuters.com/article/2011/04/19/idINIndia-56432820110419>

People protesting against a planned nuclear power plant at Jaitapur attacked a hospital and torched buses on Tuesday and at least 20 people were injured a day after an anti-nuclear activist was killed in police firing.

Protests led by opposition politicians shut down towns near the site of the \$10 billion plant in Maharashtra where anger over land acquisitions has intensified after the nuclear crisis in Japan. "The situation is very tense out here," protest leader Amjad Abdul Latif Borkar told Reuters. Five demonstrators were taken to hospital with bullet wounds, and at least six policemen were injured, the administration head in Ratnagiri told Reuters. Chief of police in Ratnagiri, 60 km (38 miles) north of the site of the planned plant at Jaitapur, said at least 20 people had been injured.

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## **A lot was also written about the Nuclear Civil Liability Bill**

[http://www.dnaindia.com/analysis/comment\\_why-the-nuclear-liability-rules-need-to-be-modified\\_1621411](http://www.dnaindia.com/analysis/comment_why-the-nuclear-liability-rules-need-to-be-modified_1621411)

Also issues of the cost efficiency of the project were debated. As leakages were reported in nuclear reactors in Japan, media became even more sceptical even as France assured India about stringent nuclear security.

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## **Nuclear emergency in Japan: lessons for India**

<http://www.nl-aid.org/continent/south-asia/nuclear-emergency-in-japan-lessons-for-india/>

The recent devastation that has impacted the people of Japan has been described as of epic proportions of many kinds: loss of lives, loss of private properties and public assets; economic setback; and nuclear emergency. While there was not much the civil society could do to avoid the earthquake and tsunami, the man made nuclear scenario has emerged as the focal issue because of its long term ramifications on Japan itself and also on its neighbours.

Whereas the whole world is extending its sympathy and support to the people in Japan, there are also many lessons for poor countries like India with dense population. A crucial lesson has been the folly of the misconception that the over reliance on modern technology alone can ensure safety, security and welfare of the masses even in a developed country such as Japan.

While the nuclear emergency caused by tsunami/earthquake has thrown up many critical issues even in a safety and quality conscious country like Japan, it is very hard to imagine that the powerful and secretive nuclear power sector in our country (a country generally associated with corrupt and poor quality practices) has taken all the essential and adequate precautions to avoid such nuclear emergencies. It is even more critical to ask ourselves whether a densely populated and resource constrained country like ours can afford such a nuclear emergency?

... There is an urgent need to address a fundamental set of issues. Do we need nuclear power plants to meet the legitimate electricity demand of our masses? If so, how many are needed? If they are safe and economically viable, as being claimed by the nuclear establishment, why not increase its share of the total installed power capacity as in France? Who can guarantee us of the required amount of fissile material required for the economic life of these plants? How are we going to ensure the safety of the plants and the spent fuel for thousands of years? Shall we not ponder whether it is fair to pass on all these costs and risks to the future generations, while the present generation may get the meagre benefit of electricity at a very low Plant Load Factors (as is the record for our nuclear power plants)? Why have we not objectively considered very many benign alternatives to meet the electricity demand of our masses?

Interestingly, many articles captured linkages between potential disaster/risk/threat and economic development milestones; but not much is seen on issues pertaining to disaster risk reduction. Media took over covering various aspects of the nuclear power plant, issues were raised in the media and the NPCIL responded to quite a few articles, for example:

### **The Rape of Eden**

<http://www.outlookindia.com/article.aspx?268584>

Madban, the village chosen for the Jaitapur nuclear power plant, mirrors the deep resentment and unrest in the entire Konkan stretch. Some parts have seen agitations for over three years, but events in Madban signify the worst side of India's infrastructure crusade. Land was acquired in Madban, Nivelu and Mithgavane without informing villagers of the nature of the project; protesters saw the ruthlessness of state power. Prohibitory orders were enforced strictly, women walking to their fields were picked up and thrown behind bars, farm equipment was confiscated or thoroughly searched before labourers were allowed to proceed to their farms, key activists in the area were detained so many times that most went underground as the Jaitapur deal was signed. Even so, nearly 800 locals were detained as a few broke window panes of police vans and gathered to listen to Justice (ret'd) B.G. Kolse Patil, who too was arrested and kept in Lanja jail with convicts and undertrials.

"Whenever news is being telecast about the Jaitapur plant, power goes off in the entire area. Whenever an agitation is planned, the mobile network gets jammed. Isn't it surprising?" asks Vilas Keru Katkar, 39, a Nivelu resident. Another resident, Ranjana Manjrekar, laments that "it's our own police that lathicharges us, while the handful of traitors who've given their vehicles to the power plant get police protection." A third resident, Anant Narayan Katkar, 67, who has been arrested three times so far, remarks: "The government thinks we agitate because our land is being taken. But they don't realise that, for us, nature is not separate. We are part of the nature which the Jaitapur project will destroy."

NPCIL's view on the story published in 'Outlook', 20 December 2010 issue which is available at [http://www.npcil.nic.in/main/news\\_23dec2010.pdf](http://www.npcil.nic.in/main/news_23dec2010.pdf)

NPCIL also responded on a debate show on Times Now:

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### **Debate over N plant in Jaitapur Turns Political - A Non Political View**

[http://www.npcil.nic.in/main/news\\_29dec2010.pdf](http://www.npcil.nic.in/main/news_29dec2010.pdf)

Despite a fair bit of coverage of all the aspects – negative and positive – of the Jaitapur nuclear power plant, there is still some scope for looking into the humanitarian aspect of this nuclear project. Personalised, soft stories based on the problems of the villagers or the communities could make quite a difference and put this entire story in right perspective as far as its humanitarian costs are involved. There is a larger scope for inclusion of disaster risk reduction related stories in the development stories.

Media professionals could cover stories related to nuclear power plants from various perspectives and viewpoints. The stories may range from

- Need for nuclear power vis-à-vis other sources of energy
- Issues surrounding safety of reactors in a nuclear power plant
- Safety related to storage of nuclear waste
- Impact of nuclear power plant on human beings, flora and fauna near the NPP sites
- Economics/cost efficiency of the nuclear power plant
- International relations and policies surrounding the civil nuclear
- Environmental and geological issues
- How life of people near nuclear power plants will be affected; for example, there may be environmental concerns, issues related to pollution and loss of livelihood etc

Here are some examples (good and bad practices) of the news reportage on the proposed Jaitapur nuclear power plant:

**Example I:  
Contextual  
background**

**Jaitapur N-project site earthquake prone: TISS**

<http://www.livemint.com/2010/12/29154107/Jaitapur-Nproject-site-earthq.html>

The story though correct in facts and attribution makes a rather difficult read. For example, “Extensive studies carried out by various government institutions/organizations, specialising on these studies, have found no active geological fault up to 30-km radius from the proposed Jaitapur Nuclear Power Project site, thus validating that the site is not earthquake-prone”, Nagaich said.

The abbreviations and the technicality of the long sentence tend to force the reader to go back to the beginning over and over again. The reporter has used jargon in the news report which is not easy for a layman to understand. The job of the reporter is to put the scientific jargon into the simpler terms that even a student can understand very well.

The article talks about a ‘geographical fault’ but does not explain it. This sends a layman or a casual reader to the dictionary or to search the meaning of the term.

**Example II:  
Clarity of concepts  
and accuracy**

**Resistance to Jaitapur Nuclear Plant Grows in India**

[http://www.nytimes.com/2011/04/15/business/global/15nuke.html?\\_r=1&src=busln](http://www.nytimes.com/2011/04/15/business/global/15nuke.html?_r=1&src=busln)

The writer lucidly takes us from the particular to the general. (Refer to first two paragraphs). He takes it from a personal to a global problem in a single line. “They stood to lose mango orchards, cashew trees and rice fields, as the government forcibly acquired 2,300 acres to build six nuclear reactors – the biggest nuclear power plant ever proposed anywhere.”

He quotes his sources openly, the Indian newspapers and letters written to the Prime Minister. The way the writer refers to treaties and deals conveys a deep understanding of the subject and homework on his/her part. The writer is as aware of the ground situation in Jaitapur as of the world’s nuclear situation. The article stands both factually correct and easy to read due to simple language. The writer does not confuse us with nuclear jargon. He also comes back full circle by mentioning Gawankar again, while talking about his arrest and again uses it to generalise the situation. In describing places a global approach is taken so that the reader sitting anywhere in the world can easily relate to it. For example, India’s financial capital Mumbai. The writer also shows an understanding of India’s policy and plans.

**Example III:**  
**Facts vs opinion**

**‘Police went on a rampage against us’**

[http://www.mid-day.com/news/2011/apr/250411-Jaitapur-police-firing-actions-women-children-villagers.htm?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+mdnews%2Fmumbai+%28Mid+Day+Local+News+-+Mumbai%29](http://www.mid-day.com/news/2011/apr/250411-Jaitapur-police-firing-actions-women-children-villagers.htm?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+mdnews%2Fmumbai+%28Mid+Day+Local+News+-+Mumbai%29)

The article starts with adequate background and talks about why a certain story needs to be told. But the writer, through his choice of words, seems to have taken sides. Consider, “They were the unjustified target of police aggression, manifested by the use of lathis, stones and gunshots, they would tell you, animated with a belligerence. Most people claim that, like Tabrez, they were not even part of the active protests, and yet they were victimised.” Words like “unjustified target” and “victimised” take the piece from being an objective piece to a one sided report.

However, in the second section of the piece, the writer lets the characters do the talking and refrains from commenting. He manages to portray official apathy through the words of the characters. In the last section, the writer brings in a police officer’s comment but unlike the victim’s stories he does not comment on “the other side”.

**Example IV:**  
**Clarity of concepts**

**‘OK to Jaitapur plant only if it’s secure’**

<http://epaper.timesofindia.com/Default/Scripting/ArticleWin.asp?From=Archive&Source=Page&Skin=TOINEW&BaseHref=CAP/2011/03/22&PageLabel=20&EntityId=Ar02000&ViewMode=HTML>

This is a straight news report with facts and quotes evenly distributed suggesting clarity of concepts. Some excerpts:

...In the backdrop of the nuclear crisis in Japan, chief minister Prithviraj Chavan said on Monday that the state government will not go ahead with the Jaitapur plant unless it is fully secure.

...But even as Chavan assured naysayers that the government would ensure all safety aspects, he underlined the importance of nuclear power as an alternative source of energy. “When we run out of natural resources, what shall we do for electricity?” he asked.

... And even as activists and villagers in Jaitapur have stepped up their agitation, the state said it was willing to discuss all aspects of the project. “No one will be displaced and agriculture will not be affected once the project becomes operational,” Chavan added.

**Example V:**  
**Reporting facts**

**Jaitapur nuclear project: villagers turn down compensation**

<http://www.thehindu.com/news/national/article532044.ece>

This is an example of a good report as the reporter provides information from various sources and varied research. Both this and the earlier report are factually and conceptually accurate but the former makes a rather flat read written like a follow up report assuming too much knowledge on the part of the reader, while this is more explanatory in nature. The report provides good transition making it an easy read. It also uses the time element very well to tell the story chronologically. “Meanwhile, on Tuesday, members of the Konkan Bachao Samiti (KBS), S. Banerjee, Chairman, Atomic Energy Commission, S.K. Jain, Chairman of NPCIL, and representatives of the National Environmental Engineering Research Institute (NEERI) met Union Environment Minister Jairam Ramesh.” And also, “KBS told Mr. Ramesh that it was not satisfied with the outcome of the earlier meeting between NPCIL and KBS on July 9 in Mumbai, as NPCIL had not provided the information needed for a scientific discussion.” The report quotes people from the ground as well as government officials.

“Template for Future’ is an interesting addition for the inquisitive reader and also indicates the reporter’s eye for detail. “A period of two weeks for giving the written response was agreed upon, after which KBS and NPCIL will again meet for further discussions and clarifications on the issues raised. KBS will be given a hearing in mid-August, when the Expert Appraisal Committee considered the EIA.”

**Example VI:  
Future looking?**

**Jaitapur nuclear power electricity very expensive, and costs rising**

<http://nuclear-news.net/2011/02/15/jaitapur-nuclear-power-energy-very-expensive-and-costs-rising/>

This piece fast forwards to the issues that are likely to come up once the reactors are ready and functional. The reporter discusses the financial issues involved in running and maintenance of the nuclear power plant. He also discusses the fact that with such high costs of operating the plant, the energy costs will also be very high.

“Depending on the cost of capital, the unit cost of electricity from Jaitapur would come to Rs. 5 to Rs. 8 per kilowatt per hour. The same unit from a thermal or gas operated plant costs Rs2 to 2.5 only, says the report published by the Coalition for Nuclear Disarmament and Peace (CNDP).”

The write up also raises questions about the security risks involved, “It is mentioned that the French nuclear safety agency itself has noted several problems in the reactor design, while the US Nuclear Regulatory Commission (NRC) has delayed its design certification to the EPR from June 2012 to February 2013.”

**Additional reading:**

<http://www.dianuke.org/jaitapur-nuclear-power-project-critical-issues/>

[http://www.dnaindia.com/mumbai/report\\_anjaneshwar-temple-an-inspiration-for-jaitapur-plant-protestors\\_1614591](http://www.dnaindia.com/mumbai/report_anjaneshwar-temple-an-inspiration-for-jaitapur-plant-protestors_1614591)

[http://www.thehindubusinessline.com/industry-and-economy/economy/article2639715.ece?ref=wl\\_industry-and-economy](http://www.thehindubusinessline.com/industry-and-economy/economy/article2639715.ece?ref=wl_industry-and-economy)

<http://insideclimatenews.org/news/20111024/india-nuclear-energy-expansion-grassroots-uprising-jaitapur-maharashtra-tamil-nadu-west-bengal-fukushima>

<http://www.dianuke.org/jaitapur-nuclear-power-project-critical-issues/>

<http://www.dianuke.org/documents/special-coverge-on-jaitapur/>

<http://www.npcil.nic.in/main/jaitapur-atomic-power-plant.aspx>

<http://www.dianuke.org/no-to-nuclear-energy-in-india-an-appeal/>

[http://zeenews.india.com/news/nation/indian-nuclear-plants-to-bolster-safety-measures\\_746414.html](http://zeenews.india.com/news/nation/indian-nuclear-plants-to-bolster-safety-measures_746414.html)

<http://indiatogether.com/2011/nov/env-kood.htm>



## CASE STUDY III: URBAN FLOODING IN MUMBAI - July 2005

### Introduction and Context

Flooding in urban areas can be caused by flash floods, or coastal floods, or river floods, but there is also a specific flood type that is called urban flooding, caused by lack of drainage. As there is little open soil in a city that can be used for water storage nearly all the precipitation needs to be transported to surface water bodies or the sewage system. High intensity rainfall can cause flooding when the city sewage system and draining canals do not have the necessary capacity to drain away the water. Water may even enter the sewage system in one place and then get deposited somewhere else in the city on the streets (<http://www.floodsite.net/junior-floodsite/html/en/student/thingstoknow/hydrology/urbanfloods.html>)

Urbanisation is rapidly increasing throughout the world, and India is not an exception (UN-ESCAP, 2009). There is large scale migration to cities and towns. In India, in 1901 there were 1,827 urban agglomerations with a population of 25.85 million which was 10.84 per cent of the then total population, whereas as per 2001 census there were 3,768 urban agglomerations covering a population of 285.4 million which works out to about 27.8 per cent of the country's population. As per the same census the cities (population of one million and above) account for 37.8 per cent of the total urban population of the country. There are now 35 metropolitan cities with a population of one million or more each as compared to 12 such cities in 1981. These 35 cities account for roughly one-tenth of country's total population. There are six mega cities with a population of five million or more each. This clearly indicates shift from rural areas to urban areas. It is estimated that by year 2050 about 60-70 per cent of population will migrate to cities. With increasing urbanisation, the problems associated with it are more visible. One such challenging problem is urban flooding and urban floods (UNESCAP, 2009 [http://www.unescap.org/idd/events/2009\\_EGM-DRR/India-Apte-Innovative-ways-of-managing-Urban-Floods-comments-final.pdf](http://www.unescap.org/idd/events/2009_EGM-DRR/India-Apte-Innovative-ways-of-managing-Urban-Floods-comments-final.pdf)). Though urban flooding has been experienced over decades in India but sufficient attention was not given to plan specific efforts to deal with it (NDMA, 2010). In the past, any strategy on flood disaster management

largely focused on riverine floods affecting large extents of rural areas. Mumbai floods of July 2005 turned out to be an eye-opener. Realising that the causes of urban flooding are different and so also are the strategies to deal with them, NDMA has for the first time decided to address urban flooding as a separate disaster delinking it from floods. NDMA commenced its efforts to formulate the Flood Guidelines in 2006 and released them in 2008. Even while the Flood Guidelines were under preparation, efforts commenced to formulate these Urban Flood Guidelines in August 2007.

([http://ndma.gov.in/ndma/guidelines/Management\\_Urban\\_Flooding.pdf](http://ndma.gov.in/ndma/guidelines/Management_Urban_Flooding.pdf))



### Floods in Mumbai

The monsoon often wreaks havoc in Mumbai, bringing with it potential for floods. When particularly heavy rainfall coincides with a high tide on the Arabian Sea, the water has nowhere to go and the entire city floods. This happens about one to three times a year. Even a normal monsoon shower can cause mayhem in Mumbai (Win, 2010). This was especially highlighted when Mumbai, a teeming city of more than 15 million people, was brought to a

Lakhs of commuters had a harrowing experience as they either took an inordinate amount of time reaching their homes or, in many cases, had to stay put in their offices due to non-availability of public transport, including the lifeline – suburban railway's western, central and harbour lines. Roads in the city were choca-bloc with thousands of vehicles stuck at various points. Not just the BEST buses, thousands of cars and other vehicles were also submerged in water at various places across the city, prompting the drivers to abandon them on the spot for the night.

PTI

27 July 2005

<http://www.expressindia.com/news/fullstory.php?newsid=51561>

standstill on 26 July 2005. The city experienced the eighth heaviest recorded 24-hour rainfall figure of 994 mm and the rain intermittently continued the next day. 644 mm was received within the 12-hour period between 8 am and 8 pm. Macabre tales of death and deprivation slowly emerged from Mumbai's water world as stranded people attempted dramatic long walks home and families waited to hear from loved ones who left for work (Indian Express, 2005). The rains slackened between 28 and 30 July but picked up in intensity on 31 July. Other places to be severely affected were Raigad, Chiplun, Khed, Ratnagiri and Kalyan in Maharashtra and the state of Goa.

The floods were caused by incessant rains coupled with high tide. Several low-lying areas and large portions of suburban railway tracks in the metropolis were inundated (PTI, 2005). Flooding in the June-September monsoon season is common in Mumbai, which is surrounded on three sides by sea, but July 2005's rains highlighted the vulnerability of the city's infrastructure. The floods that occurred in Mumbai on July 26, 2005 were aggravated by three main factors. The first was the poor and inadequate drainage system of Mumbai, which was not capable of carrying even half the amount of water on the day the disaster took place in the city. The second factor that had an adverse impact on the situation was the rapid growth and development of the northern suburbs which lacked proper control and planning on the part of the city's municipal authorities. Third, the mangroves that existed along the banks of the River Mithi and the Mahim Creek had been destroyed indiscriminately to make way for the construction of new buildings (Blurtit), so there was nowhere to absorb the excess water.

The flood shut down Mumbai, snapped communication lines, closed airports and marooned thousands of people. At least 87 people were killed in two days and another 130 were feared buried in landslides, according to authorities and news reports (breakingnews.ie, 2005). India's then Home Minister Shivraj Patil, on 27 July 2005, told Parliament that "about 5.6 million people in 16,000 villages had been hit by the heavy seasonal rains that had washed away tens of thousands of homes, along with roads, railway tracks and bridges. More than 76,000 farm animals have perished and more than 1.72 million acres of crops had been destroyed by the swirling flood waters."

With the heavy rainfall, the sewage system overflowed - contaminating water lines. There were concerns that large amounts of debris and animal carcasses might lead to outbreaks of disease. Reports in the media warned of the threat of waterborne diseases, and hospitals and health centres geared up to distribute free medicines to check any outbreak. Losses to the state and private business in the city in July were estimated at more than 20 billion rupees (Reuters, 2010).

This is so common that many don't even count it as flooding.

"When it's small, you say waterlogging. When it rises to your chest, head, you call it flooding," said Mumbai-based environmentalist Girish Raut.

Hanna Win

23 June 2010

<http://www.globalpost.com/dispatch/india/100622/mumbai-rains-floods-monsoon-season-urban-disaster-management>

Meanwhile, a senior relief official, Krishna Vats, said the number of casualties might rise again as bodies buried by landslides are still being recovered.

"We need to restore the water supply and electricity supply and telecommunications and we need to disinfect water – so the hygiene and sanitation are some of the important considerations right now in terms of restoring the situation," he said.

The financial ramifications of the Mumbai floods were felt in other parts of India as well. The Surat based diamond and textile industry, which has close trade links with Mumbai, was dealt a severe blow as disruption of transport hit domestic trading and exports consignments with estimated losses of around Rs 300 crore. “Non-fulfilment of commitments and blocked payments on business deals has badly affected the diamond trade, which is heavily dependent on Mumbai,” said Pravin Nanavati of Gujarat Hira Bourse (TNN, 2005).

The Government response was seen with the deployment of 5,000 personnel of the armed forces for relief and rescue work in areas like Badalpur, Ambarnath, Ulhasnagar, Kalyan and Dombivili areas in the neighbouring Thane district. These operations were being supervised by Chief Minister Vilasrao Deshmukh (breakingnews.ie, 2005). Mumbai’s Police Commissioner A.N. Roy stated, “Never before in Mumbai’s history has this happened, our first priority is to rescue people stranded in the floods” (Tribune, 2005). A fire-fighter undertaking rescue operations in northern Mumbai narrated, “It was terrible to pull out little babies from under boulders and mud. The very young and the old just didn’t make it” (BBC, 2005).

Prime Minister Manmohan Singh undertook an aerial survey of affected districts like Thane, Raigarh etc. After touring the rain ravaged areas he announced emergency aid totalling Rs 700 crore for the Maharashtra government (AFP, 2005).

In the post-flood scenario the Prime Minister stated, “Mumbai deserves more attention” (Reuters, Calls for better government echo in flood-hit Mumbai, 2005). The Chitale Committee, a fact finding team, was appointed to study the deluge of 2005 and it recommended a contour mapping exercise

for the city that could be used to aid the Brihanmumbai Municipal Corporation’s (BMC) planned flood modelling system which would help the civic body predict and plan for future flood situations. However, Madhav Chitale, chief of the fact finding committee, lambasted the BMC for failing to learn lessons from the 2005 deluge. Calling the efforts taken by the civic administration “inadequate”, Chitale said that safety of the people of Mumbai cannot be guaranteed as the civic body doesn’t have basic topographical survey maps (Desai, 2008) .

...the efforts taken by the civic body to tackle the floods in the city during monsoon are inadequate. “We’re not prepared to cope with floods in future and at an extremely nascent stage,” he said.  
Shweta Desai, Indian Express  
28 September 2008  
<http://www.expressindia.com/latest-news/two-years-on-civic-body-yet-to-implement-chitale-committee-recommendations/366615/>

The state government also allocated over Rs 1,600 crore for cleaning up the Mithi river and widening its banks for the purpose of controlling floods. “We have increased the capacity 2-2.5 times. There is siltation that keeps taking place, so we have to keep desilting,” said Rahul Asthana, Metropolitan Commissioner, MMRD (Limaye, 2011).

### Coverage of urban floods in the media – before/during/after

The July 2005 Mumbai floods were covered widely by both national and regional media.

News reports varied from causes of floods, how it was a mix of natural and man-made disaster (unplanned city) to impact of floods on people, business, city etc., how people suffered and struggled to reach their destinations, government’s response to the floods and how city responded, (lack of) preparedness for such disasters. In this context, examples of news/media reports are illustrated from the point of view of good reporting or bad reporting.

- Angles to look for:
- Overall loss – human life and resources
  - Disease outbreak
  - Economic dimension
  - Education

It is very important to note that urban floods have different aspects and they can be covered from various possible angles. There are certain factors essential to cause a flood – these can be incessant rains, breach in a dam, unplanned city drainage and sanitation system. And once a flood maroons an area, the dangers don't end with the receding of the flood waters. There is loss of life and property; always a danger of epidemic and spread of communicable diseases and the possible blockage of the existing drainage system. As such it is a job of the reporter to look for the various possible angles before, during and after the floods.

Before a flood is caused, a reporter can focus on stories pertaining to unplanned and unorganized cities, the flawed drainage and sanitation system. For example:

### **City floods due to poor planning**

<http://vietnamnews.vnagency.com.vn/Social-Issues/212243/City-floods-due-to-poor-planning.html>

Urban experts have rejected suggestions that the worsening of HCM City's chronic flood situation is due to climate change, blaming it instead on rapid urban development and unplanned construction.

... This was due to rapid urban development which caused an encroachment into drainage systems and prevented rainwater from seeping into the soil due to the extensive cementing around the city.

...”The only way to effectively resolve the flooding is by good urban management,” former member of the city People's Council, Dang Van Khoa, said.

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### **Unplanned urbanization of Dhaka city: increase of rainfall induced flood vulnerability**

<http://dspace.bracu.ac.bd/handle/10361/223>

...In recent years Dhaka City is facing extensive water logging during the monsoon (May to October) as a common and regular problem of the city like water pollution, traffic congestion, air and noise pollution, solid waste disposal, black smoke etc.

... Management of drainage system of Dhaka City is presently a challenge for the urban authorities because of rapid growth of population and unplanned development activities. Therefore, a close coordination among urban authorities and agencies and collaboration between public and private sectors is needed for effective management and sustainable operation of urban drainage system. It ascertain the inherent causes of such water logging and its effects on the city life from the perception of authorities of different development organizations, experts and people living in different parts of Dhaka City.

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### **Preparing hospitals for disaster management**

<http://www.thehindu.com/news/cities/Thiruvananthapuram/article2683623.ece>

*Workshop being held in five disaster-prone cities in country*

There was hardly any audience in the hall when the workshop on preparing hospitals for disaster management began at the Peroorkada District Hospital on Friday morning.

But the doctors and paramedical staff who started trickling in about half-an-hour later remained glued to their seats till 1.30 p.m. when the technical session ended.

“Till date, disaster management did not hold any meaning for us. We are now very conscious about the need for an emergency plan and the level of preparedness that we should have as hospital staff,” one of the participants said.

“Hospitals are the lifelines where people would be brought in huge numbers when a disaster – floods, earthquakes, major fire, landslips, terrorist attacks or tsunami – strikes. Hospitals should be structurally safe to withstand a disaster such as earthquake, but more importantly, a hospital should be able to function even after a disaster,” pointed out Hari Kumar, president, Geo Hazards Society.

The workshop on hospital safety, first of a series of workshops for hospitals being held in five Indian cities, was organised at the behest of the WHO, by the Institute of Land and Disaster Management in collaboration with the Geo Hazards Society, a global partner of WHO.

After a flood, the reporter must watch out for effects like spread of communicable diseases, sanitation and health in the flood-hit areas, or problems faced by the people. For example:

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### **Bangkok floods lead to disease fears**

<http://www.theaustralian.com.au/news/world/bangkok-floods-lead-to-disease-fears/story-e6frg6so-1226191691063>

But health officials warn against a spread of disease, even as the waters recede.

Rekha Hanvesakul, a doctor at BNH Hospital in Bangkok, says Thailand’s health system is facing a major test to cope with the floods’ aftermath.

“It’s definitely a big challenge because of the quantity or mass of water that’s coming through. I don’t think we’ve ever had to deal with such large amounts of water,” Dr Rekha told AAP.

“If it’s one or two days people can manage to deal with this. (But) because the quantity of or mass of water is so huge and a lot of people are living under these conditions for long periods of time disease becomes a real issue,” she said.

Doctors are already warning people, especially women, of the dangers of infection from water contaminated by animal urine that can lead to leptospirosis, with symptoms of fever, headache, nausea and vomiting. Other causes of concern include cholera and gastrointestinal diseases, such as typhoid. BNH also warns of poisonous snakes, scorpions and centipedes in the water.

“Of course things like typhoid, which again comes from salmonella bacteria, unclean food, water, unhygienic methods, not washing your hands after going to the bathroom or defecating in flood waters just because there are no toilets,” she said.

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### **Will Thailand’s Floods Bring Disease?**

<http://thaifinancialpost.com/2011/11/16/will-thailands-floods-bring-disease/>

Thai health authorities are on alert for outbreaks of disease as massive floods across the central plains show signs of receding. Medical specialists are especially concerned for communities inundated over several weeks, raising concerns of outbreaks of dengue fever, cholera and typhoid.

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### **Mopping up in Mumbai**

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(05\)67196-6/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67196-6/fulltext)

...Devastating floods and a death toll exceeding 1000 have made sanitation—and Mumbai’s decrepit drainage system—a political issue in India. As waterborne diseases continue to claim lives a month after the deluge,

...A month after unprecedented rains lashed the teeming metropolis of Mumbai, killing more than 1000 and paralysing India’s commercial and entertainment capital, policy-makers are, at long last, making the link between drains and disaster.

### **Big rain brings urban flooding**

<http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/Regional/Lahore/24-Jul-2011/Big-rain-brings-urban-flooding>

The City received another heavy downpour on Saturday, putting the routine life to a standstill by causing urban flooding. The experts have forecast more rains during the next couple of days.

Short bursts of heavy downpour at noon submerged roads and streets in many localities into knee-deep water. It took the WASA employees hours to drain out the rainwater. Massive traffic jams were witnessed on a number of important arteries till the evening.

The Lahorites witnessed its worst gridlock – from Shah Alam Market to Chungi Amir Sidhu – and many smaller traffic jams on several of its other roads on Saturday as heavy down-pours lashed the City yet again. The commuters on the main road into the City waited for hours for the traffic mess to clear.

... The premier sanitation agency WASA failed to clear inundated rainwater from roads and streets even hours after stoppage of rains. The situation was worst at Liberty Market, Centre Point, Firdous Market, Shadman, Qartaba Chowk,

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### **Bangkok after the floods**

<http://www.bangkokpost.com/news/local/263713/bangkok-after-the-floods>

It is strange but true that despite repeated warnings, there are still residents of Bangkok's inner city who remain in denial about the watery woes threatening to engulf them. They say they have stayed dry before, so see no cause for concern. By contrast, others have emptied the shelves of supermarkets in panic-buying sprees and then retreated to high ground or fled the capital. A third group has behaved more rationally by taking the necessary precautions and adopting a commendably far sighted approach. In their view, every disaster brings an opportunity and, on this occasion, it is to metaphorically wash away the sins, clutter and mistakes of the past and make all 1,570 square kilometres of Bangkok a better place to live in future.

Journalists can also follow-up to check whether governments have learned any lessons after a flood and what their plans to prevent such floods in future are.

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### **Lessons to be learned from SE Asia floods**

*“The UN secretary general, Ban Ki-moon, visiting Thailand, said he had, “emphasized the importance of learning lessons from this mega flooding”. Ban was en route to the Durban climate change conference where he is calling for a \$100bn fund to help developing countries mitigate the impact of global warming.*

*While individual events such as the flooding in south-east Asia can't be causally linked to climate change, they do demonstrate the impact that an increased frequency of weather extremes will have on countries in the region. With sea level rises also likely to present a serious risk of urban flooding around the world, Bangkok's experience could serve as a template for future disaster management.*

*Unicef's Thomas said so far he'd been impressed by the government's response. “Given the amount of water, the authorities have done a pretty good job,” he said. However, the real test will begin when the flood waters start to recede and those displaced have to return home”*

## **Did Mumbai learn nothing from 2005?**

<http://infochangeindia.org/Urban-India/Cityscapes/Did-Mumbai-learn-nothing-from-2005.html>

Although the realisation that Mumbai's mangroves have to be preserved has sunk in after the disastrous floods of 2005, nothing concrete has been done about it. Now there are plans to build a new airport that, environmentalists say, will result in an estimated 170 hectares of mangroves being destroyed. And the diversion of two rivers.

When the rains set in, people in cities like Mumbai and Kolkata worry every day about the prospect of wading through flooded streets. They ask themselves whether they will get through another monsoon without experiencing the kind of disaster Mumbai faced in 2005. Have any lessons been learned?

A crucial message that came through a disaster like the one in 2005 – forced by nature but compounded by human folly – was the importance of allowing nature to play the role it always has in mediating between large quantities of water and the ability of the soil to absorb it. Urbanisation inevitably forces the paving over of open spaces and dirt stretches. As a result, an important method of absorption of rainwater and its runoff is destroyed.

The other natural 'drain' that cities, particularly those located near the sea, have are mangroves – unique wetlands that act as a check for excess water from rising seas encroaching landwards, while draining out excess rainwater even during heavy showers. Yet urbanisation is increasingly killing this valuable resource.

Its value, of course, goes beyond its function as a natural drain. Mangroves are repositories of important biodiversity, both flora and fauna. They attract birds and insects, as well as aquatic life. They spawn vegetation that is unique and sturdy as it is able to withstand strong tides and denudation. They survive in a unique combination of saline and fresh water.

Although the realisation has sunk in, particularly in the case of Mumbai, following the 2005 flooding, that mangroves must be protected, the reality is that nothing is being done about it. 'Protection' is an aim, a desire that is not backed by concrete plans, by vigilance that would ensure that the wetlands survive urbanisation's onslaught.

To remain on lookout for such stories, a reporter needs to rely on different sources of information. For example, after the floods recede, the reporter can watch out for the people admitted in the hospital and check from the doctors or hospital administration whether there has been any sudden increase in inflow of a particular type of patient.

As far as the floods are concerned or for that matter any other disaster, one of the major challenges for a reporter is to get the facts right. Though the official sources are seen as reliable but in case of floods, it is possible that the government officials may try a cover-up or downplay the gravity of the situation. In such circumstances, a journalist has to make extra effort to be accurate while reporting about the floods. He can rely on several sources both official and unofficial. These include the government officials, hospital administration or doctors, the credible NGOs that have a wide network of volunteers and professionals, police and the victims. But since there is always a possibility of conflicting figures from different sources, it is essential for a reporter to give the information provided by different sources but with proper attribution.

**Example 1:**  
**Facts are sacred,  
and so is balance**

**Record rains in Mumbai, death toll is 8**  
AP WEDNESDAY, JULY 27, 2005

The reporter has started the news report with a clear beginning and established the context

“The strongest rain ever recorded in India shut down the financial hub Mumbai, snapped communication lines, closed airports and marooned thousands of people, officials said on Wednesday. At least 87 people were killed in two days of crippling rains and another 130 were feared buried in landslides, according to authorities and news reports.”

The reporter has relied on different sources of information to ensure accuracy and explains the extent of damage caused and relief and response measures taken up by the government and state authorities. The director of the meteorological department was interviewed to bring in expert’s comments, while the Home Minister (official source) was interviewed to comprehend the damage caused and response measures taken up by the government. General public was interviewed to explain the suffering of people, while state level officers were quoted to illustrate the measures taken up by the local administration for relief and rescue operations.

India’s Home Minister Shivraj Patil... said about 5.6 million people in 16,000 villages had been hit by the heavy seasonal rains that had washed away tens of thousands of homes, along with roads, railway tracks and bridges. More than 76,000 farm animals have perished and over 1.72 million acres of crops had been destroyed by the swirling flood waters, Patil said.

“We were stuck in a bus all through the night with nothing to eat or drink. It was impossible to get out because there was water all around,” said government employee Yamini Patil

**Example II:**  
**Using personal  
story to tell about  
bigger events**

**Wading all night through Mumbai**  
[http://news.bbc.co.uk/2/hi/south\\_asia/4724245.stm](http://news.bbc.co.uk/2/hi/south_asia/4724245.stm)

The reporter here has used the personal account of Anjali Krishnan, a Mumbai based advertising professional, describing her night-long trek home through neck-deep water in the flooded city. Though the news report primarily focused on how floods impacted Anjali Krishnan and her efforts to reach home amidst difficult circumstances, it is also the story of millions of people living in the city. Some excerpts:

...I had driven out of home for a business meeting in Mumbai on an overcast rainy afternoon on Tuesday... I was on the way to Bandra when I joined a queue of cars, and instantly realised that the rain had thrown the traffic out of gear... No big deal, I thought. It happens every monsoon. ...It was half past four in the afternoon. I had already spent an hour and a half trying to negotiate through the traffic. For the next 10 hours, till two in the morning on Wednesday, I was stranded in my car.

... As the hours passed, I realised that I had gotten myself in a big mess – Mumbai had been inundated, everything had come to a halt, there were power outages

...The rain was slapping ferociously on the wind screen, the sky was inky black, there was darkness all around, and the city’s cheery FM stations spewed romantic Bollywood rain songs on the car radio. They had seen us in the car and were offering some snacks...We were famished and took up the offer. They took us to half constructed building nearby and fed us...There was a school bus packed with children nearby – the men had dropped some snacks for the trapped students. ...Around three in the morning, we decided to finally begin our long march home through the swirling, near neck-deep water. ...It was still pouring, and we couldn’t hold our umbrellas in the gale. There were broken bottles floating all around. I saw two Mercedes Benz cars and a Toyota Lexus floating in the water...We crossed dark

homes, and shops and police stations. We met a lot of friendly firemen trying to keep order, but not a single policeman on the way –

...Soon, it became a long, happy, wet trek as can only happen in Mumbai...Our fellow travellers, boys and girls, men and women, young and old, chanted hymns, sang songs, cracked jokes. ..Others cracked the night's best silly jokes – whenever they would come across a car floating in the middle of the road, they would shout: "No parking! No parking please! This is a traffic offence!" ... "Don't feel ashamed, madam. Hold my hand. Bindaas pakro (Hold me coolly)," said a young man in the queue lending a helping hand to a girl.

**Example III:**  
**Statistical detail**  
**with clarity**

**Mumbai begins to count losses from rains**

<http://www.expressindia.com/news/fullstory.php?newsid=51995>

This news report explains the impact of floods on various aspects including animals, human beings, business etc. A lot of statistical detail has been incorporated in this news report, but the reporter has managed to stay away from generalizations and has provided accurate information (at least according to the official sources). Some excerpts:

...Heavy rains and floods in Maharashtra last week have caused losses of at least 150 billion rupees (\$3.5 billion), early government estimates say.

Accuracy is the key here. The reporter has quoted official sources of information but also use the word 'early' leaving scope of further additions/deletions based on accurate information.

Small businesses have lost an estimated 10 billion rupees, an industry body said. Pfizer Ltd, the Indian unit of the world's largest drug maker, estimated its flood losses at 1 billion rupees.

Note the use of terms such as 'estimated' and the substantiating example from Pfizer.

At least 942 people drowned, died in landslides or were electrocuted in floodwater in Maharashtra, including 429 in Mumbai. Union Home Minister Shivraj Patil said on Tuesday some 100 people were missing. About 300 cases of cholera, gastroenteritis and dysentery have been reported in the state. Hundreds of medical teams have been deployed across Maharashtra to treat the injured, distribute chlorine tablets for contaminated water and cremate the dead. Patil said 1,200 buffalos and 15,000 sheep and goats died in the floods in Mumbai.

The statistics used are clear, with official figures in exact numbers. That makes the report clear.

**Example IV:**  
**A good example**  
**of a follow-up**  
**story**

**Disease fears after India monsoon**

[http://news.bbc.co.uk/2/hi/south\\_asia/4726645.stm](http://news.bbc.co.uk/2/hi/south_asia/4726645.stm)

This is a perfect example of kind of follow-up stories that can be done immediately after a disaster. The reporter has explained the impact of floods and how people suffered on the first 2-3 days, and efforts put in by the government agencies to tackle the situation. Also, the news report presents problems that could follow after the disaster has hit. It therefore, becomes a warning to the general public to take care so that they don't get caught by the diseases due to contaminated water.

...Authorities in India are racing against time to prevent epidemics as the death toll from a monsoon reaches 800 in Mumbai (Bombay) and surrounding areas. There are concerns that large amounts of debris and animal carcasses might lead to outbreaks of disease.

**Example V:  
Going beyond the  
obvious**

**Mumbai: Everybody loves a good flood**

<http://www.expressindia.com/ews/fullstory.php?newsid=52222>

This news report is a creative critique of the response of politicians in the field of relief work after the Mumbai floods. It analyses how actual relief work on the ground gets sidelined by politicians. The politics of flood work are effectively revealed. The headline is a reference to the famous book by P. Sainath Everybody Loves a Good Drought which exposes the politics of drought relief. It is an innovatively used headline. An illustrative excerpt from the report:

...Having sniffed a never-again opportunity, politicians of every hue have jumped into Torrential Tuesday's relief operations. And what better way to begin than to claim credit for free wheat, rice and kerosene sent by the state government. In Kherwadi's shanty colonies in Bandra (East), those picking up their apportioned relief also had a receipt thrust into their hands, with their name and address scrawled in. "From Govt of Maharashtra, arranged by Prof J C Chandurkar (MLA)," it said.

**US NRIs collect funds for Mumbai flood victims**

<http://www.hindustantimes.com/US-NRIs-collect-funds-for-Mumbai-flood-victims/Article1-34883.aspx>

This is again an example of a good follow up story after a disaster. However, this story could have been written in a better way to show how Maharashtrians living in the US are concerned about the situation back home. And being thousands of kilometres away, how they have joined hands to help their families and communities in Mumbai. The reporter could have taken a case study that would have made this report far more interesting.

**Example VI:  
Disaster  
preparedness**

**Now, a mock drill on flood preparedness**

<http://www.indianexpress.com/news/now-a-mock-drill-on-flood-preparedness/580105/>

This is a good example of both – a report on disaster preparedness and a follow-up report. Even though five years have passed since 2005 Mumbai floods, the reporter has taken that story as a base to explain the mock drill that the government is planning in Mumbai.

**Learning Outcome:**

**At the end of each case study, the participants,**

- will have an in-depth understanding of the type of media coverage that has taken place in some disasters in India
- will be able to appreciate the good practices on role of media in pre, during and post- disaster coverage.

# Module 6:

## Reporting Disaster

### TRAINING METHODS

The current module illustrates the role and responsibilities of media in disaster risk management. The module talks about expected role of media as outlined by international and national policies and guidelines. Also, the modules focus on how media should report during disaster – keeping ethics and maintaining code of conduct.

#### STEP I

### INTRODUCING ROLES AND RESPONSIBILITIES OF MEDIA AS PER POLICIES AND GUIDELINES

**Training technique: Lecture based**

**Resources required: PowerPoint presentation and focus group discussions**

Start discussions on what trainees think is the role of media in disaster management. Using points from the discussion, explain using powerpoint presentations the policy perspective with reference to international disaster communication (the Tampere Declaration on Disaster Communications, IDNDR Yokohama conference, the Manila Declaration of 2011). Group discussion on why there's a need for standard guidelines and practices of journalism while covering disasters. Further, discuss how trainees think these international events/guidelines fit into India's National Disaster Management Act, 2005.



#### STEP II

### IDEALISM VERSUS REALITY

**Training technique: Focus Group Discussion**

**Training tools: Powerpoint and flipcharts**

Refer to the above mentioned guidelines to discuss if the role and responsibilities outlined are practical enough for senior managers in media houses to advocate and for journalists to practice on a day-to-day basis. And then introduce Expert and practitioner's view (Jonathan Baker, BBC). Use contents from the module to generate focus group discussion on the challenges faced by media professionals' vis-à-vis roles and responsibility of the media in Indian context as outlined below:

- The commercial imperative of media
- The social imperative of media
- The economics involved in covering stories
- The code of ethics and accountability in disaster reporting
- The role of media as a watch dog
- The brand policies of media houses
- How to make disaster story News-worthy
- Media often driven by an event, not by cause and impact (particular long term)



STEP III

### ILLUSTRATION THROUGH CASES

**Training technique:**

**Training tools: Photocopies of the stories, pens, high lighters**

Divide into group, with 3-4 trainees in each group. Hand over following cases (Annexure 2) to each group, so that one group has to focus only on one case.

- Group I: Tropical cyclones in Bangladesh
- Group II: Tsunami relief Asia-Africa, 2004
- Group III: Hurricane Katrina, United States
- Group IV: The Bhuj Earthquake, 2001
- Group V: Cyclone Alia, West Bengal, 2009

Give about 10 minutes to each group to read through the cases and start discussing cases one by one. Ponder on following points (use specific examples from the module if these issues do not come up during discussions) giving international and Indian context

- Role media could play in effective early warning
- Contribution of media for strengthening relief efforts
- Role of media as a watch dog
- Role of media in creating public awareness
- Role of media in advocating and strengthening regional and international cooperation



STEP IV

### STEP IV: REPORTING DURING DISASTER - DO's and DON'T's

**Training technique: Group work, discussions,**

**Resources required: Flipcharts, bold markers, white board, pen, paper**

Discuss with trainees what they think a reporter should do when he is assigned to cover a disaster. Prompt them to talk about media's possible role during disaster. And then make teams (and sub teams depending upon group dynamics) of trainees and ask each team to come out with:

Suggested action by a reporter during disaster

Media check list on what should be asked when a disaster happens Generic questions, Questions about structural elements, Questions about non-structural elements, Questions about preparedness measures, Economic questions, Recovery questions, Responsibility/accountability questions

Let trainees prepare exhaustive list for the above mentioned. Once that is done use flipcharts prepared by trainees and discuss. At the end, give them tips for interviewing the affected, for covering traumatic events

## Roles and responsibility of media

Certain major events become newsworthy as they bring sudden tragedy to the lives of numerous people. They happen unexpectedly or with very little warning, e.g. road accidents, chemical explosions, civil strife or natural disasters such as earthquakes, storms and floods. These events may continue long enough to report on while they are still happening (such as a flood), or they may be over by the time you become aware of them (such as a chemical explosion). In either case, the effects usually continue long after the event itself is over. Such events pose a special challenge for journalists. One needs to work quickly, often under very difficult circumstances, to bring accurate information to an audience eager for details. When these events are big, more people want to know.

During such circumstances, gossip and rumours about the event spread, and therefore it is critical to gather and transmit the facts as soon as possible to avoid misunderstanding and possible panic. If there really is good reason for people to take action - such as an epidemic - they need to know how serious the situation is and what they must do to protect themselves and their families.

### **Disaster reporting: Media's role and responsibility (Adapted from Media Handbook – United Nations International Strategy for Disaster Risk Reduction)**

The way a media organisation responds to a disaster will be driven first and foremost by how strong a story they think it is. To put it crudely: How bad is it? When reports come in of a catastrophic flood or an earthquake, the journalistic instinct will be to ask questions like these:

- **How many people are dead, injured, made homeless?** (Enough to mean that I have to run the story)
- **Are people from my own country likely to be among the victims?** (If not, am I interested?)
- **What are the videos and/or pictures like?** (If they're good, I might run them, regardless of the answers to the previous two questions - visuals are very important)
- **Should a journalist be sent to the scene, and if so, how far away is it, how long will it take to get there and how much will it cost?** (My budget's always under pressure)
- **Will my audience be interested in the story?** (And will they care?)
- **What other news is there today?** (I never have enough room for all the news I want to carry)
- **Might I win an award for covering this?** (That would be nice)

These are the selfish, but perfectly understandable reflexes of news people the world over, be they employed by commercial or public service organisations. And even when a disaster satisfies these editorial requirements, it cannot be guaranteed to command any volume of coverage. A famine in Africa might fall off the editorial list on the grounds that it has been going on for a long time and is likely to continue for some time. Or, there is nothing “new” to say, and there is a sense of helplessness that no one can do anything to prevent it. Wide-spread flooding in Bangladesh, for example, might not figure in an editorial discussion because of the regular, seasonal nature of such occurrences – it's not news.

This may perhaps sound callous, and it is certainly depressing, but surely it is also inevitable. By some computations, there is, literally, a disaster for every single day of the year. Many will pass virtually unnoticed.

Most will receive news coverage in the region in which they occur, but few will feature on a global news agenda. Frustratingly, those that do will not always be the ones most deserving of attention. Think of the huge international coverage given to the floods in Mozambique some years back.

Was that a reflection of the number of dead, the number of homeless, economic or environmental damage? It was surely a lot more to do with all those dramatic pictures of helicopters plucking people to safety, and the story of the woman who gave birth in a tree while awaiting rescue.

*"We witness powerful arguments intended to change that mindset, helping journalists focus on prevention rather than cure, on early warning and explanation, and on subsequent efforts to rebuild and recover. It is much harder to sell these stories to news organisations that are conditioned simply to reporting events as they occur, and which have a limited attention span and little interest in context or background. But many will see it as part of their responsibility to take a broader and more multifaceted approach to their journalism."*

And that broader approach should also drive their actual reporting of an event. If the reportage will be seen or heard in the affected area, there is obviously a huge public information remit for the media. This could take many forms – details of which areas are worst affected, weather forecasts, where to find shelter, water, food and other necessities. To this might be added news of the hospitals treating victims, and where it is possible to find news of people who might have been caught up in the disaster.

This primary phase of disaster coverage will often see the media, governments, emergency services and relief organisations working together to get the maximum amount of information to the maximum number of people. All of this is a legitimate, indeed obligatory, part of the media's reporting effort. To this extent, everyone is a public service broadcaster in these circumstances. Sometimes, audiences will want to know what they can do to help – with money, food, clothing, medical supplies – and the coverage can advise them on what is most needed and how it can be conveyed to the disaster zone.

Audiences will also want to know more about what has happened and why. Many disasters can be traced to a cause, man-made or natural. People the world over were desperate to know the cause of the tsunami, which had such a devastating impact over such a wide area. Mudslides can sometimes be linked to deforestation many miles upstream. Increasingly, people look for links to global warming and climate change.

Often, too, there is a natural human desire to hold someone accountable, to find someone to blame. Did a government ignore calls for early warning systems, or skimp on defences against hazards? Did it turn a blind eye to excessive logging or toxic emissions from a chemical plant? Did a company ride roughshod over safety regulations because they would have hit profits? Were the forest fires started on purpose?

All of these are important areas for journalistic exploration, not least because they contribute towards efforts that can be made either to prevent such a disaster ever happening again or – if that's not feasible – mitigating the effects, should it strike again in future.

News organisations should feel the need to keep returning to stories to make sure that promised new regulations have indeed been put into place, that overseas aid has gone to those who most need it, that reconstruction is proceeding at a reasonable pace. Holding people accountable for their areas of responsibility is one of the basic purposes of a properly functioning media.

*From all of which it will be evident that even given their blinkered and highly subjective response to a disaster, the media can and should take a prominent role in bringing it to public attention, support the relief effort by the rapid dissemination of information, explain the background and causes, and hold people to account for their actions. These are responsibilities that most news organisations would recognise and readily accept.*

*- Jonathan Baker is a broadcaster and editor, and until 2010 was deputy head of news-gathering for the BBC, before becoming principal of BBC's College of Journalism*

The expressions put forward by Mr. Baker raise some pertinent questions

- 1) The commercial imperative of the media
- 2) The social imperative of the media
- 3) The code of ethics and accountability in disaster reporting
- 4) The role of the media as a watchdog
- 5) The brand policies of media houses (this often affects and reflects in the manner they report)
- 6) The specific outputs of different forms of media – print , broadcast , internet, new media
- 7) The thin line between reporting factually and representing facts in a particular manner
- 8) The tendency not to report events causing significant man and material damage because they do not make “news”
- 9) Media often getting driven by events, not by cause and impact, especially in the long term
- 10) How to translate information on disaster preparedness, mitigation and recovery to make these “news-worthy”

Media's possible role during a disaster (adapted from SEEDS document)

- 1) Inform the public with timely and factual information
- 2) Advise the public about actions to be taken (e.g. evacuation)
- 3) Inform on actions being taken by authorities and aid groups
- 4) Provide messages concerning the welfare of marginalised or trapped groups
- 5) Facilitate communication among affected people and their relatives, friends, families in other parts of the country
- 6) Highlight the needs of survivors
- 7) Communicate potential secondary risks to minimise further disasters or damages

### **During-Disaster Phase (Adapted from Disaster Reporting Handbook, UNDP-NDMA Pakistan)**

During a disaster the role of a reporter gets critical. Here the journalist acts as a bridge between the affected community and the concerned relief organisations. Immediately after a disaster, a journalist can report the following:

1. **Provision of factual data on casualties** with details of the area affected by a disaster. This information is obtained from official administrative sources (District Collector's

Office or concerned administrative department, state disaster management authority officials, state disaster management / relief and rehabilitation departments), concerned ministries, local NGOs responding to the crisis, UN entities, qualified emergency responders on the scene, local community leaders etc. The affected people themselves have often been vital sources of news about a disaster, earlier through devices such as ham radio and increasingly through mobile internet via Twitter, Facebook etc. But information obtained from the victims may not be able to provide a holistic picture and should be cross-checked with authorities. If the authorities are not available, and this is often the case, good sources of information are the local hospitals where the victims are likely to be taken.

2. **Informing relief organisations about the needs** of those who are not being attended to. Authorities and aid groups might be overwhelmed by the scale of the emergency operations and might overlook certain groups of survivors.
3. **Remaining in close contact with government departments** to know about any external financial assistance and reporting on the aid coming in from outside. Consider gender dimensions of emergency relief and highlight any discrimination towards religious or ethnic minorities.
4. **Relay messages concerning the welfare of groups of people or families**, which might be isolated and trapped in certain areas (over the roofs, trees, or isolated islands etc).
5. **Inform on actions being taken by authorities and aid groups.**
6. **Facilitate communication among affected people and their relatives, friends, families** in other parts of the country or worldwide. In large scale disasters, communication lines between the disaster affected area and the other parts of the country are likely to break down.
7. **The reporter should monitor the implementation and practice of International standards**, focusing on minimal needs of the survivors like water, food, sanitation, shelter etc.
8. **Communicate potential secondary risks to minimise further disaster or damage.** Look into secondary hazards that are possible threats after the disaster.

## Basics for a good reportage

And, of course, the basics of reportage must not be forgotten; the following boxes provide a short overview:

### Fact finding

who, what, where, when, why and how	
■ Description of the event	■ Has this ever happened before?
■ How and when it happened?	■ If yes, has the preparedness and emergency response improved?
■ How many people were killed or affected?	■ What about psychosocial assistance to those who have been injured?
■ How many survivors and what are their conditions and needs?	■ How does this problem affect operations?
■ Why such a heavy toll in mortality and morbidity?	■ What are the next steps to be taken to ensure survival?
■ Extent of damage	■ Measures being planned to ensure care of survivors
■ What safety measures are being taken?	
■ Who or what is to blame? (Cause of disaster)	

## Questions for orientation

### General questions to be asked

1. Could this have been avoided or averted?
2. Was there any disaster risk reduction policy in place? In practice?
3. Was there an early warning system in place? Did it function?  
How was the response? Did people react to it?  
When it comes to damage to the infrastructure, there are two groups of questions  
Questions about structural elements
4. How many houses were destroyed? (partly/fully damaged)
5. How many critical facilities were destroyed? (hospitals, schools and other lifeline buildings) (partly/fully damaged)
6. Was there any land-use planning in place?
7. Was there any land-use planning policy integrating a multi-hazard approach?
8. Were houses and schools protected against hazards?
9. How were the houses built? Were any building codes in place? Was resilient building material used?
10. What was the damage to overall technical infrastructure and facilities (telecommunications, power)

### Questions about non-structural elements

1. How was the environment affected?
2. Was deforestation an issue?
3. Were there any natural buffers?
4. What other non-structural mitigation measures were in place?

### Questions about preparedness measures

1. Was there a contingency plan, a district plan in place and rehearsed?
2. How were poor people, women and children affected?
3. What was the impact on disadvantaged groups/differently abled /vulnerable groups?
4. What was the impact on different economic groups?
5. Who was most impacted?
6. Were there any shelters in place?

### Questions about economy

1. What was the economic impact of the disaster?
2. What was the aid provided by government authorities and other agencies?
3. How much should be invested in disaster risk reduction?

### Questions about the recovery process

1. In what way is the new construction better, more resilient to disasters?
2. Is disaster risk reduction integrated into the recovery process?
3. What is needed to better protect the most vulnerable populations?

### Questions about responsibility and accountability

1. Who was in charge?
2. Who should have been in charge?
3. Responsibility of the government
4. Role of the community and different stakeholders

## Tips for journalistic work

### Interviewing the affected: (Adapted and extracted from DART Centre for Journalism and Trauma)

1. Always treat the affected with dignity and respect
2. Clearly identify yourself as who you are and why you are here.
3. You can say you're sorry for the person's loss, but never say "I understand" or "I know how you feel."
4. Don't overwhelm with the most difficult questions first. Begin with questions such as, "Can you tell me about Rashmi's life?" Or, "What did Rashmi like to do? What were her favourite hobbies?" Then listen! The worst mistake a reporter can do is to talk too much.
5. Be especially careful when interviewing relatives of anyone who is missing, and try to clarify that you seek to profile their lives before they disappeared and not to write their obituaries. If you're unable to contact the victim or survivor, try calling a relative or the funeral home to request an interview or obtain comments. If you receive a harsh reaction, leave a phone number or your card and explain that the survivor can call if she or he wants to talk later. This often leads to the best stories.

### Writing about the affected

1. Focus on the person's life.
2. Always be accurate as far as information is concerned.
3. Use pertinent details that help describe the affected as they lived or provide images of their lives.
4. Avoid unneeded gory details. Ask yourself whether the images are pertinent or will do unnecessary harm to certain members of your readership or broadcast audience.

### Covering traumatic events

1. Understand that your coverage of a traumatic event will have an impact on your reader-ship, viewers or listeners.
2. Provide forums on what people are thinking, especially words of encouragement. Offer lists for ways people can help and how they have helped.
3. Do focus on "stories of hope" throughout the recovery process.
4. Periodically ask these questions: What does the public need to know and how much coverage is too much? When does a medium become infatuated with a story when the public is not?

## Some General Dos and Don'ts for Disaster Coverage (From the DRR Handbook of GiZ)

### Dos

- ✔ **Stay Safe:** By their very nature, disasters and crisis situations pose risks to health and safety, so take extra care. Your own security is your number one priority. No story is worth a life, and dead or injured reporters don't get stories.
- ✔ **Take basic precautions and supplies:** If you are going into a hostile environment, planning is more important than ever. Take basic precautions such as not drinking dirty water, carrying adequate supplies and looking out for manmade and natural hazards. Carry a suitable first aid kit and get training in emergency first aid. Stay in close telephone or radio contact with colleagues and have clear contingency plans if things go wrong.
- ✔ **Try and put a human face to the disaster:** Death tolls and updates on the number of people displaced, made hungry or otherwise affected by a disaster are essential parts of crisis reporting. But try to flesh out the facts and figures with gripping testimony from witnesses and survivors. Putting a human face to an emergency helps your audience identify with those who are suffering and helps keep the story fresh in their memory.
- ✔ **Throw the story forward:** Try and go beyond what has happened and introduce forward-looking elements. If roads lie buried after an earthquake, explore the implications for aid delivery and what alternative options are available. If survivors are living in tents ask what the forthcoming winter would mean for them. Asking such questions gives your stories an analytical edge and flags issues to be explored in more detail later.
- ✔ **Stay calm and focused:** It is easy in a disaster situation to get carried away by the scenes of disaster and destruction. It is important to stay calm and not panic or create panic. Radio and TV journalists need in particular to watch their tone and be aware of their volume and pitch.
- ✔ **Use multiple sources:** Stories that quote only one source tend to be less credible. Wherever possible use multiple sources. For instance where a government official is quoted, try and verify what is said using an NGO source and vice-versa. Multiple sources generally tend to make for enhanced credibility.
- ✔ **Provide context:** When covering a disaster it may be helpful to provide background on previous disasters to have hit the area. But one also needs to be cautious not to draw parallels which may be misleading. Every disaster would have enough that is different from a previous one – you need to avoid the danger of oversimplification.

### Don'ts

- ✘ **Avoid speculation:** In the aftermath of a disaster, stories will abound on its impact. It is important to use information from named sources. One needs to be wary of uncorroborated eyewitness accounts. This is particularly important for broadcast journalists reporting in breaking news situations.
- ✘ **Avoid using clichés:** A lot of disaster coverage tends to use clichés. For instance after an earthquake survivors are invariably described as being “dazed” when in fact they may be actually helping with relief efforts. Another often used disaster cliché is “the village that aid forgot.” The journalist could use this title to write about the slowness of the aid effort when the reality is that when a major calamity strikes destruction of roads and communication may actually lead to a legitimate delay in the aid getting to the survivors.
- ✘ **Don't rush into interviewing people in traumatic situations:** Always
  - Check the person's mental state, but never ask “How do you feel?”
  - Check if they are comfortable being interviewed
  - Start off with easy unemotional questions to establish trust
  - Listen. Give people time and space to talk
  - Take particular care when interviewing children. Focus on the positive and given them enough time to explain.
- ✘ **Don't promise to help, if you can't deliver:** A disaster is bound to traumatise people and their immediate situation may appear so desperate that you may be tempted to promise them help in return for a brief interview. Resist the temptation and avoid offering help unless you can deliver on the promise.
- ✘ **Don't let relationships cripple objectivity:** When covering disasters journalists may find themselves locked in a relationship of mutual need with either aid workers or government officials. Reporters may need aid agencies or the government for information, access and logistical help. For instance reporters may hitch a ride on an aid flight to a remote disaster spot. Aid groups on the other hand need journalists to raise awareness of their work and thereby hopefully generate more donations. But such a relationship of mutual support in the wake of a disaster should not stop the journalists from asking the hard questions to NGOs or the government.

**Table 4: Checklist - External and Internal parameters that need to be kept in mind during disaster coverage**

In a disaster Situation	
External – Research and Coverage	Internal – Getting organised
<ul style="list-style-type: none"> <li>• Try and get as reasonably close to the disaster zone as possible.</li> <li>• Put a human face to the emergency</li> <li>• Keep close contact with relevant government and humanitarian institutions</li> <li>• Publish/ broadcast pre-prepared announcements</li> <li>• Publish/broadcast information on the control room like contact details etc</li> <li>• Publish/ broadcast emergency evacuation announcements</li> <li>• Publish/ broadcast updates on damage situation</li> <li>• Publish/ broadcast all announcements in a reassuring and calm manner</li> <li>• Stick to the facts and try to avoid rumours and sensationalism</li> <li>• Dispel clichés, myths and rumours and provide timely and accurate updates</li> <li>• Keep a watchful eye on first aid and relief operations. People and their requirements must be highlighted</li> <li>• Produce stories in which victims can express themselves</li> <li>• Produce stories keeping in mind human dignity</li> <li>• Establish contact with the meteorological office and publish weather information</li> <li>• Publish recovery announcements</li> <li>• Provide call-on programme for lost people that is toll-free and connected to the control room</li> </ul>	<ul style="list-style-type: none"> <li>• Stay safe, stay calm</li> <li>• Ensure safety of all personnel</li> <li>• Monitor official announcements and activities of national government, local government and aid agencies (NGOs)</li> <li>• Log all communications for reference</li> <li>• Divide information-gathering work so that all voices of the community can be heard and not just male leaders.</li> <li>• Prepare a travel kit with all emergency information, first-aid, equipment needed in a disaster struck area etc.</li> </ul>

**Learning Outcome:**

**At the end of this module, the participants will be able to identify good practices during disaster reporting and incorporate them into reportage.**

## Module 7: Reporting Disaster Preparedness

### TRAINING METHODS

**Training technique:** Lecture based, Focus group discussions

**Resources required:** Flipcharts, bold markers, white board, pen, paper

### STEPS

Start conversations on the role of Information, Education and Communication in emergency situations and disasters. Discuss how communication is central to disasters including public awareness, capacity building, early warning, evacuation, post-disaster relief etc. Use a powerpoint to explain DRM programme components followed by key messages on disaster risk reduction. Explain what kind of stories journalists could do during the non-disaster and pre-disaster phase. Use examples of news articles/video clips to illustrate the type of stories (**Annexure 3**).

Divide the trainees into groups and ask them to role play. One of the groups will portray senior management and brand heads at the media houses say as editors and another group as reporters. Ask the groups to draw a list of tasks to be done by editors and by reports for the non-disaster and pre-disaster phase. Engage the group to have a discussion based on the tasks mentioned by trainees and adding more if needed be.

## Communication and disaster preparedness

We live in an age of rapid transmission, delivery and exchange of information. This has made it easier to provide emergency communication as well as information about being prepared for a disaster.

Communications is central to all this – for public awareness, capacity building, early warning, evacuation, post disaster relief and so on. When we talk about issues with respect to disaster preparedness and risk reduction, it can broadly summarised as:

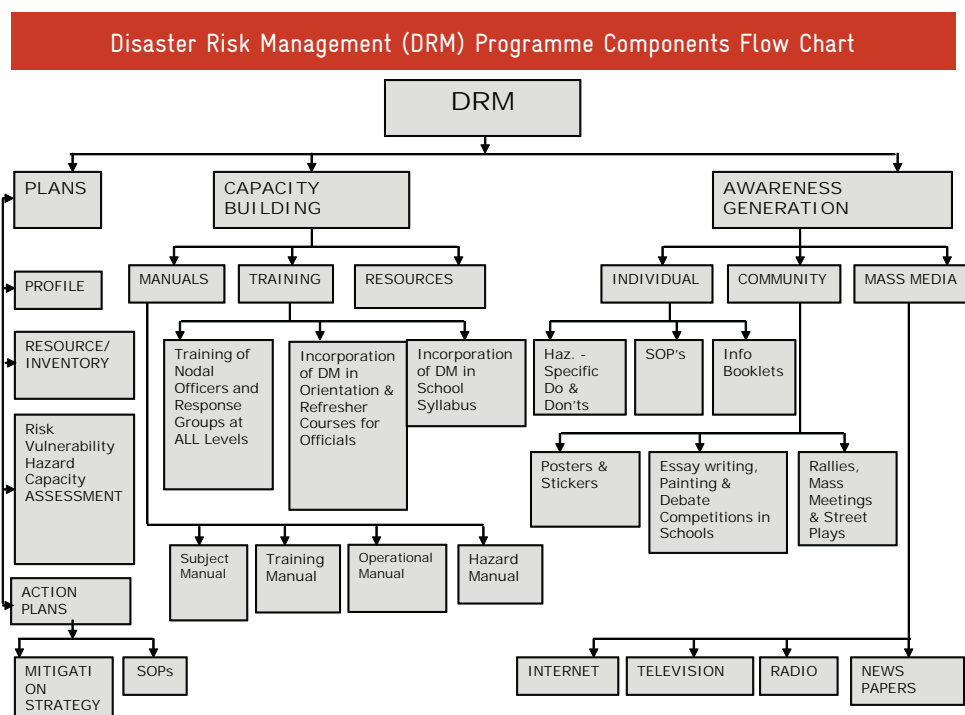
- Avoidance of habitation in hazardous areas and deployment or incorporation of mitigation measures (risk transfer, risk insurance, etc)
- Development of structures resistant to the onslaught of hazards
- Reduction or elimination of hazards through technological interventions
- Through disaster preparedness measures, the means to quickly recover from disasters and to build back better
- Capacity Building – creation of risk resilient communities
- Links between disaster risk reduction, climate change adaptation and sustainable development

## Understanding disaster risk reduction

### Key Messages on disaster risk reduction: (UNISDR)

- 1) Disasters are not “natural”; hazards are. Disasters can often be prevented and their impact mitigated.
- 2) Prevention pays and has an immediate return. Prevention is not a cost, it is an investment.
- 3) Disasters do not only cause immediate human suffering and destruction but impede long-term development by keeping people trapped in a vicious spiral of poverty.
- 4) Disaster risk reduction is about saving lives and livelihoods by changing people’s mind-sets. It is about shifting from response to prevention and reducing communities’ vulnerability.
- 5) People have a right to live in safety and with dignity. It is the state’s responsibility to protect its citizens. It is therefore vital that disaster risk reduction policies are systematically integrated into sustainable development strategies at all levels, national to local.
- 6) Hospitals, schools and all critical infrastructure safety are essential for reducing societies’ vulnerability. Governments have a responsibility to protect critical buildings such as schools and hospitals, making communities more resilient to disasters.
- 7) Early warning systems can save lives. If alarms are sounded before disaster strikes, human loss can be avoided.
- 8) Educate to build a culture of prevention. People need to be provided with knowledge, skills and resources to protect themselves from disaster risk, same as in health or traffic.
- 9) A safe and healthy environment is vital. It is everybody’s responsibility to protect the environment to mitigate the impact caused by natural hazards.
- 10) Climate change adaptation starts with disaster risk reduction. Climate change is predicted to increase frequency and intensity of storms, floods and droughts. Communities need to be prepared to be able to deal with the impact of climate related hazards.

Figure 9: Components of a DRM Programme



### The Non-Disaster Phase

During non-disaster phase, journalists can do the following

1. Explore reporting on policy and legislation with respect to disaster management. Check on law enforcement and performance of local administration.
2. Conduct interviews to highlight the significance of long-term disaster mitigation measures by public and private sectors.
3. Undertake research and enhance understanding of disaster issues like local innovations in disaster management, local community risk resilience, risk/hazard profiling, inter linkages between frequency of disasters and pace of development, effect of climate change, urbanisation and industrialisation on natural resource management.
4. Inform public and especially hazard-prone communities about the measures being taken by the government with regard to disaster risk management.
5. A reporter can bring forward the opinion and suggestions of the masses before the policy makers, by publishing or broadcasting public opinion on what they think should be done and how they would like to get involved in government and civil society programmes. Local FM radio stations can play a crucial role in this regard.

### The Pre-Disaster Phase

Tips for journalists for reports in the pre-disaster phase

1. Public awareness is crucial in contributing towards effective risk reduction measures. A reporter can play a significant role in providing information on the potential hazards and risks in the area/ country. He/she can inform about the seasonality of different hazards, e.g. the flood season, drought seasons, typhoon season, effect of climate change on seasonality and agricultural production etc. A reporter can highlight which groups of people are most at risk and provide information on preparedness and mitigation.
2. Raising awareness about early warning systems is another component which includes informing the people about precautionary measures to avoid loss.
3. Highlight preparedness measures being taken by the government and communities and facilitate identification of gaps so that the concerned organisations are able to remove gaps for an effective and efficient response in case any disaster hits.
4. Highlight interventions and efforts made in the domain of training and capacity building of key stakeholders, government departments and private sector

## Effective coverage of disaster risk reduction (DRR): (UNISDR):

For senior management and brand heads at the media houses: Appropriate sensitisation of key decision makers to include DRR as priority area along with climate change and sustainable development.

### Tips for editors

1. Internal contingency plan in place to cope with disasters and related coverage.
2. Plan in place for alerting and issuing early warning messages.
3. Allow time and space to investigate the causes of a disaster.
4. Investment in DRR knowledge by sending reporters to DRR media training or on disaster-preparedness field trips.
5. Understanding the role that media and its tools can play in policy change.
6. Organise awareness programmes to sensitise and educate vulnerable people and also learn from communities.

### Tips for reporters

1. Develop contacts with disaster management experts before disasters happen; know their exact specialities.
2. Have a contact list of experts in urban risks, early warning systems, climate change, gender, environmental, health and development dimensions to enrich the disaster story.
3. Have contacts with national and local meteorological departments, disaster managers, ministers and ministries involved in disaster risk reduction, civil protection or civil defence. (Ministry of Home Affairs, other related ministries dealing with specific hazards, National Disaster Management Authority, National Institute for Disaster Management etc)
4. Maintain updated lists of experts for every type of hazard likely to happen in the country.
5. Keep updated statistics on previous events region wise.
6. Become familiar with the most disaster-prone zones and vulnerable areas.
7. Keep a record of past disasters as well as good practices and lessons learned.
8. Get familiar with the previous prevention and mitigation measures taken by authorities so that you are ready with the facts in the event of another disaster.
9. Know the factors that can make a disaster worse.
10. Base your information only on sound scientific knowledge and facts.
11. Invest in DRR knowledge to dig out stories later on.
12. Listen to communities and what they have to say. Communities are reservoirs of information as well as local indigenous knowledge many a times.

### Tasks for the reporter

1. Investigate the potential threats and risks that might endanger the lives in the related area (informal settlements, poor construction in a disaster-prone zone and destruction of natural environmental buffers)
2. Be proactive. Do not wait for a disaster before writing about potential threats.
3. Investigate the degree of DRR (prevention, mitigation, preparedness, recovery) measures undertaken.
4. Keep the memory of past disasters alive: people have a tendency to forget and react only when disasters happen.
5. Cover disaster preparedness drills, preparedness exercises, education measures and activities to inform people on their risk and vulnerabilities and educate them about what they can do.
6. Have informal briefings with disaster managers to be updated; conduct interviews and initiate a possible debate on a DRR issue.
7. Develop regular stories on people's vulnerabilities to disasters – social, environmental, economic vulnerabilities – and report on how the public and governments interact.
8. Have informal and regular meetings with the academic and scientific community who have a lot of useful material about risk assessment and mitigation measures – this will help in delivering sound scientific information when disasters strike.
9. Participate in disaster management meetings to understand how they function.
10. Link any story on the environment, poverty, climate change or urban risk to a disaster risk reduction issue; in other words, report on disasters in the making where vulnerabilities are developing in hazard-prone zones.
11. Take any international disaster opportunity to highlight a local or national potential threat.
12. Commemorate the International Day for Disaster Reduction, which falls on 13 October globally and nationally on 29 October.

**Learning Outcome:**

**At the end of this module, the participants will be able to identify good practices in reporting disaster preparedness, and incorporate them into reportage.**

## Module 8: Post-Disaster Reporting

### TRAINING METHODS

**Training technique:** Lecture based, Focus group discussions

**Resources required:** Flipcharts, bold markers, white board, pen, paper

### STEPS

Start conversation with recap on reporting pre and during disasters and then ask what kind of stories journalists could do after the disaster. Discuss role of media in post-disaster phase, ask them to draw an exhaustive list.

## Some methods which can be useful for post disaster reporting (adapted from UNISDR)

- 1) Explore the causes that trigger disasters and impact on the communities and do not just confine to facts and figures. Why did it happen? Could it have been averted?
- 2) Question the lack of early warning, urban planning, risk resilience, awareness, education and preparedness.
- 3) Question the performance of people, authorities and machineries responsible for the same.
- 4) Monitor the lack or flow of investment, financial resources and political will in DRR.
- 5) Impact assessment of DRR measures which have been in place: how did they work? How do they contribute to conservation of nature and safeguard developmental milestones?
- 6) Think about social vulnerability and the gender issue: why do more women than men die in disasters?
- 7) Investigate the economic, social, cultural impacts of the disaster.
- 8) Interact with experts who could draw lessons, quoting multiple sources (from academia, NGOs, technical and research agencies)
- 9) Recall the economic and human cost of past recoveries, the absence of lessons learned.
- 10) Look at similar threats or previous disasters in other countries to inform about possible solutions.
- 11) Keep post-disaster issues in the news (necessary investments, measures that need to be taken, corruption, lack of political priorities etc).
- 12) Can it happen again? What needs to be improved?
- 13) Be alert for new disaster hazards; visit exposed sites.
- 14) Keep the topic alive by including DRR issues in cultural and social events covered by media (e.g. children's programmes, current affairs programmes, talk shows, soap operas etc.).
- 15) Develop stories where similar disasters may happen or are bound to happen given similar vulnerabilities and hazard trends

## Possible measures for the media

Some of the measures that could be taken by a media agency's senior management / editor (Excerpts from a media workshop held in June 2011 for Aceh Journalists by Indonesian Geologist Association and from the Indonesian Science Institute – The views were expressed by journalists)

### **For media agency's senior management / editors, it was proposed that**

1. Internal advocacy with respect to appropriate coverage of different phases of disaster management.
2. Secure/maintain slot for disaster news
3. Observe and report on rehabilitation and reconstruction process in disaster affected areas
4. Observe the aid disbursement process
5. Develop plans for follow-up and in-depth disaster reports

6. Care should be taken that the journalists who have covered a major tragedy are able to destress themselves and are motivated as they also undergo a lot of internal stress while reporting such situations
7. Continuously upgrade journalists' skills on various aspects of disaster reporting
8. Stories on mainstreaming rehabilitation, reconstruction and recovery into sustainable development should get some priority.

### **For journalists, it was proposed that**

1. They should travel to disaster-affected areas and develop reports that are based on accurate data (on the number of the survivors, internally displaced persons' locations, disaster locations, aid needed by the survivors).
2. The length and depth of the coverage should be defined by the effect and impact it has on the communities.
3. Encourage information sharing with other journalists and humanitarian organisations and government/authorities.
4. Develop continuous reports that cover all aspects of a disaster including the condition of the survivors, the extent of damage, the social condition of the affected communities (in non-exploitative, non-dramatising manners).
5. Develop educative disaster reports and maintain the continuity of disaster news coverage. Develop empowering post-disaster reports to boost survivor's motivation/spirit to live better and to recover.
6. Be able to present the lessons learned from the disaster, be sensitive to, and observe/oversee the disaster recovery process and be aware of the after-disaster hazards/impacts.
7. A media house can also conduct opinion polls among disaster survivors, and solicit the people's opinion on how recovery plans can be made more relevant to the needs of the community.

### **Some other parameters to be kept in mind when it comes to disaster reporting (for reporters)**

**Balance:** It would be useful to have information which voices the concerns of all relevant stakeholders and the objectivity is maintained.

**Source of Information:** The sources which would yield relevant information are - Official – Govt. sources – unofficial – local NGOs, community leaders, emergency responders. It would be useful to check with some domain experts if required for verification of facts.

**Tools for gathering information:** An official press release would be a very useful tool to develop the story. Secondary sources of data from local NGOs could also be useful. It would be important to interview/ listen to all involved/affected stakeholders. It would be critical to capture the voice of the affected people. It is equally important to make field visits to gather first hand information about the state of affairs.

**Disaster-Development Linkages:** It would be useful to have reports that are able to reflect the interrelationships between disasters and development.

**Technical jargon:** Technical jargon should be avoided. Where it is inevitable, it should be supplemented with appropriate explanations.

During the post-disaster phase, the focus is on early recovery, rehabilitation and reconstruction of damaged infrastructure. At this phase media is usually equipped with the actual picture on the ground and how much it costs in terms of physical and psychological damage.

A reporter can facilitate debates regarding the plans in order to ensure that the concerns of survivors are truly addressed and that such plans are developed and implemented with the active participation of all stakeholders, particularly the beneficiaries / communities. Under the high pressure imposed to rebuild infrastructure as soon as possible, the authorities and other aid organisations may overlook this aspect.

A media house can also conduct opinion polls among disaster survivors on whether the recovery programmes have been impactful and beneficial.

One area for reporting during this phase can be about material, financial or human needs that have not been met yet.

**A note and descriptions of a few cases is provided in Annexure 4.**

### **Learning Outcome:**

**At the end of this module, the participants will be able to identify good practices in post-disaster reporting, and incorporate them into reportage.**

## Module 9: Hot Topics of Preparedness Reporting

### TRAINING METHODS

**Training technique:** Focus group discussions

**Resources required:** Flipcharts, bold markers, white board, pen, paper, Powerpoint presentation

### STEPS

Discuss topics for preparedness reporting, use examples from media to illustrate.

When people are killed by a storm or a landslide, by a drought or a flood, far too often the losses are ascribed to the hand of providence. Not enough journalists appreciate that it is possible to minimise these losses – even those from a purely naturally occurring phenomenon as an earthquake or a volcanic eruption – if the community has been prepared for the disaster.

Disaster-preparedness reporting gives the journalist the maximum scope for producing exclusive reports. Once a disaster takes place, the entire media rushes to the spot, and there is extensive coverage if the disaster is considered big enough. Then there are many follow-up reports over a long period too, and the scope for exclusive coverage is small. On the other hand, the journalist who reports on the state of preparedness (or otherwise) of cyclone shelters along the coast, or if the alignment of roads is increasing or decreasing the risk of landslides in mountain areas, has ample scope to produce exclusive reports.

In order to prepare for this, it is useful to look at disaster trends. A tour of websites of organizations such as the National Disaster Management Authority or the National Institute of Disaster Management will provide plenty of material. They will also provide detailed maps on which parts of the country or a city are at risk from a man-made disaster, such as a leak from a chemical factory, for example.

There is also ample evidence to indicate which parts of India are flood-prone, drought-prone or landslide-prone, and the times of the year when such disasters can be expected. Further, there are studies that indicate the kinds of disasters that are becoming more common, globally and in India. Here are some self-explanatory graphs from these studies.

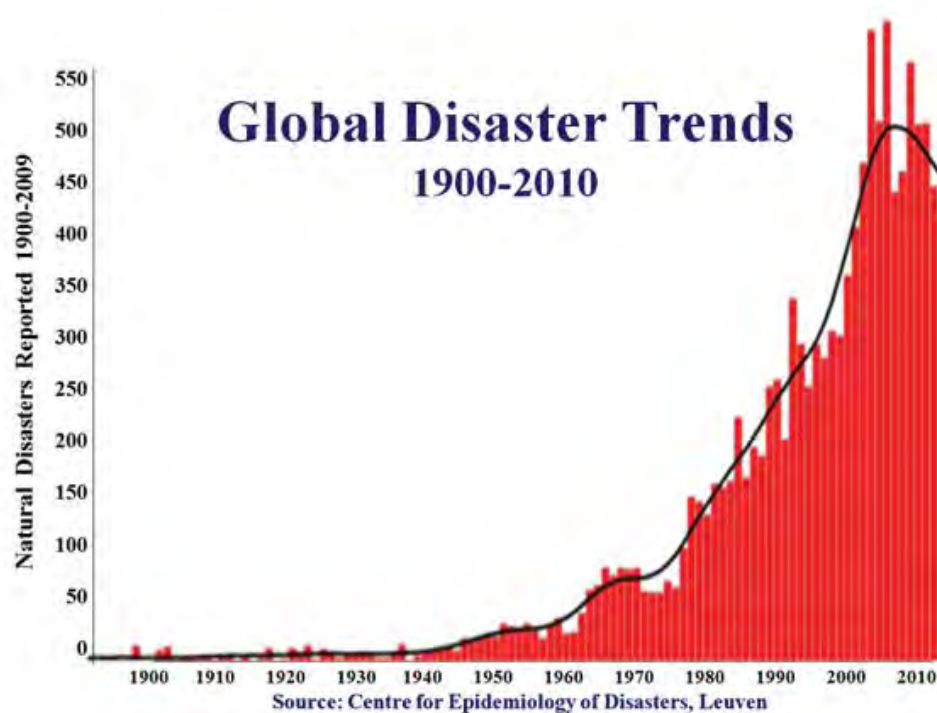
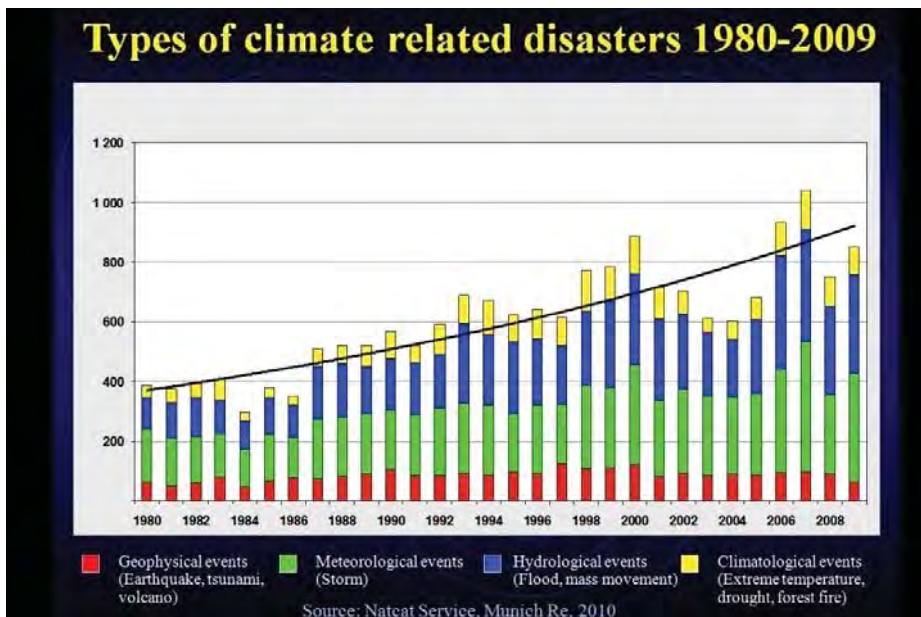


Figure 10: Global disaster trends

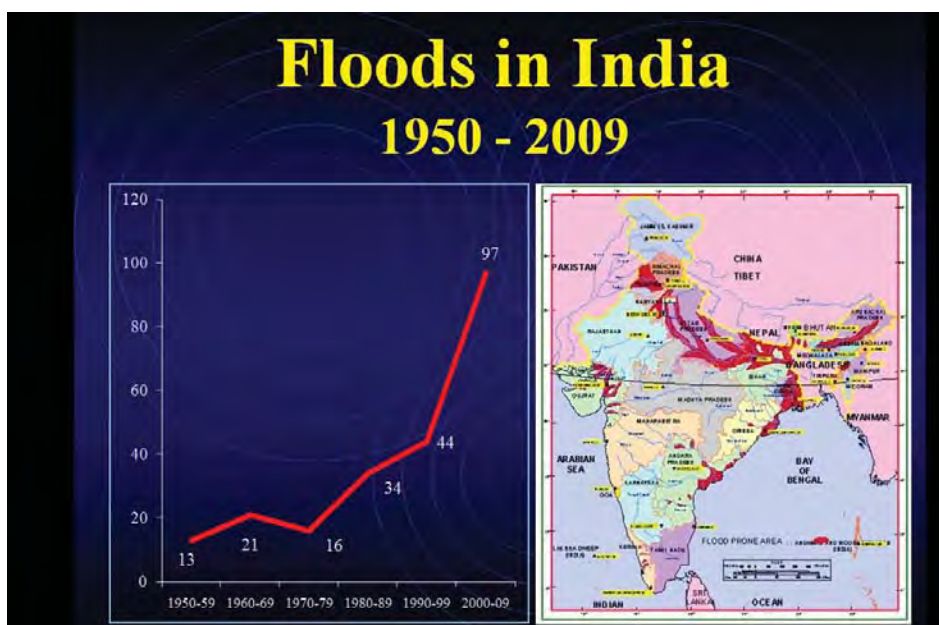
As this graph shows clearly, the hydro-meteorological disasters are the ones on a sharp upward curve – the storms, the floods and the droughts. The severity of the situation can be brought home by looking at the more immediate past, as shown in the graph below.



**Figure 11: Climate related disasters**

Look at the source of the information on this graph, Munich Re, the world's largest reinsurance company. Disasters have large financial implications, which should provide more ideas for reports that can be used in the business sections of media outlets.

This module envisages this preliminary discussion in the classroom, then a short field visit, followed by another discussion in a virtual newsroom setting on the kinds of reports that can be prepared in the area of disaster-preparedness. Given the location of the institute, the location chosen for the field visit may vary. This module provides an illustrative example of a field visit to the nearest river or lake, since every institute is likely to be within a short distance of a body of water. The most likely aspect of disaster-preparedness to be seen there is the preparedness to meet floods. With that in mind, look at the two following graphs to illustrate the trends of floods, globally and in India. The graphs are accompanied by photographs and a map to illustrate how, even in the print and web media, good media reports are enhanced manifold by the use of such visual devices.



**Figure 12: Floods in India**

Just before starting out on the field visit, or at the end of the previous session, the teacher may impress upon the students that it is possible to minimize losses from disasters, including those from purely natural disasters such as earthquakes, by building houses that can withstand shocks better.

The teacher can show the students an example with this video  
<http://www.youtube.com/247dman#p/a/u/1/QIDfGTCyXr8>

After the field visit, the students can be asked to provide ideas for reports on disaster-preparedness from the site they visited. A particularly effective way of doing this is the virtual newsroom method, where students take turns to express their ideas, which the rest of the class critiques each idea as it is presented. The teachers can play the role of the editor who accepts or rejects the idea. This activity can be carried out in groups if there is paucity of time.

### **Learning Outcome:**

**At the end of this module, the participants outline exclusive report ideas on disaster preparedness.**

## **Annexure 1:**

# **Tsunami Simulation and Role Play**

(Developed by Patralekha Chatterjee)

## Introduction

**Background:** Simulation and role-play can be powerful pedagogical tools to prepare journalism students to report on disasters. This box gives an idea of how it can be done.

When a natural disaster such as tsunami strikes a region, coordination and communication are of vital importance if the affected community is to get back to normality. A disaster is disruptive, but it also offers an opportunity to build back better, to introduce development interventions which will help not only affected populace but also others in the long-term. For journalists, it is important to keep in mind that both during disaster relief and rehabilitation, some will be more vulnerable than others. This means, looking at the various stages – disaster-mitigation, disaster relief and disaster rehabilitation through additional lenses. A case in point: women and children, and the elderly are affected differently from young people.

**Goal:** The following role-play and simulation scenario draws on a report I did from Cuddalore, Tamil Nadu, in the aftermath of the 2004 tsunami that battered parts of coastal India, Andaman and Nicobar islands, as well as Sri Lanka, Indonesia and other pockets of South-East Asia. It seeks to link the various development issues i.e. health, gender, with disaster reportage and make the case that disaster reporting can be both event-oriented and process-oriented and a disaster can also serve as a “news peg” to spotlight neglected issues ie mental health.

**Methodology of Role Play:** Divide class into 3/4 groups of 5/6 persons (numbers are flexible, depending on size of the class), Ask each group to imagine a conversation involving the following cast of characters (flexible). The reporter has arrived in a village battered by tsunami a few weeks ago. The first phase of disaster reporting is over. The television anchor in the studio OR the editor of the Sunday Supplement of a newspaper wants to do a special report on the disaster, looking at some of the issues that were missed out in the initial crop of stories that were filed/telecast.

The teacher initiates the session by briefly explaining what a role play/simulation exercise seeks to do and reminds students about some of the key questions to keep in mind while crafting the role-play.

- a) What was the state of disaster preparedness and what changes in existing disaster preparedness measures plans are being put in place after the tsunami?
- b) What information needs to be in place to serve the local community?
- c) How are men, women and children in the community hit by tsunami being impacted?
- d) Which segments of the affected population seem more vulnerable?

The groups can approach these issues from different angles.

The students should make a name-tag or card. Each individual or agency being role-played needs a name-tag which should also outline the participant’s role in one/two lines. Each actor should wear the name- tag so that viewers know exactly who h/she is and what role h/she is playing.

## Example

There are six members in the following group. Each member of the group plays a specific role. The format is flexible and can be adjusted.

- 1) The reporter who has just arrived in 'M', a tsunami-hit village in Tamil Nadu's Cuddalore district..
- 2) The TV anchor in the studio (or the editor of the Sunday supplement of the newspaper)
- 3) The District Collector
- 4) A community worker who has been trained in psycho-social counselling, and who helps mentally traumatised tsunami survivors to rebuild their lives. Counselling, in this instance, is being used as an entry point for other development interventions by the district administration working in partnership with local NGOs.
- 5) An affected individual – perhaps an elderly woman – who has just begun picking up the pieces of her life
- 6) Another member of a self-help group formed by women who are tsunami survivors

### Starting the session

The “role play” could start with the reporter standing and talking to an elderly woman from the fishing community whose husband was killed, whose home was destroyed by the tsunami, and who worries a lot about the future of her two teenage daughters. The first few minutes are spent in introductions. The reporter identifies himself/herself to the person h/she is interviewing, explains briefly what he is trying to capture. Then the reporter gets down to the substantive part by asking the woman about her source of livelihood before and after the tsunami.

The ‘livelihood’ angle is an important one while reporting on a post-disaster scenario.

### Example of an imaginary conversation after the initial introductions

Reporter: What do you do now?

Elderly woman: “I used to sell fish. Now, there is nothing to sell, [because] no one is going to sea ... My husband is gone. Who will look after my children and me? I have to do something on my own now?”

The reporter is in touch with his/her office. The TV Anchor/ Sunday Supplement editor are interested in him/her following up the “livelihood” angle. The reporter walks to another corner of the classroom with his interviewee, the elderly woman. In this “site”, a group of women are sitting. All around is sand, torn fishing nets, and the remains of thatched huts. (if time permits, students can prepare charts, use maps to convey backdrop).

The women huddle together inside one of the few dwellings that have survived the disaster. The elderly woman explains how she is part of a self-help group. The group’s members are mostly other tsunami survivors who have lost their husbands and who are trying to rebuild their lives.

Reporter to the elderly woman and the group: What has the SHG done so far and what are your plans?

Elderly woman: We decided to come together because all of us are in the same situation. First step was a savings kitty, with each woman contributing Rs 30 .We hope that the savings will help us start income-generating activities.

Another member of the SHG: We also hope this money will help us cope with future emergencies.

Reporter: How did this idea come about?

Member of the SHG: We got this idea from some community workers.

Reporter briefs TV anchor or the Sunday supplement editor about the importance of psychosocial care in post-disaster scenarios, stressing that such care can be as valuable as material assistance in disaster situations and can make a significant difference to the recovery process. Reporter can also give some additional background (elaborate if possible): WHO recommendations that health workers set aside traditional methods, avoid use of mental health labels, and use an active outreach approach. Reporter also gives a very brief outline of the state of mental health in India, history of psychosocial counselling to contextualise what is happening. This is done to identify the “gap” in the existing health system and underline the need to introduce innovative approaches.

(In India, psychosocial care has changed a great deal since the Bhopal Gas Leak tragedy in December 1984. This disaster—the worst industrial disaster ever seen—left not only a trail of death and life-long illnesses, but also numerous mental disorders among survivors. Mental health workers were slow to respond: it was 6-8 weeks before psychiatrists became involved in the relief effort, a delay attributed to the fact that none of the five regional medical colleges had a psychiatrist on their faculty).

Reporter now arrives at another “site” – the office of the District Collector

### **Possible exchange**

Reporter: what is the health situation in the tsunami-affected areas in the district?

District Collector: Our health priorities are ensuring the availability of clean water, adequate sanitation, emergency food rations, and temporary housing. Each of these tasks is not easy because a large area has to be covered and there are multiple agencies. That is why coordination is vital. I have regular meetings where all agencies, including NGOs working with tsunami-affected communities – are present. This is to avoid duplication. We have to make sure that water-borne and other communicable diseases don't spread, I check with our communication team about prevention messages and then I monitor how these messages are being received and what is happening on the ground. We also have to pay special attention to de-bunk persistent misconceptions about disasters and rumours – including the notion that dead bodies spontaneously spread epidemics. This time, we are also paying a lot of attention on community level mental health outreach services.

Reporter: Can you tell me how you keep track of what is happening at the community level on mental health issues?

DC: Our Department of Medical and Rural Health Services and Family Welfare brings out a daily report about mental-health outreach sessions in different areas. Government psychiatrists are overseeing mental health outreach in the district. NGOs are helping us – those who are being counselled are experiencing typical symptoms following any disaster e.g. sleep disorders, nightmares etc. earlier no one asked them about these conditions. Now, these sessions are helping abate disaster stress. No one had alerted them earlier about these symptoms. Here is the name of a community counsellor you could follow up with.

Reporter: what are some of the takeaways from these interventions and how can they be mainstreamed?

DC: There are many useful takeaways. For example: one NGO is also helping to educate community workers and has trained 200 elementary school teachers in tsunami-affected villages in providing psychological first-aid to children. Government school teachers who have undergone training are now experimenting with new ways of interacting with their students. There is this government school teacher who had failed in her attempts to get a traumatised 6-year old boy from a tsunami-affected village to open up. As the boy became quieter and retreated into a shell, the teacher was very worried. One day, she decided to take her class to a nearby nursery. There, the child's interest was sparked by the plants and he began to ask questions. Taking the cue, the teacher bought him a few saplings. Since then, the boy and the teacher discuss the plants' progress every day and the teacher has been reading stories about flora and fauna surviving adversity. Just one example. For our community mental health trainers, much of the work goes beyond classroom-style sessions. NGOs working on health have travelled to villages to check whether the new community counsellors have taken on board the key principles of emergency psychosocial support. A key concern is monitoring vulnerable groups in the affected communities. This means not only children and widows but also widowers.

TV studio news editor/Sunday Supplement editor wants more on the mental health angle.

Reporter speaks to a community worker who has been trained to do psycho-social counselling and who helps tsunami survivors to rebuild their lives.

Reporter: Please tell me about your work with the tsunami survivors.

Community worker trained in psychosocial counselling: We have been trained by an NGO affiliated to the State Social Welfare Board. We are trying to get these tsunami survivors back to normal. It is not easy because many of them have lost everything. The most important thing is "active listening". We do not force anyone to speak if they do not want to. But we can ask them neutral questions i.e. if they have eaten or bathed ... With the man, the family breadwinner, gone, and with children to support, widows are nervous about the new, unfamiliar roles they have been pushed into.

Reporter: Can you describe some of their coping mechanisms?

Community worker: Many women whose homes were destroyed have been allotted temporary sheds. But most families prefer to stay with relatives. The women cook together and after the meal they sit around talking to each other. In many ways, the community bond compensates for the loss of the family support structure. Though counselling is very important, we must be careful about not overdoing it. When we find someone can cope, then we have no role. We avoid an overmedicalised approach. What most survivors need is empathetic listening and someone to show them a roadmap to the future. We also try to offer a lot of practical tools to assist tsunami survivors.

Reporter: Can you give some examples?

Community worker: We give them the up to date information on the latest government schemes and also tell them details of agencies that are providing free services to tsunami-affected individuals. Other tools include innovative suggestions about income generation such as this self-help group that you spoke to are using.

Reporter: How do you make sure that these sessions remaining interesting?

Community worker: The sessions are designed to be entertaining and interactive, with lots of games and opportunities to express one's creativity and concern. Most trainees also need a briefing about common symptoms of post-traumatic stress disorder and basic dos and don'ts of psycho-social counselling. The idea is to expand the choices and options of the affected community so that they focus on the future.

### **Evaluating the simulation**

The simulation can be evaluated in many different ways. Some suggestions:

Teacher observes the students carrying out their roles during the exercise.

Each group rates the others and discuss collectively what they have learned. Teacher also offers comments on what was good, and what can be improved in each of the presentations.

**Annexure 2:**

Case to discuss in the class for Disaster Reporting

## Case View 1 : Tropical Cyclones in Bangladesh

In November 1970, a tropical cyclone combined with a high tide struck southern Bangladesh, leaving more than 300,000 people dead and 1.3 million homeless. In May 1985, a comparable cyclone and storm surge hit the same area. This time, according to the Director of the UN Decade for Natural Disaster Reduction, Dr. Olavi Elo, there was better local dissemination of disaster warnings and the people were better prepared to respond to them. The loss of life, although still high, was 10,000 or about 3 percent of that of 1970. When a devastating cyclone struck the same area of Bangladesh in May 1994, fewer than 1,000 people died. The dramatic difference, according to Mohammad Saeedur-Rehman, Director of the Bangladesh Disaster Preparedness Centre, was due to the introduction of a new early warning system that allows radio stations to alert people in low-lying areas. Mr. Rehman maintained the 'media did wonderful work'.

Researchers have noted the remarkably different impacts of the 1977 cyclone in Andhra Pradesh, India, which killed 10,000 people, and a similar storm in the same area 13 years later, which killed 910. In the later case, risk communication was effective

The above case view could be tabled in the class-room to project the role of media as a very important vehicle that can be utilised for early warning. The example reinforces the fact that this has resulted in saving of lives and practice of effective risk communication. It is perhaps one of the reliable, faster and cost-effective modes for risk communication.

## Case View 2: Tsunami Relief Asia-Africa (2004)

In December 2004, a massive tsunami created by an earthquake hit Asia and Africa, devastating many coastal areas. Nearly 200,000 people in eight countries perished, while many more went missing. Over a million people were displaced, as their homes and livelihoods were swept away. Committed to assisting the victims of the tragedy, the Centre for International Disaster Information (CIDI) quickly responded to the public's desire to help and educate Americans on how to provide the most effective relief by contributing cash donations. To educate the public about the importance of cash donations, CIDI distributed comprehensive situation reports outlining specific information about how to participate in tsunami relief efforts. CIDI partnered with Global Giving to launch a joint web page with cash donation information and coordinated with the U.S. Chamber of Commerce to design a private sector partnership link to [cidi.org](http://cidi.org).

Providing disaster relief guidance to the State Department, USAID and other government offices, CIDI coordinated with the Global Development Alliance, USA Freedom Corps and Volunteers for Prosperity. To further promote the "cash is best" message, CIDI reached out to media with the "Guidelines for Appropriate International Disaster Donations" which resulted in coverage by CNN, National Public Radio, People Magazine, USA Today, Washington Post, MTV.com and ABC Radio. A radio news release garnered an estimated 9.3 million impressions and a video news release reached more than 2.3 million viewers. Media were encouraged to visit [cidi.org](http://cidi.org) and call the CIDI hotline for more information about tsunami relief efforts.

As a result of increased media exposure and strategic alignment with reputable relief organizations, CIDI received more than 150,000 hits to its website in January 2005, a nearly 3,000 percent increase over the average 5,000 hit per month and responded to more than 6,200 inquiries on the CIDI hotline. As a result of tsunami relief efforts, more than 4,500 individuals registered to offer technical assistance through the CIDI database.

The above case could be tabled in the classroom to generate good discussions on the kind of contribution that can be made by using various vehicles of media for strengthening relief efforts. It demonstrates effective resource mobilisation – perhaps these vehicles of media have that kind of reach which is far greater than deployment of other means to solicit the same.

### **Case View 3 (Source: UNISDR): 2004 Indian Ocean Tsunami**

Tsunamis are not very rare, but they are not always as destructive as the Indian Ocean event in 2004. This was the most devastating tsunami on record so far, with the loss of more than 200,000 people.

On 26 December 2004 an oceanic earthquake of 9-9.3 on the Richter scale, centred in the Indian Ocean off the coast of northern Sumatra, Indonesia, resulted in a tsunami with waves more than 30 metres high.

The earthquake and the tsunami killed people in more than 12 countries, and particularly affected Sri Lanka, southern India, Thailand, Indonesia, Somalia, Myanmar, Malaysia and the Maldives. Among the dead were at least 9,000 foreign tourists and expatriates from 39 countries. Sweden was the hardest-hit European country, with 500 nationals dead or missing. The tsunami was a dramatic reminder that the impact of a disaster is rarely confined to its primary location.

#### **Why were so many people affected?**

There was no effective early warning system in place.

“As the horror of the devastating tsunami of 26 December 2004 unfolded, the world was shocked to learn that if tsunami early warning systems had been in place in the region, many thousands of lives could have been saved. Although the Pacific Tsunami Warning Centre was established in 1949, steps were not taken to establish an Indian Ocean warning system until 2005.”

#### **How can such a disaster be prevented or reduced in the future?**

Careful coastal land-use planning can minimise risk.

Nearly three billion people, or almost half the world population, live in coastal zones, which in many cases are prone to natural hazards – especially tropical cyclones, floods, storms and tsunamis. For many, the sea provides a source of income, such as for fishing villages right on the shore. Governments and local authorities need to undertake long-term land use planning to ensure that disaster risks are minimised.

#### **Public awareness and education are essential for protecting people and property**

In Thailand over 1,800 lives were saved because a tribal leader recognised the imminent danger when the sea suddenly receded, and so decided to evacuate his people up to the hills. Some 100 tourists owe their lives to a 10-year old girl from England who warned them to flee to safety, moments before the tsunami engulfed the beach. The girl recognised the signs after learning about tsunamis in her geography class. The tsunami highlighted risks that other

regions face owing to the lack of regional tsunami warning systems, such as the Caribbean and countries located along the Mediterranean coastline.

### **Developing and respecting appropriate building codes can minimise exposure to risks**

Construction of housing and hotels in vulnerable coastal areas along the Indian Ocean meant that thousands of people were engulfed by the enormous tsunami while they were sunbathing on the beach or sleeping in their hotels. Regulations to manage the construction of new buildings near the coastline and the development of multi-storey designs that offer refuge on higher floors are examples that could mean fewer lives lost from tsunamis in the future.

Point to Ponder: This is true for various port cities falling under coastal zones and around the coastline of India.... There is a message for us here.....

### **Countries can work together ahead of time, as well as when disaster strikes.**

There were many instances of countries in the Indian Ocean region quickly providing help to affected neighbouring countries. But countries can also cooperate ahead of time before disasters strike, for example on regional early warning systems, and preparedness and response plans, in addition to developing necessary systems at the national and local levels.

Point to Ponder: Role of Media in advocating and strengthening regional and international cooperation ....through information exchange, dissemination and objective dialogue and deliberation

Reducing risk depends on close interaction between the scientific and technical community, public authorities and community-based organisations.

The disaster demonstrated the importance of strong interaction and communication between technical and political actors. There is a need to strengthen the link between scientific and technical institutions, national and local authorities, and community leaders to build knowledge and the basis for avoiding future human, economic and social losses from disasters.

Point to Ponder: Can Media bring some of them together for the same ..... Is this happening in the Indian Context.... Let's talk about it

### **Case View 4 (Source: UNISDR): Hurricane Katrina, United States (2005)**

Hurricane Katrina hit the Gulf Coast of the United States on 29 August 2005, killing more than 1,800 people, damaging more than 215,000 homes and causing US\$130 billion worth of damage. The storm surge put intolerable strain on flood defences surrounding New Orleans and flooded 75 per cent of the historic city where old and inadequate protective embankments failed within hours of the hurricane making landfall.

The role of the media during Katrina was very important and crucial, and reporters became involved in crisis management as well.

As telephone systems collapsed or were swept away leading to total inaccessibility to communications, reporters and broadcasters became in some cases the only link between stranded refugees and the authorities.

The Times-Picayune, a local New Orleans newspaper, lost its printing presses but concentrated coverage on its website and this became a vital link for rescue operations.

The media also played an important role in the initial warnings, and afterwards analysing the cause of the disaster during the rehabilitation and recovery period.

### **Assignment for the students**

- Role played by Global and Indian media - Kashmir Earthquake 2005 during disaster phase
- Role played by Regional Media – Karnataka Floods 2009
- Role played by Indian Media – Leh-Ladakh flashfloods 2010

#### **BOX 1: UNDP SUPPORTED RADIO PROGRAMME TO REDUCE TSUNAMI TRAUMA**

The devastating tsunami that hit Indonesia and other countries in December 2004 left behind a trail of death and destruction. Thousands died and livelihoods were destroyed. Besides the physical havoc, the tsunami also inflicted deep psychological scars on the survivors. Having suddenly lost close relatives, houses and work tools, those who did not perish were profoundly traumatised. In order to address this pressing problem, UNDP supported a radio programme to reduce the trauma in Meulaboh, in the province of Aceh, Indonesia.

The one-hour show used to be broadcast weekly on Saturdays at Dalka FM, the oldest and most popular station in the district. The main target audience was internally displaced persons who were living in temporary camps. The project was implemented in partnership with Samaritan Purse and a local NGO, Yayasan Mulia Hati. "The radio programme is part of our strategy to assist 13,000 displaced people. We have 30 counsellors who work closely with the community, so the programme is grass-roots based," said Frida Kawulusan, the counselling programme manager.

The topics covered in the radio programme stemmed from interaction with the community. A counsellor and a psychologist expert used to go to the studio and provide hints and advice on how to cope with various forms of stress. The programme had addressed issues such as how to control emotions, family relations, worries about employment and income, housing conditions, as well as establishing a community support network. Asnawati, a 45-year old woman who lived living in the temporary barracks, did not miss a show: "The most interesting topic I heard in the show was how to control our emotions. I understood why people like me used to get angry and what could be done about it."

Holding her mobile phone, she added: "If I ever had a pressing problem, I would send an SMS and ask for advice."

Grassroots connections and interactivity had turned the trauma radio show into one of the highest audience ratings programmes in the region. Bound by disaster and resilience, tsunami survivors found new ways to move forward and rebuild their lives.

*Assignment: Sharing Indian Experiences using community radio and other vehicles for public awareness building on disaster management.*

## BOX 2: THE ROLE OF MEDIA IN DISASTER WARNING: REUTERS ALERT NET

Reuters AlertNet is a good example of an ICT/media initiative that contributes towards early disaster warning and management at an international level. AlertNet was set up in 1997 by Reuters Foundation – an educational and humanitarian trust – to direct Reuters' core skills of speed, accuracy and freedom from bias to the service of the humanitarian community. It is a humanitarian news network based on a popular website that aims to keep relief professionals and the wider public up-to-date on humanitarian crises around the globe (AlertNet, 2006).

AlertNet has been in operation for more than 14 years now. It was born in the aftermath of the Rwanda crisis of 1994, when the Reuters Foundation became interested in media reports of poor coordination between emergency relief charities on the ground. It surveyed charities to determine what could be done to remedy this. The conclusion was that there was a need for a service that would:

- Deliver operation-critical information to relief charities worldwide;
- Encourage relief charities to exchange information; and
- Raise awareness of humanitarian emergencies among the general public.

AlertNet tracks all emergencies for which it is possible to find reliable information. In particular, one will find coverage of emergencies that, for a variety of reasons, receive only sporadic coverage elsewhere in the media – so-called 'forgotten' or 'hidden' emergencies. For example, Assam has experienced several massive floods, with thousands of people displaced and made homeless, but proper warning and evacuation procedures mean that the death toll has usually been low or non-existent. Being a regular seasonal event rather than a sudden new disaster makes it even less likely to make headlines beyond the local media.

AlertNet attracts more than three million users a year, has a network of more than 400 contributing humanitarian organisations, and its weekly email digest is received by more than 17,000 readers (Gidley, 2005)

### Assignment

*Media used as vehicle to spread public awareness and disseminate early warning messages – Discussion on the current trends in India with respect to the same during disaster times.*

### **Annexure 3:**

Case to discuss in the class for reporting disaster preparedness

## Case 1 (From a news report)

### **Strengthening disaster prevention and resilience: developing media and NGO capacity to increase awareness among communities in the Indian states of West Bengal and Orissa**

Start date: December 2007

End date: March 2009

Media types: radio, print and television

Country: India

The **BBC World Service Trust** held a pilot project to strengthen the culture of disaster prevention and preparedness of two states in India between 2007 and 2009.

Working to encourage local media to increase their coverage of disaster risk reduction issues, the 15-month initiative strove to improve attitudes of journalists and media institutions towards disaster risk reduction issues.

The project helped NGOs and government officers to develop effective relationships with the media for communicating messages to the communities. It also enabled radio professionals to produce effective public service announcements.

The various activities held during this 15-month pilot project were planned following discussions with media representatives, NGOs and local government bodies.

These activities included:

- Training workshops for media representatives, NGOs, government officers and radio professionals in Orissa and West Bengal.
- Five-day workshops for 15 print and broadcast journalists, and for 15 NGO representatives concurrently, to allow for greater interaction between members of these professions.
- Workshops lasting up to three days for 15 government officials in each state, aimed at equipping them with skills to handle the media more effectively.
- A three-day workshop for 16 radio professionals aimed at developing their skills to design radio advertisements on disaster preparedness.
- The production and dissemination of radio public service announcements, through local media in target states, to communicate key messages related to disaster preparedness and risk reduction.
- Seminars to encourage more interaction between senior media representatives, NGOs, government and other stakeholders while raising awareness of issues related to disaster risk reduction.

Workshops were followed by refresher sessions for all the above, later in the year.

The pilot initiative was supported by the European Commission's Humanitarian Aid Department (ECHO) disaster preparedness programme (DIPECHO) and also by Save the Children, Bal Rakha, Bharat

The above case could be used for discussions which could attempt the following:

- Global good practices of media houses and allied agencies investing in public awareness, advocacy and internal capacity building
- Examining the state of affairs with Indian media houses – at national, regional and local levels
- Examining the linkages between commercial and social imperatives within media houses in the country for such stories
- What could be done to strengthen and replicate these efforts as demonstrated in case 1.

## **Case 2: Preparedness exercise receives good media attention**

The global migration of populations to large cities has opened up unprecedented socio-economic opportunities to millions across the world. It has also brought in its wake a significant threat to the urban millions that live in an increasingly volatile environment which is susceptible to both manmade and natural calamities leading to unprecedented humanitarian crises. The model of emergency management exercises focuses on generating public awareness, undertaking capacity building and strengthening interagency coordination of diverse group of stakeholders (emergency responders) involved in emergency/disaster response in an urban (city) environment. This is very relevant in the Indian context where fast track growth and urbanisation have led to a situation where most Tier 1 and 2 cities are facing increased risks of disasters/calamities and need to be adequately prepared to confront them. The hope is that this approach will serve to create a locally driven, multi-disciplinary, sustainable commitment to emergency management activities and will, over time, become a validated model that can be easily reproduced in other cities and countries.

Chennai Emergency Management Exercise was one such execution of this model, which sought to examine and strengthen urban disaster response in the city. It was the result of a multi-institutional public-private partnership that was designed to harness the strengths and capabilities of regional emergency responders, educational institutions, hospitals, humanitarian agencies and state agencies as they prepare to confront urban catastrophes. This was a rigorous five-day-long event between 4 and 8 August 2011 with 12 parallel tracks running at Sri Ramachandra University, Porur, Chennai for the first four days of the event. The fourth day witnessed a table-top exercise followed by a massive major incident - simulation drill and got concluded by “hotwash” on the last day. This initiative was anchored jointly by National Disaster Management Authority, GOI and State Government of Tamil Nadu in partnership with United Nations Disaster Management Team, India. The initiative received massive support from a number of leading national and regional NGOs in the humanitarian space, academic institutions and private stakeholders including technical support from Harvard, Cornell-Columbia and the New York Fire Department.

The print, broadcast and online media widely covered and captured the proceedings of the Chennai Emergency Management exercise 2011 as well as Mumbai Emergency Management Exercise 2008 and 2010 where the Times Group was the media partner for 2008...

This case could be used for interactive discussions for exploring and examining tools that need to be deployed for transformation of information on disaster preparedness into newsworthy items – striking a balance between the commercial and social imperative (why, what, how etc)

What does it take for such preparedness initiatives to get covered?

**The Hindu – Chennai – 17 July 2011**  
**Emergency management exercise from August 4**

Aloysius Xavier Lopez

To strengthen urban disaster response in Chennai, the National Disaster Management Authority and the United Nations Disaster Management Team will begin the Chennai Emergency Management Exercise on August 4. The initiative, scheduled for five days, seeks to examine and strengthen urban disaster response in Chennai, said an official of the Chennai Corporation, who is involved in the exercise.

The effort builds on prior successful initiatives across India such as the Mumbai Emergency Management Exercise carried out with active support from the Government of Maharashtra and Municipal Corporation of Greater Mumbai in December 2010, said Naghma Firdaus, UN Disaster Management Team Associate.

As part of the exercise, a field drill would bring together leaders of Chennai's response agencies such as the police, fire and rescue services, national disaster response force and heads of hospitals, doctors, nurses, non-governmental organisations.

It would have a simulated disaster step by step. On the day before the field drill, all participants would meet at the Disaster Management Cell of the Chennai Corporation to practise simulated scenarios and identify roadblocks in execution.

On the day of the field drill, a mass casualty event would be simulated at YMCA Grounds in Nandanam with over 300 injured victims and the city's response agencies would be alerted.

This exercise has been developed over years of practice in various places across the world. It incorporates lessons learnt from other cities and would expose strengths and gaps in inter-agency communication and discrepancies in response planning, Ms. Firdaus said.

The exercise would have active support and participation of hospitals from southern states such as Kerala, Karnataka and Andhra Pradesh.

The Corporation is likely to use the data collected in various localities such as Chintadripet and Saidapet, where economic, institutional and natural resilience to disaster has been surveyed recently.

## **Annexure 4:**

Case to discuss in class for post-disaster reporting

## Case 1: The Bhuj earthquake 2001:

The Kutch earthquake of 26 January 2001 was one of the worst natural disasters to strike Gujarat.

Overall Impact - 7,633 villages in 21 out of 25 districts of Gujarat were affected to varying degrees. The districts most affected were Kutch, Surendranagar, Jamnagar, Rajkot, Patan and Ahmedabad. Around 13,805 (unofficial figures – more than 20,000) human lives were lost, about 167,000 people were injured and over a million houses were damaged and destroyed. About 10,000 small and medium industrial units went out of production affecting income and employment.

This was the trigger for establishment of Gujarat State Disaster Management Authority, announcement of the Reconstruction and Rehabilitation Policy in 2001. (Enactment of the State DM Act)

The Gujarat Earthquake Reconstruction Programme was designed to address the needs of the affected people comprehensively. It adopted a building back better approach, involved the community and encompassed a number of sectors such as housing, physical infrastructure, social infrastructure (education and health), urban reconstruction, livelihood restoration, social rehabilitation and long-term disaster risk reduction.

The reconstruction programme had the following objectives:

- Promoting sustainable recovery in disaster affected areas
- Laying down the foundation for sustainable disaster management capacity in Gujarat

The phase wise focus of the programme was:

The short term focus of the reconstruction programme was to address the immediate needs such as temporary shelters before the onset of the monsoon, debris removal, repair of houses and public buildings and emergency repair of irrigation structures.

The medium term objectives of the programme emphasised the repair and reconstruction of houses, public infrastructure and social infrastructure and initiating efforts towards disaster mitigation and risk reduction.

The long term objective of the reconstruction programme was further strengthening the capacity of government institutions and community towards disaster risk reduction (preparedness, response, mitigation and prevention) and implementation of risk transfer mechanism.

Discussion on the stories that could be developed – on the various phases of disaster management

## Case 2: Cyclone Aila of West Bengal – A look into the sectoral needs of the affected population (UNICEF) June 2009

On May 25, 2009, Cyclone Aila disrupted life in the state of West Bengal. Cyclonic winds of 100 km/hr accompanied by heavy rainfall, flooding and landslides affected almost the entire state.

Multiple breaches in the embankments (500km) at the delta of the Ganga in the Sunderbans area created a major emergency – two districts of the delta, i.e., South 24 Parganas and North 24 Parganas, were the most affected.

Since much of the Sunderbans is below sea level, it provoked massive flooding and brought isolation, desperation, and grief to the vulnerable population.

Women, boys, girls and the elderly were the most affected and vulnerable.

Due to almost complete destruction of livelihoods, huge damage to houses and breakdown in services, substantial rehabilitation efforts were also needed.

The most affected populations in the assessed areas belonged largely to the poorest and most vulnerable communities with little social or economic capital.

Some important parameters with respect to the devastation that Aila brought to West Bengal:

- 138 casualties
- 6.7 million affected
- 920,000 houses damaged
- 195,000 displaced
- 485 relief camps set up.

For South 24 Parganas and North 24 Parganas districts:

- 70 casualties
- 2.5 million affected,
- 390,000 houses damaged
- 182,000 displaced
- 433 relief camps

In the three most affected blocks – Sandeshkali 1 and Sandeshkali 2 (North 24 Parganas) and Gosaba (South 24 Parganas) - 500,000 people were affected.

Hand-pumps were submerged and water was unsafe for use in many places, due to lack of chlorination and hygiene.

Stagnant water compounded the risk of disease.

Due to physical isolation, many people had to walk long distances to collect water from safe hand-pumps.

It took almost more than a year for roads, communications and transportation to return to normalcy.

Despite support from the Army, there was a shortage of speed boats to conduct the emergency operations.

Access to the affected areas was extremely difficult. Logistic challenges thus greatly hampered the relief supplies.

Many villages were under water for days and difficult to reach.

These were accessible only by boat. In other areas, where the roads were under water, access by auto-rickshaws took hours.

Villagers pointed to their necks to show how the water level rose that day in just three hours after the cyclone struck. Using body language, they demonstrated the ferocity of the winds that made it difficult even to stand.

The salty water entered the fields, ruined the crops and spoilt the soil.

The damage to future agriculture was immense and nobody knows how long it will take to recover

The weak monsoon that followed the cyclone did not help matters.

The areas in both districts were in normal circumstances among the most difficult to reach delta areas of West Bengal and lacked adequate health care services.

The main health problems identified among the affected population were diarrhoea, fever, cough, cold and skin infections.

No deaths due to diseases had occurred since the cyclone on May 25.

All immunisation activities in the region had stopped since Aila.

Health services were being delivered through mobile medical teams and through health sub-centres.

There was need for newborn care in the affected villages. The essential package should have included home visits (minimum three in the first week) by paramedical workers.

In one of the affected villages, the nearest facility for deliveries involved about one hour travel in normal circumstances and after the cyclone, it took 2-3 hours and that too only if boats were available. The nearest Comprehensive Emergency Obstetric care (CEmOC) facility was at the subdivision hospital which was another two hours away. If any obstetric or any other emergency happened, there was no referral transport available.

On matters pertaining to Disease Surveillance:

- Surveillance system was not in place in either the facilities or the medical camps
- Unstructured way to collect data
- Lack of capacity to detect early outbreaks or identify infectious diseases
- Based on field observation, the number of cases was greatly under-reported.
- The Integrated Disease Surveillance Project (IDSP) was functional but field data collection was weak.

At the same time, an emergency of this kind and nature also provides a golden opportunity for system strengthening, in this case-

- Creation of standard treatment protocol for cholera response (Facility – community)
- Reinforce zinc and ORS for diarrhoea treatment

- Ensuring 24x7 delivery facilities and first referral units (FRUs) within reach
- Delivery of newborn minimal package of care.
- Implementation of immunisation services.

### **Nutrition:**

Household food stocks had been washed off and the vast majority of families were left with no food grains whatsoever.

The Aanganwadi Workers (AWW) in both places had left the village either for safety reasons or had taken shelter in camps and relatives' place for sustenance. Nutrition services had not been provided to children and mothers for over one week. There was no real defined plan in place to address malnutrition.

Some markets were fully functional but not easy to reach, especially for those who were in cut off or isolated villages. Although different food items were available, the prices of all essential food commodities (rice/cereals, pulses, oil, sugar/spices/salt) had gone up.

Wood was the main fuel used for cooking. There were many families with no cooking utensils; they lost their entire belongings during Aila.

### **Water, Sanitation, Hygiene:**

A total of 10,239 hand pumps and a number of piped water supply schemes were damaged during Aila. Before the cyclone, there were 38, 681 hand pumps and 398 piped water supply schemes meeting the requirement of drinking water for 10.26 million villagers of the two districts (Census 2001)

There was no special attention of water quality monitoring, surveillance, operation and maintenance of hand pumps. The general hygiene was poor.

Proper storage and use of halogen tablets was not prevalent. Everywhere there was stagnant water and organic matter had started to decay.

There was no system of solid waste management

Most of the household toilets were washed away and people were practising open defecation. As saline water was still surrounding the houses, sanitation was an important issue, particularly for the women, children, the sick and the old.

### **Education:**

School building structures where ever intact were being used as shelters by the displaced people.

Damage to textbooks was reported by both teachers and students.

School activities would remain hampered as long as people did not return and reconstruct their houses.

Some cases of trauma like nightmares were reported by parents of children in Gosaba.

There was, however, no perceived discrimination with regard to caste or class in any of the shelters.

There is potential that strong human interest stories could be drawn on sectoral needs during the post disaster period – broadly some of the standard priority segments to report upon remain marginalised and vulnerable segments of the society – women and children - also different sectors like health, education, water and energy. Aspects capturing efforts and issues pertaining to conservation of natural resources, legal implications, mitigation and recovery -holistically or individually - could also be explored. Interesting stories could also be done reflecting inter-linkages between many of these dimensions both from community and policy levels. A classroom discussion could bring out more ideas.

**Annexure 5:**  
Hot Topics for Disaster Preparedness  
Reporting

It would be useful to orient students on the work of some of the NGOs (SEEDS, AIDMI, etc) and academic institutions (IIT, DMI, Yashada, NCDC, TISS, ORG-MARG, etc) working in the domain of disaster management. There are good reservoirs of information and they are often more resourceful than government agencies. Also, it would be useful to list some of agencies (could be government affiliated) responsible for such information, like Building Materials and Technology Promotion Council, Central Water Commission, Indian Meteorological Department etc.

The module can be summed up by the teacher by informing the students that disaster management experts are also shifting their focus from relief and rehabilitation after a disaster to minimising disaster risk, so it makes sense for journalists to concentrate more closely on disaster risk reduction. The teacher may point out to the students that by and large, the media is poor in spotting trends, and this provides an opportunity for the enterprising journalist to produce excellent exclusive reports. The point can be brought home through a real-life example. A 2010 study by the International Council for Integrated Mountain Development said: “More than 40 lakes in the Himalayas, formed from rapidly melting glaciers, are expected to burst their banks in the next five years, sending millions of gallons of water and rock cascading on to settlements in the valleys below.” There have been few follow-up reports in the media in any of the countries in the Himalayas, and that provides an opportunity to the enterprising journalist.

Another set of story ideas that may be discussed in class is urban flooding. Health is a big part of an urban flood story, and a lot of information can be obtained from websites such as [http://whoindia.org/en/section3/section262/section344\\_779.htm](http://whoindia.org/en/section3/section262/section344_779.htm).

Similar data can be found in areas such as shelter, sanitation, infrastructure (such as the quality of drains), economic losses etc. This also provides a good opportunity to examine issues of poverty, marginalisation etc. Impact on schools, education is another area that can be followed.

Here is an example of such a follow-up story:

### **MOPPING UP IN MUMBAI**

Patralekha Chatterjee

Devastating floods and a death toll exceeding 1000 have made sanitation—and Mumbai’s decrepit drainage system—a political issue in India. As waterborne diseases continue to claim lives a month after the deluge, Patralekha Chatterjee finds out what the problem is with Mumbai’s drains.

A month after unprecedented rains lashed the teeming metropolis of Mumbai, killing more than 1000 and paralysing India’s commercial and entertainment capital, policy-makers are, at long last, making the link between drains and disaster.

Waking up after the Mumbai deluge, the government of Maharashtra, of which Mumbai is the capital, has put forward a Rs12 000 million (around US\$279 million) proposal to strengthen the city’s drainage and sewer network, under the proposed National Urban Renewal Mission scheme

A story done by Ms. Patralekha Chatterjee for The Lancet on the 2005 Mumbai floods. [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(05\)67196-6/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67196-6/fulltext)

**Annexure 6:**

Model Agenda for a three day training on  
Media on DRR

Day 1		
Training	09.00am – 10.00am	Registration and Tea/Coffee
	10.00am – 11.00am	Welcome and Introduction Background on the training
	11.00am – 11.45am (0.45 hrs)	Module 1: Introduction
	TEA BREAK	
	12.00pm – 01.30pm (1.30 hrs)	Module 2: Context setting
	LUNCH BREAK	
	2.30pm – 3.30pm (1.00 hr)	Module 3: An overview of conceptual and Technical aspects of a disaster
	TEA/COFFEE BREAK	
	04.00pm – 5.00 pm (1:00 hr)	Module 4: Which disaster to expect and when?
	05.00pm – 05.30pm	Formation of case-study groups for Day 2
DAY 2		
Training	09.30am – 10.00am	Registration and Tea/Coffee
	10.00am – 12.30pm (2:30 hrs)	Module 5: Case Studies
	LUNCH BREAK (Group Photo)	
	1.30pm – 4.00pm (2.30 hrs)	Module 6,7 and 8: Reporting disasters, disaster preparedness and post-disaster aftermath
4.00pm – 5.00pm (1.00 hr)	Feedback and open session & Information on the field visit and formation of groups for field visit e.g., unplanned urban planning and disasters, flooding and human settlements	
Day 3		
Field Visit	09.00 – 09.30	Module 9: Hot Topics of Preparedness reporting: Briefing during an Initial meeting at a central point
	09.30 – 2.00pm	Field Visit in groups different areas
	3.00 – 4.00pm	Re-assemble at the central point for the debriefing session; different groups present their story ideas in a role-play of a newsroom setting

## Glossary

## **Biodiversity**

Biodiversity or Biological diversity includes all plants, animals, microorganisms, and the eco-systems of which they are part, as well as the diversity within species, between species, and of ecosystems. It can, therefore, be understood at three levels i.e., genes, species and ecosystems.

## **Capacity Building**

The process by which individuals, institutions and societies develop abilities, human skills and infrastructure to perform functions, solve problems, set and achieve goals which are needed to reduce the level of risk. (UNHCR)

## **Climate Change**

The climate of a place or region is changed if over an extended period there is a statistically significant change in measurements of either the mean state or variability of the climate for that place or region.(UN/ISDR)

## **Community**

In the context of disaster risk management, a community can be defined as people living in one geographical area, who are exposed to common hazards due to their location. They many have common experiences in responding to hazards and disasters. However, they many have different perceptions of and exposure to risk. Groups within the locality will have a stake in risk reduction measures, either in favor or against. (ADPC)

## **Community-based Disaster Risk Reduction**

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 to enhance their capacities. Community people are at the heart of decision-making and implementation of disaster risk management activities. (ADPC)

## **Disaster**

The serious disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the ability of the affected communities to cope using their own resources. Disasters occur when the negative effects of the hazards are not well managed. Eg: if the houses in an earthquake prone area are not designed to withstand quakes. (ADPC)

## **Disaster Mitigation**

Structural and non-structural measures undertaken to limit the adverse impact of natural and technological hazards as well as environmental degradation. Eg: Construction of earthquake resistant houses in seismically active areas. (UN/ISDR)

## **Disaster Risk Management**

The process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacity of the communities to lessen the impact of natural hazards and related environmental disasters. This comprises all forms of activities

to avoid (prevention) or to limit (mitigation and preparedness) negative effects of hazards. (UN/ISDR)

### **Disaster Risk Reduction (DRR)**

Actions taken to reduce the risk of disasters and the impacts of natural hazards, through analysis and management of the causes of disasters. It includes avoidance of hazards, reduced social and economic vulnerability to hazards and improved preparedness for adverse events. (UN/ISDR)

### **Disaster Preparedness**

Activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely warnings and the temporary evacuation of people and property from threatened locations. (ADPC)

### **Early Warning System**

The set of capacities needed to provide timely and meaningful information to enable individuals and communities threatened by hazards to act in time and in an appropriate way to reduce the possibility of personal injury, loss of life and livelihoods, damage to property and the environment, and to prepare for effective response. (UN/ISDR)

### **Environmental Degradation**

The reduction of the capacity of the environment to meet social and ecological objectives and needs. The impacts may contribute to an increase in vulnerability and the frequency and intensity of natural hazards. Examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion. (UN/ISDR)

### **Hazard**

A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, damage to property, social and economic disruption and environmental degradation. Eg: Cyclone, Flood, Avalance, etc. (UNDP)

### **Hazard Mapping**

The process of mapping hazard information within a study area of varying scale, coverage, and detail. One example of the hazard mapping is a flood plain map. Hazard maps can be combined in a single map to give a composite picture of natural hazards, providing the possibility of common mitigation technique recommendations; land-use decisions can be based on all hazard considerations simultaneously. (UN/HABITAT)

### **Participatory Approach**

The development and/or government process in which the proposed beneficiaries of a policy or intervention are closely involved in identifying problems and priorities and have some control over the analysis and the planning, implementation and monitoring of solutions. (UNHCR)

## **Public Awareness**

The process of informing the general population, increasing levels of consciousness about risks and how people can act in order to reduce their exposures towards natural hazards. It fosters changes in behavior leading towards a culture of risk reduction. This involves the development and dissemination of public and educational information through radio, television and print media, as well as the establishment of information centers, networks, and community or participation actions. (UN/ISDR)

## **Resilience**

The capacity of a system, community or society potentially exposed to hazards to resist, adapt and recover from after a shock or crisis, and to restore an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures. (UN/ISDR)

## **Risk**

The probability of harmful consequences or losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from natural or human-induced hazards and vulnerable conditions. It is a function of hazard exposure and degree of vulnerability to a specific hazard. (UN/ISDR)

Risk = Hazards x Vulnerability / Capacity

## **Stakeholder**

All those, from agencies to individuals, who have a direct or indirect interest in the humanitarian interventions, or who are affected by the implementation and outcome of it. (ALNAP)

## **Vulnerability**

The conditions determined by physical, social, economic and environmental factors or processes, which increase susceptibility of a community to the impact of hazards. Eg: fisherfolk communities tend to live near the sea and this make them more vulnerable to cyclones. (UN/ISDR)

## **Useful Abbreviations**

ARMVs	Accident Relief Medical Vans
BIS	Bureau of Indian Standards
CBOs	Community Based Organisations
CBRN	Chemical, Biological, Radiological and Nuclear
CCMNC	Cabinet Committee on Management of Natural Calamities
CCS	Cabinet Committee on Security
CSR	Corporate Social Responsibility
CRF	Calamity Relief Fund
CSO	Central Statistical Organisation
CDV	Civil Defence Volunteer
CWS	Cyclone Warning Centres
CWC	Central Water Commission
CWDS	Cyclone Warning Dissemination System
DDMA	District Disaster Management Authority
DEOC	District Emergency Operation Centre
DM	Disaster Management
DOD	Department of Ocean Development
DR	Disaster Risk
DRR	Disaster Risk Reduction
DRDO	Defence Research and Development Organisation
EMS	Electronic Messaging System
ESF	Emergency Support Function
GIS	Geographic Information System
GoI	Government of India
GPS	Global Positioning System
GSI	Geological Survey of India
HFL	Highest Flood Level
HLC	High Level Committee
HPC	High Powered Committee
IOC	Integrated Operations Centre
ICS	Incident Command System
ICT	Incident Command Team
IDRN	India Disaster Resource Network
IDKN	India Disaster Knowledge Network
IMC	Inter-Ministerial Committee
IMD	India Meteorological Department
IMG	Inter-Ministerial Group
INCOIS	Indian National Centre for Ocean Information Services
IT	Information Technology
ITK	Indigenous Technical Knowledge
MHA	Ministry of Home Affairs
MoES	Ministry of Earth Sciences
NCC	National Cadet Corps
NCCF	National Calamity Contingency Fund
NCMC	National Crisis Management Committee
NDEM	National Database for Emergency Management
NDMA	National Disaster Management Authority
NDMF	National Disaster Mitigation Fund
NDRF	National Disaster Response Force
NEC	National Executive Committee
NEOC	National Emergency Operation Centre
NGOs	Non-Governmental Organisations

NIDM	National Institute of Disaster Management
NITs	National Institutes of Technology
NSDI	National Spatial Data Infrastructure
NSS	National Service Scheme
NYKS	Nehru Yuva Kendra Sangathan
PPP	Public-Private Partnership
PRI	Panchayati Raj Institutions
QRT	Quick Response Team
R&D	Research and Development
RRC	Regional Response Centre
SAR	Search and Rescue
SASE	Snow and Avalanche Study Establishment
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEC	State Executive Committee
SEOC	State Emergency Operation Centre
SOPs	Standard Operating Procedures
ULBs	Urban Local Bodies
UN	United Nations
UNISDR	United Nations International Strategy for Disaster Reduction
UT	Union Territory
WMO	World Meteorological Organisation



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