

---

## UNIT 22 DISASTERS AND ANIMAL WELFARE

---

### Structure

- 22.1 Learning Outcomes
- 22.2 Introduction
- 22.3 Disasters – Meaning and Classification
  - 22.3.1 Natural Disasters
  - 22.3.2 Man-made Disasters
- 22.4 Current Scenario in Disaster Management
  - 22.4.1 National Disaster Management Act – 2005
  - 22.4.2 National Disaster Management Authority (NDMA)
- 22.5 Severity Indices in Disasters
  - 22.5.1 Qualitative Measurement
  - 22.5.2 Quantitative Measurement
- 22.6 Role of Different Stakeholders in Disaster Management and Preparedness
  - 22.6.1 Local, State and Central Government Agencies
  - 22.6.2 Non-Governmental Organizations (NGOs)
  - 22.6.3 Citizens and Community
  - 22.6.4 Media
  - 22.6.5 Business and Corporate Companies
  - 22.6.6 Universities and Research Institutions
- 22.7 National Livestock Disaster Management Plan
  - 22.7.1 Why the Plan?
  - 22.7.2 Components
  - 22.7.3 Salient Features
- 22.8 Let Us Sum Up
- 22.9 Keywords
- 22.10 Bibliography and Further Reading
- 22.11 Self Assessment Exercises
- 22.12 Answers / Hints to Check Your Progress

---

### 22.1 LEARNING OUTCOMES

- a) **Knowledge and Understanding:** After studying this Unit, you will be able to:
  - Define and classify disasters.
  - Analyze the current scenario and role of different stakeholders in disaster management and preparedness.
- b) **Practical and Professional Skills:** After studying this Unit, you will be able to:
  - Describe the national livestock disaster management plan.

---

## 22.2 INTRODUCTION

---

In recent times, you might have heard or read in the newspaper about the disasters occurring in our country. Can you recollect any one disaster which happened in our country and had claimed many lives? During 2004, a major earthquake which occurred near the Indonesia has resulted a Tsunami in the eastern coast of India. Since, our country has witnessed many disasters in recent times, it is essential for us to be prepared for it to avoid or restrict the impact. Our country, in recent times has given major emphasis on disaster management in the form of setting up of National Disaster Management Agency (NDMA). After human safety, the welfare of animals should be the most important consideration in the event of a natural disaster.

This unit will introduce you to the concept and classification of disasters, role of different stakeholders in disaster management and preparedness, and National Animal Disaster Management Plan.

---

## 22.3 DISASTERS – MEANING AND CLASSIFICATION

---

A disaster is the impact of a natural or man-made event occurring over a relatively short time leading to a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope up using its own resources.

In simple words, a disaster is defined as a situation in which the normal life or ecosystem gets disrupted and some emergency actions are required to save and preserve the life and the environment. According to World Health Organization (WHO), a ‘disaster’ is an occurrence disrupting the normal conditions of existence and causing a level of suffering that exceeds the capacity of adjustment of the affected community.

Two more terms which are commonly referred to along with disaster are ‘Hazard’ and ‘Vulnerability’.

A natural or man-made event that threatens to adversely affect human life, property or activity to the extent of causing a disaster is termed as ‘Hazard’.

Whereas, Vulnerability means inability to withstand the effects of a hostile environment (or) the predisposition to suffer damage due to external events.

A disaster occurs when hazards and vulnerability meet (WHO, 2002). The risk of disaster is augmented by increasing vulnerabilities like consistently growing population, rapid industrialization and urbanization, environmental degradation, climate change, etc (Box 22.1).

### Box 22.1: Disaster

As per the Disaster Management Act - 2005, a disaster is defined as “a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made cause, 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 a nature or magnitude as to be beyond the coping capacity of the community of the affected area”

Now, next question which comes to our minds is do all the disasters occur naturally? The answer is no. Disaster can be broadly classified into two viz. natural and man-made. As the name indicates, a natural disaster is a major adverse event resulting from natural processes of the Earth.

- *Example:* Floods, hurricanes, volcanic eruptions, earthquakes, tsunamis etc.

Whereas, man-made disasters are those incidents resulting from hazards involving an element of human intent, negligence or error, or threats involving a failure of a man-made system.

- *Example:* Nuclear and Radiological Emergency, Biological disasters and Chemical Disaster.

Now, let us see each one in detail.

### 22.3.1 Natural Disasters

In simple terms, a natural disaster is an event which is caused by the natural forces of the earth resulting in a great damage to the properties and structures and loss of life or injuries. When natural disasters occur in heavily populated areas, large number of lives are lost and resulting in huge economic losses. The severity of natural disaster depends on the affected population's resilience or ability to recover and also on the infrastructure available. Now, can you give some examples of natural disasters? Natural disasters include avalanches/landslides, earthquakes, floods/urban floods, tsunami, cyclone, drought and heat wave conditions. Let us see one by one:

- a) Avalanches and landslides:** An avalanche is a phenomenon used to describe a snow slide or rapid flow of snow down a slope from a mountain. You might have seen in some of the movies like 'Everest' where a large mass of snow comes down a mountain and covers the bottom of the mountain and destroys/buries everything on its way including people and animals alive. Whereas, a landslide is an outward and downward slope movement of an abundance of slope-forming materials including rock/soil. Landslides and avalanches are one of the major natural hazards that affect large parts of India covering regions like the Himalayas, the Northeastern hill ranges, the Western Ghats, the Nilgiris, the Eastern Ghats and the Vindhya, which cover about 15% of the landmass. In recent times, one of the major landslides which resulted in loss of large number of people and animals occurred during the year 2013 in Uttarakhand and Himachal Pradesh.
- b) Earthquakes:** As the name indicates, earthquake means vibration, shaking, and sometimes displacement of the ground (Quake) of earth surface (Earth). It is caused by the slippage of earth surface (tectonic plates) within geological faults (fracture between two blocks of rock) resulting in a sudden release of energy in the Earth's crust that creates seismic waves. When earthquake occurs in a densely populated region, it may cause the loss of precious human and animal lives, mainly attributed to the secondary events like building collapse, fires, tsunamis and volcanoes etc. and not due to the earthquake itself. About 60 per cent of India's land is under the threat of moderate to severe seismic hazard. Some of the earthquakes which struck India include Sikkim earthquake during 2011 and Bhuj (Gujarat) earthquake which resulted in loss of about 13,805 deaths and affected 6.3 million people.

- c) **Floods:** A flood is an overflow of water which temporarily covers and ‘submerges’ land which is usually not covered by water. Flood may cause damage to the buildings, property and other infrastructure and may wash away anything which comes in its path including trees, humans and livestock. India is highly vulnerable to floods. In Chennai floods (2015), more than 500 people lost their lives and over 18 lakh people were displaced. Loss of lives (both human and livestock) is also due to exposure to infections during and after floods.
- d) **Tsunami:** It is a series of huge waves in a water body (ocean or a large lake) caused by the displacement of a large volume of water. The waves sometimes could reach up to a height of 100 feet can bring down the large buildings/trees and when the water recedes back can wash away anything which come across its path. The trigger point for tsunami is either a volcanic eruption or undersea earthquake. Nobody could forget the tsunami which occurred on 26<sup>th</sup> December 2004 due to a major earthquake in the Sumatra region. The regions affected in India include the Coastline of Tamil Nadu, Kerala, Andhra Pradesh, Pondicherry and Andaman and Nicobar Islands of India resulting in 10,749 deaths.
- e) **Cyclone:** Based on the origin/location, cyclone is also referred to as tropical cyclone (South Pacific and Indian Ocean), hurricane (Atlantic and Northeast Pacific), and typhoon (Northwest Pacific). It is a weather phenomenon wherein a large storm swirls in circles with wind speed of 120 km/ hour (range 50 to 220 km/hour). The Indian subcontinent which is having a long coastline of about 8,000 km is one of the worst affected regions in the world and is exposed to nearly 10 per cent of the world’s tropical cyclones. In India, cyclones occur both in Bay of Bengal and Arabian Sea.
- f) **Drought:** When there is no or low levels of rainfall significantly below average over a prolonged period leading to unusual dryness of soil, it is called “Drought”. The major contributing factors for the drought are high temperatures, hot dry winds, evaporation of moisture from the ground surface and shortage of water. Drought significantly affects the agricultural operations which mainly depend on ground water and rainfall which leads to crop failure and shortage of water, feed and fodder for animals (Box 22.2).
- g) **Heat Wave Conditions:** Heat wave is an abnormal weather condition wherein we experience a period of unusually and excessively hot weather. Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions. In recent times, our country has been experiencing severe heat wave conditions especially in the northern zone. Heat wave leads to uneasiness, cause physiological stress and sometimes leads to death of animals (Heat stroke).

**Box 22.2: Drought Zones of India**

Major drought-prone regions are Southern and Eastern Maharashtra, Northern Karnataka, Andhra Pradesh, Odisha, Gujarat, Telangana and Rajasthan

### Check Your Progress 1

**Note:** a) Use the spaces given below for your answers.  
b) Check your answer with those given at the end of the unit.

1) Define disaster.

.....  
.....  
.....  
.....  
.....

2) Write the difference between hazard and vulnerability.

.....  
.....  
.....  
.....  
.....

### 22.3.2 Man-made Disasters

In the previous sub-section, we have learnt how devastating the natural disasters are in the lives of humans and animals. Now, we will turn our focus towards the man-made disasters.

- a) **Nuclear and Radiological Emergency:** The nuclear science and technology is being used in different fields like power generation (22 nuclear reactors in India), medicine, industry, agriculture, research and defence. This has led to an increase in the incidence of nuclear and radiological emergencies. The places from where these emergencies can arise include nuclear plants, hospitals, industries, agriculture or research institutions and accidents of vehicles carrying radioactive/nuclear material. Any radiation incident results in or having a potential to result in exposure of animals and contamination of the water resources.
- b) **Biological Disasters:** These disasters are caused by spread of micro-organisms. Exposure of humans and animals to pathogenic microbes (Bacteria, virus etc.), toxins and bioactive substances may result in loss of life, injury, illness or other health impacts or environmental damage. Biological hazards might be in the form of epidemic affecting a large number of individuals in a population (Plague, Cholera) or pandemic spread across a large region (Swine Flu, Bird Flu, COVID 19).
- c) **Chemical Disasters:** Chemical disasters are caused due to exposure of chemical or its fumes/gases by large sections of the population and animals. It results in loss of life or permanent disability of vital organs and may even affect the future generations. Worst chemical disaster witnessed recently is the Visakhapatnam chemical plant gas leakage in May 2020 (Fig. 22.1).



*Fig. 22.1: Livestock affected during Visakhapatnam gas leakage disaster (<https://dailynews360.patrika.com>, 8<sup>th</sup> May, 2020)*

Disasters can also be classified based on the timing and predictability.

- **Based on Timing:** Slow (Drought, famine etc.) and Quick (Cyclone, Flood, Earthquake, Landslide etc.).
- **Based on Predictability:** Predictable (Cyclone, Flood) and Unpredictable (Earthquake, Landslide etc.).

Before we proceed, please complete activity 1.

**Activity 1:** Browse the internet and collect information about the livestock or animals affected by disasters (both natural and man-made) which occurred in India over the past 10 years.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

### Check Your Progress 2

**Note:** a) Use the spaces given below for your answers.  
b) Check your answer with those given at the end of the unit.

1) Define Tsunami.

.....  
.....  
.....  
.....  
.....

2) Differentiate between tropical cyclone, hurricane and typhoon.

.....  
.....  
.....  
.....  
.....

3) List the different types of man-made disasters.

.....  
.....  
.....  
.....  
.....

---

## 22.4 CURRENT SCENARIO IN DISASTER MANAGEMENT

---

India being a vast country with tremendous physiographic diversity, geographic variability and large population size, is highly vulnerable in varying degrees to a large number of natural and man-made disasters. About 58.6 per cent of the landmass is prone to earthquakes of moderate to very high intensity; 12 per cent of our land is prone to floods and river erosion; about 8% is prone to cyclones and tsunamis; 68 per cent of the cultivable area is vulnerable to drought, and hilly areas are at risk from landslides and avalanches (NDMA, 2007). India is one of the most disaster prone countries in the world, affecting overall 85% of Indian land and more than 50 million people (World Focus, 2014). About 26 states out of a total of 36 states/UTs in India are considered disaster prone.

**Box 22.3: Impact of Disasters**  
Disasters produce a range of impacts viz. direct, secondary and indirect. Direct effects are deaths, injuries and physical damage. Secondary impacts include releasing fire or hazardous materials into the environment. Indirect effects are the ripple effect resulting from flow of goods, services, unemployment etc.

Disasters are one of the major concerns since they not only destroy the human and animal lives and habitation, but also results in acute shortage of food, higher incidence of diseases and disturb socio-economic activities (Box 22.3). Moreover, due to the vast and undulating landscape, relief measures do not reach the affected areas on time when disaster strikes. This might be due to unpreparedness and lack of awareness, proper planning and implementation of disaster management plan at the grass-root level. Therefore, it is important to have proper planning and implementation strategies both at central and state levels to protect both human life and livestock.

Generally, protecting and saving human life is given first priority in disaster relief. That is the reason why, we can find huge losses of property and high mortality in livestock when disaster strikes. Though human life is the most precious, adequate planning and awareness should be created to protect and save livestock during disasters since they are one of the major sources of income and livelihood for the farmers. Therefore, there is a need for having a well-designed disaster management plan for livestock.

Are we prepared to face disasters? Yes, we are. With the setting up of National Disaster Management Authority (NDMA), we are well prepared for catering to the disasters. However, we should also dig into the past to see how we tackled disasters.

### 22.4.1 National Disaster Management Act - 2005

It is an Act with a proactive, and comprehensive mind-set towards disaster management covering all aspects from prevention, mitigation, preparedness to rehabilitation, reconstruction and recovery (Box 22.4). It is aimed at preparedness, prevention and early planning towards disaster. This Act has paved way for establishment of three authorities to spearhead and implement a holistic and integrated approach to disaster management in India at different levels *viz.*

#### Box 22.4: NDMA-2005

An Act to provide for the effective management of disasters and for matters connected therewith or incidental thereto.

- National Disaster Management Authority (NDMA) headed by the Prime Minister
- State Disaster Management Authority (SDMA) headed by the respective Chief Ministers, and
- District Disaster Management Authority (DDMA) headed by the District Magistrate/District Collector/ Deputy Commissioner of the concerned district.

This Act states that there shall be no discrimination on the ground of gender, caste and community in providing compensation and relief. It provides penalties for obstruction, false claims etc. It ensures establishment of disaster response fund and disaster mitigation fund at central, state and district level.

### 22.4.2 National Disaster Management Authority (NDMA)

The NDMA is an apex body under the Ministry of Home Affairs, GOI. The vision of NDMA is *“To build a safer and disaster resilient India by a holistic, pro-active, technology driven and sustainable development strategy that involves*



*all stakeholders and fosters a culture of prevention, preparedness and mitigation”.*

The major functions of NDMA are:

- Responding to the natural or man-made disasters and for capacity-building in disaster resiliency and crisis response.
- Coordinating with the State Disaster Management Authorities (SDMAs) to ensure a holistic and distributed approach to disaster management.
- Framing policies, plans, guidelines and best-practices for Disaster Management to ensure timely and effective response to disasters.

The responsibilities of NDMA are:

- Lay down policies on disaster management.
- Approve the National plan.
- Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National plan.
- Lay down guidelines to be followed by the State Authorities in drawing up the State plan.
- Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects.
- Coordinate the enforcement and implementation of the policy and plans for disaster management.
- Recommend provision of funds for the purpose of mitigation.
- Provide such support to other countries affected by major disasters as may be determined by the GOI.
- Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with threatening disaster situations or disasters as it may consider necessary.
- Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

The National Institute of Disaster Management was established in Delhi in 1995 with a specific mandate to organise training and capacity development programmes for managing natural disasters in India. This institute is up graded to National Centre for Disaster Management (NCDM) in 2003. In addition to NDCM, more recently, several institutions with a focused mandate on disaster management have come up in different parts of the country like the Gujarat State Disaster Management Authority (GSDMA), Orissa State Disaster Management Authority (OSDMA), Disaster Mitigation Institute Ahmedabad) etc.

Before we proceed, please complete activity 2.

<p><b>Activity 2:</b> Browse the NDMA website and collect the information about the National Disaster Management Policy Framework. Write the salient points.</p> <p>.....</p> <p>.....</p>
--

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

**Check Your Progress 3**

**Note:** a) Use the spaces given below for your answers.  
b) Check your answer with those given at the end of the unit.

1) Who heads the NDMA and SDMA, respectively?

.....  
.....  
.....  
.....  
.....

2) What are the major functions of NDMA?

.....  
.....  
.....  
.....  
.....

---

**22.5 SEVERITY INDICES IN DISASTERS**

---

When a disaster strikes, how will you measure its severity? Can we measure the severity of disaster? All these questions come to our mind when we discuss about disasters.

Can we really measure the severity of disaster? If your answer is yes, then the measurement is qualitative or quantitative. Well, let us see how the severity of disaster is measured.

**22.5.1 Qualitative Measurement**

According to Oxford dictionary of English 3<sup>rd</sup> edition (2010), the severity of a disaster in qualitative terms can be categorized as under:

Severity	Event/parameter
Emergency	A serious, unexpected, and often dangerous situation requiring immediate action. e.g. Flash floods
Disaster	A sudden accident or a natural catastrophe that causes great damage or loss of life. e.g. Kashmir floods in 2014.
Catastrophe	An event causing great and usually sudden damage or suffering; a disaster e.g. Japan earthquake in 2011.
Calamity	An event causing great and often sudden damage or distress; a disaster e.g. Droughts, floods, cyclones etc.
Cataclysm	A large-scale and violent event in the natural world e.g. Tsunami in 2004

Encyclopedia of Crisis Management classifies disaster using four levels which are tabulated below:

Parameter	Incidents	Major incidents	Disasters	Catastrophes
Impact	Very localized	Generally localized	Widespread and severe	Extremely large
Response	Local efforts	Some mutual assistance	Intergovernmental response	Major Intergovernmental response
Plans and Procedures	Standard operating procedures	Emergency plan activated	Emergency plan fully activated	Plans potentially overwhelmed
Resources	Local resources	Some outside assistance	Interregional transfer of resources	Local resources overwhelmed
Public Involvement	Very little involvement	Mainly not involved	Public very involved	Extensively involved
Recovery	Very few challenges	Few challenges	Major challenges	Massive challenges

### 22.5.2 Quantitative Measurement

Severity of disaster can be quantified using the following formula (WHO, 1998):

$$\text{Disaster Severity Index (DSI)} = (100 \times \text{Killed} + \text{Affected}) / \text{Total population}$$

Gad-el-Hak (2008) developed a Disaster Scope which classified disaster in 5 scopes based on number of casualties and the extent of geographic area affected. The Disaster Scope is tabulated below:

Scope	Disaster	Number of Casualties		Geographical area affected (km <sup>2</sup> )
I	Small	< 10	(or)	< 1
II	Medium	10-100	(or)	1-10
III	Large	100-1000	(or)	10-100
IV	Enormous	1000-10000	(or)	100-1000
V	Gargantuan (meaning Gigantic)	>10000	(or)	>1000

Disasters in India can also be categorized into the following four types:

Group	Severity Index	Type of disaster
I	10	Floods and Earthquakes
II	8-10	Cyclones, Drought
III	6-8	Forest fires, Epidemics, Thunderstorm, Hailstorm, Lightning, Tornado, Landslides etc.
IV	<6	Dust storms, Heat and Cold waves

(Source: Patel et al., 2015)

Before we proceed, please complete activity 3.

**Activity 3:** Browse the Internet and collect other models of Disaster Severity Indices. Write your findings.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Check Your Progress 4**

- Note:** a) Use the spaces given below for your answers.  
b) Check your answer with those given at the end of the unit.

1) What is a Catastrophe?

.....

.....

.....

.....

.....

2) How will you calculate the Disaster Severity Index?

.....

.....

.....

.....

---

## 22.6 ROLE OF DIFFERENT STAKEHOLDERS IN DISASTER MANAGEMENT AND PREPAREDNESS

---

When disaster strikes, there will be a state of chaos and there is a need for quick response and action to be taken to avoid loss of lives including animals and properties. Do you think that any one agency or stakeholder can act individually either at central level or state level in disaster management and preparedness? The answer is No. It is not possible. There is a need for coordinated effort involving different agencies/stakeholders at different levels. The different stakeholders involved in Disaster management and preparedness are summarised in Box 22.5.

### Box 22.5: Stakeholders in Disaster Management

As per the United Nations International Strategy for Disaster Reduction (UN/ISDR), the key stakeholders in the disaster management process are:

- Communities
- Local governments
- National governments
- Regional institutions
- NGOs
- Corporate
- Media and
- Scientific communities

### 22.6.1 Local, State and Central Government Agencies

The main responsibility for disaster relief lies with the state governments, and the Central Government supports the efforts of the state governments by offering requisite logistics and financial support. Under the NDMA, a National Disaster Response Fund, managed by the Central Government has been created for meeting the expenses for emergency response, relief and rehabilitation due to any threatening disaster situation or disaster. Generally, State Disaster Response Funds (SDRF) of the states are utilized for meeting out the expenditure during disasters which are not severe. However, in case of severe calamities/disaster, the NDRF supplement the funds of the SDRF of the states to facilitate immediate relief. Regarding logistics, there are different agencies and bodies at central, state and district/local levels which are involved in disaster management and preparedness. They are as follows:

- **National Disaster Response Forces (NDRF):** At central level, the first and the foremost agency which springs into action is National Disaster Response Forces (NDRF). Creation of a NDRF is an integral part of NDMA, 2005. At present, the NDRF comprises eight battalions, four of these battalions are equipped and trained to act during Nuclear, Biological and Chemical (NBC) related disasters. Four training Centres have also been set up by respective paramilitary forces to train the NDRF personnel.
- **Civil Defence and Home Guards:** Drastic changes have been made in the mandate of the Civil Defence and Home Guards over the years and they are now assigned to play a predominant and effective role in disaster management.

- **Armed Forces:** If the situation of the disaster is well beyond the capabilities of civil administration at state level, the Armed Forces support the civil authorities.
- **Fire Services:** At state level, fire services are also amongst the first responders, but are grossly deficient of manpower and state of the art equipment. Efforts are being made to upgrade the status of manpower and equipments.

### 22.6.2 Non-Governmental Organizations (NGOs)

Community is the first responder in any disaster situation. There is a great need for community level initiatives in managing disasters by creating awareness amongst the general public. It is here, the NGOs play a crucial role in disaster management and preparedness as they work extensively at the grassroot level (Box 22.6).

#### Box 22.6: Disaster Relief and Rehabilitation Work by Humane Society International

- HSI provides worldwide disaster services to animals affected by and stranded in earthquakes, hurricanes, typhoons, floods, wildfires and hazardous spills.
- In many parts of the world, people are forced to leave their animals when evacuating, and the animals often succumb to starvation, dehydration, injury and disease.
- Support is needed in many areas to increase capacity and public and government awareness of the importance of including all animals in disaster planning, response and recovery.
- The need for services continues after the disaster to create long-term change that can avert or lessen the impact of future disasters.



*Fig. 22.2: HSI Volunteers Attending and Feeding Stray Dogs during Covid-19*

### 22.6.3 Citizens and Community

They are the first one to respond to any type of disaster. One of the best examples is the people's (students, homemakers etc.) active participation in evacuating the persons trapped and providing relief measure to the affected during the Chennai Floods during 2015. Community-based disaster preparedness programme aims to strengthen the capacity of local communities to cope with the emergencies arising from sudden natural or man-made disasters. Such programmes being practiced in some states like Orissa and Assam that help in mobilizing all the local and external resources for providing leadership and supervise the distribution of relief measures and medicines, manage evacuation etc.

### 22.6.4 Media

At the time of emergencies/disaster, public seek up-to-date and detailed information. Media plays a vital role in informing/alerting the people and officials/authorities. They also play a significant role in disaster management and preparedness by creating public awareness about disasters; warning of hazards; gathering and transmitting information about affected areas; helping relief organizations; and facilitating discussions about disaster preparedness and response.

### 22.6.5 Business and Corporate Companies

The corporates play a major role in post-disaster relief, rehabilitation and reconstruction efforts in the affected regions (Box 22.7). The industrial and corporate organizations like the Confederation of Indian Industry (CII), the Federation of Indian Chambers of Commerce and Industry (FICCI), the PHD Chambers of Commerce and Industry have been in the forefront of providing much-needed assistance to the affected populace for ameliorating their sufferings (Issar and Mathur, 2005).

**Box.22.7: Role of Corporate Sector**  
Recognizing the importance of integrating the corporate sector in disaster prevention, mitigation and preparedness agenda, the National Disaster Management Framework envisages “involvement of corporate sector in awareness generation and disaster preparedness and mitigation planning” through sensitization, training and co-opting of the corporate sector and their nodal bodies in planning process and response mechanisms.

### 22.6.6 Universities and Research Institutions

These institutions can help in mobilizing funds and emergency voluntary support, academic contributions such as community education and trainings, helping in development of policy proposals and risk reduction strategies, involved in reconstruction phase as a member of local community, conducting research on different types of disasters etc.

Before we proceed, please complete activity 4.

**Activity 4:** Browse the websites of animal welfare NGOs (e.g. HSI, PFA, PETA, BlueCross of India etc). Study their activities pertaining to care and rescue of animals affected by the COVID-19 pandemic or any other disaster. Write your findings.

.....

.....

.....

.....

.....

.....

.....

**Note:** a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

- 1) List the different agencies and bodies at central, state and district/local levels which are involved in disaster management and preparedness.

.....  
.....  
.....  
.....  
.....

- 2) What are the major roles of media in Disaster Preparedness and management?

.....  
.....  
.....  
.....  
.....

---

## **22.7 NATIONAL LIVESTOCK DISASTER MANAGEMENT PLAN**

---

Do we need Disaster Management Plan for animals and livestock? The answer will be a big YES. For the first time in India, Department of Animal Husbandry and Dairying has prepared and launched National Livestock Disaster Management Plan, 2016 (Box 22.8) for protecting animals and preventing and mitigating loss of livestock during various disasters. The comprehensive plan was prepared after wide-range of discussions and consultations with the different stakeholders like the NDMA, NDRF, NIDM, various State Governments and knowledge institutions. The plan is a joint effort of the NIDM, the World Animal Protection and the Policy Perspectives Foundation (PPF).

### **22.7.1 Why the Plan?**

Since time immemorial, livestock and animals are integral part of human life. They are not only reared for commercial purposes (farm animals like cow, sheep, poultry etc. for milk, meat, wool) and services (Transportation), but also as

companion animals (Dog, cat etc.). In most cases, they are one of the major sources of income and livelihood especially for the farming community. Livestock are even termed as “Bank on Hooves” as they are a ready source of income at the time of financial crisis for the farming community. Most of the time, animals are often the forgotten victims of disasters. Therefore, it is important to develop and implement a National Livestock Disaster Management Plan.

**Box 22.8: National Livestock Disaster Management Plan**

NDMP has stressed that, “agencies specializing in animal care should provide necessary advisory and support for the care and protection of animals”



National Livestock Disaster Management Plan was developed for protecting animals/livestock and preventing and mitigating loss of livestock resources during various disasters. It aims to supplement the efforts of States/UTs in managing disasters and lays down the broad guidelines for management of animals/livestock during disasters like drought, floods, cyclones, earthquakes and other man-made disasters etc. in the states/UTs. This plan has brought out Standard Operating Procedures (SOPs) that are to be followed by the disaster management professionals across the country for protection of animals/livestock during disasters including floods, landslides and earthquake (Box 22.9).

### 22.7.2 Components

National Livestock Disaster Management Plan is divided into three parts:

- a) **Pre-disaster Preparedness:** This includes detailed action plan relating to dissemination of early warning, identification of vulnerability amongst livestock, animal vaccination, feed and fodder supply, capacity building of different stakeholders in disaster management etc.
- b) **Disaster Response:** This component includes strategy/action plan relating to effective and prompt response, rescue of livestock, feed & fodder supply, measures against epidemics and diseases, maintenance of Sanitation etc.
- c) **Post-Disaster Plan:** This includes strategy for treatment of sick animals, disease surveillance, disposal of carcasses, restoration and restocking of livestock population.

**Box 22.9: Livestock and Disaster Management Plan**

India is now one of the leading nations to include the rescue, relief and rehabilitation of animals/livestock during disasters in their national disaster management plan.

### 22.7.3 Salient Features

- Rescue and relief of animals/livestock are an integral part of disaster operations in the country.
- The plan ensures that animals/livestock will be included in disaster preparations, potentially saving millions of livestock/animals' lives and building the resilience of the communities that depend on them.
- Measures to protect, rescue and care for animals/livestock during disasters will now be standard across all disaster management planning, ensuring animals are never the forgotten victims of disasters.

The animal/livestock perspective covered in the National Disaster Management Plan includes:

- Search, rescue and evacuation of animals/livestock.
- Prepare handbook/manuals and SOPs for evacuation of animals/livestock.
- Comprehensive plans for close coordination with the State Governments for removal or disposal of animal carcass from the affected areas as soon as possible for control and prevention of spreading of diseases.
- Rehabilitation and ensuring safety of livestock/other animals and providing immediate veterinary aid / care.



- 2) List the different components of National Livestock Disaster Management Plan.

.....

.....

.....

.....

.....

---

## 22.8 LET US SUM UP

---

- In this unit, we started by looking at the meaning and classification of disasters and understood that disasters are not only caused by natural events but also by man-made interventions/activities.
- You were introduced to different natural disasters like avalanches/landslides, earthquakes, floods including urban floods, tsunami, cyclone, drought and heat wave conditions and man-made disasters like nuclear and radiological emergency, biological and chemical disasters in this unit.
- We also analyzed the current scenario in disaster management and the different steps taken by the Union Government in preparing and enacting Natural Disaster Management Act and establishing National Disaster Management Authority.
- We also discussed about measuring the impact (both qualitative and quantitative) of disasters through various severity indices.
- Later we examined the roles of different stakeholders like Government agencies, NGOs, Media, Community etc. in disaster preparedness and management.
- Finally, we discussed the need, components and salient features of the National Livestock Disaster Management Plan.

---

## 22.9 KEYWORDS

---

**Act:** A formal decision, law, or by a legislature, ruler, court, or other authority.

**Agency:** An organization, company, or bureau that provides some service for another.

**Authority:** An organization having political or administrative power and control.

**Carcass:** The dead body of an animal.

**Community:** Social groups of any size whose members reside in a specific locality, share government, and often have a common cultural and historical heritage.

**Emergency:** A serious, sudden, urgent and often dangerous situation requiring immediate action.

**Epidemic:** A widespread occurrence of an infectious disease in a community at a particular time affecting many persons at the same time, and spreading from person to person in a locality where the disease is not permanently prevalent.

**Hazard:** An agent or something causing an unavoidable danger, risk, or difficulty.

**Index:** A sign or measure of something that directs attention to some fact, condition or conclusion.

**Mitigation:** The action of reducing the severity, seriousness, or painfulness of something or reducing risk of loss from the occurrence of any undesirable event.

**Pandemic:** A disease prevalent throughout an entire country, continent, or the whole world; epidemic over a large area.

**Radiological:** Relating to the science of radioactive material like X-rays and other high-energy radiation.

**Rehabilitation:** To restore to a condition of good health, ability to work, or the like.

**Resilience:** The capacity to recover quickly from difficulties; toughness.

**Seismic:** Relating to earthquakes or other vibrations of the earth and its crust. A seismograph, or seismometer, is an instrument used to detect and record earthquakes.

**Stakeholders:** A person or group that has an investment, share, or interest in something, as a business or industry.

**Standard Operating Procedures (SOPs):** A set of fixed instructions or steps for carrying out usually routine operations.

**Vulnerable:** Exposed to the possibility of being attacked or harmed, either physically or emotionally.

---

## 22.10 BIBLIOGRAPHY AND FURTHER READING

---

Issar, R. and Mathur, N.B. (2005). Disaster Risk Management and the Role of Corporate Sector – The Indian Perspective, Ministry of Home Affairs, National Disaster Management Division, Confederation of Indian Industry (CII) under the GoI-UNDP Disaster Risk Management programme.

([http://www.undp.org/content/dam/india/img/disaster\\_risk\\_manage\\_and\\_the\\_role\\_of\\_corporate\\_sec\\_india\\_perspective.pdf](http://www.undp.org/content/dam/india/img/disaster_risk_manage_and_the_role_of_corporate_sec_india_perspective.pdf))

Gad-el-Hak, M. (2008). Large-Scale Disasters: Prediction, Control, and Mitigation, First Edition, Cambridge University Press, London.

NDMA. (2007). National Disaster Management Guidelines, Preparation of State Disaster Management Plans, National Disaster Management Authority, Government of India.

Patel, B.H.M., Prasanna, S.B. and Gouri, M.D. (2015). Animal Welfare and Management. New India Publishing Agency, New Delhi.

WHO. (1998). Emergency Health Training Programme for Africa, Pan-African Emergency Training Centre, Addis Ababa, July 1998 ([www.who.int/disasters/repo/5512.doc](http://www.who.int/disasters/repo/5512.doc)).

WHO. (2002). Disasters & Emergencies – Definitions. WHO/EHA Pan African Emergency Training Centre, Addis Ababa (<http://apps.who.int/disasters/repo/7656.pdf>)

World Focus. (2014). Disaster Management in India, World Focus, Delhi, July 2014

### Web Resources

[http://nidm.gov.in/PDF/Disaster\\_about.pdf](http://nidm.gov.in/PDF/Disaster_about.pdf)

<http://osou.ac.in/eresources/role-of-media-in-disaster-management.pdf>

[http://www.crhnet.ca/sites/default/files/library/Jithamala\\_CRHNet% 202016\\_SIZING%20UP%20NATURAL%20DISASTERS.pdf](http://www.crhnet.ca/sites/default/files/library/Jithamala_CRHNet%202016_SIZING%20UP%20NATURAL%20DISASTERS.pdf)

[http://www.devalt.org/newsletter/jan05/of\\_2.htm](http://www.devalt.org/newsletter/jan05/of_2.htm)

<http://www.ndma.gov.in/en/disaster-data-statistics.html>

<https://training.fema.gov/emiweb/downloads/hdr/session%204%20powerpoint.pdf>

<https://www.vvriias.com/Articles/Natural-Disaster-Management-Indian-Scenario>

---

## 22.11 SELF ASSESSMENT EXERCISES

---

- 1) Differentiate between natural and man-made disasters. Discuss various types of natural disasters.
- 2) Discuss various components of National Disaster Management Act.
- 3) Explain the severity of disasters in terms of qualitative and quantitative measurement indicators.
- 4) Discuss the role of key stakeholders in the disaster management process.
- 5) Describe the salient features of National Disaster Management Plan for animals.

---

## 22.12 ANSWERS/HINTS TO CHECK YOUR PROGRESS

---

### Check Your Progress 1

- 1) A disaster is the impact of a natural or man-made event occurring over a relatively short time leading to a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope up using its own resources.
- 2) Hazard is a natural or man-made event that threatens to adversely affect life, property or activity to the extent of causing a disaster. Vulnerability means inability to withstand the effects of a hostile environment due to external events.

### Check Your Progress 2

- 1) Tsunami is a series of huge waves in a water body (ocean or a large lake) caused by the displacement of a large volume of water.
- 2) Cyclone is also referred to as tropical cyclone when it happens in South Pacific and Indian Ocean, hurricane in Atlantic and Northeast Pacific Ocean, and typhoon in Northwest Pacific Ocean.

- 3) Nuclear and Radiological Emergency, Biological and chemical disasters

### Check Your Progress 3

- 1) National Disaster Management Authority (NDMA) is headed by the Prime Minister whereas, State Disaster Management Authority (SDMA) is headed by the respective Chief Ministers.
- 2) The major functions of NDMA are to respond to natural or man-made disasters and for capacity-building in disaster resiliency and crisis response; Framing policies, laying down plans, guidelines and best-practices for disaster management to ensure timely and effective response to disasters.

### Check Your Progress 4

- 1) According to Oxford Dictionary, Catastrophe is an event causing great and usually sudden damage or suffering; a disaster.
- 2) Severity of disaster can be quantified using the following formula (WHO, 1998):

Disaster Severity Index (DSI) =  $(100 \times \text{Killed} + \text{Affected}) / \text{Total population}$

### Check Your Progress 5

- 1) National Disaster Response Forces (NDRF), Civil Defence and Home Guards, Armed Forces and Fire Services.
- 2) Media (both print and electronic media) plays a vital role in informing/alerting the people and officials/authorities, creating public awareness about disasters; warning of hazards; gathering and transmitting information about affected areas; helping relief organizations; and facilitating discussions about disaster preparedness and response.

### Check Your Progress 6

- 1) Livestock and animals are integral part of human life and are one of the major sources of income and livelihood. Most of the time, animals are often the forgotten victims of disasters. According to Government figures, as many as 1.98 lakh cattle had lost their lives in floods over the past three years during 2013-15 in India. Therefore, there is a need to develop and implement a National Livestock Disaster Management Plan.
- 2) National Livestock Disaster Management Plan is divided into three parts viz. Pre-disaster preparedness, Disaster response and Post-Disaster Plan.

## MAW-002: ANIMAL WELFARE ISSUES

<b>VOLUME-1</b>	
<b>Block /Unit</b>	<b>Title</b>
<b>BLOCK 1</b>	<b>ANIMAL WELFARE ISSUES IN DAIRY ANIMALS</b>
Unit 1	Dairy Animals
Unit 2	Welfare Issues in Dairy Animals
<b>BLOCK 2</b>	<b>ANIMAL WELFARE ISSUES IN SMALL RUMINANTS</b>
Unit 3	Small Ruminants
Unit 4	Welfare Issues in Small Ruminants
<b>BLOCK 3</b>	<b>ANIMAL WELFARE ISSUES IN PIGS</b>
Unit 5	Pig Farming
Unit 6	Welfare Issues in Pigs
<b>BLOCK 4</b>	<b>WELFARE ISSUES IN POULTRY</b>
Unit 7	Poultry Farming
Unit 8	Systems of Poultry Farming
Unit 9	Welfare Issues in Commercial Broilers
Unit 10	Welfare Issues in Commercial Layers
<b>BLOCK 5</b>	<b>POULTRY WELFARE – CASE STUDIES</b>
Unit 11	Beak - Trimming in Poultry
Unit 12	Forced Moulting in Poultry
<b>VOLUME-2</b>	
<b>BLOCK 6</b>	<b>WELFARE OF WORKING ANIMALS</b>
Unit 13	Working Animals
Unit 14	Welfare Issues in Working Animals
<b>BLOCK 7</b>	<b>WELFARE OF PERFORMING ANIMALS</b>
Unit 15	Performing Animals
Unit 16	Welfare Issues in Performing Animals
<b>BLOCK 8</b>	<b>WELFARE ISSUES IN COMPANION, ZOO AND LAB ANIMALS</b>
Unit 17	Welfare Issues in Pet and Companion Animals
Unit 18	Zoo Animals
Unit 19	Welfare Issues in Zoo and Free Living Wild Animals
Unit 20	Welfare Issues in Laboratory Animals
<b>BLOCK 9</b>	<b>ANIMAL WELFARE DURING SLAUGHTER AND DISASTERS</b>
Unit 21	Welfare Issues in Animal Slaughter
Unit 22	Disasters and Animal Welfare