

# Cyclone Disaster Mitigation And Management In India

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## Abstract

Degradation of the natural environment and global warming on a global scale having the effect of disaster around the world. Disaster is a sudden event of natural or manmade hazards such as earthquakes, floods, tsunami, cyclones and accidents that seriously disrupts the functioning of a community or society. The losses caused by the disaster exceed the community's or society's ability to cope using its own resources. India is one of the most disaster affected countries in the world. The damage caused by the disaster varies with the geographical location, climate and types of the earth surface.

**Keywords:** *Disastr, Cyclone, Mitigation, Overview.*

## 1. Introduction

The mental social economic and cultural state of the affected area are influenced by the natural hazards. Effects in the concerned areas are

- i) Basic needs of the human beings such as food, shelter, etc.
- ii) Day to day life of the people
- iii) Communication, net work, transportation and other infrastructures of the country.
- iv) Socio economic conditions of the country.

Generally disaster classified into two types –Natural and Manmade. A natural disaster is the effect of a natural hazard that affects the environment, and leads to financial, environmental and human losses. Man-made disasters are events which either intentionally or by accident cause severe threats to public health and well-being. Because their occurrence is unpredictable, man-made disasters pose an especially challenging threat that must be dealt with through vigilance and proper preparedness and response. Based on the devastation these are further classified into major/minor natural disaster and major/minor man made disaster.

## Major Natural Disasters:

- Flood
- Cyclone
- Drought
- Earthquake

## Minor Natural Disasters:

- Cold Wave
- Thunderstorms
- Heat Waves
- Mud Slides
- Strom

## Major Manmade Disasters:

- Setting of Fires
- Epidemic
- Deforestation
- Pollution due to prawn cultivation
- Chemical pollution

## Minor Manmade Disaster:

- Road or train accidents , riots
- Food poisoning
- Industrial disaster
- Environmental pollution

## 2. Cyclone

A cyclone is a vast, violent whirl in the atmosphere which moves from the high seas towards the coastal areas. A cyclone will often bring with it heavy rains that can cause flooding. In order for a cyclone to form, the ocean waters need to be warm, at least 26°C. Above the warm ocean, water evaporates and forms clouds. If there is low air pressure where the clouds are formed, it pulls them in and they begin to rotate. It is the earth rotating and spinning on its axis that causes the cyclone's clouds to rotate. Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather. The air circulates inward in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern

hemisphere. Cyclones are classified as: (i) extra tropical cyclones (also called temperate cyclones); and (ii) tropical cyclones. The word Cyclone is derived from the Greek word Cyclones meaning the coils of a snake. It was coined by Henry Peddington because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea. Cyclones are given many names in different regions of the world – They are known as typhoons in the China Sea and Pacific Ocean; hurricanes in the West Indian islands in the Caribbean Sea and Atlantic Ocean; tornados in the Guinea lands of West Africa and southern USA.; willy-willies in north-western Australia and tropical cyclones in the Indian Ocean.

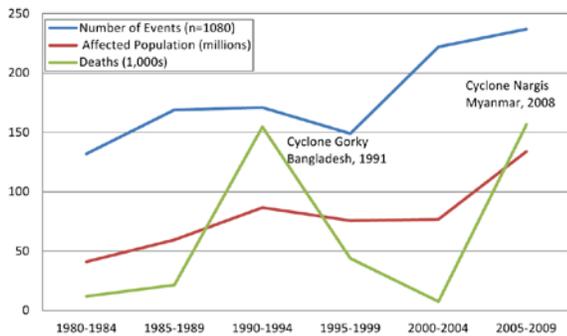


Fig. 1 Cyclone in the past

In India, cyclones are classified by:

- Strength of associated winds,
- Storm surges
- Exceptional rainfall occurrences.

### 2.1 Cyclones in India

State Name	Cyclones Name	Lowest Pressur e (mbar)	Year	Date
Andhra Pradesh	06B	919	1977	Nov 1977
Andhra Pradesh	BOB 01	920	1990	May 7, 1990
Tamil Nadu	BOB 09	998	1991	Nov14, 1991
Kerala	BOB 06	994	1992	
Karnataka	BOB 06	994	1992	
Tamil Nadu	BOB 06	994	1992	
Karnataka	BOB 03	968	1993	
Tamil Nadu	BOB 03	968	1993	
Kerala	BOB 05	968	1993	

Maharashtra	ARB 02	994	1994	
Tamil Nadu	08B	967	1996	
Gujarat	ARB 01	976	1996	
Andhra Pradesh	BOB 05	982	1998	
Gujarat	ARB 05	996	1998	
Gujarat	ARB 02	958	1998	
Odisha	BOB 05	968	1999	Oct 17, 1999
Odisha	BOB 06	912	1999	
Kerala	BOB 06	970	2000	
Tamil Nadu	BOB 05	958	2000	
Gujarat	ARB 01	932	2001	May 24, 2001
Andhra Pradesh	03B	992	2003	
Gujarat	Onil	990	2004	Oct 2, 2004
Tamil Nadu	<a href="#">Fanoos</a>	998	2005	Dec 8, 2005
Kerala	<a href="#">Fanoos</a>	999	2005	
Gujarat	Yemyin	986	2007	
Andhra Pradesh	Yemyin	986	2007	Jun 26, 2007
Tamil Nadu	Nisha	996	2008	Nov 26, 2008
Andhra Pradesh	Khai-Muk	996	2008	Nov 14, 2008
Maharashtra	<a href="#">Phyan</a>	988	2009	
Maharashtra	Jal	988	2010	
Andhra Pradesh	<a href="#">Laila</a>	986	2010	Aug 9, 2008
Tamil Nadu	Jal	988	2010	Jul 11, 2010
Tamil Nadu	<a href="#">Thane</a>	972	2011	Dec 29, 2007
Andhra Pradesh	<a href="#">Nilam</a>	982	2012	Oct 31, 2012
Tamil Nadu	<a href="#">Nilam</a>	992	2012	Oct 31, 2012
Tamil Nadu	Madi	986	2013	

Odisha	<a href="#">Phailin</a>	940	2013	Oct 11, 2013
Andhra Pradesh	<a href="#">Lehar</a>	980	2013	Nov 25, 2013
Andhra Pradesh	<a href="#">Helen</a>	990	2013	Nov 21, 2013
Odisha	<a href="#">Hudhud</a>	960	2014	Oct 12, 2014
Andhra Pradesh	<a href="#">Hudhud</a>	940	2014	Oct 12, 2014
Gujarat	<a href="#">Nilofar</a>		2014	Oct 31, 2014

## 2.2 Impacts of Cyclone

The impact of tropical cyclone destruction on the society as been so large and do not affect people equally. Cyclone cannot be prevented, but their impact on people’s lives can be reduced to a considerable extent. Disaster management covers all aspects of preventive and protective measures, preparedness, rescue, relief and rehabilitation operations. Impacts of cyclone effects economy, social and cultural activities of people and county .Some of the major impacts are as follows,

- Several tropical cyclones are responsible for large number of damage to properties and resources of the country.
- Cyclone mostly affects coastal districts. Several people in coastal villages who depended only on fishing had lost access to food and clean drinking water as fishing was prohibited.
- Cyclone, which is responsible for much loss of life, damage to property and deterioration of day to day life.
- Collapse of buildings, accidents and disease from contaminated food in the post cyclone period is also the reason for loss of life.
- Abnormal rise in sea level caused by cyclone is known as storm surge.
- Cyclones cause a lot of damage on the human environment.
- Cyclone may result in heavy rainfall and floods which is the next devastation to the environment.
- Due to flood caused by the cyclone can cause water log in unwanted places which causes many diseases.
- Almost everything is destroyed and thousands of people are left homeless due to cyclone.
- Coastal areas finds difficult without power supply, communication, emergency responses due to cyclones.

- Large scale evacuations are common, when countries are severely damaged by powerful forces of nature, many people have to abandon their homes and seek shelter in other regions.
- Damage to infrastructures such as roads, bridges, revetment results in loss to both public and Government.
- Health complications among survivors of natural disasters without emergency relief from the organizations can also rise the death rate even after danger has passed.
- Food scarcity is the main impact of cyclone as they loss their agricultural supplies.
- Devastation of crop may result in reduced income for farmers, increased prices for food, unemployment, increased crimes which in turn human populations are at higher level of risk.
- The impact of a natural disaster may also cause inequalities. The poor, who suffer from income fluctuations, and also have limited access to financial services, in the aftermath of a disaster, may be more prone to scarcity.
- There is no health without mental health. Confronted with scenes of destruction and death of friends and loved ones many children develop post-traumatic stress disorder.
- Physical impacts of disaster includes casualties and property damage. Losses of structures, animals also are important measures of physical impacts, and these are rising exponentially in developing countries such as India.
- Social impacts, which include psychosocial, sociodemographic, socioeconomic, and sociopolitical impacts, which can develop over a long period of time. Sociodemographic impact of a disaster is the destruction of households. Such an impact can be a very long process of disaster recovery for some population segments.
- Impacts of cyclone cause direct economic losses such as loss in asset value, reduction in investments which is a socioeconomic impact of a disaster.
- Effects of a cyclone on the economy leads to less income from exports and general economic turndown.

## 3. Mitigation and Management

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Main aim of the mitigation process is to save lives, reduce economic disruption, decrease vulnerability. Understanding the way that people are killed and injured in a particular disaster is a best way for reducing casualties. Mitigation is planned after studying the elements at risk. Mitigation also helps in the protection of the economy from disasters. Creating awareness of risk is the main role in Mitigation process. Decision makers plays a major role as they have to assess the losses faced by the country and have to make

important decisions to reduce further losses. Reduce the risk within limit of socio economic conditions through proper planning and decision making. The very big challenge for the people and government is to cope with the adversity of an unpredictable destruction with courage. The immediate challenge is to find answers to the following questions

- What is the actual situation in the affected areas?
- Where are the survivors and how to bring back their day to day life?
- What are the facilities required in disaster prone areas?
- How effective are the rehabilitation measures?
- What are the techniques for confronting future disaster related problems?

In addition to these the management of Cyclone disaster relief operations brings many issues

- How to make people involved in the rehabilitation of life?
- How to educate public on cyclone hazards and creating awareness?
- Mobilisation of vehicles for evacuation.
- Setting up emergency shelter.
- Search and rescue operation.
- Establishing communication with cut-off villages and moving population to the safe areas.
- Medical assistance such as setting up camps.
- Arrangements of short term food and water.
- Improvements of damaged infrastructures such as roads, bridges.
- Re-establishment of electricity, communication networks and contact with remote areas.
- Clearance of discarded materials.
- Choosing an agency for disposal of dead.
- Assessment of damage caused by disaster.
- Involvement of NGOs.

Mitigation in disaster management is the reduction of disaster effects and impacts. The UNISDR(2009) defines the term as a structural and non structural measures undertaken to limit the adverse impact of natural hazards , environmental degradation and technological hazards . Mitigation is an important component in aspects of the disaster management cycle. All activities carried out before a disaster are considered as mitigating the potential for severe impacts; those during mitigate the loss and further losses; and the post disaster work is an important opportunity for reducing the potential from future disasters. Cyclone preparedness is an important factor in preventing the loss of life's and minimizing the damage to property during cyclone. Cyclone management activities are divided into three phases : Phase-I(Pre cyclone Period ): Awareness and information campaigns, Training of local volunteers, planning of other operations such as rescue, relief measures, cyclone warning; Phase-II(During

Cyclone): Immediate rescue operations, supply of water, medicines, food and other necessary items, Damage assessments;Phase-III(Post cyclone Period): Rehabilitation, Providing financial assistances , arrangements of relief measures.

#### 4. Conclusion

Large number of cyclones have affected most of the coastal areas all over the country. Aim of cyclone disaster management is to reduce the impact of disasters. Rescue assistance, medical support, food and water supply are vital for saving lives which prevent further harm. Relying on external support is not desirable for communities at risk of a disaster, particularly as they have a capacity to deal with a disaster already. Further strategies and techniques has to be carried out to prevent further harm which also include risk reduction such as hazard. Prevention is better than cure. Pre disaster planning and preparations helps to reduce the impact of disaster and improve rehabilitation measures.

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