

Sem ⑤

B. Com Sem - 5

Foundation Course

Sem - V

Production Planning and Control

Production and control both are inter-related.

Control is a part of production control.

Control is without production control.

Production and control are not the same.

Production planning and production control are

Two preconditions for the success of production control.



DISASTER MANAGEMENT

Syllabus

Meaning, Nature and Classification and Resolution

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1. INTRODUCTION :

The Tsunami disaster has played havoc in Asian countries killing more than 1,50,000 people within minutes and rendering lacs and lacs of people homeless on 25th December, 2004. How can we forget the natural disaster of earthquake in Gujarat, which killed thousands of people ? Surat can never



forget natural disaster of unprecedented floods of 1959 and 1969. Cyclones, another natural disaster have ruined and are frequently ruining thousands of families over coastal region of Saurashtra, Andhra Pradesh, Tamilnadu and Orissa. Disasters are an unpleasant subject. Disasters come in any form and have a variety of causes. Its impact on man worldwide is increasing at an alarming rate. Developing countries

suffer the greatest when disaster hits. More than 95 percent of all deaths caused by disasters occur in developing countries. Losses due to natural disasters are 20 times greater in developing countries. The term "disaster management" encompasses the complete area of disaster related activities. Traditionally people think of disaster management only in terms of the post-disaster actions like relief and reconstruction. But disaster management covers a much broader scope. It draws attention to prevention of disastrous events and if it is impossible to prevent it then to minimise its effect and rehabilitate the victims as soon as possible. Year after year many disastrous events leave behind countless victims. Disasters like earthquake in Gujarat, Tsunami in Indian Ocean, a bus accident and land sliding in valley of Himachal Pradesh, floods and droughts in many part of the country have killed number of people. In 2001-2002 30,000 (including Gujarat earthquake) people died and all types of disasters affected 41.82 million people.

2. MEANING OF DISASTER :

(1) The World Health Organization (WHO) defines disaster as "any occurrence that causes damage, economic distraction, loss of human life and deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community of area."

(2) Disaster is defined as "situations resulting from an environmental phenomenon that produces stress, personal injury, physical damage and economic disruption of great magnitude" beyond a community's capability to cope.

(3) A disaster is a serious disruption of the functioning of a society, causing widespread human, material, or environmental losses, which exceed the ability of the affected society to cope using only its own resources. It requires help from other countries to help victims to settle in life.

Disaster is a sudden or great unfortunate event that causes death and injury to number of people and its impacts are so vigorous that it is beyond the government of the country and the people to cope with it.

Characteristics of Disaster :

From the above explanation of what disaster is, the following features of disaster can be clearly seen :

- (1) It is a natural event or man made event like war.
- (2) It has very unpleasant consequences like large scale death and destruction.
- (3) It causes economic disruption of great magnitude.
- (4) There is a huge loss of human lives and property.
- (5) Countless people become homeless and jobless.

(6) The state or country where it occurs is unable to cope up with it and requires international help.

(7) Human beings have no control over natural disasters like Tsunami, Cyclones, earthquakes, floods etc.

Shri Ramana Murthy writes "The word disaster means - great or sudden misfortune. In the light of these meanings, one concludes that the event which may be termed as 'disaster' should be big in magnitude. Secondly, it comes without notice in this manner, the massive scale and the suddenness are two essential ingredients of the destructive happening."

3. MEANING OF DISASTER MANAGEMENT : A

(1) "Disaster management" includes the complete range of disaster related activities. Disaster management is increasingly becoming a global issue. Modern disaster management is very much an on-going national requirement, important to government and people. It has special significance today because of increasing dangers to the national resources and their effect on economic environment. To be effective, disaster management should be implemented as a comprehensive and continuous activity.

(2) Disaster management means immediate rescue, relief, rehabilitation and reconstruction measures because the victims are too shocked to show patience. Traditionally people tend to think of disaster management only in terms of the post-disaster actions taken by relief and reconstruction officials. But disaster management covers a much broader scope of both the pre disaster and post disaster activities.

(3) "Disaster management is a collective term encompassing all aspects of planning for and responding to disasters, including both pre and post disaster activities. It may refer to the management of both the risks and consequences of disaster."

(4) "Disaster management" can be defined as the range of activities designed to maintain control over disaster and emergency situations and to provide a framework for helping at-risk persons to avoid or recover from the impact of the disaster.

Disaster management deals with situations that occur prior to, during and after the disaster.

(5) Shri P.C.Sinha writes, "Disaster management is a body of policy and administrative decisions and operational activities and which pertain to the various stages of a disaster at all levels".

4. THE EFFECTS OF DISASTER

The following are the effects of disaster :

- (1) It reduces the economic development of the nation which may in turn result into increase in poverty and unemployment.

- (2) It causes death of people as well as damages to property worth crores of rupees.
- (3) Disasters affect the social structure of the society.
- (4) It affects the routine life of people which remains disturbed for a very long time.
- (5) It destroys physical fixed and current assets on a large scale.
- (6) It creates political disturbance and even governments may change.
- (7) It reduces the progress of investment sector.
- (8) It affects the living standard of the people.
- (9) It affects the agricultural production as well as manufacturing activities.
- (10) It affects the public utility services like, telecommunication, electricity, etc.
- (11) It destroys the mental peace and harmony among the people. The psychological effects persist for years.
- (12) It involves the nation into loss of crores of rupees in rehabilitation and reconstruction.
- (13) Many people lose their relatives and near and dear ones, thus the whole family life is adversely affected.
- (14) It causes loss of cattle population due to which shortage of milk and milk products arise.

5. CAUSES OF DISASTER :

Factors that contribute to the natural and man made disasters are as follows :

(1) **Poverty** : Mostly the poor people of the society are the victims of the disaster. The upper class people even though they are affected are able to recover very soon. It is the poor who suffer losses. They suffer because they live in slum areas, where there is dirt, garbage and unhygienic living conditions. They have no savings or property to fall back upon during epidemics.

(2) **Rapid Urbanisation** : The concept of disaster should be broadened because the industrialisation and urbanisation have their side effects, for example, factory explosions, fires, mining tragedies and various transport accidents, shortage of dwelling houses.

(3) **Environmental Degradation** : The unplanned development results into environmental degradation. Environmental degradation means permanent damage to environment. It results due to poor land use, deforestation, over cultivation and over-grazing render the land more prone to floods and landslides. These also result into pollution of land, sea and air. It affects the ecological balance in the environment.

(4) **Population Growth** : One of the factors responsible for disaster is very rapid increase in population. As more people are to be accommodated, the greenery has to be destroyed at the cost of environmental balance. The multistoried buildings have taken up the place of trees.

(5) **War and Civil Strife** : War and civil strife lead the mankind to disasters. For example, the attack on World Trade Centre in USA has destroyed number of lives, business, economy and social structure. War and civil strife are responsible for the loss of human lives and other damages.

(6) **Lack of Public Awareness and Information** : The people are not aware of the measures that should be taken during any kind of disasters. They do not have knowledge as to how to face the disasters like earthquake, floods, fire, accidents, etc. Sometimes, they do not have any information about imminent disasters like floods, cyclones etc.

6. ELEMENTS OF DISASTER MANAGEMENT :

A disaster management deals with five distinct sets of activities in order to affect successfully the course of events related to disasters. The five elements are risk management, loss management, control of events, resource management and impact reduction.

(1) **Risk Management** : Risk management consists of (i) identifying disaster likely to occur (ii) determining their probability of occurrence (iii) estimating the impact that might occur to the community, (iv) determining measures that can reduce the risk (v) and taking action to reduce the threat. Risk management is accomplished by lessening the effects of the natural hazards or by taking actions in normal development projects that can reduce the risks. For example, if flood is determined to be a major risk, the risk can be reduced by physical measures such as building of dams, flood control embankments, etc.

(2) **Loss Management** : Losses in a disaster include human, structural and economic losses. Loss management is concerned with each of these through both pre and post-disaster actions which are designed to keep losses to a minimum level. The most effective loss management activities occur prior to the disaster.

(3) **Control of Events** : The critical element of disaster management is the control of the events during and after the emergency. It is important that disaster management should control the situation rather than responding to it. Having accurate information and its assessment can do this. Once disaster has commenced, there is need to have reliable data upon which to base the priorities and to guide the steps to be taken.

(4) **Resource Management** : For reducing and controlling the impact of disaster, it is necessary to have adequate resources. Hence, resource management is an important element of disaster management.

(5) **Impact Reduction** : Disasters can have adverse effects which are far beyond the immediate human, physical or economic losses. In a very real sense, disasters represent a loss of opportunity, not only individuals, but also to entire societies. They can also be a serious setback to the country's entire development programme. For a nation struck by a disaster, this means managing the disaster in such a way that recovery is accomplished quickly and that the recovery efforts contribute to the overall development needs of the country and all its citizens.

7. CHARACTERISTICS OF DISASTER MANAGEMENT :

Following are the main features of disaster management :

- (1) It is related to the future, as advance planning has to be made for meeting disaster that may arise in future.
- (2) Human efforts are important in disaster management.
- (3) Time is an important element in disaster management. If timely decisions are taken, it can reduce the loss to the minimum. In case of disasters like Tsunami or sudden fire, help has to be sent within hours, even within minutes of happening the event. Delay would enhance damage to life and property.
- (4) The services to be provided in disaster are of emergency nature.
- (5) Planning and policy making are very important elements of disaster management.
- (6) It requires skilled and trained personnel to save life and property.
- (7) The disaster management depends upon type of disaster, its seriousness, time and place of disaster etc.
- (8) It is an expensive, complicated and difficult activity requiring great patience.
- (9) Co-ordination of efforts is the essence of disaster management.

8. THE OBJECTIVES OF DISASTER MANAGEMENT :

The following are the objectives of disaster management :

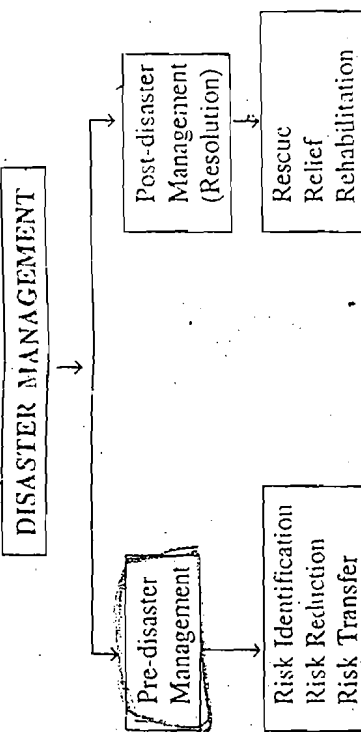
- To reduce and avoid the human, physical and economic losses suffered by individuals, by the society, and by the country at large.
- To reduce personal suffering.
- For speedy recovery
- To provide protection to victims or persons whose lives or property are lost.

9. NATURE OF DISASTER MANAGEMENT :

The disaster management activities may be grouped into two categories :

(1) **Pre-disaster Management** : Pre-disaster plan essentially requires estimation of risk and vulnerability to damage. This enables a planner to have a complete understanding of the economic, financial and social impacts of a disaster. Pre-disaster planning can have a significant impact on minimising the effect of tragedy and sufferings, and may result in more efficient and coordinated response in saving lives and properties.

(2) **Post-disaster Management** : Post-disaster management essentially begins with the assessment of impact.

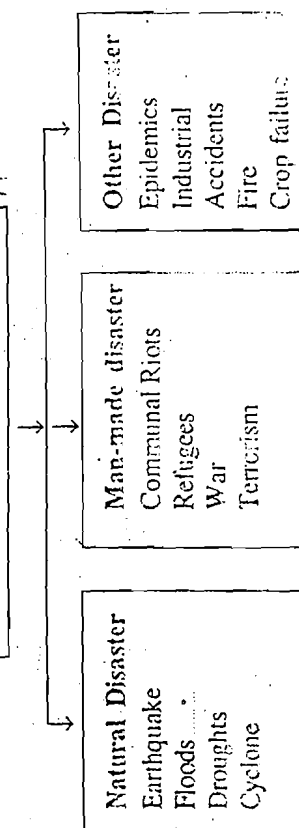


Disaster management includes the managerial functions. It aims at reducing the loss of lives and property by taking necessary timely actions. Any delay in the action may increase the loss of lives and property. Disaster management requires proper thinking, planning and implementation. Disaster management itself is a challenge.

10. CLASSIFICATION OF DISASTER :

Disaster can be classified into three categories as below :

CLASSIFICATION OF DISASTER A



(A) NATURAL DISASTERS :

Commonly referred to as "acts of God", natural disasters involve physical, biological, environmental and ecological changes in the world around us. They are caused by earthquakes, floods, cyclones, droughts, landslides, tornadoes etc. Natural disasters are not within the control of mankind but proper planning can minimise its adverse effects. Industrialisation, pollution, increasing growth of population, destroying the natural wealth has contributed to the possibility of more disasters. Natural disasters are often unpredictable and occur frequently in various forms.

10.1 EARTHQUAKE :

Earthquakes are one of the most powerful natural forces that can disrupt our daily lives. An earthquake is a sudden and rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. The underground location where the rock first broke or shifted is called the focus of the earthquake. The focus is the underground point of origin of an earthquake.

This shaking can cause severe damages, buildings, bridges and dams to collapse, disrupts gas, electric and phone service and sometimes trigger landslides, fire, floods and regional changes in water hydrology. Earthquake can occur at any time of the year. Earthquake damage varies with the magnitude, location and depth of the shock. Of the earthquakes that occurred between 1970 and 1990 in the world, 90% were in under developed countries.

India has experienced terrible earthquake like Bhuj in Gujarat, Latur in Maharashtra and at many other places during last decade.

(A) Pre-disaster steps :

- Continuous efforts should be made to predict the location, strength and time of occurrence of a particular earthquake. There should be constant mapping of seismic zone.
- Plan should be kept ready for facing the disaster so that damages can be reduced.
- People must be advised to get their lives and properties insured in quake-prone areas.
- While constructing the buildings, bridges, dams, etc. proper care should be taken for safety measures.
- Dense population on earthquake prone areas should not be allowed.
- Proper aids and equipments should be maintained. Mobile hospitals should be maintained.
- Prepare economic assistance programmes beforehand.
- Take the soil sample regularly.

- Implementation of national public awareness programmes.
- The information should be gathered about past earthquakes so that proper planning can be done.
- Different committees should be formed like damage assessment, supply management, emergency communication, shelter management, etc.
- Relief manuals should be prepared and distributed among people.

(B) Post-disaster Steps : [Rescue and Relief operations, rehabilitation and reconstruction]

The post disaster plan can be divided into three categories :

(I) First Stage :

- (1) Disaster control room should be set up and to be in constant touch with affected aids. The rescue work should be immediately started with the help of military personnel, medical team, rescue teams, fire brigades etc.
- (2) To extricate dead bodies of human beings and cattle from debris and to dispose them.
- (3) Those who are saved must be removed to safer places and those injured should be shifted to hospitals.
- (4) To rescue the human beings trapped in debris of buildings that have collapsed.
- (5) Proper arrangement should be made for maintaining law and order in the areas affected by earthquake.
- (6) Dangerous buildings, gas pipe lines and other structures must be razed safely.
- (7) Proper precautions should be taken to see that epidemic does not break out.
- (8) Enough provision for daily necessities of life should be maintained.
- (9) Repairing work of electricity, telephones, transport facilities must be promptly undertaken.
- (10) Relief work should be started immediately and it must be properly supervised.
- (11) Assistance in the form of clothes, foodgrains, medicines, fuel, tents, blankets, rain coats etc. must be collected and properly distributed.
- (12) Relief camps must be properly managed.
- (13) Voluntary organisation should be involved in relief work.

- (14) Control rooms must be opened and public must be properly informed.
- (15) Care should be taken to see that unnecessary false rumours are not spread, which may create panic among people.

(II) Second Stage :

- (1) To arrange for the repairing and reconstruction of roads, bridges, railway lines, private and public buildings etc. damaged or destroyed.
- (2) To develop necessary infrastructure.
- (3) To shift the residences from dangerous areas to safe places, if necessary.
- (4) To undertake the work of normalising agriculture, industries and business units.
- (5) To accept the relief contributions to maintain proper accounts and to publish them.

(III) Third stage (Long-term plans)

- (1) To begin implementing long-term plans for reconstruction.
- (2) To co-ordinate and control the relief and rehabilitation programmes under the control of state and central government agencies.

10.2 FLOODS :

It is rightly said that natural disasters are very horrifying. Natural disasters like floods disrupts the usual civic life. Floods are a dreadful event. Floods can be slow or fast rising but generally develop over a period of days. It usually occurs from large-scale weather systems generating heavy rainfall. Damage due to flood tends to increase with increasing development in river basins, whereas population pressure in flood prone areas also increases the possible of flood. Both the developed and developing countries are experiencing it and it is more in developing countries. India is no exception to this. India has also faced number of floods. For example South Gujarat region has experienced many floods like that in 2004 and great floods of 1959 and 1969 in Surat City. These were horrifying floods in many rivers, which disrupted the railway transport as well as road transport specifically such kind of disruption is faced between Bharuch and Valsad.

Many efforts are made by the government to reduce the damages and risk that arises due to floods. In case of major disasters, international assistance come on a large scale (unfortunately in India, much of it is pocketed by political and social leaders, who are no better than vultures.) In order to minimise the risk the following steps should be undertaken in pre and post disaster phase.

■ Disaster Management

- (1) To keep a watch over meteorological forecasts and dam authorities and to warn people in advance.
- (2) To prepare the staff and the list of volunteers who are interested providing services.
- (3) To arrange for boats to rescue the trapped people.
- (4) Developing a development plan to cope with transportation requirements.
- (5) Selection of suitably safe buildings for use as emergency shelter including private buildings.
- (6) Arranging for suitable buildings for the storage of food, clothing building material and other emergency supplies.
- (7) Determining need for resettlement in hazardous areas.
- (8) Ensuring that public utilities are in order.
- (9) Transfer of population from high-risk areas.
- (10) To arrange for funds and form plans for rehabilitation of the affected victims.
- (11) To take precautionary steps to prevent epidemics.

As for rail accidents the steps suggested for earthquakes should followed

10.3 CYCLONE :

Cyclone is a natural disaster which affect people leaving around coastal areas. This disaster cannot be prevented and cannot be controlled but proper planning and management can reduce its impact. Many parts of the world experiencing cyclone. In Orissa nearly 12 districts were affected due to cyclone. According to records 9887 people died 2507 people were injured. Damage to property of cores of rupees occurred. Cyclone has other effects like winds, floods and waves of soaring magnitude. Cyclone may sweep away houses, natural resources and other infrastructural facilities. As mentioned above cyclone can cause floods and so the damages caused to the lives and property is doubled. Many institutions have developed system for forecast the cyclone and then the people are informed beforehand in India there approximately 250 such centers. According to speed of wind cyclones are four types :

- (1) Common cyclone with wind speed of 62 to 88 kms per hour.
- (2) Serious cyclone with a speed of 89 to 117 km/hour
- (3) More serious cyclone with a speed of 118 to 220 km per hour
- (4) Super Cyclone with speed exceeding 220 km per hour

The following steps should be taken at pre and post disaster level.

- (1) Conducting surveys in cyclone prone areas to determine number of deaths, casualties, damages to property and relief requirements in past and accordingly plan for future.
- (2) With advancement of science and technology it is possible to predict the duration and speed of cyclone. So continuous forecasting can be done, if there is any possibility found then plan should be formulated to minimise the disaster.
- (3) Plan for rescue and rehabilitation should be beforehand so that at the stage of implementation no time is wasted.
- (4) Different committees should be formed so that necessary actions can be taken immediately.
- (5) Development and organisation of public awareness and education programmes should be undertaken.
- (6) Arrange for vehicles for shifting the victims to safer areas.
- (7) To restart telephone and electric services.
- (8) To undertake work of repairing roads.
- (9) Arrange for medical and other public utility services.
- (10) To raise financial resources for reconstruction and rehabilitation.

10.4 DROUGHT :

Drought is defined as water shortage caused by deficiency of rainfall and differs from other natural disasters in three ways.

- (1) A drought's beginning and ending are difficult to be determined since the effects accumulate slowly and may linger even after the apparent termination of an episode.
- (2) It is difficult to assess the degree of severity.
- (3) Drought impacts are less obvious and spread over a larger geographical area.
- (4) It is less risky in the sense that it does not cause death and destruction within minutes or hours.

Droughts like other natural disasters affect the economic development of the society and nation at large. The deserted areas are more prone to droughts and the people who are affected more are poor. The factors responsible for increasing the possibility of drought are increasing population, increasing number of livestock, lack of proper planning and not giving due importance to the protection of the environment. Many states of India have witnessed severe droughts and they are Gujarat, Madhya Pradesh, Bihar, Rajasthan, etc.

Droughts lead to scarcity of agricultural products and milk products, which in turn affects the production of other goods and services.

Formerly, many severe droughts have taken place in India. In the year 1900, thousands of people and livestock died due to starvation. In 1943, during world war II, thousands of people died in drought of 1943 in Bengal. It was so severe that dead bodies of human beings and cattle were lying in streets. The British government diverted foodgrains meant for Bengal to war areas for military purposes and allowed thousands of people to die in Bengal.

The following steps should be taken in order to minimise the damages.

- (1) Maintaining the records of the past and continuously examine the areas which are prone to droughts.
- (2) The consumption of water by certain areas should be estimated and provisions should be made accordingly.
- (3) To prepare a list of people affected and make arrangement to shift them to the areas which are safe.
- (4) Prepare plans to reduce the wastage of water and plan out for supplying water tanks in the affected areas.
- (5) To take support from other organisations to work for welfare of the people in the relief camps where free meals should be provided.
- (6) To arrange for funds and use the funds for welfare of the victims.
- (7) To supply foodgrains in enough quantity to be distributed either free of charge or at very concessional rates.
- (8) To supply enough fodder for cattle, so that they do not die due to lack of grass.
- (9) As long term measures, small and medium irrigation schemes should be implemented.
- (10) Drought management committees should be formed to supervise relief work.
- (11) Law and order problem should be properly attended to in case people start moving from affected areas.

10.5 LANDSLIDES :

Landslides occur when masses of rock, snow, earth or debris move down a slope in mountainous regions. Landslides may be very small or very large, and can move at slow to very high speed. They are activated by storms and fires and by human modification of land. They develop when water rapidly accumulates in the ground, such as during heavy rainfall or rapid snowmelt, changing the earth into a river of mud. Landslides may lead to heavy storms,

earthquakes and volcanic eruptions. It may even block roads, lines of communication or waterways and it may reduce the property values and even lead to destruction of buildings. Sometimes due to avalanche the whole village may be destroyed. Indirect effect may include the loss productivity of agricultural or forest lands. The following pre and post disaster steps should be taken.

- To know about the past landslides from the records and to identify the landslide prone areas.
- Continuously monitor, warn and evaluate the system.
- To transfer the people from high-risk areas.
- Develop plans for managing such disaster and form the centre from where the entire relief work may be controlled.

(B) MAN-MADE DISASTERS:-

Man-made disasters occur as a result of deliberate or accidental action by a member of society. There are many types of man-made disasters like communal riots, war and refugee problem. The detail explanation is given below.

10.6 COMMUNAL RIOTS :

India is a democratic and secular country where people of different religions live. Definitely each religion has its own ideology and this results into different opinions, which lead to incidents like communal riots. Indian people have faced many communal riots, before and after independence. During the demolition of Babri Masjid there were communal riots of many places in India, when many people lost their lives. In the state of Gujarat there were severe communal riots during the Godhra accident in the year 2002. The need of the hour is to eliminate the discrimination of caste and religion and this is possible by the effort of the human beings. The following steps should be taken during pre and post phase.

- (1) For maintaining peace and harmony in the society it is necessary to develop respect for other religions. This can be done by religious and social leaders.
- (2) Programmes should be organised for developing the feeling of brotherhood and a sense of belonging.
- (3) The authorities should have a check on antisocial elements in order to see that no riots are motivated. Particularly during religious processions this should be done.
- (4) Arrangement should be made for equipments in order to control the riots beforehand.
- (5) Spread of rumours should be prevented by strict government action.

- (6) The intelligence branch of government should gather information about any such move and inform police organisations.
- (7) Peace committees consisting of religious leaders, senior citizens having influence over a section of society should be formed.
- (8) The injured people should be shifted to hospitals promptly.
- (9) To extinguish fire, proper fire fighting arrangements should be made.
- (10) To reinforce police force with the help of Central government.

10.7 REFUGEES :

Refugees means people migrated from other regions of the world in order to save themselves from threats. Almost each country is accommodating such refugees. India itself is facing many refugees from the neighbouring countries like Pakistan, Bangladesh, Sri Lanka and Nepal. In 1947, lacs and lacs of people had come to India as refugees from Pakistan due to partition.

Refugees entering our country create problems because India is over populated and as more people migrate to India the problem of poverty, illiteracy, and scarcity of resources like water, electricity, employment opportunities, housing facilities, etc. increases. Talking about India, there is no balanced regional development. In Gujarat many people have shifted from other states due to high industrialisation in Southern Gujarat. This has given rise to many slum areas in Gujarat any calamities affect larger number of people. In order to control the refugees from the neighbouring countries security should be strong so that no anti-social elements can enter the country. There should be strict checking for the people entering the country officially. This will help to reduce riots, terrorist's attacks, etc.

Following steps are necessary to stop foreigners entering India as refugees :

- (1) In 1947, India had to accept lacs of refugees who were mostly Hindus who were driven away from newly formed Islamic Country called Pakistan.
- The government had to arrange for their resettlement at various places, provide means of livelihood for few months of settlement and take such other humanitarian steps.
- (2) In regular course, identity cards should be issued to residents of border areas.
 - (3) Proper checking by BSF should be undertaken and infiltration should be stopped.
 - (4) Many refugees like Bangladeshis in Assam quarrel with local people and the quarrel may take serious law and order problems.

- (5) Refugees may also work as spies of their countries like Pakistan, Bangladesh etc. and send secret information to their government. Here, secret government agencies should be vigilant.

10.8 WAR :

War is man-made horrible disaster, which has a dangerous impact on the life of the people, environment, and social structure as well as on the economy of the nation. There have been many wars for example, three wars between India and Pakistan in past and the recent, which is fresh in the mind of the people, the Kargil war. During the war many soldiers lose their lives, which affects their family members. This affects the mental peace of the people, and it takes time to come out from such shocks. Thousands of women become widows and children become orphans. Buildings and other properties worth crores of rupees are ruined. In spite of heavy damage and destruction to life and property since time immemorial, man has not forgotten his savagery and wars continue. Due to war the economic development of the nation is pushed back by many years. Now a days weapons used in war are very dangerous which affect the lives of more people. So one can say that technological development is a blessing in disguise. Steps need to be taken to avoid war in order to maintain peace and this is not possible by one nation but by the collective efforts from all the nations of the world.

(C) OTHER TYPES OF DISASTERS :

10.9 INDUSTRIAL DISASTER :

Due to fast industrial development in all countries of the world and due to use of complicated machineries using dangerous gases, chemicals etc. industrial accidents have become very common. Since last few decades there has been a growing awareness of the expanding risks and consequences of industrial disasters. Industrial disasters are threats to people and life-support systems that arise from the mass production of goods and services. When these threats exceed human coping capabilities or the capabilities of the environmental system, the possibility of industrial disasters increases. For example, 40 tones of lethal gas leakage from Union Carbide Corporation in Bhopal in 1984 is the best example for industrial disaster. The area affected by this disaster was about 40 square kilometers, with a resident population of over half a million. This disaster took the life of around 8,000 people and about 5,00,000 were injured. Such types of disasters are a result of lack of proper planning and control on working of machines and use of dangerous chemicals.

Industrial hazards can occur at any stage in the production process, including, extraction, processing, manufacture, transportation, storage, use and disposal. Losses generally involve the release of damaging substances (e.g.

chemicals, radioactivity, genetic materials). This usually occurs in the form of explosions, fires, spills, leaks, or wastes. Releases may be sudden and intensive, as in a power-plant explosion.

In order to control the industrial disaster many steps are taken by the Government. The Government has passed different Acts like Pollution Control Act, the Factories Act, Petroleum Act, etc. No doubt, number of Acts have been passed but the problem is with the implementation of these Acts, which is not in order. In India, 99% of Inspectors appointed to supervise the implementation of various Acts are corrupt. So many industrial accidents still occur.

10.10 NUCLEAR DISASTER :

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Damage to lives and property occur by the radiation accident also. The potential danger from an accident at a nuclear power plant is exposure to radiation. This exposure could come from the release of radioactive material from the plant into the environment. The area the radioactive release may affect depends on the amount of release from the plant, wind direction and speed and weather conditions. In order to reduce the damage of such disaster, awareness among the people should be developed for handling such disasters by conducting public training and education programmes. Government should have proper instruments to reduce or eliminate the effects of radiation.

10.11 TERRORISM :

In the present age number of countries are facing terrorist attacks. The victims of the attack are the innocent people and the matter has become the main concern for many countries. The terrorist attacks are increasing day by day. For example the terrorist attack on the World Trade Centre in USA, which took the lives of innocent people, many were injured and there was huge economic loss. India is no exception in facing terrorist attacks. For example attacks on Parliament house in Delhi, Akshardham in Gandhinagar, and frequent attacks in Jammu and Kashmir. Many institutions and organisations have been developed to protect the innocent people and secure them against terrorism both at national and international level. The following steps should be taken in order to reduce such kind of disaster.

The terrorists have modern weapons with which to attack police and military personnel and also innocent people. A terrorist group has hijacked a plane of Indian Airlines with more than 100 passengers and taken it to Kandhar in Afghanistan. In return for the release of passengers, the most dangerous terrorists were released by Indian government. These terrorists have

now formed the most dreaded terrorist group in Pakistan and frequently attack people of Kashmir.

In Bombay terrorists had resorted to bomb blasts in 1993 which killed many innocent civilians. Even now in North Eastern states also terrorists are active. In May, 2008 seven bomb blasts took place in busy areas of Jaipur, killing 80 people and injuring more than 200 persons.

- (1) People must be alert and aware of their surroundings.
- (2) People should be made aware not to accept any packages from the strangers.
- (3) There should be strict control on the border to ensure that no terrorist can enter the country.
- (4) There should be strict checking even at the airports, railway stations and bus stations of when official persons enter the country, state or city.
- (5) At the time of such disaster control room should work according to plans and rescue the affected victims and shift them to the safer areas.
- (6) International cooperation should be sought to control terrorism.
- (7) Intelligence agencies of government must be more alert and vigilant.

10.12 FIRE :

Lighting, high winds, earthquakes, volcanoes and floods can trigger fires. Lighting is the most significant natural contributor to fires. Buildings with rooftop storage tanks for inflammable liquids are particularly susceptible. It may be man-made or natural arising out of other natural calamities. The factors responsible for such disasters are the increase in population in the cities, absence of safety measures, carelessness of the human beings. The damage that occurs can be minimised by proper preventive measures. The following steps should be taken at pre and post disaster stage.

- (1) An organisation should be developed to take the responsibility to have a check on such disasters.
- (2) Certain codes of conduct should be developed in order to safeguard the people.
- (3) There should be strict by-laws for construction of buildings, particularly commercial buildings, school and college buildings, hotels etc.
- (4) Proper regulation must be made for transfer and storage of inflammable products in factories and godowns.
- (5) There should be wide publicity of the telephone number of fire fighting stations.

- (6) The plan of action should be ready before any such event takes place.
- (7) The rescue operations should be started as quickly as possible.
- (8) Arrangements should be made for taking injured people to the hospitals promptly.
- (9) There should be investigation done on the causes of fire.

10.13 ACCIDENTS :

The number of accidents has increased from thousands to lakhs around the globe. This is because of increase in the number of vehicles due to economic development taking place. Not only the number of accidents relating to roads are increasing but the accidents relating to railways is also increasing at a faster rate. There are number of accidents taking place on account of collision of two trains which causes excessive damage to lives and property. Perhaps, the number of road accidents in India are highest in the world. According to one estimate seven lakh accidents take place in the world, of which 10% take place in India. This is due to great indiscipline of Indian people while driving, gross negligence of government for checking vehicle driving and issuing driving licences, rampant corruption among traffic police etc. The due importance should be given to minimise the accidents, which are increasing. The following steps should be implemented in order to reduce accidents.

- (1) The traffic sense should be developed among people.
- (2) The persons who do not follow the rules of traffic should be penalised.
- (3) Certain compulsory rules should be made like putting belt for car drivers.
- (4) Train the traffic police to handle such events if they occur.
- (5) License should be given to eligible persons only.
- (6) Mobile hospitals must be created to attend to victims of accidents promptly.
- (7) Members of the public must be rewarded for helping accident victims or for informing police.
- (8) Traffic police must be given first-aid training.
- (9) Highway hospitals must be set up at various places on the highways.
- (10) Traffic rules must be strictly enforced and heavy punishments must be prescribed for rash driving resulting into fatal accidents.

10.14 EPIDEMICS :

Epidemics may take place due to natural or man-made disasters. Epidemics are a development of some infectious particle, which causes disease and spread to different areas. Some of the diseases are plague, influenza, cholera, polio, malaria, dengue etc. The factors that are contributing to such disasters are

unplanned development, improper sanitation facilities, poverty, illiteracy, increase in slum areas, etc. Such kind of disaster may affect large number of people and cause death to many people. Gujarat has experienced many such disasters because of floods and earthquake. Efforts are made by the government to inform people about the importance of vaccines and this is done through advertisement where favourite celebrities are trying to convince the people to go for vaccination. An example is motivating people through advertisement in which Mr. Armitabh Bachchan is advising people to get their children blow 5 to get polio vaccine.

The following are the measures, which should be implemented :

- (1) To carry on detailed survey on the past events and have a record of it, which may form the base for planning in future.
- (2) People should be educated on the importance of vaccination and encourage them to use the vaccine.
- (3) Doctors should be appointed in epidemic areas in sufficient number.
- (4) In case of spread of diseases that needs more facilities, help can be taken from private hospitals also.
- (5) The government should make enough financial provision to meet the situation.
- (6) Through frequent advertisements in newspapers, radios, televisions, people should be advised to take certain precautions.
- (7) Enough provision should be made for vaccines, medicines, ambulances, diagnostic instruments etc.
- (8) Information centres and control rooms should be created at local and district levels.
- (9) For certain diseases which break down frequently research centres and fully equipped laboratories should be set up.
- (10) Voluntary organisations doing social work should be associated in this job.

11. DISASTERS AND ROLE OF UNITED NATIONS :

Some disasters like Tsunami of December 2004 are so destructive and severe that it is not possible for a single nation to cope up with it with its own man power, financial capacity etc. Hence, the affected countries like Sri Lanka, Indonesia etc. require help from international community. Of course, United Nations does good work in such situations, but it must motivate other nations to contribute their share and help affected countries. UNO has taken a step in this direction when it passed Resolution No. 46/182 in December, 1991 in its General Assembly.

It was stated in this resolution that every member nation should help disaster affected countries on the principle of humanity, neutrality and impartiality.

Thus it can be said in the context of this resolution that it has played a major role in motivating international community to render help to disaster-affected countries. It also implied that a fund should be created for possible assistance and consequently a revolving fund 25 million dollars was created. Finally, UNO declared 1990 decade as International Decade of "National Disaster Reduction".

EXERCISE

1. Give definition of 'Disaster'. State its causes and effects.
2. Explain the meaning of 'Disaster Management'. Describe its characteristics.
3. Prepare a list of natural disasters. What steps would you take to meet earthquake disaster and how would you manage it.
4. What is man-made disaster? How would you cope up with communal Riots?
5. What is Epidemic? What steps should be taken to meet accidents and epidemics.
6. Write short notes on :

(1) Fire	(2) Industrial Accidents.
(3) Nuclear Disaster	(4) Terrorism.
7. "Natural disasters cannot be eliminated under any circumstances but its evil consequences can be minimised?" Discuss the statement.
8. Divide disasters into three main categories and discuss any two of natural disaster.
9. Describe the three stages of relief measures to be taken in case of disasters like flood or earthquake.
10. Write short notes on :
 - (1) Steps to be taken after earthquake.
 - (2) Measures to minimise losses due to flood.
 - (3) Communal riots.
 - (4) Role of UNO in disasters
 - (5) Measures to meet the situation of fire.