

Section-2

NATURAL DISASTER AND MANAGEMENT: FLOOD AND DROUGHT

You often hear and get this information from television and news paper that in some part of the country flood conditions are prevailing and some part of the country is reeling under drought. Flood and droughts are those natural disasters which are directly related to rainfall. When there is excess of rainfall during Monsoon season then there is considerable rise in water level of the rivers and as a result flood condition emerges. But when in rainy season there are no clouds in the sky and bright sunny condition prevails then farmers are not able to work in their fields and even drinking water becomes scarce. This condition is called drought.

Due to uncertainty of the Monsoon, various parts of India are affected by floods. Few rivers are known for their floods such as river Kosi in Bihar, river Damodar and Tista in West Bengal, Brahmaputra in Assam, Mahanadi in Odisha, Krishna in Andhra Pradesh and Narmada in Gujrat. The water of these rivers has created havoc from time to time in their areas.

Floods have been an ancient phenomenon. According to Indian religious epics Indra is rain god. His anger brings heavy rainfall and creates disastrous floods. In recent years, floods are caused by human error also. To check floods, Dams and embankments have been constructed but when the rising water of rivers breaks them



Normal Life gets Disrupted due to Floods

then many new areas get inundated which were not flood prone earlier. In 2008 on the Indo-Nepalese border near Kusha, floods caused due to breakage in embankment resulted in to change of course of river Kosi .



Bangladesh: A Country of Floods

Normal Life gets Disrupted due to Floods

You will be surprised to know that floods occur every year which take thousands of people in its spate. People living here are accustomed to the spread of epidemic, collapsing of the houses and damage of crops but there are few states which, in spite of so much of damage, are one of the most densely populated states of the world. This state is also associated with floods. The flood water not only brings destruction but also brings with it precious alluvial soil and deposits them in the flood affected areas every year which contains ample natural fertilizer and mineral humus and makes it one of the most fertile plains of the world. As soon as the flood water recedes the farmers sing song of happiness and in no time the land looks lavish with crops.

Management of Floods: Construction of Dams and Embankments

The construction of Dams and embankments to check the destruction caused by the floods is being followed since English rule. But after independence for the management of disasters like floods, efforts have been made to check floods by constructing Dams and embankments. Question has been raised on this management after the break in Kusha embankment and cracks developed in the Dams of many rivers. But its not only India but countries like China, Egypt, Pakistan and Nigeria which have also constructed Dams on the rivers and created artificial water reservoirs. The management of draining of water through this procedure checks the emergence of flood like conditions.

Do you know that by constructing Dams on rivers artificial reservoirs are created? The names of the important reservoirs of India can be seen in the following table:

Name of the Dam	River	Name of the artificial reservoir
1. Bhakhra Nangal Dam	Satluj	Govind Sagar
2. Narmada Project	Narmada	Sardar Sarovar
3. Nagarjun Sagar Project	Krishna	Nagarjun Sagar
4. Kaveri Project	Kaveri	Krishna Sagar
5. Rihand Dam	Rihand	Pant Sagar

Alternative Management:

Embankments are not stable arrangements. They create more disastrous situation if they are broken. Therefore, this concept gets greater emphasis that priority must be given to ecologically suitable management. For this the following efforts are essential -

1. Low cost buildings/houses should be constructed in which chemical mixed raw materials should be used which in spite of the floods the houses must not be damaged.
2. The common people should be informed before the construction of the houses that their homes must not be constructed close to the bank of the river and on the narrow slope of the river. In such places the distance of the houses should be at least 250 meters.
3. After floods there should be an immediate arrangement of drainage of water. The role of village panchayat can be very significant in this work. In fact, there should

Do You Know?

The highest Dam of the world has been constructed on river Nile at a place named Aswan.

adequate arrangement of pump sets before floods in every village panchayat

4. The base and wall of the houses should be of cement and concrete.

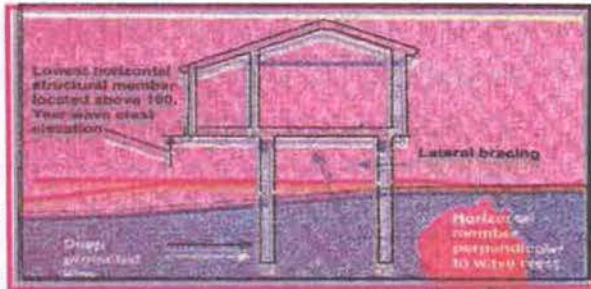


Fig 2.3

5. The houses should be pillar based and the pillars should be rooted very deep in to the land.

Management of Early Warning:

1. For flood forecast remote sensing information should certainly be collected. Through this, early warning can be given to the areas where flood is expected through various means of information before the coming of the floods. If the information is given on time then schools can be closed. Arrangement of doctors and medicines can be made in the local hospital. Administration can be alerted and emergency funds can be made available for food supplies, drinking water and medicines.
2. People should be trained to swim in the flood prone areas. Not only this, arrangement of swimming jackets should be made in all village panchayats and schools, so that maximum number of people may swim to safety in the event of floods.
3. The moment the flood water recedes, spread of epidemics emerges as the greatest problem. Therefore, D.D.T. and Bleaching powder should be sprinkled and carcasses of dead animals should be removed immediately.
4. In the flood affected areas with the help of self help institutions, it is essential to train people to help each other at the time of

disaster. For example, by forgetting personal disputes they should gather in high buildings of the village; the feeling of community responsibility should be developed by administering hot water, sugar and salt solution and making arrangement of food and clothes in the event of spread of epidemic.

Students, floods are such a calamity which cannot be checked completely, rather now it is a form of ecology. Therefore, we must learn and develop a habit of living happily in the event of floods. This is its best management. The villagers of Asia, while living along with their traditional new style, have made flood affected areas as the most densely populated regions of the world.

Drought and its Management:

Due to shortfall in rainfall drought conditions emerge and it they cause three major problems for the common people (i) Scarcity of food grains because crop was not sown (ii) Scarcity of drinking water (iii) Scarcity of fodder for the cattle. Indirect amassing of food grains illegally, astronomical rise in the price of food grains and incidents of loot also emerges as a serious problem. There is also rise in the number of deaths due to hunger.

The government of India has planned to connect all the rivers and thereby carry excess water of rivers of flood affected areas to those areas where normally drought condition prevails. But due to several reasons this work has not been accomplished as yet. Environment experts have also opposed this type of move.

Drought Prone Areas in India:

Students, do you know that 77 districts have been identified in the country by the government of India, where normally droughts are expected almost every year. These districts are mainly situated in

Rajasthan, Gujarat, Karnataka, Madhya Pradesh, Chhattisgarh, Maharashtra and Uttar Pradesh.

The important years for droughts in the nineteenth century were 1877 and 1899 when extreme drought like conditions had emerged. In the twentieth century also 1918, 1966 and 1987 are the years of extreme drought.

Management of Drought:

Two pronged planning is essential for the management of drought. These are long term and short term planning.

In the long term planning development of canals, ponds, wells, pane and Aahars is required. Through canals water can be brought in to reservoirs. The problem of drought has permanently been solved by

Do You Know?

According to irrigation commission, every year on about 16% area drought-like condition emerges in the country.

spreading the network of canals in Punjab and Haryana. In Bihar also at the time of drought, through management of canals from Kosi command area, Gandak command area and Chandan Kiul - Barua command area, efforts are being made to minimise this natural calamity. The main purpose of digging canal is to collect rain water and also if excess water is received from the canal then it can be collected in the pond. By digging wells the underground water is utilised and to some extent the problem of drinking water is also solved. At present through boring and tube well there has been rapid increase in the exploitation of underground water due to which ecological problem has emerged. The lowering of the underground water table is a cause of concern and it gives rise to ecological imbalance.

What is Underground Water?

Do you know that where you are standing, just beneath that there could be large reservoir of fresh water? The rain water slowly

percolates below the surface and becomes underground water. There has been rapid increase in the exploitation of this water through wells, tube wells and power generated machines. This has not only contributed in the lowering of the water level of the underground water but it is also creating problem of ecological imbalance.

Canals, paine and Aahars are manmade water ways, with the help of these water ways and use of underground water is mainly done in agriculture and for drinking water. Canals are long range water ways and are connected to source of water. Mainly water of reservoirs are drained into then but as per necessity water is also drained in to then with the help of diesel pump sets for irrigation. Paine and Aahars are manmade short distance water drainage system, which indicates that farmers want to utilise rainwater and underground water without wastage. Through drip irrigation and sprinkle irrigation the underground water can be utilised as per the ecological laws.

Shortage of fresh water is a serious challenge to the whole world. The fall in the water level of underground water even in absence of droughts continues to be a matter of grave concern. Looking at the gravity of the situation, programmes like rainwater harvesting and watershed management have been started. The main objective of the both programmes is maximum harvesting of the rainwater and its maximum utilisation. In watershed management, several programmes have been made to increase underground water level, to reduce soil erosion and to increase grass and forest cover. For this support of self help institutions and panchayats are being taken.

In a small state like Rajasthan up to 50 hectare watershed areas HAVE been identified for water harvesting at small scale.

Rain Water Harvesting:

Students! have you ever seen rain water being collected in a

large water tank through pipe beneath any house? On the roof of the house the rain water goes waste but this water is very clean and fresh and therefore this water is collected through pipe in a water tank and then this water is used as drinking water by the people living in the house through taps. Not only this, the irrigation of gardens, orchards are also possible through this water. In many states of India this water is collected by digging tanks and ponds.

It increases the level of underground water and animals and plants also get water from it. The technique of rain water harvesting is proving to be a boon during drought period. It is proving fruitful even if the rainfall is less.

In the regions of drought and scanty rainfall, through drip and sprinkle method of irrigation, not only water is being utilised judiciously but also crops which consume less water can be grown during drought period. Among such crops are flowers, vegetables and oilseeds. In the areas which receives less than 75 cm of rainfall in India, this type of irrigation has been given adequate importance under rural development programme. In the event of drought, this type of irrigation can be done in the areas where the average annual rainfall is more than 75 cm. In states like Karnataka, Madhya Pradesh and Rajasthan, the drip and sprinkle irrigation system has been made a part of rural development programme. Special financial help is also being given to farmers in Rajasthan. It is very essential that with the support of self help institutions, the farmers must be introduced to these methods of irrigation and it is essential to train them as to how in the event of uncertain rainfall such crops should be grown which can provide more profit with the support of less expensive irrigation facilities.

QUESTIONS

OBJECTIVE TYPE QUESTIONS

1. What are the main causes of floods in the rivers?
 - (a) Excess of water
 - (b) Deposition of silt on the bed of the river
 - (c) Excess of rainfall
2. Which part of Bihar is flood prone?
 - (a) Eastern Bihar
 - (b) Southern Bihar
 - (c) Western Bihar
 - (d) Northern Bihar
3. Which of the following rivers is called the 'sorrow of Bihar'?
 - (a) Ganga
 - (b) Gandak
 - (c) Kosi
 - (d) Punpun
4. What is flood?
 - (a) Natural disaster
 - (b) Man induced disaster
 - (b) Normal disaster
 - (d) None of these
5. Which type of disaster is drought?
 - (a) Natural disaster
 - (b) M a n induced disaster
 - (c) Normal disaster
 - (d) None of these

6. How does the drought occur?

- (a) Sudden
- (b) According to prior information
- (c) Slowly
- (d) None of the above

7. Factor responsible for drought:

- (a) Scanty rainfall
- (b) Earthquake
- (c) Flood
- (d) Volcanic activities

8. One measure to prevent drought -

- (a) Connecting the rivers together
- (b) Rainwater harvesting
- (c) Flood
- (d) None of these

SHORT ANSWER TYPE QUESTIONS:

1. How does the flood occur? Clarify.
2. Discuss the damages caused by the floods.
3. Write the measures taken to prevent floods.
4. Suggest measures to control floods.
5. Define drought.
6. Discuss the factors responsible for the droughts.
7. Write the measures taken to prevent drought.

LONG ANSWER TYPE QUESTIONS:

1. Describe the flood condition in Bihar.
2. Describe in detail the causes of flood and its preventive measures?

3. Describe in detail the causes of drought and its preventive measures.

PROJECT WORK:

1. Collect data from any area regarding damages caused by the floods.
2. Identify the drought prone areas of your state.

