Section-6

DISASTER AND CO - EXISTENCE

By now you must have understood that occurrence of natural disasters such as flood, drought, cyclone, earthquake, volcanic eruption, Tsunami, landslide, avalanche is natural and it cannot be stopped. But we must always remain prepared to encounter it and we must make preparations prior to the arrival of the disaster so that damage could be minimised and maximum people and their property could saved. We must never neglect it considering that it is a natural curse and it is not possible for mankind to encounter it.

Earthquake:

Earthquake is an ominous and destructive natural disaster. The earthquake causes so much destruction in seconds which cannot even be imagined. There are known expected earthquake zones on the earth. But the forecast of earthquake cannot be made. Therefore, we must remain vigilant in expected earthquake areas and in these areas such management should be done so that the damage is minimum. In our country

On 26th January, 2001 an earthquake of the intensity of 6.9 occurred in Bhuj. According to the state government report more than 1300 people lost their lives and 1.67 lakh people were injured and it affected about 1.97 crore people living in 21 districts. Almost 3.20 lakh pucca and kuchcha houses and 14, 000 huts were totally destroyed. Almost 7.33 lakh pucca and kuchcha house and 31, 000 huts were partially damaged.

earthquake causes maximum loss because we do not remain prepared prior to its arrival. We can minimise the damage caused by the natural disasters, if we work in a planned manner on all the points related to co existence and evaluate some of the countries such as America and Japan where earthquake is a regular phenomenon. In spite of this in these countries earthquake is considered merely as short lived disaster, because the houses here are earthquake resistant and people know how to keep themselves protected.

For the natural disasters like earthquake, safe residential or public buildings are of significance. In other words, we can minimise excess damage by constructing safe houses. For this, we should concentrate on the following points:

- The house should be rectangular and its map should be simple.
- To support long wall columns of bricks-stone or concrete should be erected.
- Effort should be made to construct houses in T, L, U and X shapes dividing them in to small rectangles and some space should be left in between the rectangles.
- The foundation of the house should be strong and earthquake resistant.
- Before the start of the construction work scientific test of the soil should be done and after that foundation and construction work should be started.
- The location of the doors and windows should be earthquake resistant.
- The weight created by iron concrete sand and the design of the building should be proportionate and from the technical point of view safe structure should be constructed.
- The streets and roads should be broad and there should be sufficient space between the two buildings.

Landslides :

There are five types of landslides (i) Slump with flow (ii) Debris slide (iii) Deters fall (iv) Rock slide and (v) Rock fall. Due to all these landslides everything gets damaged that falls in their way and heavy damage is inflicted to human beings, animals and vegetation. As a result of which means of communication and transport is affected. For this natural disaster, particular attention must be given on the following facts so that its frequency may be reduced.

- Suitable foundation should be laid as per the nature of the soil.
- Houses should not be constructed on the slopes.
- Proper arrangement of normal and alternative communication system should be made.
- Suitable plant species should be intensively planted on the slopes which are situated at higher reaches and are devoid of any vegetation.
- While constructing roads, canals and in the process of irrigation, it must be ensured that drainage of natural water should not be clogged.
- To prevent landslide, walls should be constructed.
- To keep the landslide under control, a plain level water drainage control centre should be made with the arrival of rain water and waterfall.
- The pipe line and cables etc which are to be laid beneath the surface should be flexible so that they can withstand the pressure generated due to landslide.
- Straw, wood chips or bark should be used at least up to the depth of one inch in such areas where slope is gentle or normal.

Apart from this, owner of the houses which are built at the base of the steep slope should construct obstructions or catchment areas which may check minor landslides. The design of the construction should be such that in the event of landslide it can withstand the effect and speed of the huge amount of sliding debris. Also the design should be such that the deposited debris should be removed easily. The obstructions, towards the slope side of the buildings strong walls should be constructed.

Tsunami :

After 26th December, 2004 you must have understood properly how destructive natural disaster like Tsunami is. It had brought huge destruction in many countries of the South-East Asia in seconds. Tsunami causes great damage to life and property. Also it turns the agricultural fields of the coastal areas in to a barren land. It also creates several health related problems. It inflicts heavy damage to ports and coastal towns.

Tsunami can neither be stopped nor we can escape from its effect but its impact can be minimised for which following measures can be adopted:-

1. People must be encouraged to settle away from the coast in those areas which are regularly affected by Tsunami waves.
2. The intensity of Tsunami waves can be reduced by intensive plantation of trees in the coastal areas.
3. Concrete obstructions should be constructed to save towns and ports.
4. In Tsunami affected areas houses of such design should be constructed which can minimise earthquake and Tsunami waves.
5. The harbours, can be secured by constructing high Dams.

6. In Tsunami prone coastal areas the houses should be constructed at higher places and at least hundred meters away from the coast.
7. "Tsunami Recording Centers" should be established to record the vibrations in the surface of the sea through 'Sunameter'.
8. Tsunami warnings should be received regularly through satellite technology and through different means of communication it must immediately be broadcast to common people.

Floods :

Flood is a destructive natural disaster but we can save ourselves from its destruction. Most of the flood prone areas are known and even the season of the flood is also known. These days we get information of coming disaster few days earlier. To get relief from it and minimise risks involved in it, at first we must prepare a map of flood affected areas and control the land use pattern of these areas. Before granting permission for any large scale development work flood control measures must be ensured. In cities ponds, lakes or in low lying areas water retaining areas are constructed. Building construction work should not be undertaken in water logged areas. For residential areas, safe higher places should be selected and buildings should be constructed on concrete pillars. Also, it will better if sand bags are kept adjacent to foundation all around the house.

By developing forests in flood affected areas, the intensity of the floods can be minimised and soil erosion can be checked. Also these forest areas become an excellent grazing ground for the animals and can be highly helpful in the protection of bio-diversity. The flood prone areas can be protected to a greater extent by constructing embankments on the both banks of the rivers. Also, there should be network of drains in these areas so that water may be flushed out immediately and it can be used for irrigation purposes also.

In the mountainous regions the water can be released in a controlled manner by constructing Dams on rivers and by creating back water reservoirs, and silt deposition can be cleaned and flood problems can be solved.

By constructing the network of canals in the flood affected areas not only the devastation of floods can be reduced but it can be used for the irrigational purposes also.

Ring Band is also helpful in protection from the floods. This solution of the problem is possible through rectification in river channels and construction of alternative course for the river.

Crops are badly damaged in floods. Blooming agricultural fields and at times ripe crops get inundated and are damaged. Therefore crops of such varieties or plants of such species should be developed which can grow even in water logged areas. For example, in some districts of north Bihar the farmers grow a type of paddy crop which can grow even in water logged areas and farmers harvest the crop from the boats.

In flood affected areas food grain bank should also be developed at few places. This can help in controlling famine like situation.

In 1954 the government of India had formulated a three dimensional strategy to control floods, such as Immediate, short term and long term measures. Through this priorities are fixed to solve the problem and its implementation becomes convenient.

Drought :

Droughts do not occur suddenly. It comes with a signal but period of its end is not known. Droughts are of three types : (i) Normal drought (ii) Agricultural drought (iii) Seasonal drought. Agriculture drought is considered as most dangerous amongst them. The devastation of natural disaster like drought can be minimised by adopting different

methods. For example, through scientific development and management of water resources the water problem can be solved because during drought. Due to scarcity of water during drought not only moisture from the soil is exhausted but also it becomes very difficult to save the life of all living beings. The plan to develop water divide becomes highly helpful in such situations.

Water Divide Areas :

The water divide areas are such elevated areas that separate the headstreams which are tributary to different river systems or basins. To minimise the wrath of drought all measures of soil and water conservation is adopted with the support of local community. By adopting this policy huge support is received in the effective management of soil, trees, plants, water and other resources. Inside these water divide areas for the conservation of these rare water sources and by improving the management of soil and trees and plants, along with the conservation of natural resources favorable agriculture conditions can be created.

For the conservation of available moisture in the soil and save them from direct sun grass cover should kept on the land. It is due to the absence of moisture in the soil agriculture drought occurs. Clouds are also attracted by planting trees in the catchment areas of the rivers and make the climate normal to some extent.

There are few crops which do not require much water or the crops grow by consuming very less water. These crops can be sown in drought prone or in those areas where the frequency of droughts are more such as mushrooms, medicinal plants, cactus, millets etc.

By developing irrigation facility we can save ourselves from drought. In our country, in states like Punjab, Haryana and Rajasthan, due to adequate irrigation facilities, in spite of being a semi - arid region they have become 'Granary of the country'.

To minimise the effect of drought dairy industries should be developed in the form of alternative economy. In the agriculture dominated areas, in the event of drought, either the farmers fail to sow the crops or the standing crops are damaged. As a result people are left with no alternative to earn their living. The development of grazing ground is a possible measure in this situation because it can provide opportunity to develop dairy industry as an important alternative.

Failure of agriculture can be supplemented by establishing agro based industries in the drought prone areas and by doing so the prosperity of the area can be maintained.

It is profitable to adopt dry agriculture methods in those areas where the drought occurs regularly.

Following are the procedures of dry agriculture method:-

(i) The fields should be ploughed deeply so that the moist soil beneath the surface may come up.

(ii) Such crops should be sown which can withstand longer dry spell.

(iii) Drip and sprinkle irrigation method should be adopted in place of traditional irrigation method.

(iv) Such seeds should be used which take lesser time in the production of the crop.

(v) Maximum use of rain water must be done when the rain occurs.

(vi) Construction of small Dams, reservoirs and canals with concrete base which restricts loss of water.

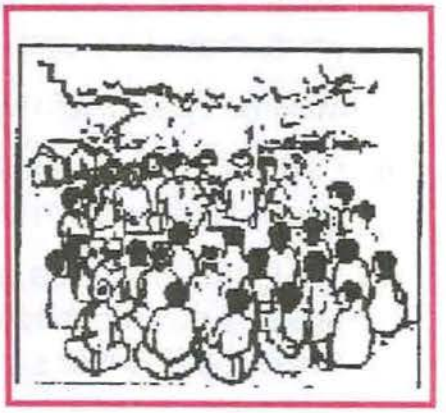
(vii) The Dams should be constructed at right angle of the slope and fields should be made in stair form, so that maximum use of water could be made.

It is a fact that we cannot stop the occurrence of natural disasters. We can only remain vigilant and by performing works related to co-existence we can, at the most, save ourselves from its devastation. Earlier also, you have learnt about the techniques related to disasters. Apart from this, some facts are commonly useful for natural disasters, such as sensitising and educating common people about the devastations brought by the disasters, give them first hand knowledge about different natural disasters and join disaster management education with the main stream. For this it is necessary to give practical shape to the pre-planned strategies. It is seen on national and international level that where there is no pre-planned strategy or the planning is inadequate there the damage is more due to disaster.

Activity

Organise a meeting in your Mohalla or village along with your teacher and educate the common people how to face natural disasters in a united manner. It will minimise the devastation and damage.

In this context disaster mapping is an important step. For map making to collect information available on the surface of the earth, remote sensing and Geographical Information system can be helpful.



Villagers making disaster management plan

The success of co-existence depends upon co-operation amongst each other, non-government organisation, semi-government organisations such as National Service Scheme, Home Guard, Nehru Yuva

Kendra, National Cadet Corps and support of central and state governments. With the support of these organisations, the panchayats and villagers can themselves plan strategies for co-existence.

NCC cadets helping people in local hospital

The social workers of National Cadet Corps (NCC) and National Service Scheme (NSS) can save life of disaster affected people in emergency situations.

Therefore, it is the principles of co-existence which can teach the art of living with disasters and can create excitement as well.

QUESTIONS

OBJECTIVE TYPE QUESTIONS:

1. Which of the following is a natural disaster?
   (a) Fire (b) Bomb Blast
   (c) Earthquake (d) Chemical accidents

2. What should be the design of buildings in the earthquake prone areas?
   (a) Oval (b) Triangular
   (c) Square (d) Rectangular

3. Is it advisable to construct houses on slopes in landslide affected areas?
   (a) Yes (b) No
   (c) profitable (d) Useful

4. Where should houses be constructed in Tsunami affected areas?
   (a) Near the coast
   (b) Far from the coast
   (c) Far from the coast on higher place
   (d) None of these

5. Flood inflicts maximum damage to -
   (a) Crops (b) Animals
   (c) Buildings (d) All of the above

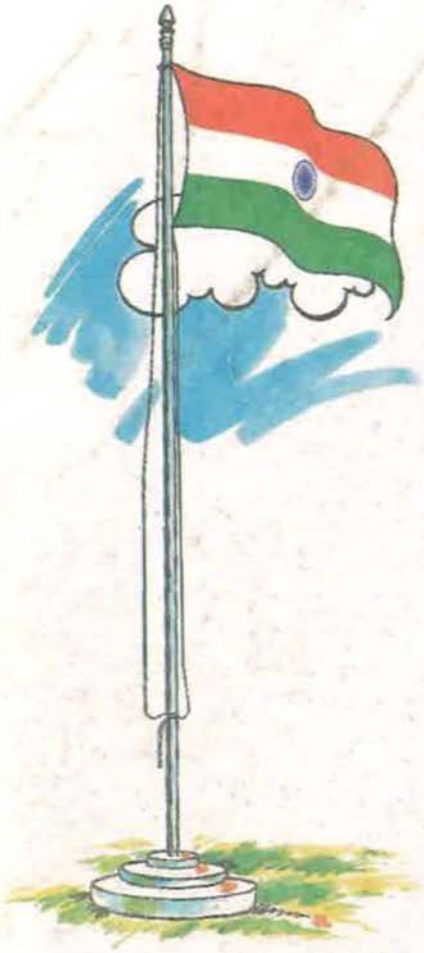
6. Agriculture drought occurs -
   (a) Due to Scarcity of water
   (b) Due to scarcity of moisture in the soil
   (c) Due to soil erosion
   (d) Due to salinity of soil

SHORT ANSWER TYPE QUESTIONS:

1. Suggest four measures to minimise the effect of earthquake.
2. Present your view on the construction of the house in Tsunami prone areas.
3. Suggest measures to maintain moisture of the soil during drought.

LONG ANSWER TYPE QUESTIONS:

1. Describe in detail how you will encounter natural disasters such as landslide or floods.



राष्ट्र-गान

जन-गण-मन-अधिनायक जय हे,
भारत - भाग्य - विधाता।
पंजाब सिंध गुजरात मराठा,
द्राविड़ - उत्कल - बंग।
विंध्य - हिमाचल - यमुना-गंगा,
उच्छल - जलधि - तरंग।
तव शुभ नामे जागे,
तव शुभ आशिष मागे
गाहे तव जय गाथा।
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