

Section-5

ALTERNATIVE COMMUNICATION SYSTEM DURING DISASTER

Disaster whether small or big occurs regularly on the earth. You must be getting information through different means of communication about the disasters that occur daily. We are also affected by destructive disasters such as flood, drought, earthquake, Tsunami, cyclone, landslide, avalanche, cold wave in one form or the other. Particularly country like India has to encounter such disasters on a regular basis. Flood and droughts are typical characteristic of Indian

Do You Know?

The cyclone affected areas in India are eastern coast, coastal areas of Gujarat and Andaman Nicobar islands.

The large river valleys in India such as Ganga and Brahmaputra are most affected by floods. 56 percent area in India is affected by earthquake.

In 16 percent area of 16 states in India remains in the spate of droughts.

Himalayan region and western Ghats are more prone to landslide in India. Avalanche occurs in Himalayan areas.

Monsoon because of its uncertainty. When destructive and intense disaster occurs anywhere in the world, then it disrupts the normal communication system of the affected area. Due to this reason the contact between the affected area and the rest of the world gets disconnected. Due to disruption of communication system, hindrance is caused in the exchange of information and in relief and rescue operations. In this condition the form of the disasters becomes more destructive.

Following are the reasons of disruption of normal communication system:

- (i) Breakage in cable.

- (ii) Disruption in electricity supply.
- (iii) With the destruction of communication buildings, the communication instruments in it also get destroyed.
- (iv) Damage caused to transmission tower.

Similar type of incident had occurred on 2nd August, 2008 when in Nepal near kusha the kosi embankment got damaged which caused

disastrous floods in kosi region of the north Bihar. Due to this flood there was wide spread destruction in the affected areas. Because the telephone exchange got inundated, the wires got damaged, road and railway link was disrupted and due to this the communication between several district headquarters with state headquarters and between the districts was broken. This

is the reason why the immediate relief and rescue was affected.

Even today, we cannot imagine having a normal life in absence of telecommunication system. At the time of disaster there is utmost need of telecommunication system but at that time all normal means of communication get disrupted which makes the situation in the affected areas even worse. In such conditions, we can establish contact with the affected areas only through the means of alternative communication system.

The most popular means of communication is public telephone service, which is an important network that connects all government and private offices, police stations, fire brigade stations, hospitals, most of the houses and working places, Public Switched Telephone Network (PSTN) sound, Fax and Data is sent and received through this major network. Presently, the use of mobile phones has increased immensely.

Do You Know?

- (i) After the Kosi embankment was damaged near Kusha all means of communication was virtually lost.
- (ii) This disaster affected 16 districts, 92 blocks and 1598 villages.
- (iii) Almost 27 lakh people were rendered homeless.
- (iv) Standing crops on 1.06 lakh hectares of land was damaged.

Unfortunately, during the devastating natural disasters like earthquake, cyclone, flood, Tsunami and landslides the basic structure of all the popular communication services gets disrupted and telephones stop to work in the disaster struck areas, mainly due to power failure. As the transmission towers also get damaged the wireless radio communication network of police and civil administration are also affected. In critical conditions the communication network gets overburdened which disrupts the communication link or in most of the cases the network totally fails.

Do You Know?

Normally, PSTN system working with its full capacity is prepared. In which only 5 percent telephones connected to this system can communicate at a time but in critical situations this system is also overburdened and so this network also gets disrupted.



Alternative Means of Communication

(i) Radio Communication:

Radio waves are electromagnetic, which are sent from one place to another through Antenna. The radio waves can be of low, high and extremely high frequency. Radio receiver can be kept on any particular frequency and we can receive particular signal such as high frequency waves required for making contact with distant places and very high frequency waves used for making contact with short distant places (5 to 50 kilometers). Extremely high frequency band is used for hand wireless. The use of wireless instruments like walkie-talkie proves very useful at this time.

(ii) Amateur or HAM Radio:

Amateur radio is also called HAM radio. It does not require any basic infrastructure. In fact in HAM radio certain particular type of frequencies are used in accordance to International Telecommunication regulations which is controlled by wireless project and

co-ordination cell under ministry of communication in India. According to set rules these frequencies can only be used for research, education and personal projects.

The meaning of amateur is the use of radio communication for non- commercial motives. For its operation, limited energy is required which can easily be supplied either through generator or batteries.



Fig 5.1

There are almost 15,000 license holder amateur radio operators in our country. Slowly its use is increasing in India. It is said that it is developing in the form of hub of communication system in India. A micro wave satellite has been prepared by Indian Space Research Organisation (ISRO).

Amateur or HAM radio has worked successfully when all means of communication had failed during the disaster period. Therefore, it is considered most effective means of communication amongst all the alternative means of communication system. During 1999 super cyclone in Odisha and during Gujarat earthquake, the amateur self-help persons have given appreciable services.

Contribution of HAM operator at the time of Tsunami :



An enthusiastic amateur radio lover from Delhi achieved that success which most of the government agencies had failed.

License holder HAM operator, Sandeep Barua who works with some government organisation and enjoys his hobby in his home at night, succeeded in contacting Port Blair the capital of Andaman and Nicobar Islands and helped stranded people on the island to exchange messages with their family members on the mainland.

(i) **Satellite communication :**

There are different types of satellites which have been launched in the space for different purposes. Amongst them communication satellites and remote sensing satellites are important. In India for television telecast, meteorology and disaster related warnings Indian National Satellites (INSAT) and for the search and management of resources Indian Remote Sensing Satellite (I.R.S.) are being used.

The communication satellites launched in the space are (Com sets, Set coms, Set phones) relay radio stations. Among them 'set com' is used for satellite based communication and 'set phone' is used as satellite based phone terminal. The most important work of communication satellite is Mobile phone and e communication. 'Transponder' receives communication on a particular frequency and spreads it. With the help of other frequencies it sends it back on the earth. There are thousands of 'transponders' in a satellite. These transponders receive data, television image and some transmissions and re-telecast them.

In this system radio relay station and communication satellites are stationed in the space and it receives no damage from the any natural disaster happening on the earth, therefore this system is most reliable during disaster period.

The most used means of communication in disaster management is 'satellite phone'. This phone is very reliable and provides facility of data communication in a very clear voice. The government of India is supplying portable satellite phones to different states/districts and disaster affected areas to tackle critical disaster situations.

QUESTIONS

OBJECTIVE TYPE QUESTIONS

- The main cause for the disruption of normal communication system is
 - Broken cable
 - Distance of communication towers
 - Less height of Towers
 - None of these
- The most popular means of communication is:

(a) Public telephone	(b) Mobile
(c) Walkie-talkie	(d) Radio
- For which purpose are remote satellites being used?

(a) For telecommunication	(b) For meteorology
(c) To search the resources	(d) For television

SHORT ANSWER TYPE QUESTIONS:

- Write the main causes for the disruption of normal communication system.
- Discuss one alternative means of communication used during the natural disaster.

LONG ANSWER TYPE QUESTIONS:

- Describe the alternative means of communications during natural disaster?
- Write notes on the following:

(i) HAM Radio	(ii) Satellite communication
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ACTIVITY:

Make a public utility project on alternative telecommunication system used in natural disasters.