1.1 The Territory of India

i. India covers an area of 32,87,263 sq.km extending from snow covered Himalayan heights in the North to the tropical rain forests of the South. In the North, the territory is bounded by the Great Himalayas and stretches southwards tapering off into the Indian ocean between the Bay of Bengal and the Arabian Sea. The main land extends between latitudes 8°4' and 37°6' North and longitudes 68°7' and 97°25' East, measuring about 3200 km from North to South and West to East. This vast land frontier of 15,200 km and coastline of 7,500 km also has groups of islands located both in the Bay of Bengal and the Arabian Sea. Hardly any other country has such a large land mass with such a diverse range of geo-agro-climatic zones.

ii. The main land of India comprises of four regions, namely, the Great Mountain Zone, Plains of the Indus, Ganges and the Brahmaputra; the Desert Region, and the Southern Peninsula. The Himalayan range comprises three almost parallel ranges interspersed with large plateaus and valleys. The mountain wall extends over a distance of 2,400 km with a varying width of 240 to 320 km. The plains about 2,400 km long, are formed by basins of three distinct river systems, viz., the Indus, the Ganges and the Brahmaputra. The desert region is clearly delineated in two parts - the Great Desert running beyond Rann of Kutch to Rajasthan - Sindh Frontier while the little desert extends between Jaisalmer and Jodhpur upto Punjab. The desert region is inhabited by local communities which have developed their own coping and recovery mechanisms. Between the two deserts is a zone of absolutely sterile region, consisting of rocky land cut up by limestone ridges.

iii. According to 1991 census, India had a population of 843.93 million with 195.02 million housing units. The literacy rate as per 1991 census was 52.2 per cent, 64 per cent for male and 39 per cent for female. To protect such a large population with low levels of education from the fury of natural hazards is not an easy task. However, local initiatives and the government's efforts combined over the years, have tried to reduce risks and build community capacity to deal with emergencies.

iv. The country is a Union of 25 States and 7 Union Territories. The Union Territories are subject to the direct rule-making powers of the National Parliament and the administrative control of the Union Government. The States have elected Legislatures and Governments, which are fully autonomous in relation to the sphere of activities entrusted to them under the Constitution. The States are further divided into Administrative Units called Districts totalling to 451 in the country. The sizes of the districts vary from small to large, the average area being 7300 sq.km and average population 1.9 million in 1991. Under the Constitution, relief and disaster management are State subjects. Now under the 73rd and 74th constitutional amendments, the village panchayat (rural local body) and the nagarpalika (urban local body) have the powers to initiate preparedness, mitigation, recovery and rehabilitation initiatives. Thus India has a decentralised administrative framework for local and community based initiatives.

1.2 Natural Hazards and Disasters

i. Because of the large geographical size of the country, India often faces natural hazards like floods, cyclones and drought occurring frequently in different parts of the country. At times, some areas normally subjected to drought situation have got flooded in certain years. Hazards like earthquakes, hailstorms, avalanches, landslides, etc. occur quite suddenly but they are restricted in their impact in terms of time. The extent of the impact of an earthquake depends on its Magnitude, season and time of occurence.

Natural calamities may be broadly grouped into major and minor types depending upon their potential to cause damage to human life and property. While natural

hazards like *earthquakes, droughts, floods and cyclones* could be regarded as *major*, hailstorms, avalanches, landslides, bush fires, etc., whose impact is localised and intensity of the impact on the society is much less, can be categorised as *minor* hazards. Different research institutes are doing further research in the local vagaries. So far as damage to housing and infrastructure is concerned, floods, cyclones and earthquakes turn out as the three major disasters confronting the country. However, the repeated droughts affect the water sector, thus drinking water and irrigation are adversely affected.

ii. The hazards, earthquakes, cyclones, droughts and floods are called natural since they result from natural phenomena connected with the earth's interior and the atmosphere, unaffected and uncontrolled by man. They become disasters when they impact on vulnerable habitat containing unsafe buildings and the infrastructure whose collapse or damage leads to adverse social, economic and health consequences. Certain actions of man sometimes even aggravate the disastrous impacts of natural hazards. For example, construction of buildings and structures on unstable hill slopes or loose sands with high water table which will easily liquefy under seismic vibrations, will very much enhance the disaster. Constricting or choking the water ways will result in higher flood levels. On the other hand, safer designs and constructions will reduce their vulnerability and minimise the disaster. *Thus hazards are natural but disasters are man-made.* In addition, a considerable size of population lives in poverty who are vulnerable to even slightest seasonal changes. Delayed monsoon may mean a major loss of income and assets to them.

1.3 Management of Disasters in India

i. The basic responsibility for management of disasters is that of the State Government concerned. The role of the National government is supportive, in terms of supplementation of physical and financial resources and complementary measures in sectors like transport, warnings and interstate movement of food grains. The national government also sets out the policy climate and draws lessons from disasters. The lessons learned are communicated to States and national initiatives are made possible. The Union Department of Agriculture & Cooperation (DAC) is the nodal Department. An Additional Secretary in the DAC is designated as the Central Relief Commissioner. He provides the focal point for interaction with the State Governments, and other Departments and agencies of the Union Government and for the implementation of the decision of the Union Government. Now, as a national initiative, the representatives of the communities and the NGOs are

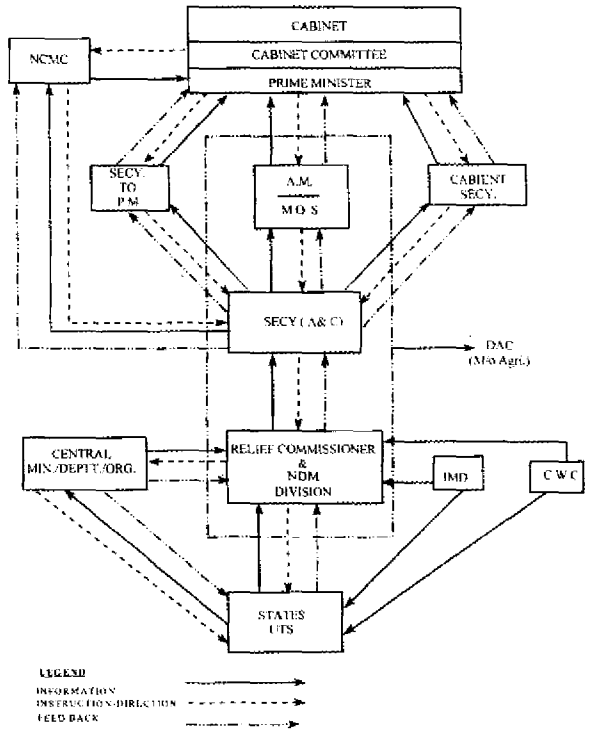

Fig.1: Management of Disasters in India - Interaction pattern
Source: Report (Part-I) of Expert Group set up by Ministry of Urban Development, 1998

invited in the operational and policy processes so as to achieve greater impact of mitigation and preparedness measures. For example, CARE (India) coordinates the Government of India NGO Committee and Disaster Mitigation Institute is invited to join in dissemination of information and awareness programmes and different task forces constituted for disaster management related activities.

The interaction pattern which becomes operative in a huge calamity is shown in the *Fig.1.*

ii. At the State level, the State Relief Commissioner or Secretary, Department of Revenue, directs and controls the relief operations through District Collectors or Deputy Commissioners, who are the king-pins of all relief operations, coordination, direction and control at the District level. State Governments have formulated their Relief Manuals and the Districts have their Contingency Plans which are updated from time to time based on the experience. Routinely NGOs and community are invited before the monsoon to share the contingency plan. In case of a disaster, the State Government invites NGOs and other relief organisations to join in the efforts in reaching out to the victims.