UNIT 2 DISASTER PREPAREDNESS: CONCEPT AND NATURE

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2.0 LEARNING OUTCOME
After going through this Unit, you should be able to:
• Highlight the concept and significance of disaster preparedness
• Explain various measures of disaster preparedness
• Examine the institutional mechanisms for disaster preparedness with special reference to drought management; and
• Bring out the essentials of disaster preparedness.

2.1 INTRODUCTION
Preparedness for disasters done meticulously implies half of the problem solved. In developing countries such as India, generally we do little preparation and whatever is done; it is in a callous way. Preparedness requires meticulous planning as a small mistake would result in loss of large number of lives associated with other risks. For example, the earthquake that struck Gujarat on the 26th of January 2001 was considered the biggest recorded tremor in India since the Calcutta earthquake of 1737. While the epicentre was in village Lodai, district Kutch, the impact was felt through much of Gujarat and adjoining States. The death toll in the Gujarat earthquake was estimated to be 13,811 and the injured totaled about 1,66,000 persons. Also, another 37.8 million people were impacted by the earthquake in various ways. In addition, the earthquake created a large-scale destruction of infrastructure and destroyed over 1800 health facilities including hospitals and community health centres. Also, about 3812 health facilities were partially damaged. According to Swiss Re's annual disaster report, the floods in Mumbai, Gujarat, Madhya
Pradesh in July 2005 caused insured losses of Rs. 3800 crore and annual damages of Rs. 15,000 crore. The rains, which left 1050 dead, 100 missing and 15,000 homeless caused enormous damage to insured property as they affected several warehouse areas. (The Economic Times, 2006) We all are aware that risks and dangers are inherent in all disasters. Though risk elimination becomes an impossible activity, one can take measures to reduce the risks. Evolving a culture of preparedness is one of the ways of reducing risks. In this Unit, we shall discuss the concept of disaster preparedness, various preparedness measures, examine the institutional mechanisms in India for disaster preparedness with special reference to drought management and highlight the essentials required for effective disaster preparedness.

2.2 DISASTER PREPAREDNESS: CONCEPT AND SIGNIFICANCE

Disasters involve two key elements namely, the event and people vulnerable to it. Hence preparedness assumes significance, to strengthen the abilities, capacities to predict, and wherever feasible, prevent disasters, lessen the impact and facilitate response and handle the consequences of disasters at various levels. The significance of disaster preparedness activity arises on an analysis of whether the people are aware of their vulnerability to disaster, the inherent risks and possible ways of reducing the risks. Disaster preparedness is a multifaceted activity. It has to pay attention to economic, social, political, technological and psychological variables. Any preparedness strategy has to aim at:

- Developing awareness amongst the people to be alert and responsive to impending disasters.
- Reducing the vulnerability of community in disaster-prone areas and enhancing their ability to cope with them.
- Strengthening the institutional mechanism's and capacities of government at several levels, non-governmental organisations (NGOs), and communities in disaster preparedness, relief, response and rehabilitation activities.
- Building networks between several organisations including government, NGOs, private organisations, community, and other key stakeholders, to foster preparedness efforts.

Any disaster preparedness programme needs to include certain important principles. Some of these according to Alley (1993) are:

- Perceptions should be studied and opportunities created for people to modify their perceptions where necessary.
- Create strategies to rouse the curiosity of the individual and encourage a general desire for change.
- Individuals and communities should be helped to compare the existing ways with proposed innovations, relate innovations to the basic needs and overcome barriers to acceptance.
- Adopt educational methods that have a heavy emphasis on community involvement and participation.
- Learning by doing and developing participation in various activities related to the identification of disaster preparedness needs.
Disaster Preparedness: Concept and Nature

- Group approval influences adoption of new behaviour patterns. In traditional societies, most of the decisions regarding new practices are multi-personal decisions, the role of the family, and other social groups being the determining factors.

- Behaviour is motivated. Motivation is the inner drive that propels human beings towards attaining a desired goal.

- Disaster preparedness behaviour is concerned with changes in knowledge, attitude and behaviour and the ultimate goal is sustained disaster preparedness behaviour.

- Since different agencies work simultaneously at the community level, it is necessary for them to come to an understanding in order to avoid the dissemination of conflicting advice.

- Psychological factors are not the only determinants in behaviour. They combine and interact with physical, social and other factors.

Preparedness involves several activities such as:

- Developing and institutionalising disaster preparedness plan which is comprehensive, indicating the roles and responsibilities of several stakeholders before, during and after the occurrence of disasters.

- Strengthening warning systems and meteorological studies.

- Evolving appropriate Information Education and Communication (IEC) activities for community.

- Keeping ready Rapid Response Teams, Search and Rescue personnel along with Emergency Medical Teams.

- Setting up safe havens.

- Putting in place emergency evacuation procedures.

- Making available relief activities including emergency shelters, medical, food, first aid services, and security arrangements.

  Assessing the damage after the occurrence and restoring transport, power, and communication systems.

Any disaster preparedness activity shall yield results, if it is done with the involvement of people. Governments, no doubt, are responsible for ensuring the protection of people and property, but efforts at grass roots level go a long way in strengthening any preparedness activity. We shall be discussing this in detail in Unit 6 of this Course.

2.3 DISASTER PREPAREDNESS MEASURES

Disasters cannot be done away with. But the destruction from them can be lessened through appropriate preparedness measures. It is being realised increasingly that smaller investment in preparedness can save many lives, other economic assets and also reduce relief expenditure. Some of the preparedness measures include:

Disaster Mapping

Disaster Mapping is done to assess the impact of disaster on population, property and natural resources. With the help of mapping, it is possible to provide pre and post-
disaster related information which further help in risk assessment, systematic rescue and relief operations.

Disaster Preparedness Plan

Preparedness Plans for disaster management are quite useful. The plans can either be short-term or long-term encompassing the aims and objectives, the organisational structure for tackling disasters, preparedness measures, the communication system, warning arrangements, community disaster operations, the operational aspects of implementation of plans, post-disaster review, training and public awareness. We shall be discussing this in detail in Unit 3 of this Course.

Land-use Zoning for Disaster Management

Land-use zoning becomes quite important for disaster management. Proper land-use planning and zoning regulations not only prevent disasters, but also reduce the extent of damage both to the lives and property.

Preparing Community through Information, Education and Communication

Three important aspects pertaining to disaster management namely information, education and communication are essential. It will emphasise upon the ways to increase the awareness of the community about hazards, risks and coping mechanisms. It further deals with the effective channels and strategies of communicating and educating the community about disasters. This shall be dealt in Unit 7 of this Course.

Predictability, Forecasting and Warning

Predictability of a disaster is the key to understand its nature and thereby assess the chances of its occurrence and the fury of the event. Predictability is an attribute really applicable to natural disasters. For human-induced disasters, it is the human error or mechanical fault or organisational failure that is responsible. Therefore, there is no concept of predictability as such for human-induced disasters. Mock drills, regular inspections and updating of precautionary measures take the place of predictability, forecasting and warning in case of human-induced disasters.

For natural disasters that have a fair amount of inherent predictability, forecasting is the next step in disaster management. Forecasting has to be based on sound scientific principles and operationally proven techniques. It has to be done by an authorised agency or individual who, besides being competent, responsible and accountable, is conscious of the end-use of the forecast. In order to be effective, the forecast has to be clearly worded and it should be transmitted quickly to the user in an understandable language. Timely warnings are intended to induce early actions like evacuation, stockpiling etc.

Once a forecast is available regarding an anticipated disaster event, it has to be converted quickly into an area-specific and time-specific warnings. Furthermore, the warnings also need to be user-specific because the capacity of different users to withstand the impact of a disaster is different. For example the general warnings for the public could be different from those required specifically for the safety of a railway bridge during cyclone conditions because a strong structure such as a railway bridge is designed to withstand certain level of high winds and to permit a certain amount of river flowing under it. The warnings in this case have to be issued only if the anticipated winds and river-flow are expected to go beyond the specific safety thresholds.
However, for the public where the houses of various types and strength have to face cyclone fury, the warnings will have to be in terms of the anticipated winds and rain in the hope that the individuals and communities will be prepared and take prompt action with the help of government and non-governmental organisations. A warning has no value unless it reaches the users quickly and well in time. Therefore, quick communication is very important at the warning stage. The inter-relationship between predictability-forecasting—warning and action is self-evident. A warning can only be issued on the basis of a useful and reliable forecast and a disaster can be forecast only if it has an inherent predictability about it.

Even if an event is predictable, a useful forecast is available, the appropriate warning has been issued and it has reached the users in time, the whole exercise will be fruitful only if the warning is communicated and acted upon by the user. Therefore, credibility is very essential at every stage of the process of forecasting and warning. That is why the concerned agencies responsible for forecasting and warning of disasters strive hard to establish authenticity for their forecasts and warnings so that users develop confidence in these and take required action immediately and effectively.

The High Powered Committee (2001) has recommended the following to be implemented in a phased manner, in evolving and sustaining a culture of preparedness. These are:

1) Preparing precision Geographical Information System/Digital Maps of all states, district, urban centres and also hazard specific zonation maps for all identified hazards.

2) Utilising remote sensing for forecasting, monitoring and evaluation, predicting disaster damage scenarios.

3) Creating information database giving the land use, demographic, socio-economic data, infrastructure, and resource inventories of governmental and non-governmental systems, and historical documentation of previous disasters.

4) Planning for all contingencies, which are linked to different support departments and establish interlinkages between district plans, state plans and national plans.

5) Strengthening forecasting, warning and alert systems to initiate preparations for response and trigger the decision making process.

6) Providing temporary shelters, storage facilities, retrofitting of buildings, etc.

7) Capacity building of various role players in disaster management such as police, civil defence, para-military forces, home guards, youth, etc.

2.4 INSTITUTIONAL MECHANISMS FOR DISASTER PREPAREDNESS

Disaster preparedness activity is comprehensive that encompasses several components. This case study relating to drought 2002 highlights the important institutional mechanisms, their inter-relationship and coordination. A multi-institutional drought early warning system exists in the country to monitor the behaviour of the agro-climate indicators like rainfall, reservoir levels and crop conditions on a weekly basis from June to September. This early warning system called the 'Crop Weather Watch Croup' enables the government to intervene in the months of July-August itself instead of waiting for an assessment of the damage done at the end of the cropping season (October-November). The country has
well-established drought response machinery at the national, state, district and village levels with institutional mechanisms to integrate the participation of political and civil society organisations.

The Crop Weather Watch Group (CWWG), an inter-ministerial body set up in the Department of Agriculture and Cooperation, was able to anticipate the failure of the monsoon by the beginning of July 2002. The departure of the rainfall in the range of 25-30 per cent in 1972 and 1987 respectively turned into a major drought despite partial revival of monsoon in August and September. In 2002, the rainfall deviation in July was below 51 per cent of the normal. The policy makers recognised the gravity of the situation and put in place a comprehensive set of drought management intervention measures. In mid-July 2002, when it was observed that the unexpected behaviour of monsoon could cause serious drought conditions, the Government of India responded to the situation by triggering its time tested response mechanisms. The Union Agriculture Minister convened a Conference of Agriculture and Relief Ministers of the affected states on July 24, 2002. The Conference evolved a broad framework for managing droughts with contingency crop planning, support to farmers through agriculture subsidy, cattle conservation, strengthening of public distribution system and provision of drinking water programmes.

The Prime Minister appreciating the potential dimensions of the impending disaster set up a Task Force on Drought Management in July 2002 under the chairmanship of Deputy Prime Minister with Agriculture Minister, Finance Minister, Rural Development Minister, Food and Public Distribution Minister and Deputy Chairman, Planning Commission as members to continuously monitor the situation and issue policy directives from time to time and to provide timely and adequate attention to the emerging demands of the states. The special administrative arrangements reflected the concern and the desire of the central government to commit its financial, technical and managerial resources for managing droughts with utmost urgency and effectiveness and thereby preserving the quality of life of the people affected by drought.

The Drought 2002 being a peculiar aberration of nature resulting from massive failure of rains in July was unique and called for innovative approaches to provide appropriate relief to the affected population through path-breaking relief policy changes. In pursuance of the decisions of the Task Force, the central government took a number of policy initiatives in the form of advance release of funds from Calamity Relief Fund (CRF) under relaxed norms, release of food grains free of cost for relief works and employment, deferral of waiver of realisation of principal interest on agricultural loans and free transportation of fodder and water. The total resources mobilised were Rs.20,000 crore to finance relief programmes. This magnitude of resources were channelised without extra taxation or causing any significant impact on economy.

The government’s response was characterised by early and graduated response depending on the dynamics of the weather situation in the months of August and September and subsequent rabi season. Almost all the drought-affected states were under severe fiscal strain at the time of onset of Drought 2002 mainly in the context of the policy to restrict fiscal deficits and the Reserve Bank’s Overdraft Regulation Scheme. To this extent, considerable efforts were required in resource management to ensure that expenditure on relief took precedence over other items of expenditure and that ways and means difficulties did not come in the way of maintaining the flow of such expenditure. To this end, the Ministry of Finance had to step in to assist several drought-affected states to
clear their outstanding over drafts with the Reserve Bank through advance release of plan assistance, statutory grants and share of taxes, etc., so that closure of transactions of such states could be avoided. Such advance releases, though not directly related to drought relief paved the way for smooth implementation of relief operations.

The process of sanction of assistance from the Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF) commences, in the case of drought with a formal declaration in the manner prescribed in the States' Revenue or other enabling legislation/Code/Manual'. Normally, such declarations are made after the extent of damage caused by drought is assessed by undertaking crop cutting experiments.

An important feature of 2002 drought was that huge areas remained unsown, a scenario wherein conducting crop-cutting experiments would have served very little purpose. Accordingly, most of the states adopted the unusual expedient of declaring drought on the basis of eye-estimation. Soon thereafter, states started submitting memoranda for assistance from the NCCF. Pending the process of memoranda, second installment of CRF was released to enable the state governments to put on ground the relief programme in mid-August itself. The central team visited the affected states in September and October, 2002 and quantum of funds under NCCF was decided expeditiously and communicated to states.

In the meeting of the Agriculture and Relief Ministers, a deep concern was expressed over the fact that huge area (exceeding, as it turned out, 180 lakhs hectares) normally covered under Kharif had remained unsown. Attention was invited to the fact that agriculture input subsidy is payable to small and marginal farmers when their crop suffers damage of 50 per cent and more as a result of natural calamity. An apprehension was expressed that as a very large area remained unsown, which in case of Rajasthan constituted almost 50 per cent of the area cultivated during Kharif, the affected farmers will not receive any relief, as 'damage to crop' will not include 'inability to sow due to severe drought'.

Similarly, there was an apprehension that this drought of extraordinary severity had also adversely affected larger farmers to a degree, which was hitherto unprecedented. Again, it was pointed out that the existing norms would operate to the disadvantage of farmers in the worst affected State of Rajasthan where the average size of holding far exceeded 2 hectares viz., the limit beyond which the holder ceases to be small and marginal farmer. These issues were carefully and repeatedly examined and in the 'Special Relief Package' announced by the Prime Minister in the Lok Sabha on 18th December, 2002 following which one time 'relaxation of norms' were approved. For the purpose of sanction of agriculture input subsidy, the area normally brought under Kharif cultivation but which remained unsown due to severity of drought during 'Kharif 2002' has also been taken into consideration.

Special Measures to Combat Impact of Drought

Other farmers owning more than 2 hectares of land were also considered eligible for input subsidy subject to a limit of 2 hectares. Deferral/waiver of realisation of principal and interest on agricultural loans was affected. The resource outgo implications on account of these measures was estimated to be around Rs. 7000 crore.

The government anticipated the revival of monsoon in August-September and evolved contingency crop plan strategies and communicated to state governments on 27 July...
2002. The strategy for rabi production was based on: (i) ensuring timely inputs for rabi cultivation (ii) arranging seeds for rabi (iii) improving flow of credit in drought affected areas by relaxation of credit norms by National Bank for Agriculture and Rural Development (NABARD) (iv) providing uninterrupted supply of power for a minimum of 8-10 hours on priority to agricultural sector (v) improving the generation of power from the existing power plants (vi) facilitating adequate supply of petroleum products to drought affected areas and (vii) distributing minikits in drought affected areas for enhancing the availability of vegetables. The crop stabilisation programme ensured emergency crop shifts in nearly 1.5 million hectares.

Inter-sectoral Co-ordination for Effective Preparedness

The water resource departments of the state governments advocated water budgeting for utilising scarce water resources for optimum benefits during the drought of 2002. For this purpose, inter-departmental cooperation at project/state level was ensured particularly among the Departments of Irrigation, Agriculture, Public Health, Engineering, State Electricity Board. Groundwater reservoir operation plans were prepared to ensure optimum utilisation of resources and priority was accorded for utilising water resources for drinking water, fodder programmes and irrigation purposes. Even though the water availability on account of 2002 drought was about 67 per cent of last 10 years average level, by controlled withdrawal of water for various purposes and prioritisation of the needs, water availability was stretched for a maximum period.

Policy Changes for Drought Preparedness

Drought 2002 created a conducive atmosphere for a policy change in Tamil Nadu to promote rainwater harvesting on a mission mode. Through an ordinance titled 'Tamil Nadu Municipal and Panchayat Laws Ordinance 2003', the Government of Tamil Nadu made rainwater harvesting mandatory for all the buildings both public and private. The deadline to construct rainwater harvesting was 31 August 2003, a month ahead of the onset of north-east monsoon. The Chief Minister communicated to nearly 15,000 chairpersons and vice-chairpersons of the urban and rural bodies to join this mass movement. The campaign was a resounding success. All the buildings had rainwater harvesting structures installed by 30 September, 2003. A significant feature of the drought was the failure of sowing on a large scale resulting in loss of employment at the very threshold of the main cultivating season. This underscored the need to initiate employment generation works from an early date.

The Task Force on Drought Management in its first meeting decided to rely on relief employment as the main vehicle to deal with the adverse consequences of the July disaster leaving tens of million of hectares uncultivated. It was also appreciated that the worst affected areas in Rajasthan, Madhya Pradesh, Chhattisgarh, Andhra Pradesh and Karnataka, etc., being under a single crop regime, the relief employment venture would be a long drawn out affair. It was, accordingly, felt that there should be a well-defined yardstick for allocating foodgrains to ensure that relief employment work is undertaken on a sustained basis and in a manner, which proves beneficial to the maximum number in a cost-effective manner.

Prompt Action Based on Preparedness

While the search for norms was on, the interests of the states were not allowed to suffer and the Task Force approved allocations on an ad hoc basis wherever needed. After
considerable deliberation and on the recommendations of a Committee of Secretaries under the Chairmanship of the Cabinet Secretary, the Task Force decided to adopt a set of norms for allocation of foodgrains. These set of norms duly recognised the differential vulnerability of affected areas and sections of the society. The states were categorised into A and B having regard to the cropping patterns, the recovery due to August rains and the status of rabi cultivation and the socio-economic vulnerabilities of the area as well as areas subjected to prolonged droughts preceding 2001. Uttar Pradesh, Uttarakhand, Punjab, Haryana, Himachal Pradesh, Jharkhand and Kerala were treated as ‘A’ category states and allocations were made for coverage on the basis of 20 per cent of the willing rural Below Poverty Line (BPL) families. The States of Madhya Pradesh, Chhattisgarh, Orissa, Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu were considered as category B States and allocations were made to the extent of 50 per cent of willing rural BPL families. For both these categories the quantum of food grain was reckoned to be 5 kg per day, for 10 days a month.

Rajasthan was categorised as the severely drought-affected state and again differential allocations were made in respect of 74 worst affected blocks covering all rural BPL and vast majority of Above Poverty Line (APL) families. For remaining 163 blocks, each willing rural BPL family was to be assisted. All these families were to be employed at least 10 days per month with enhanced allocation of foodgrains at 8 kg per day for 74 worst affected blocks & 6 kg per day for other blocks. Later on, it was enhanced to 8 kg per day for 12 days a month for all blocks.

The adverse impact of limited food availability caused by erosion in rural incomes was effectively relieved through distribution of foodgrains in lieu of part of the wages. The diversity in the system of payment of grains as part of the wages in different states gave way to a uniform practice throughout the country in respect of employment on relief works. The special needs of affected population in worst drought-affected areas in Rajasthan were met by considerably enhancing the quantum of food grains as part of the wages.

**Monitoring**

The government intervention during the drought of 2002 was not only in respect of the coverage, nature and the extent of employment generation programmes but it also ensured that the, labour force employed on these programmes received the minimum wages as stipulated in the respective state legislations. Monitoring teams, vigilance squads, field visits of area officers and peoples’ representatives and voluntary agencies acted as watchdog against malpractices on drought relief programmes. As a result of the close monitoring, substantial improvements in the quantum of payment, system of payment and reduction in the time-lag between the work done and the wage payment were brought about to the greater satisfaction of the people employed on these works.

The duration of the employment generation programmes starting from August 2002 and ending July 2003 was one of the longest ever employment generation relief programmes. At the peak drought period, 32 million people were employed on 3 lakh relief projects. A total of about 1400 million man days were generated at a cost of Rs. 9,000 crore, including utilisation of 9 million tonnes of food grains. The share of the employment generation programme out of the total resources spent for mitigating the impact of distress works out to be 71 per cent. Both income security and food security objectives were achieved to a large extent in the context of one of the severest droughts.
Institutionalisation of national food security system through a well established public distribution network was ensured, by and large, through delivery of food stocks to the drought affected areas. At the beginning of drought 2002, the available stock was 63 million tonnes, 40 million tonnes more than the required buffer stock norms of 23 million tonnes. The buffer norms laid down in 1998 pertained to the country as a whole, without location-wise prescriptions. Almost the entire stock was in the northern states of Punjab, Haryana and a huge quantum of foodgrain was to be moved from these states to various regions of the country. The supply chain logistics essentially involved long lead rail movement from the North to distant parts of the country. The formidable challenge was to transport and distribute vast quantity of foodgrains amounting to 40 million tonnes within a period of five months.

Operationalising the Drought Plan

The central government with the involvement of Railways, Food Corporation of India, Department of Food and Department of Agriculture & Cooperation, had undertaken a massive exercise in putting in place supply chain logistics to ensure transportation of over 40 million tonnes to different parts of the country. The assessment of movement of rakes and distribution bottlenecks was discussed in the Task Force meeting during the first week of November 2002. It was decided to enhance the availability of rakes from the level of 14 to 37 per day to ensure that the Railways carry huge quantities of foodgrains. The problem of coordination among Food Corporation of India, railway authorities and the states was addressed on a day-to-day basis by constituting an appropriate institutional mechanism in the Department of Food.

The movement of foodgrains to drought-affected states was a major agenda in the weekly drought monitoring meetings of the Department of Agriculture and Cooperation and it was ensured that during the most critical phase of the drought (January – July 2003), the movement of foodgrains to the needy states was maintained. 75 per cent of the annual allocation of foodgrains was moved in the country within 4-5 months. Some of the worst affected states like Rajasthan were given special attention by monitoring the supply of foodgrains in specific districts of the state. In this process, both the central and the state governments came together and evolved field level mechanisms for ensuring adequate and timely delivery of foodgrains. Task Force Teams were deployed to various states to study the efficacy of the Public Distribution System (PDS) and report the inadequacies. Under the Area Officer Scheme, the states allotted to the officers of the Department of Food and Public Distribution were periodically inspected and corrective measures were taken. The food stock level had come down from 63 million tonnes in July 2002 to 33 million tonnes in May 2003. The transportation of 40 million tonnes within a period of five months from north to distant parts of the country through carefully designed transport logistics is one of the largest ever transportation management in the world.

Ensuring Cattle Safety

By September, 2002 the fodder situation in most drought-affected areas and particularly, parts of Rajasthan had become very acute. With a view to preserving the cattle population, cattle camps were organised in several states. 110 million cattle were maintained in 15000 cattle camps from December 2002 to June 2003. Migration of cattle to other places where they could be maintained during the drought period was suggested to the states. Subsidies for the transportation of fodder enabled the state government to transport substantial quantities of fodder, which were procured and transported to
Rajasthan from fodder surplus neighbouring states. The central government coordinated the activities of procurement and movement of fodder by rail from states with surpluses such as Punjab and Haryana. 3.19 million tonnes of fodder was transported through rail and mobilised through 5,000 trucks per day.

The Government of India's emphasis on the involvement of voluntary agencies ensured their association with the maintenance of cattle camps to a significant extent in Rajasthan at Rs. 12 and Rs. 6 for adult and calves respectively, and the release of 75 per cent of assistance directly to Goshalas and cattle camps. The Government of India also extended subsidies for enrichment of fodder to enhance its nutritive value. Special assistance was provided to cultivate fodder wherever feasible. The Government of Rajasthan announced incentive price for fodder cultivation during the rabi season. This policy measure enthused farmers to produce 3.6 million tonnes of additional fodder crop during the rabi season.

**Providing for Potable Drinking Water Supply**

The government resolutely addressed the drinking water situation developing in some of the drought-affected states at an early stage of the drought. Advances were given in August 2002 to the state governments for taking up works for provision of drinking water in the affected areas. The state governments augmented physical resources like rigs, geoelectrical and hydrological equipment also, which went a long way in improving the water availability in rural areas. The water supply position in a large number of urban centres in Rajasthan and Gujarat became very acute for which substantial central assistance was extended by the Government of India. 1,75,000 habitations and 500 cities and small towns were provided with potable water through 75,000 tankers. 1.5 billion litres of water per day was transported out everyday through 75,000 water tankers of which 75 million litres per day were transported by Railways. Nearly 1,600 crore was spent on emergency repair and rejuvenation of existing water supply system to provide potable water supply. A sizeable population was benefited through emergency potable water programme under drought relief.

**Expanding the Support of Nutrition for Vulnerable Sections**

Provision of nutrients to support the vulnerable sections of the population namely pregnant, lactating mothers and pre-school children has been in operation through Integrated Child Development Scheme (ICDS) since 1975. The programme gradually expanded and covered 80 per cent blocks at an outlay of Rs. 1000 crore in 2001. The Government of India provided additional resources of Rs. 121 crore to cover 1 crore beneficiaries under the scheme to meet the needs of the vulnerable sections in the drought-affected areas. In addition to this Pradhan Mantri Gramodaya Yojana and Mid-day Meal programmes were initiated in various states which helped to provide nutrient support to the vulnerable sections of the population. The Government of Rajasthan provided supplementary nutrition to all the beneficiaries in the 74 worst affected blocks.

**Involving Community Institutions**

Successful drought management requires that government line agencies and departments get better linked with local community-based institutions including civil society organisations. In India, after 1987-88 drought, community-based institutions apart from the existing local level institutions as Cooperatives, Panchayati Raj Institutions and Self Help Groups, played an important role.
The passing of the Constitution (73 Amendment) Act, 1992 marked a new era in the federal democratic set up of the country and provided Constitutional status to the Panchayati Raj Institutions (PRIs). As a result, 2,32,278 Panchayats at village level, 6,022 Panchayats at intermediate level and 535 Panchayats at district level have been constituted in the country. These Panchayats are being manned by about 29.2 lakhs elected representatives at all levels. This is the broadest representative base that exists in any country in the world. The strength of local institutions was tapped to undertake locally relevant relief measures such as maintenance of cattle camps, provision of drinking water, distribution of food stocks and organising employment generation programmes. These institutions played a vital role in mitigating the impact of drought 2002-03.

In a democratic set-up, the importance of non-official input in the monitoring of relief operations cannot be overstated. The public satisfaction with relief measures depends, to a large extent, on its perception about the responsiveness of the administration in relation to the need and quality of relief measures. The bodies of public representatives functioning at various levels as a result of democratic decentralisation in the country, project and articulate the needs of a society to the relief dispensing agencies. The Government of India laid great emphasis on the proper functioning of Relief Coordination Committees consisting of public representatives at the state, district and local levels. These innovative steps immensely helped in getting the appraisal of administration of relief measures in different parts of the country from time to time.

Close monitoring of the implementation of relief programmes in the states was an important element of the drought management strategy of the Government of India. The then nodal Ministry of Agriculture kept a very close liaison with the states and interacted regularly at appropriate levels for information on the progress of implementation of relief measures. The reports monitored by the Government of India concerned employment generation, nutrition and animal care activities and the expenditure on items, for which specific central assistance had been extended. By the time the relief measures in the states picked up momentum, most of the states had geared up their machinery to furnish information to the Government of India and interact continually on specific issues. The Government of Tamil Nadu established online web-based Management Information System (MIS). The Governments of Orissa and Rajasthati established MIS systems to track the relevant indicators pertaining to drought impact and management on online basis. These states used the information technology effectively for monitoring drought management programmes.

The analysis of impact and distress indicators revealed that whereas 2002 drought was as severe as comparable to major droughts in the past, and the distress indicators associated with past droughts were not discernible in 2002. While the crop losses during 2002-03 and decline in rural income were real, the socio-economic fabric of the Indian society remained unaffected because of designing and implementing comprehensive drought management programmes. For instance, the food for work programme implemented on a vast scale created more employment opportunities. In some villages, it was noticed that against the consumptive norm of 63 kg of wheat per family per month, relief to the tune of 70 kg per month was provided.

The distress indicators normally associated with severe drought-high prices of food and essential commodities amongst most vulnerable groups, massive indebtedness and the decimation of the assets of farm families, large scale migration of people in search of food and income, bankruptcy, increased landlessness, impoverishment, malnutrition and rescue efforts were not to be found even at the peak period in the worst hit areas. Conversely,
the people had surplus food stocks earned as wages at the end of drought, their cattle wealth was preserved, nutrient support was provided to vulnerable sections and the prices of essential commodities were within the reach of common citizen. The resumption of agricultural activities at the arrival of the first spell of the monsoon 2003 reflects the success of efforts to preserve livelihood systems of the communities. The monsoon of 2003 produced a strong recovery in agriculture production and overall economic growth as well as vital replenishment of water resources. The drought breaking rain in 2003 extended to areas of the country which had experienced prolonged droughts. The assets created through drought relief programme became functional and reinforced the recovery process of the affected community.

The management of drought 2002 demonstrates that by putting in place appropriate institutional mechanisms with coordination arrangements, the crisis of greater magnitude could be managed and the programmes and policies could be translated into practice. The drought 2002 management practices are India's yet another innovative and successful venture in its long history of drought management.

A Way Forward - Moving from Drought Preparedness Management to Climate Variability Management

Despite remarkable achievements, there are areas of concern. The drought management approach essentially relies on resource transfer approach to drought-affected areas, ignoring inherent potentials of the communities in the affected area to manage drought of their own. The damage, loss assessment methodologies are yet to capture the changing dynamics of capacities and vulnerabilities of rural population. The rural economy has been expanding and integrating with wider regional and national / global economy, however; the impact assessments are mostly confined to rural agriculture sector. The recent advances of climate prediction science are to be utilised for drought risk management. India has rich climate data spanning over 130 years. This rich resource is yet to be tapped in full measure for guiding development planning and mitigation of drought affected areas.

While drought denotes negative consequences of weather, climate variability concept captures scarcity, abundance and adaptation of society. The traditional communities manage climate variability by relying on built up resources reserve during normal season and draw them during drought years on a continuous basis. However, the government intervention is mostly confined to management of drought as a transient phenomenon.

Need for Effective Preparedness at Local Level

There is a need to institutionalise decentralised community-based management approach. Incorporation of climate information on various time scales into development planning process could facilitate this paradigm shift. To achieve this goal, efforts are to be initiated to put in place an institutional system to anticipate and manage climate risks instead of reacting to crisis. This institutional system will connect the climate information providers, intermediary institutions that could translate and communicate climate information to the policy makers, sectoral managers and the end users like farmers on a continuous basis with feedback mechanisms.

2.5 TOWARDS EFFECTIVE DISASTER PREPAREDNESS

Disaster preparedness to be effective needs to adhere to certain essential requirements. These include:
Leadership

Disaster Preparedness needs effective leadership with well-trained personnel. The success or failure of an organisation depends, to a great extent, upon the administrative capability and motivation of its top leadership. Administrative capability is an important means of converting or processing programme inputs into outputs such as goods and services. Leadership has a key role in the process of implementation of activities.

Crisis Management

Crisis are becoming a regular phenomenon at various levels. The leaders must learn to deal effectively with these crises to keep the administration on an even keel. Crises are going to increase in future, as external and internal environments are under constant turbulence. There is a need to devise methods to deal with these crises in a planned and effective way. Crises management system should be built in the handling of every disaster.

Coordination of Efforts

Our experience in managing any disaster especially in India reveals that there was never dearth of relief materials or money. In fact, the entire world appears to be eager to provide a helping hand. For example, the World Bank sanctioned loans for reconstruction of Latur village within 24 hours of the occurrence of disaster.

In the task of helping the victims, the state government can obtain the cooperation of the union government, the other state governments, international organisations, voluntary organisations, public and private enterprises, associations of doctors and engineers, traders, industrialists, etc. In every effort that goes into managing disasters, some things are absolutely critical such as leadership, planning and the willingness to cooperate and coordinate the activities and the will power of the people who suffered the most.

CONCLUSION

Disaster preparedness is a complex process that needs attention on several fronts. As discussed, the Unit, it involves the meticulous planning of personnel, money and material, which can facilitate quick response to disaster situations. Prevention and mitigation would be useful only if there is effective preparedness. Preparedness being the first step towards effective management of disasters, it needs to be an integral part of the development planning process. It is through preparedness that the community can be given the needed support, assistance, leadership in preempting the disaster consequences, mitigating the resulting suffering and organising the appropriate response and relief measures. Preparedness has to integrate the social, economic and psychological dimensions of disasters.

2.7 KEY CONCEPTS

Civil Society

A society consists of three distinct components the state, market and civic sectors. Civil society is generally defined as a particular group of society with clearly demarcated purpose, functions, organisation and means in pursuit of an agenda. NGOs, public institutions, social movements, media, self-help groups and community-based organisations fall within the civil society realm.
Crop Weather Watch Group (CWWG): It was established in 1979 to monitor the impact of the monsoon on crop conditions and to suggest corrective measures to minimize crop losses. This meets during the monsoon period from June to September to assess the monsoon situation and its impact on crop production. In case of adverse seasonal conditions, the group sends a report for operationalisation of emergency contingency action plan for drought management.

Food Security: It is the physical and economic access at all times, to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life. (www.fao.org/ag/wfe/2005/glossary_en.htm)

Integrated Child Development Services (ICDS): This was launched in India in 1975 and is one of the world's largest and most unique programmes for early child care and development. The programme provides an integrated approach for converging basic services for improved child care, early stimulation and learning, health and nutrition, water and environmental sanitation targeting young children, expectant, nursing mothers and women groups. These target groups are reached through trained community-based Anganwadi workers and community structures.

Rake: It is a long-handled implement with a row of projecting teeth at its head, used specially to gather leaves or to loosen or smoothen earth.

2.8 REFERENCES AND FURTHER READING


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### 2.9 ACTIVITIES

1. Visit any nearby government department, municipal body, a school or hospital or a government agency and enquire about disaster preparedness measures, evolved by the organisation. Note the nature of the measures (i.e. a plan document, Standard Operating Procedures etc.), ask how and when was it prepared, how frequently it is revised and who supervises its implementation? Prepare a brief report and share the same with your Academic Counsellor.

2. Based on newspaper reports, or other media coverage, analyse the impact of any recent disaster on the people and highlight the institutional response towards the management of that disaster.