



ଓଡ଼ିଶା ରାଜ୍ୟ ସ୍ଥାନୀୟ ବିଶ୍ୱବିଦ୍ୟାଳୟ, ସମ୍ବଲପୁର, ଓଡ଼ିଶା
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DIPLOMA in DISASTER MANAGEMENT (DDM)

DDM-4 Disaster Response Plan

Block – V

Coordination in Disaster Response

**Unit : 1 Disaster Response Plan - Communication, Participation,
and Activation of Emergency Preparedness Plan**

Unit : 2 Search, Rescue, Evacuation and Logistic Management



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DIPLOMA IN DISASTER MANAGEMENT

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UNIT-I

Disaster Response Plan, Communication, Participation and Activation of emergency preparedness Plan

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1. Learning Outcome

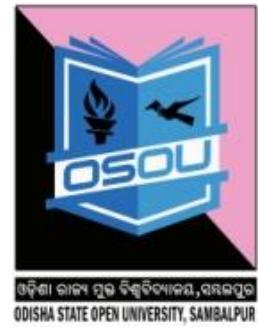
After studying this unit, you should be able to understand;

- Why we need response plans in disaster management
- Response plans at different level: Centre, State, District, Block, Community and NGO
- Importance of stakeholders for effective implementation of response plans
- Significance of communication in disaster response
- Types, techniques and problems of communication.
- Role of participation in disaster response
- Activation of emergency preparedness plans in disaster response.
- Understanding trigger mechanism and standard Operating Procedures (SOP).in disaster response

2. Introduction

India is prone to many kinds of natural and man-made hazards, many of which often turn in to disasters. Their vulnerability and risk to life and property are being linked to the current trends of adverse weather, rapid population growth, urbanization, industrialization and environmental degradation. Floods, cyclones, landslides and droughts have proven to be the most devastating type of natural hazards in India, causing the maximum number of deaths and damage to life and property. In addressing to various kinds of disasters, response plans are prepared to enable the activation of response mechanism promptly without losing time in consulting senior officials and getting formal approval from the authorities. India has embarked on the path of having comprehensive response plans only recently after the experience of super cyclone of Odisha in 1999, the Gujarat earthquake of 2001 and tsunami of 2004.

In 1995 the Government of India established a National Center for Disaster Management (NIDM) and in 1999 constituted a High Power Committee (HPC) on Disaster Management. Later on the National Centre for Disaster Management was converted into the National Institute of Disaster Management. After tsunami of 2004 there was a felt need to



lay down policies and plans for disaster management. National Disaster Management Authority (NDMA) was constituted by the Government of India to coordinate its efforts towards Disaster Management. NDMA laid down the policies and guidelines for effective response to disasters focusing on mitigation, capacity building, preparedness and prompt response.

In India the responsibility for disaster response remains primarily with the state Govt. When the disaster is severe or their impact is spreading over several states, the Central Government supplements the efforts of state Governments by providing financial and material assistance and resources. The states have a State Crisis Management Group (SCMG) which functions under the chairmanship of Chief Secretary and/or Relief Commissioner. The SCMG comprises of senior officers from the different line departments of the Govt. States develop their contingency plans for disaster response and long-term strategies for disaster mitigation. In the recent past the government response to natural disasters has progressively improved in terms of its effectiveness. This is mainly because of the emergence of well organized administrative machinery, presence of relief manuals at district levels, pre- determined allocation of duties and recognized public and private partnerships and incident command system.

Response is the first stage of the disaster management cycle when a disaster has occurred or is imminent, Disaster response activities include setting up control rooms, putting the contingency plan in action, issue warning, initiate action for coordination of various activities, evacuation, shifting people to safer areas and shelter places, rendering medical aid to the needy, search and rescue operations, managing shelter places and community kitchens. Response Plans are prepared at various level to enable the activation of response mechanism promptly without losing time in consulting senior officials and in getting formal approval from the authorities.

There are three phases in responding to a disaster i.e pre, during and post disaster phase. Pre-disaster response activities are launched as soon as the warning about an impending disaster is announced. Response activities during disaster are search and rescue which are meant to ensure that the needs and provisions of victims are met to alleviate and minimize the sufferings. Post disaster response like damage assessment, reconstruction and

rehabilitation tend to achieve rapid sustainable recovery. This unit aims to explain the importance of disaster response plan, significance of communication, participation and activation of emergency response plans.

3. Why we need response plans

Response plans are very important to save life and property of people in a disaster. A well developed response plan can help response teams from the community to the national and international level to reach at the victims to provide emergency support at a quick interval. The response plan helps in quick and timely decision making and action from the Crisis Management committee of the central level, Natural Disaster Management Division of the state level as well as the response teams of the other stake holders like Red Cross, Nehru Yuval Kendras and NGOs.

Early response is dependent on the state of preparedness and the existence of suitable response plans. A timely response can reduce the magnitude of loss of life and property. Though, there has been a paradigm shift world over from response to culture of prevention and mitigation, the uncertainty involving natural disaster makes it imperative to have a response plan. All disasters, including manmade disasters require a ready response plan, even if the prevention aspect has been taken care of in an adequate manner. For timely and adequate response, a comprehensive response plan is a pre-requisite. These are useful for issue of warnings, serve as guide to officials at the critical time by assisting them, take immediate actions and prevention of loss of time in getting formal approval from the authorities.

The primary responsibility for responding to disasters is that of the concerned state governments. Depending on the types of disaster, a nodal ministry is assigned the task of coordinating all activities of the central, state and district administration and the other support departments/ministries. The table below depicts nodal ministries responsible for various types of disasters.

Table 1.1: Nodal Ministries responsible for various types of disasters

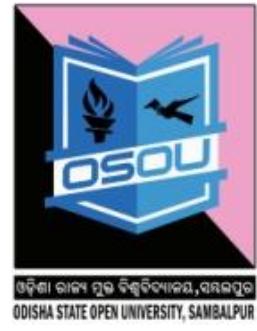
Types of Disaster	Nodal Ministry
Air Accidents	Ministry of Civil Aviation
Major breakdown of any of the Essential Services posing widespread and protected problems	Ministry of Home Affairs
Drought	Ministry of Agriculture
Railway Accidents	Ministry of Railways
Chemical Disasters	Ministry of Environment and Forests
Biological Disasters	Ministry of Health
Nuclear Accident	Department of Atomic Energy
All Disasters other than the above	Ministry of Home Affairs

Source : Ministry of Home Affairs , GoI.

4. Response plans at the Centre, State, District, Block, Community and NGO Level

4.1 Response Plan at the Govt. of India Level

Disaster Response Plan at the Govt. of India Level contains Policy Response and Administrative Response. Govt of India has formulated a Disaster Management Policy which reflects the intentions of the government and have provisions and guidelines for directions to administrative actions. Home Minister is key functionary, because the Ministry of Home Affairs is now the nodal agency for natural disaster management, except for drought and epidemics. The objectives of policy response are to empathize with the victims and to sub-serve, long term and short-term objectives of the government. Policy response determines the scope of administrative response which is basically implementation of the will of the government. In view of the resource constraints of the states, they make request for central assistance. The administrative response broadly relates to operational requirements and provision of central assistance as per existing policy. The centre's responsibilities are restricted to monitor the relief work utilizing the Calamity Relief Fund (CRF) This Fund is the main source of funding for disaster relief and rehabilitations.



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There is a National Crisis Management Committee (NCMC) constituted in the Cabinet Secretariat under the chairmanship of the Cabinet Secretary, The other members of the Committee include Secretary of the Prime Minister, Secretary, Ministry of Home Affairs and Directors of Intelligence Bureau and Research and Analysis Wing. The Committee has been given the powers to give directions to the Crisis Management Group (CMG) as deemed necessary. The CMG functions under the chairmanship of the Central Relief Commissioner and consists of senior officers from ministries and related departments. The Resident Commissioners of the states affected by natural calamity is co-opted on the CMG during the period of crisis. The Group meets at least twice in a year in the months of December/January and May/June and as often as may be required by the Relief Commissioner. The functions of the CMG are review of the Contingency Plans formulated by the Central Ministries / Departments, coordinate the activities of the Central Ministries and the state governments in relations to disaster preparedness and relief.

The Relief Commissioner, in the Disaster Management Division functions as the nodal officer to coordinate relief operation for all natural calamities. He/She is assisted by the Additional Relief Commissioner and an Emergency Operations Centre (Control Room). The Control Room functions round the clock after receipt of first information about the occurrence of a major calamity. The Relief Commissioner receives information relating to forecast/warning of the natural calamity from the Director General, India Meteorological Department or from the Central Water Commission on a continuous basis. This information is then passed on to the Secretary (Ministry of Home Affairs) and through him the Home Minister, the Cabinet Secretary and Secretary to Prime Minister and further through this information is passed to the Prime Minister and the National Crisis Management Committee. The control Room is intended to be the nerve center of all emergencies and is therefore adequately equipped and optimally located.

4.1.1 Relief and Financial resource

Central Reserve Fund was created as per the recommendation of the Ninth Finance Commission constituted by each state. It is used for meeting the expenditure for providing immediate relief to the disaster victims. Out of the total contribution, 75% is contributed by the Central Government and the remaining amount comes from the resources of the state



governments. This amount is contributed on annual basis. Another source is the National Calamity Contingency Fund, which was set up on the recommendation of the Eleventh Finance Commission to provide assistance for immediate relief and rehabilitation. Prime Minister's National Relief Fund is another source available for relief to person affected by disasters. The Fund depends entirely on, voluntary donations received from the public. Besides providing relief to the families of those killed, it grants assistance to affected families.

4.2 State Level Response Plan

Primary responsibility of disaster management lies with the state government. Central Government intervenes only when the response to the disaster is beyond the capacity of the state government. So, effectively the state has to have a response plan which enables effective and prompt action. Coordination becomes an important feature of disaster management at the state level at this stage because a disaster very often affects several geographical units simultaneously. Defining the role and responsibilities of each actor and allocating resources (both material and financial) are the main components of the state level response plans. Administrative mechanism for disaster response at state level is as follows;

Most of the states have Relief Commissioners, who are in charge of the relief measures, leads the Disaster Management Committee and plays the link between the centre, state, district and block. SCMG functions under the chairmanship of the Relief Commissioner and consists of Senior officers from the different ministries/Departments of state such as Revenue, Home, Civil Supplies, power, irrigation, Water Supply, Panchayatiraj, Agriculture, Forests, Rural Development, Health, Public Works and Finance. Some other officials like local army/CRPF commandos are co-opted for effective response. The Group adheres to the instructions and guidance received from time to time from the Government of India and formulates Action Plans for dealing with different disasters. An Emergency Operation Centre (Control Room) is established by the Relief Commissioner of the state as soon as the news about a disaster or impending disaster is received. The control room gathers all the necessary information from the designated officials and keeps updated information about the Air Force, Navy, Army and other para- military forces for quick interaction and response. The state makes use of the CRF, Chief Minister's Relief Fund and

sanctions its own resources to meet relief expenditure which include its share of various developmental and employment generation programmes.

4.3 District and Block Level Response Plan

District and block administration are the focal points where the response plans were utilized for implementing, directing, supervising and monitoring relief measures for disasters and implementation of specific action points. A district level relief committee consisting of official and non-official members including the local legislators and the Members of Parliament is set up in each district to review relief measures. District control rooms were setup for day to day monitoring of the rescue and relief operations on a continuing basis. The district Collector is the nodal person who maintains a close liaison with the central government authorities in the district namely, Army, Air Force and Navy, Ministry of Water Resources etc which almost in all disasters are the first units to supplement the efforts of the district administration in the rescue and relief operations. The coordination with voluntary agencies and channelizing the non-government organizations are carried out at the district level as those are enlisted in the district management plans.

Now a days there exists block and village level disaster management plans which are used in the grass root level implementations. Response groups at the block / taluka level have been identified with members from the line departments, representatives of training organizations and voluntary groups (NGOs) function as per their identified roles. Village level response plans entail hazard specific measures being undertaken by communities who are most affected by such events. The plans have information on resources, vulnerable elements and standard operating procedures for response groups. The pans are also ratified by the concerned Gram Sabha. The plans identify response groups, which will play an active role in the pre, during and post disaster scenario. In due course, it is proposed to form village Task Forces (VTFs) at the community level aimed at preventing high degree of loss of life, livelihoods and property. These VTFs would be formed for functions like early warning and communication, evacuation and temporary shelter management, search and rescue, health and first aid, relief coordination, water and sanitation etc.

4.4 Response at the level of local and international agencies

Today we have local as well as international agencies which are very active during disasters. For example, Oxam, Care or Ramakrishna Mission responds to almost every disaster with timely and effective relief operations. Many international agencies respond to disasters, some as part of their mandate and some on humanitarian grounds. Foremost of them is United Nations, which provides a support system and cooperates with increased information database, a forum for communication, a format for coordination and increased efficacy through pooled resources. A mandate issued by the UN General Assembly has ensured in setting up of a standing UN-Disaster Management Team (UN-DMT) in each country with the primary purpose of ensuring a prompt, effective and concerted response by the UN system at country level in the event of a disaster . Some of the major agencies under the aegis of the United Nations Development Programme, Food and agriculture organization , world food Program, world Health Organization, UNHCR,UNESCO, and UNICEF. International danor agencies prefer that resources made available by them are disbursed so as to bring clear benefits to the affected community. The response plans at various levels should have a mechanism to integrate such efforts so that responses are prompt and effective. Disaster management at various levels are being supported by voluntary sector and non-governmental organizations and voluntary groups to cope with the calamities. The tasks performed by the NGOs are beneficial for down scaling the impact of disasters. Most of the disaster management plans at the district, block and community level integrate the role of these organizations in their disaster management functions.

4.5 Role of Community Based Organizations (CBOs) in the Response Plans

It has been observed that the people who are affected most by a disaster are the first one to respond to various needs of the victims The cooperation of such people has prompted the policy makers to formulate community based approaches. CBOs are now increasingly becoming integral part of the Response Plans. CBOs are small and grass root agencies with informal structures but having a good grip on the local situation. Community Contingency Plan which seeks to involve the community in the management of disasters are often used at the time of disasters. As a number of agencies are involved in the response, there is a need to incorporate coordination mechanism in the response plans itself to prevent both

duplication and overlapping for avoiding waste of efforts, manpower and resources. Structurally, there are two levels requiring Intra and inter service coordination and Local level coordination involving all stake holders.

5. Communication

Communication has been described as the essence of any management program. The purpose of communication is shared understanding of a shared purpose. Communication plays a significant role for maintenance of lifelines and effective links and working relationships among the actors involved in the disaster response and management. Considerable scientific and technical innovations have been introduced in to the disaster communication to improve the early warning systems for a range of hazards in India.

Communication throughout the response period must be an integrated multiple way process, through which all the stake holders and victims are in constant touch with each other in order to make the system responsive to the people's needs. This implies recognizing early warning as a means of communication to establish strong partnerships between different social groups and organizational systems. Gujarat State Wide Area Network (GSWAN) is an example of the state-of art wide area network catering to the needs of the officials and stake holders at the state, district and taluk levels for disaster response and management activity.

5.1 Techniques of Communication

Disaster response is a team work of different players. Effective communication plays a significant role in bonding the team for a proactive role in disaster response. The communication implies a closed loop or an open model linking a sender with the receiver through a feedback. In an administrative setup, the upward and downward communication links the central control room at govt. of India level to the grass root level response team in a disaster in an hierarchy linking to the state, district, block and community level. Often lateral communication is also used to facilitate problem solving and coordination in disaster management. Formal communication refers to transmissions that use formally established channels. Informal communication refers to more spontaneous communication that occurs without regard for the formal channels of communication. Now a days ICT (Information

communication Technology) has been widely used with all possible mobile and internet channels, local and wide area networks, satellite communications and wireless systems as an effective means of communication in addressing the crisis management during a disaster. In the absence of an established communication network remote areas have also been linked through VHF wireless communication system for implementing disaster response activities.

5.2 Problems in effective communication

Problems seen with the means of communication in a context of disasters are of two types related to hardware and software. While many people are not well acquainted with the proper use of hardwares, the personnel handling the technical gadgets may not be appropriately skilled to interpret the signals or even the use of softwares. Size and distance also affects communication process. There can be huge distortions in a message originating at central level, by the time it reaches the lowest level due to distance and passing through different level, especially in a big country like India. There are examples where many responding organizations, who were ready with their supplies, not knowing what to do and whom to contact is also due to the lack of proper communication among the donors and the disaster managers. Problems in communication have been seen as a major deterrent in the effective disaster management process.

6. Participation

Success of participatory approaches by various stake holders has been seen as an essential feature in disaster response for its successful results. Though response through state intervention is structured, it is inclined to ignore local perceptions, needs and the potential value of local resources and capacities in the process. In fact the communities, NGOs and media are now emerging as effective role-players in the disaster response. There is a need to bring them to the process of participation and strengthen their operational framework. Normally there are four major stake holders whose participation have been key to the successful implementation of the disaster response process. They are ;

- Community
- International and national donor institutions
- Civil Society Organizations
- Media

6.1 Community Participation

Community refers to a social group, which has a number of things in common such locality, culture, heritage or social interests. Inhabitants of a community are often become the potential victims of a disaster and tend to show a kind of response as a homogenous unit . They represent the potential source of local knowledge regarding hazards and its associated problems. They are the repositories of the traditional coping mechanisms suited to their individual environment. Community at the grass root level becomes the first in responding at times of crisis. Participation of community members in disaster responses is more useful as specific local needs can be met. Community participations are often viewed as opportunities for change and development. Community based disaster response is a cross cutting theme where assessment, planning and implementation are participatory in design and address the community's vulnerabilities and risks. Therefore community participation has been viewed as a major strategy to achieve success in disaster response.

6.2 Participation of International and National Donor Agencies

Increasing of human and economic losses due to disasters has attracted the attention of major international and national agencies towards participating and supporting for responding to disasters. The decade of 1990s was declared as the International Decade for Natural Disaster Reduction by the UN. Many countries have created vulnerability reduction funds to tackle all kind of disasters. These agencies actively participate in disaster relief and rehabilitation. In the aftermath of the super cyclone in Odissa in 1999, UNICEF and World Food Proramme (WFP) led the action in the field . The WFP was the focal point for coordination with other agencies like CARE, Oxfam and Action Aid While UNICEF coordinated with international , UNDP worked in close coordination with Odisha Government. UNFPA, FPO, ILO and WHO formed a sub group to focus attention on medium and long term rehabilitation and reconstruction needs.

UNDP has entered into a memorandum of understanding with the Ministry of Home Affairs to initiate a Disaster Management Program. The program envisages disaster management planning at all levels involving resources , inventorization, hazard risk mapping and the setting up of response mechanism in case of emergencies besides awareness generation and capacity building for the same .The contingency plans are being

developed at village, Taluka and District levels. Response groups are also being identified to participate during disaster response phase. In view of its importance, the HPC recommended setting up of a ‘Committee for Coordination of International Cooperation’ for an appropriate response to disasters with concerned agencies to move into action for rescue, recovery and reconstruction .Civil Society organizations. Civil society organizations and NGOs have been the key stake holders in disaster management. Their involvement have been focused on activities ranging from public awareness and advocacy programmes to involving themselves with responding on various activities as well Glaring examples are seen from various organizations in Odisha, Gujarat, Maharastra, Bihar and Uttarakhand. In many states a network of NGOs has been formed to promote cooperation among NGOs without affecting their independence of action.

6.3 Media

We are now living in the information age. Taking advantage of revolution in mass media in reducing loss of life and property has been an integral part of the strategy in responding to disasters. Mass media can be helpful in disaster response in two ways i.e. at the stage of warning as well as at the stage of rehabilitation and recovery. The forecasting centers use the media network to send the forecasts and warnings to the All India Ratio Stations, Dooordarshan and Local Newspapers for wider publicity. Growth of private radio and TV channels has enabled reaching wider audience, which on their own try to respond in a greater way. Mass-media has been found helpful in focusing public attention and channelizing voluntary supports, as the disaster relief makes an impact. The plan of action adopted under Yokohama Strategy has also emphasized the role of media in disaster response. Throughout the world, media plays a vital role in educating the public about warning of hazards and disasters, gathering and transmitting information about affected areas, alerting government officials and relief organizations and the public to specific needs. HPC recommended an appropriate publicity management plan/media publicity plan to impart timely and correct information to the public.

6.4 Techniques of participation

All stakeholders need to be brought to the point of taking responsibility in a coordinated way in a participation process. This process envisages that all stakeholders

should use a consensus building approach to determine community goals with the principles of sustainability. Among various participatory approaches Participatory Rapid Appraisal and Focus Group Discussions have captured the imagination of all planners and disaster managers as a means of community participation for response planning.

6.4.1 Participatory Rural Appraisal (PRA) and Focus Group Discussion (FGD)

PRA is a participatory approach that emphasize local knowledge and enable local people to do their own appraisal, analysis and planning. It is no longer confined to rural areas and the target group could be local rural or urban people, women, men or old people or members of an organization or group from a community. The technique involves information collection through participation while the experts mainly do the analysis. Some of the methods for data and information collection are community resource mapping and evaluation.

6.5 Problems in Participation

There are several constraints for effective engagement in community participation. Often people are not able to participate in a system where decision-making powers are concentrated in the hands of the officials. Participatory approaches favour listening to management roles which reversely facilitate participation. Institutional mechanisms are yet to evolve fully to enable participation. Though, efforts are being made to involve stakeholders, they are limited to select the process. The participation attempted in India is generally exogenous as pressure for change is coming primarily from the donor agencies like UN. Participation stimulated through internal processes (endogenous) will be possible only when the root level institutions become vibrant in the polity and there is a sense of ownership of resources among community members.

7. Activation of Emergency Preparedness Plans

Emergency preparedness plans are a set of procedures and guidelines prepared in advance for implementation during a disaster. These emergency plans are implemented with a trigger mechanism.

7.1 Trigger Mechanism

Trigger Mechanism has been setup in the disaster management as a quick response mechanism which, when initiated spontaneously sets the vehicle of management into motion on the road to disaster management process. The underlying assumptions behind this conceptualization are that the process and mechanism of responding have been planned earlier and response activities would start as soon as the information is received about an impending disaster. Apparently, the mechanism attempts to put Standard Operating Procedures in place as a part of the trigger mechanism. For an effective Trigger Mechanism, HPC has identified the following functions for the disaster managers. They are;

- i) Evolving an effective signal/warning mechanism;
- ii) Identifying activities and sub activities and their levels;
- iii) Specifying authorities for each level of activity and sub activity;
- iv) Determining the response time for each level of activity and sub activity ;
- v) Working out individual plans to achieve the activation as per the response time;
- vi) Placing quick response teams for specified activities.
- vii) Having alternative plans and contingency measures;
- viii) Providing appropriate administrative and financial delegations to make the response mechanism faster and functionally viable.

7.2 Standard Operating Procedures (SOP)

Response plans are implemented through well laid down SOPs for each level of activity and sub activity. As activities in the emergency plans include evacuation, search and rescue, temporary shelter, food, drinking water, clothing, health and sanitation, communications, accessibility and public information, SOPs have to be different and detailed. SOPs are in practice in many other services like fire, Ministry of Defence, elections etc, but in disaster response they are evolving. The basic principles of evolving SOPs are guided by the applicability or practicality in the field. Therefore they should be developed using the participatory approaches and is made widely available to all the stakeholders.

7.3 Emergency Operations Centre (EOC)

The use of EOCs has been an important feature in disasters response operations. It is the operational unit of the disaster management department. It gets activated prior to the onset of the disasters and ensures timely dissemination of warnings at the grass root levels. EOC plays a vital role in maintaining links with all the actors involved in the operation. However, for effective operations, EOCs need to be adequately staffed and supplied, have management and communication systems, and have clearly delineated functions. HPC has recommended setting up of EOCs in national and state capitals and headquarters of disaster prone or vulnerable districts. These have been proposed to function as nerve centers of an integrated command and control structure and be the convergence points for all inter-agency coordination with state of the art communications network at their disposal. The following components would characterize the emergency operation centers i.e

- i) EOCs plan, manage and execute operations in responding to the disasters.
- ii) EOC Analysis Room analyses the information received from operation rooms by experts, statisticians and data analysts,
- iii) Emergency information Centre collects and disseminates disaster related information to the media and general public.
- iv) EOCs are equipped with state of the art communication systems.
- v) EOCs plays a key role for distribution of relief materials, food and medical aid etc.

7.4 Supply and Management System (Suma)

World Health Organisation (WHO) has created an analytical tool i.e. Supply and Management System, which is now more popularly known as SUMA. It is WHO's standardized tool to mange large amounts of humanitarian supplies and donations. SUMA system performs the following functions:

- i) Registering- Every shipment arriving to the affected country is registered at the entry point, which enables tacking down the supplies and shipments at any point of time.

- ii) Classifying- The system classifies the incoming supplies regardless of ownership as per the pre-established categories.
- iii) Sorting- Under SUMA, the incoming supplies are sorted out according to priority. The supplies are categorised according to their demand and usage in the affected area-.
- iv) Warehouse Management-The SUMA system also provides module for warehouse stock control. Though, it does not track an item over time, it can give details of the flow of supplies at several stages.

8.Conclusion

Emergency response is oriented towards minimizing losses through rescue and relief. Unexpected nature of disaster makes it imperative to have an organizational mode which is flexible enough to enable participating actors communicate effectively and respond promptly. Central and state agencies should provide cooperative leadership and support needed to bring local networks into existence. Financial and technical assistance could both enhance local commitment and increase its capacity. Communication technologies and successful participatory approaches can move response mechanisms immediately through activation of emergency plans.

9. Key concepts

SUMA: World Health Organisation (WHO) has created an analytical tool i.e. Supply and Management System, which is now more popularly known as SUMA. It is HO's standardized tool to manage large amounts of humanitarian supplies and onations.

EOC :This stands for emergency Operation Center. These have been proposed to function as nerve centers of an integrated command and control structure and be the convergence points for all inter-agency coordination with state of the art communications network at their disposal.

SOP : Standard Operating Procedures are a set of guide lines to be followed in executing and or respoding to a disasters

Mitigation : Mitigation refers to measures, which can be taken to minimize the destructive and disruptive effects of hazards and thus lessen the magnitude of a disaster.

Preparedness :Measures to ensure the readiness and ability of a society to forecast and take precautionary measures in advance of an imminent threat, and to respond to and cope with the effects of a disaster by organizing and facilitating timely and effective rescue , relief and appropriate post-disaster assistance.

Post Disaster Assessment : Also called damage and needs assessment , it is the process of determining the impact of a disaster or events on a society, the needs for immediate emergency measures to save and sustain the lives of survivors, and the possibilities for expending recovery and development.

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11. Activities

- 1) Discuss the techniques of effective communication in a disaster situation.
- 2) Give a brief account of the role of stakeholders in the implementation of response plans
- 3) What do you understand by Standard Operating Procedures (SOPs).
- 4) Write short notes on the following?
 - a) Emergency Operation Center
 - b) Role of community members in disaster response.
 - c) PRA and FGD
 - d) Trigger Mechanism



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Unit –II:

Search, Rescue, Evacuation and Logistics Management

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2.0 Introduction

Evacuation, search and rescue are the first and foremost steps just before and during a disaster. Although a lot of activities are planned for disaster preparedness and evacuation, search and rescue are the tentative pre-disaster preparedness plans of dealing with the calamity in the preparedness plan. Evacuation is a pre-emptive move to protect life and property, whereas search and rescue is a during disaster and post-disaster phenomena of helping people to move from areas that have been hit by disaster to a safer place. Very often, due to lack of information or in haste, life during evacuation and rescue becomes difficult and challenging. Logistics management constitutes a primary component of any disaster response operation. In disaster response, logistics management constitutes procurement and delivery of supplies to the people in distress and to those areas where it is most required at the time of need. Though logistics are of primary importance during disaster response operations, they also play a key role in the recovery phase.

This unit explains the learners about the significance and importance of evacuation, search and rescue and logistics management while responding to disasters. It outlines the various activities within the scope of the above themes which often also includes supply of first aids, safe water for drinking, maintenance for sanitation and hygiene, clearing of debris and disposal of the dead bodies. In this unit, we will be discussing about the key components of logistic management, evacuation, search and rescue processes adopted by the disaster managers.

Over the past two decades, disasters in heavily populated areas around the world have increased the need for sophisticated search & rescue (SAR) capabilities to assist trapped victims. Recent improvements in technology have also increased the ability to locate, medically treat and rescue trapped victims. Many countries have developed a SAR capability and routinely send teams of well-trained experts to assist other counties in times of need. Recently, in India, we have witnessed such foreign SAR teams at work during the Gujarat Earthquake-2001 and Kedarnath cloud burst. The accepted definition of the present Search and Rescue Team (SAR) is an “integrated multi-agency response to locate, provide initial medical care and remove entrapped persons from damaged structures and other environments in a safe and expeditious manner.”

2.1 Learning Outcome

After studying this Unit, learners should be able to;

- Understand the search and rescue process in disaster response
- Understand the evacuation process before and during a disaster
- Describe the common practices for search and rescue, clearing of debris and disposal of the dead bodies.
- Understand what logistics management is all about while responding to disasters;
- Discuss important considerations for supplies, equipment and transportation in logistics management

2.2 Search and Rescue Operation

The fundamentals of disaster response rest on the principles of effective evacuation search and rescue. ‘Search’ is a methodical process, undertaken with the help of community and experts to find out the whereabouts of disaster victims. The first life-saving procedure is ‘rescue’ of victims of disaster, without aggravating the existing damage to their health and safety. The first priority in the response phase is to minimize the loss of lives, in any disaster situation, by undertaking search and rescue, as well as evacuation efforts for the affected people. Rescue operations often become haphazard and hazardous due to fear and panic that grips nearly every unprepared individual during a sudden disaster event. Hence, through prior training, education, mock exercises and awareness among the search team members, more lives can be saved and disabilities or injuries can be minimized. Rescue is a team effort that needs coordination and planning among the members. After assessment of the situation, rescue team plans the rescue operation based on manpower, equipment, and methods called rescue resources. These are the most critical operations that are generally performed by volunteers, voluntary organizations and emergency agencies.

2.2.1 Relevance of Search and Rescue

Search and Rescue or SAR, as it is called, is a technical activity normally rendered by a group of specially trained personnel, who rescue and attend to the casualties under adverse conditions, where life is under threat. It is organized in close cooperation with the community with a team orientation. It is a procedure carried out immediately after a disaster

to look for survivors and dead ones. Through prior training, education, mock exercises and awareness among the local population, more lives can be saved and disabilities or injuries can be minimized. Rescue is a team effort that needs coordination and planning among the members for an optimum response operation. After the assessment, the rescue team is generally in a position to adequately plan the rescue operation, which is based on certain considerations such as manpower, equipment, and methods called the rescue resources.

2.2.2 Characteristics of Search & Rescue Operations (SAR)

Search and Rescue becomes necessary when the individuals are trapped under the ruins of collapsed buildings or buried under mud or landslide or cut off due to floods or damage to communication routes. The prime goal and objectives of the SAR process is as follows:

- i) The search and rescue should operate with the overall aim of doing maximum good to the maximum number of people.
- ii) Rescue the survivors trapped under the debris, from the damaged buildings or from a cyclonic storm surge, flood, earthquake and fire.
- iii) Provide First-Aid services to the trapped survivors and dispatch them for first aid and medical care.
- iv) Take quick and necessary actions for temporary support and protection to the endangered / collapsed buildings or structures.
- v) Hand-over, recover and dispose-off the bodies of the deceased.
- vi) Train, demonstrate and raise awareness on how to use the local material for self rescue amongst the community people; and form disaster response teams for search and rescue,

The effectiveness of the search and rescue operations depends on the following three important characteristics i.e.

- a. Rescuers or manpower includes trained personnel and volunteers.
- b. Tools or equipments used in the SAR operations depend on the type of hazard and nature of impact and devastation, availability and needs of the situation. For example, storm or earthquake damage may require tools for lifting debris, where as flood damage may require boats, ropes, and life preservers.

c. The first 24 hours after a disaster have been called the “Golden Day”. This is the period during which injured or trapped victims have an 80 per cent chance of survival if rescued. Thus, the method adopted by rescuers is most critical.

2.2.3 Preparedness for Search and Rescue

Effectiveness of the search and rescue operations depends on some amount of preparedness in this direction. A right kind of preparedness reduces the time of reaching to the search and rescue site and operation of the processes for survival of the victims. Proper assessment of the situation also saves time and improves better performance. Thus, it is essential to collect information on the extent of the damage, assess the approach to the disaster affected area, ascertain the particulars of the damage, and determine if any further damage is likely to occur. The assessment can be done through two methods i.e. Sample Surveys and interaction with community and concerned officials who can provide information and or data of the victims. Search and Rescue is rendered by trained personnel, who follow the 3 key principles during the survey or assessment:

- a. LOOK: See physically the incidents and make a thorough visual inspection.
- b. LISTEN: Listen to all sources of information from the community and other stake holders and government records etc., assess the community data regarding people in danger.
- c. FEEL: Feel convinced regarding the facts, the gravity of the dangers involved and one's own capacity to respond.

2.2.4 Advance Preparedness for Search and Rescue

For an effective search and rescue operation there is a need to have some advance preparations such as;

- a. Buffer Stock Maintenance of materials, personnel and relief items
- b. Casualty Management with provisions of medical and transport facilities which may include Hospital Alert, Clinical Care, Support Services in terms of Medicines, Blood Bank, and Disposal of Dead.

2.2.5 Organisations and people involved in search and rescue

It should be noted that in India we do not yet have a fully developed search and rescue capability as compared to some of the advanced nations. In India, traditionally and routinely, these tasks are being performed primarily by the Indian Armed Forces assisted by the local residents and at times, other organizations. However, learning from some of the

recent disasters that have struck our country, all efforts are being made to develop such capability within the country, especially within the local emergency management authorities. For instance, under the National Disaster Response Plan (a document prepared by the High Powered Committee on Disaster Management ,September 2001) the Ministries of Defence and Home Affairs have taken the responsibility for “search and rescue” as one of the Emergency Support Functions. Many states have put the responsibility of carrying out search and rescue operations on the police force, home guards, civil defence units and fire services. With this background, let us now study how search and rescue operations are conducted worldwide and what are some of the standard accepted practices for conducting search and rescue operations. In the process of disaster response, the people and organisations involved in search and rescue are as follows:

a. National Disaster Response Force (NDRF)

The NDRF performs a major role in disaster response. There are several battalions in this category with each battalion mandated to provide self-contained specialist search and rescue teams, each including engineers, technicians, electricians, dog squads and medical/ paramedics. These NDRF battalions are located at different locations in the country based on the vulnerability profile to cut down the response time for their deployment. During the preparedness period / in a threatening disaster situation, proactive deployment of these forces is carried out by the NDMA in consultation with state authorities.

b. State Disaster Rapid Action Forces who are specially trained & equipped for this purpose which operates in the direction of the SDMA.

c. People from armed forces who are also specially trained for such activities within their cadres,

d. Para military forces, CRPF, CISF, State Police Forces, Home Guards with Dog Squads and Canine Search

e. Personnel from civil defence and Fire Services

f. Specially trained volunteers from NCC, NSS, NYK, Scouts and Guides, PRI and community volunteers.

g. International Search and Rescue Advisory Groups



As a cooperative effort by the United Nations, the International Search and Rescue advisory Group (Called INSARAG) was formed in 1991. The Secretariat of INSARAG is located at the Geneva Office of the United Nations Office for the Coordination of Humanitarian Affairs (Known as OCHA now, what was earlier called first the UN Disaster Response Organization (UNDRO) and later the Department of Humanitarian Affairs (DHA). The INSARAG participants have developed a common understanding of the functions and operations of SAR teams which have resulted in the development of the international Search and Rescue Response System. The INSARAG Guidelines prepared by this group provide an overview of the system.

The purpose of the INSARAG Guidelines is to standardize the identification of SAR team functions, the conspicuous identification of work site hazards, standardize mapping, sketch and landmark labelling with common symbols, ensure the accuracy of search assessment markings and to document SAR team accomplishments. The INSARAG Guidelines therefore , lay down procedures to be followed by SAR teams for (a) Common identification System (Making, signaling), (b) Structure Assessment (go or no go, search, recue, special hazards of that structure and victim location) and (c) Results (warning, tracking, continuity and interpretability).

Different Steps involved in search and rescue process are :

- a) Preparing SAR Kits.
- b) Chalking out rescue methods and resources.
- c) Arranging transport facilities.
- d) Activating the control room.
- e) Arranging for emergency communication facility.
- f) Formulating disaster rescue and relief teams.
- g) Prioritizing the use of Hand Grasps, Ropes, Ladders, Boats, Fire Extinguishers, Pulleys, Sacks, Sickles, Hammers and Knots.
- h) Organizing volunteers to clear the debris following standard debris removal procedures.
- g) Providing Temporary Shelter, erecting interim houses for livestock and community, removing garbage and polluting material from around the shelters.

2.2.6 Role and Functions of Search Teams

The Search Teams are expected to have the capability to perform physical search, consisting of conducting interviews with survivors and a systematic movement across the site while listening for call for help; canine search (search by dogs specially trained to find out trapped victims under debris of fallen structures and avalanches) and electronic search using sophisticated listening and seismic equipment. These three Primary types of search allow search personnel to focus on the most important potential rescue opportunities.

Prior to initiating search operations, the team must determine the search strategy to be followed. This should be based on detecting and locating the greatest number of victims in the shortest amount of time. A time plan should be developed which prioritizes the search opportunities based on a number of factors, including occupancy, time of day, and local information on missing persons. In most cases, if the local rescuers have not identified locations of trapped people, the team's search operations will begin with a rapid initial search of their assigned area followed by a more thorough main search. The Search Teams are usually tasked with determining the type of assistance needed as follows:

- Whether technical equipment and dogs are required;
- What type of lifting, pulling, cutting, doffing and lighting equipment will be required for rescue operations;
- Whether medical assistance is needed to oversee and aid victim extraction;
- What special operations will be required to remove hazardous materials, demolition shoring of dangerous structures and damage repair.

2.2.7 Search Strategy

This involves developing a process for detecting and locating the greatest number of victims in the shortest amount of time. There are two basic types of Search Strategies

- Initial search which is less in depth but more rapid. This is composed primarily of physical and/or canine search operations.
- Main search which is a thorough search. This would be composed of in-depth search operations with electronic equipment supported by canine and physical elements.

The search prioritization is based on:

- Type and size of occupancy
- Number of potential victims
- Condition of structures, their safety and security considerations
- Time of day of occurrence post event
- Work area and Local information accessibility
- Availability and limitation of resources

2.2.8 Rescue Operations

Rescue operations follow the search phase and are focused on extricating the greater number of victims in the shortest time. The team must prioritize the rescue site and determine what resources are to be committed based on the potential success. A rescue plan will ensure that all efforts are brought to bear in a systematic and coordinated manner, using the most up to date intelligence about the victims and or destroyed infrastructure. The overall Rescue Operations are comprised of the following five phases:

- a. Phase - I: Assessment of the collapsed area. The area is searched for possible victims (Surface and/or buried) and the evaluation of the structure's stability and potential danger to rescue personnel is performed.
- b. Phase-II: Removal of all surface victims as quickly and safely as possible. Extreme care must be used during this phase to ensure that rescuers do not become victims a secondary collapse could occur without warning.
- c. Phase - III: All voids and accessible spaces created as a result of the collapse must be searched and explored for live victims. An audible call out system can be used during this phase. Only trained canine or specially trained rescue personnel should be used in voids and accessible space searches.
- d. Phase - IV: Selected debris removal, using special tools and techniques, may be necessary after locating a victim. It may be necessary to remove only certain obstructions that are blocking access to the victim.

e. Phase – V: General debris removal is usually conducted after all known victims have been removed. The decision to use heavy equipment during this phase must be given serious consideration, especially when the possibility exists that there are still live victims in the debris.

2.3 Evacuation

Large number of people has to evacuate their homes every year to avoid danger and seek safety from potential or actual disasters. Timely, well prepared and effectively managed evacuation processes are critical to the survival and protection of exposed and vulnerable people before, during and after the onset of disaster. The manner in which evacuations are carried out may significantly affect the ability of practitioners to manage assistance to populations in evacuation sites. Some national disaster management authorities in disaster-prone countries and states have extensive experience in mass evacuations. For example, Odisha has shown an exceptional example of evacuating more than one lakh families before and during the Phelin in 2013 to beg a special appreciation award from UNO for making it a zero causality incident. Countries such as the Philippines and China have well-established procedures to evacuate hundreds of thousands of people from areas prone to natural disasters.

The term “evacuation” refers to moving people at risk to safer environment. It is the organized withdrawal from an area for purposes of protecting the safety of the area’s inhabitants. The evacuation of communities, groups or individuals is a frequent requirement during response operations. Evacuation is a precautionary process in most cases undertaken on warning to protect disaster-threatened persons from a disaster stricken area into safer surroundings. The first priority in the response phase is to minimize loss of lives, in any disaster situation, by undertaking evacuation efforts for the affected people. The first responder is the community and initial help comes only from them. This helps needs to be converted into a methodical and trained response if disaster management has to be effective. Each disaster invokes a different type of response. For instance, response in earthquake aftermath would be different from that of the aftermath of cyclones or floods. If evacuation remain pertinent in each aftermath, their degree would vary from disaster to disaster, being minimum in case of droughts. The fundamentals of disaster response rest on the principles of effective evacuation. We have to be very clear about their meaning, nature and scope.

Evacuation is usually:

- Precautionary (in most cases undertaken on warning indicators prior to impact) to protect disaster-threatened persons from the full effects of the disaster or
- Post-impact (to move persons from a disaster-stricken area into safer, better surroundings and conditions).

In either case, the decision to evacuate is based on a number of factors, some of which tend to be conflicting. Thus, disaster managers who are faced with the evacuation decision need to have a sound understanding of what is involved.

2.3.1 Types of Evacuation

- a. **Preventive:** This is done much before the disaster. On the first sight of warning, People are evacuated from the vulnerable sites to safer places.
- b. **Protective:** Sometimes, evacuation is done as a precautionary measure to guard against spread of diseases or an impending disaster. Aim is to protect community from catastrophic situations.
- c. **Rescue-oriented:** This type of evacuation is focused on rescue operations; where people have already been hit by a disaster and have to be taken / flown to safer places. Thus, this type of evacuation falls under Search and Rescue (SAR).
- d. **Reconstructive:** This process of evacuation involves resettlement of evacuees in shelters reconstructed at safe locations; thereby, this process follows SAR.

2.3.2 Phases of Evacuation

The evacuation process starts with the issue of warning followed with the orders to move, identification of evacuation centres or shelter place and modes of transport and shifting. After this actual evacuation takes place along with a group of volunteers taking care about the management of the evacuation centre. This process comes to an end when the disaster is over and people return to former or new places. The plan for actual evacuation should Identify a safe place for evacuation, ascertain shortest and safest route, prepare alternative routes, plan evacuation of livestock, place road signs along evacuation routes and prepare evacuation schedules and groupings.

It should be noted that pre disaster evacuation is possible only in those events where an early warning of the forthcoming disaster is available. For example, upon receiving a warning message regarding a forthcoming cyclone or rising river levels, the population from

the vulnerable areas (which are likely to be hit by the cyclone or get flooded) could be moved quickly to other safer locations or multi-purpose shelters if available or to any other institutional buildings. The standard evacuation kit for such evacuees should contain following items:

- Emergency supplies to last for at least 3-4 days (or more, depending upon the projected severity of the forthcoming cyclone/flood) ;
- Emergency survival kit;
- First Aid kit and essential medical supplies
- Clothes/Blankets/sleeping bags
- Food and water
- Rescue Kit Containing a paddle, rope, iron hooks to tow belongings and /or other rafts, container to bail out water, torches, lanterns, candles, a transistor, an anchor life jackets or tyres and other floatable objects.

Evacuation plans need to be well conceived prior to any disaster and should contain arrangements for stock piling of essential supplies of food, drinking water, temporary shelter, medical care as well as special requirements of children, the aged and ailing and expectant mothers as well as requirement for domestic animals. In India the District Collector though the Relief Commissioner of the State keeps in regular contact with the Indian Meteorological Department and the state control rooms keeping an eye on the warnings for floods and cyclones. In the event that a warning is received and an assessment of threat to people and property is made, the evacuation procedures are then initiated by the administrative authority based on the relief manual and disaster management guidelines and the district and block/village disaster management plans. In selecting an “Evacuation Center” the Relief Manual requires following considerations to be kept in view i. e. ;
 (a) Safety (b) proximity from its shifting place (C) availability of good drinking water, (D) its economic resource, (e) Proximity and accessibility to its parent” Relief Center”, and (f) availability of open space where belongings of the evacuees can be kept till they move to the “Relief Center”.

2.3.3 Role of UNDAC (United Nations Disaster Assessment & Coordination) Team in Evacuation

The Evacuation plan of the United Nations Disaster Assessment and Coordination Team (Known as UNDAC Team) comprises 4-6 experts. They are immediately deployed to a disaster site, upon receiving request from the affected government, to assist in coordinating rescue and relief operations. They have divided evacuation operations into three categories;

- 1) Semi-Evacuation-when it is necessary to reduce personnel down to a skeleton team;
- 2) Full Evacuation- when there is enough time for the whole team to evacuate in the orderly manner and take all the equipment, vehicles etc. with them;
- 3) Emergency Evacuation-when there is time for the team to take only the most necessary equipment and vehicles. The contents of these evacuation plans are
 - Always keep sufficient amount of money for evacuation purposes;
 - Always keep a fuel reserve ready for vehicles to be used;
 - Pin-point vehicles to be used for emergency evacuation;
 - Find potential routs to be used out of the area;
 - If possible, make agreements before hand with authorities, border posts, NGOs etc.

Depending on the safety and security situation in a given country, the United Nations Secretary General orders evacuation (which is Phase V of the UN Security Plans) of its employees on the recommendation of the Designated Official. Evacuation of the UN employee from a country is carried out according to plans prepared before hand and in accordance with the country-specific situation. Evacuation is thus constantly recurring need in disaster management. Whether there is long warning, no warning or short warning, disaster managers are required to handle the evacuation process with reasonable effectiveness.

2.4 Logistics Management

2.4.1 Meaning and Definition

Logistics management is the process of planning, preparing, implementing, and evaluating all logistics functions that support the disaster response process. Effective logistics management ensures that all functions are executed in a unified manner in order to

reduce time of response, recovery, costs, ensure appropriate support actions, and decrease delivery time. Logistics management in disaster response deals with the procurement, supply, and maintenance of equipment and the provision of facilities; with the movement, evacuation, and supply/support of personnel and services; and with related matters. Individual logistics functions and associated sub-functions include the following:

- a. Material Management: requisitioning, ordering, and sourcing (requirements processing); acquisition; receipt; storage and handling; security; accountability; inventory; deployment; issue and distribution; recovery; reutilization; and disposition;
- b. Facility Management: facility selection and acquisition, information systems, communications, fleet management, safety and health, and physical security;
- c. Transportation Management: transportation prioritizing, ordering, sourcing, and acquisition; time-phasing plans; and movement coordination and tracking.

The logistics management program supports across four areas in disaster response as follows;

1. Disaster Logistics Planning and Coordination,
2. Procurement and Logistical Services,
3. Information Technology,
4. Public Safety Communications.

The logistics management process identifies the components of the disaster logistics delivery structure, provides a concept of operations for logistics management and outlines logistics management responsibilities. The logistics management capability is addressed by (1) increasing staff members (2) training and developing man power (3) enhancing coordination among national, state, and local governments, non-governmental organizations, and the private sector (4) developing plans and doing mock drills to improve readiness (5) utilizing interagency collaborations for support services.

As a management tasks during any disasters become largely a multi-stakeholders affair, several organizations engaged in disaster response may have their own logistics arrangements. For example, during the Gujarat Earthquake - 2001, the logistics arrangements of the government were handled by the District Collector of Bhuj and the staff

assigned to assist him whilst the United Nations agencies logistics arrangements were handled by the logistics center set up in Bhuj by the World Food Programme.

The person handling logistics has the responsibility to manage and supervise logistical support and ensure that the terms receive supplies, equipment and services. During disasters, a typical logistics manager (or logistic coordinator) orders, receives, distributes and tracks the incoming and outgoing relief commodities. The logistics Coordinator /manager usually reports to the team larder. Following sections focus on specific aspects of the logistics in disaster management namely Search and Rescue, Evacuation, Supplies, Transportation, Equipment, Hygiene and sanitation, Documentation and clearance of Debris and Disposal of Dead.

2.4.2 Components of Logistics Management

For a full-scale logistics operation, the following facilities will be needed: offices and administrative equipment, warehouses at various levels, fuel and spares stores, workshops, vehicle parks / motor pools, vehicles for management staff, fuel and spares stores, workshops, fleets of trucks, special vehicles such as cranes, tankers and cargo-handling machines, communications equipment, and accommodation. The resources for a logistics operation usually come from relief organizations, or from the private sector.

(a) Supplies

The term “Supplies” in the disaster response context is understood as “Relief supplies and commodities”. The availability of relief supplies and commodities is an important factor in effective response. After disaster impact, there is usually an urgent need to provide and distribute: food, drinking water, essential clothing, shelter materials, medical supplies and sanitary facilities. The major challenges associated with “relief supplies and commodities” are (a) obtaining the various commodities from the government stores, emergency stockpiles, commercial supplies and international assistance sources and (b) organizing the distribution of these commodities according to the best possible orders of priority. Experience has it that unless well thought out in advance and well coordinated, the management of relief supplies is exposed to the threat of mal-practices and large-scale

wastage of resources, usually in the form of vehicles, boats, air crafts. They also require various forms of supplies which may include;

- Petrol, oil and lubricants
- Technical spare and repair parts
- Personnel subsistence and support commodities, including food, medical and health items, tents and so on
- Administrative items of various kind, for instance. Standard report forms and other requirements for survey and assessment.

During response operations, the availability of commodities is likely to be hampered by the disaster impact. The National Disaster Response Plan (Prepared by the High Powered Committee, September 2001) has put Ministry of Planning and Programme Implementation as the ministry responsible for the procurement and distribution of relief supplies, as one of the Emergency Support Functions.

2.4.3 Transportation

The effective distribution of relief supplies and commodities is largely influenced by the availability of transport and the serviceability of transport systems. For this reason, some advanced countries are always researching innovative methods of transporting relief supplies and commodities. For example, one of the European countries that provides equipment support to international disaster management teams (Like the UNDAC Team), has developed collapsible hospital kits that could be transported on horse-back(or mule back) to areas with difficult terrain.

- It may be recalled that during Gujarat Earthquake-2001, along with the Turkish Military Hospital set up in Bhuj by the Tukish Army, the Danish government had also flown in a 50 bedded mobile hospital (flown to Mumbai first and then transported to Gandhigram near Anjar by ship via Kandla port and further by road) that began conducting orthopaedic surgeries. The search for easy to transport equipment (Like mobile hospitals, water purification systems and water storage tanks, emergency vehicles, medical equipment, tents for setting up logistic centres and smaller

coordination camps etc.) during disasters is thus continually progressing. Effectiveness of transport services in disaster response depends on ;

- Flexibility in transport capacity and systems, especially the ability to switch resources from unaffected areas to disaster-stricken areas;
- Ability to procure transport resources by requisitioning and or charter;
- Difficulties of transport access to some stricken areas, due to remoteness, severed communications or severe disaster effects.
- Limitations or benefits resulting from preparedness; earmarking of emergency transport capability in plans and departmental standard operating procedures.
- Types of transport available (for instance, remote mountain areas or areas which are isolated by disaster effects cannot be supplied unless airlift/airdrop capability is available)

2.4.4 Equipment

The term “equipment” in the disaster response context, refers to a wide range of equipment used by disaster managers and rescue workers to assist the affected community. A quick recollection of the media coverage of the Gujarat Earthquake- 2001 would bring to mind a variety of equipment that was used by national as well international teams in saving lives and rescuing entrapped victims. Such equipment included; gas cutters, earth moving equipment. Tents, water storage tanks, plastic sheeting, hard hats, face masks gloves, cranes, dumper trucks, water truck tankers etc.

The need for a particular type of equipment is determined by the nature of the disaster emergency and the extent of its impact. For example, the equipment support following major earthquake will contain largely the equipment for removal of debris of fallen structure (like earth moving equipment, Bulldozers, cranes, gas-cutters, shovels, axes and spades), transportation, medical care, immediate shelter provision (Plastic sheeting, tents, temporary construction materials such as tins, bamboos, etc.) food supplies, drinking water, mobile hospitals and mobile sanitation facilities etc. in case of flooding, the equipment support would largely contain boats of various types, plastic sheeting, movable food stocks, vaccinations and other medical care.

The professional disaster management teams that usually assist the affected government and people all over the world carry a standard set of equipments for their use. The UNDAC Team's Equipment (United Nations Disaster Assessment and Coordination Team) consists of:

- 1) Subsistence Support Equipment such as tents, water purification equipments, electricity generator plus cables, sanitation equipments, food and cooker, Miscellaneous equipment, e.g. chain saw, torches, shovels.
- 2) Office Support Equipment such as office tent, lap tops with software, Printer with toner and Cartridges, Small Copying machine, satellite phone with fax, table and chairs, collapsible white board.
- 3) Telecommunications Support Equipments such as INMARSAT, lap tops with Email access and MS Office, VHF Handsets, Base Station (for VHF Radio) and generators
- 4) Transport Support Equipment such as all terrain vehicles with fuel, Telecom fitted in vehicles, Maintenance equipment, Inflatable rubber dinghy, Specialist /Medical Support Equipment

Medical or Specialist Equipment and personnel could be a part of the module depending on the needs of the mission, for instance, nurse with basic medical equipment, air traffic controller for controlling incoming aircraft/helicopter at disaster site. The equipment carried by assisting teams to the site of disaster follows the principle of "self-sufficiency". As time is short during any disaster and as the challenging task is to save maximum lives in shortest possible time and prevent further damage to property and infrastructure, the groups assisting the local administration and the affected people do not intend to be a burden and hence go to help being self-sufficient. In order to be effective during response phase , the logistics coordinator needs to take into account the availability of equipment as well as the requirements for equipment prior to account the availability of equipment , their condition, location, modes available for their transportation , availability of skilled persons to handle specialized equipment (operators) thus needs to be documented and checked periodically.

2.4.5 Hygiene and Sanitation

Usually following a major disaster, respiratory infections, malaria, diarrhoeal disease and other common diseases need to be dealt with in a decentralized network of health care facilities (health centres and health posts, health camps). Organizing these in situations

where there are many different operating partners requires good coordination amongst them. Manuals and guidelines allow standardization among partners in regard to essential drugs and therapeutic policies. Medical needs (Material and drugs) are to be quickly assessed in anticipation of outbreaks of diseases known to occur locally. Experience acquired by health practitioners over the past management of disaster has led to the creation of “Kits” of essential drugs and materials.

During the response phase, the common “health and sanitation” concerns of the affected population include following challenges to be met;

- 1) Doorstep delivery of medical assistance;
- 2) Administering first Aid to the injured and shifting patients to the nearest medical care units/ clinics/hospitals;
- 3) Assisting doctors in facilitating medical aid and assistance in remote locations;
- 4) Identification and purification of safe drinking water sources;
- 5) Ensuring temporary sanitation facilities near the shelter sites;
- 6) Awareness in health and hygiene to prevent epidemics; and
- 7) Lunching clearing operations soon after the disaster.

2.4.6 Documentation

In the chaotic circumstances which tend to exist following a disaster, it is often not easy to obtain accurate and complete information. However, without accurate and comprehensive information, it becomes difficult to ensure that response operations are focused upon the correct tasks in the right and desired order of priority. Hence there is a need for the logistics coordinator to document inventories of various types of equipment.

Control Rooms and Emergency Operations Centers are essential for effective information management. Such Centers ensure that information is correctly processed according to the proven cycle of (a) acquisition of information (b) documentation of information, (c) assessment of information (d) decision making and (e) dissemination of decisions and information.

Any logistics planning is required to contain information and control system. Since accountability and monitoring of performance against realistic and continually assessed



standards are important to the success of the operation and to the donors. To achieve this, procedures must be established for recording /documenting and reporting on the quantity , location and condition of commodities, where and when they will move next. And who is responsible for them at each stage. This requires a set of requisition forms, waybills, stock records and reporting formats. Following is an illustrative list of the type of documentation that is required to be taken up during logistics operations. The nomenclature of such forms/reports/format serve the basic purpose of documenting information vital to logistics operations.

- a. Situation Reports: Brief updates describing the current situation at the disaster site with regards to the nature and magnitude of impact, actions taken by various stakeholders. Immediate problems, resources available/required to meet specific needs, hidden threats, if any are issued.
- b. Relief Commodity Movement Form: Used to document what is coming from what source and where is it going. This documentation is very crucial in determining that specific needs of specific groups/ areas are being met and if not, what further actions are required.
- c. Specific Resources Request Form: Used for documenting specific/sector-based/area-wise resource requirements.
- d. Transportation Operations Form: Used to document what resources, personnel, equipment, commodities and supplies-move from what point to what destination.
- e. Inventories: various types of inventories used to document availability of a range to resources, for example, (A) inventory of all organizations working in health in the affected area, (b) inventory of suppliers of tents and temporary shelter material.
- f. Mapping : Used for documenting (a) worst-hit areas(b) movement of Search and Rescue Teams, (c) Location of various relief organizations ,(d) Location of local emergency management authorities like fire brigade, army posts, police stations, hospitals, communications centers, (e) key logistics features such as airfields or railway stations, (f) any security incidents, (g) hazards mapping, (h) tropical cyclone threat mapping etc.

g. Log Books: Used for documenting all telephone and radio messages sent and received and action taken.

h. Notice Boards: Used for documenting and disseminating information regarding relief operations, coordination meetings, assessment missions, important contact coordinates (telephone numbers, email addresses, location of relief distribution centers etc)

i. GIS Tools Used for facilitating record keeping and documenting the status of ongoing work. As work is completed and identified. GIS can visually display current project status.

2.4.7 Clearance of Debris and Disposal of Dead Bodies

Clearing the debris off a disaster site and disposing the dead (humans as well as animals) are the challenging tasks. The fallen structures environment which could be a result of an earthquake, landside or a cyclone or floods poses a threat to survivors and unless dealt with in time it obstructs all initiatives and efforts being made to restore normalcy.

Traditionally, the State Relief Codes in India have cast this responsibility on the local administration. Section 73 of the Orissa Relief Code requires District Collectors to dispose of immediately the dead bodies (both of humans and animals) thrown or floating here and there following high floods and or cyclones. Unless planned for in advance and prior to the disaster, the task of clearing debris and disposal of dead bodies and carcasses always poses difficulties. Persons tasked with such responsibilities are required to be in excellent mental and physical health and preferably in the younger age group (25-35). This also requires to have the following logistics arrangements i.e

- Ensuring adequate stocks of kerosene, fire-wood, shrouds etc, for cremation purposes.
- Selecting appropriate site for cremation/burial;
- Collecting dead bodies, documenting their descriptions, carrying out Panchanamas to facilitate identification of the dead; and
- Disposing carcasses and spraying disinfectants at the site.

A look at the statistics following a major disaster in India would suffice to outline the importance of tasks outlined above. For instance in the Odish. Super Cyclone of October 1999, human lives lost were 9,893; the livestock perished was 444,531 and 747,863 houses had fully collapsed. These numbers clearly indicate the magnitude of the clearing and disposal tasks that follow such calamities. Thus the steps followed in managing logistics are as follows;

- a) Preparing a list of contact persons.
- b) Making/chalking out alternate routes to the affected areas.
- c) Documenting the cargo and relief material.
- d) Determining costs and expenditure of response work.
- e) Preparing time schedules.
- f) Keeping a record of all relief work.
- g) Appointing/recruiting volunteers, relief officers and other personnel.
- h) Liasoning with non-government relief agencies at the national and international levels.

2.5 Conclusion

In this unit we have discussed the overall aspects of logistics management followed during a disaster response phase. Key components discussed in details are that of the procedures for Search and Rescue, Evacuation and the common practices for Clearance of Debris and Disposal of Dead. Major concerns related to the Supplies, Equipment, Transportation, Health and Hygiene and documentation have also been outlined.

2.6 Key Concepts

Canine Search of Victims : Search made by specially trained dogs for tracing Alive or dead entrapped under fallen structures

Emergency Operations Center : A control and Command Post set up to supervise all matters pertaining to given disaster/ emergency

Evacuation Center : A center set up by the local authorities (or other organizations) for housing evacuees and supervising related matters.

INSARAG : Acronym for International Search and Rescue Advisory Group

Populations at risk	: Groups of people exposed to threats concerning their life and /property.
UNDAC Team	: Acronym for the United Nations Disaster Assessment and Coordination Team

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2.8 Activities

- 1) Explain the significance of search and rescue in the disaster response process?
- 2) Give a brief account of the value of preparing and maintaining inventories for logistics management.
- 3) Outline the need and concern for evacuation in disaster management.



Fig.7 : Logistics support by U.S. Air Force personnel: Preparing relief supplies to the earthquake victims on Feb. 3, 2001.



Fig. 1: Search and Rescue Operation by the volunteers from the demolished buildings caused by the 2001 earthquakes.



Fig.6: Emergency evacuation of People from their residence to the nearby multi- purpose shelter during Philin in 2013 in Ganjam District, Odisha



Fig. 5 : NDRF personnel engaged in clearing of debris and uprooted trees from a cyclonic disaster during Philin in Odisha



Fig. 2: Dogs used in search and rescue operation by the cops during disaster situation



Fig. 4 : Picture of an evacuation centre in Japan



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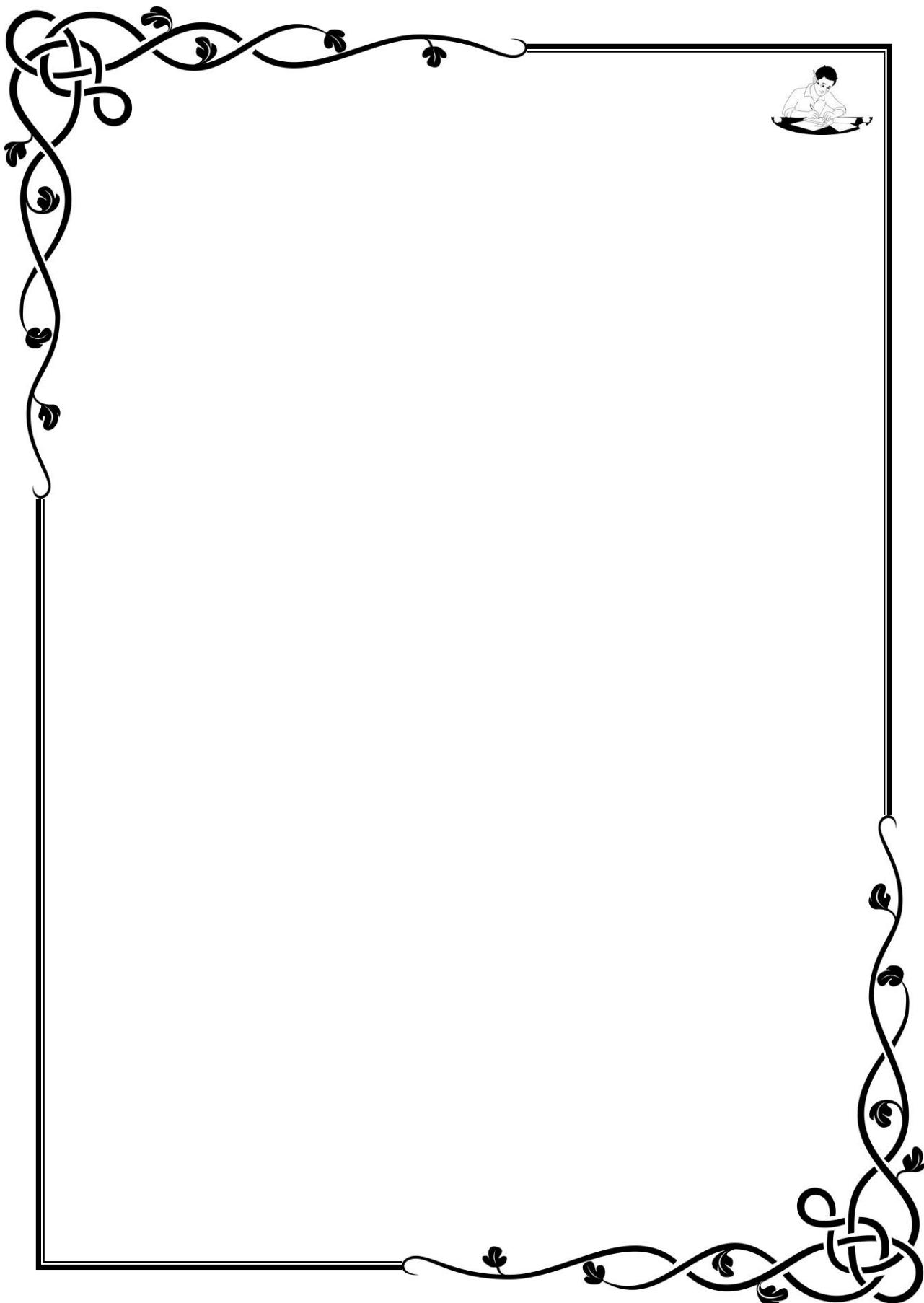


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Fig. 3: York, UK - December 27th 2015: Flood rescue by the British Army



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