

**Full Length Research**

# Disaster Management Methods and Techniques for Library and Information Centres: a framework

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Library and Information Centre is a storehouse of culture. Modern Library and Information centers are not safe today because of forthcoming hazards created either by human or by nature at any time at any place. In the past many libraries were attacked either by human or by nature and they were damaged and sometimes were abolished. In recent times it is observed that Library and Information centres are facing hazards either by nature or by human being. Now it is the high time for the library and information centre professional to come forward to save the Library and Information centre by hook or crook. To save them from forthcoming hazards, the authorities should apply suitable methods and techniques of disaster management. The present study defines the term disaster, types of disaster, and disaster management and their related terms in the light of Library and Information Science. It includes objectives and discussion which are related to the application of disaster management in Library and Information Centre. The paper states the major accident or hazards faced by Library and Information Centres in and outside India. It also describes the major studies conducted on the topic. To avert and alleviate the outcome of any type of disasters, the researchers present a framework for Methods and Techniques of Disaster Management for Library and Information Centres keeping in the mind of the need of Library and Information Centres. At last some recommendations are enumerated to reduce the vulnerability of disaster as far as possible.

**Keywords:** Disaster Management, Library and information Centre, Security, Safety, Disasters, Response, Rehabilitation, Risk, Hazards and Preparedness.

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## INTRODUCTION

The world has faced a great many disasters in the last couple decades. Some of the disasters like floods, cyclones and earthquakes, terrorist attack. Tsunami, etc. No one knows when and how disasters come. Disaster means sudden and terrible accident. It can strike at any time at any place. Natural disasters like earthquakes, floods, storms, etc. and technological disasters like fires, terrorism, etc. kill too many people all over the world. In recent times many libraries within and outside India had been affected either by manmade or natural disasters.

Libraries are the store houses of old valuable information. In order to preserve information for future use, libraries need to be effectively managed and properly resourced.

Disaster Management is the programme that deals with risk reduction. It covers preparation, support and restructuring the society during any type of disaster. Disaster management is an unending process and by no means ends after the disaster hits a place. Disaster Management is a multidisciplinary activity, and often

crosses departmental boundaries. From an organizational point of view, the effective Disaster Management depends on proper disaster planning and co-operation and communication between authority and members of the staff of a particular organization. In reality what has often happened is that there has been a little co-operation.

The 26th December, 2004 is a red letter day in the history of India. On that very day Tsunami affected almost all the parts of India, particularly coastal areas. After the Tsunami, awareness regarding disaster increased rapidly. In this situation libraries need to have a properly developed disaster management system.

## OBJECTIVES OF THE STUDY

The essential objectives of this study are explained in the following ways:

- ✓ To identify the Library and Information Centre affected by disaster.
- ✓ To study the disaster management methods and techniques.
- ✓ To prepare a plan to combat against disaster in Library and Information Centre.
- ✓ To recommend some steps to be taken in reducing vulnerability to disasters.

## METHODOLOGY

The information regarding disaster affected Library and Information centres has been taken by browsing their respective websites or visiting the respective Library and information Centres. Relevant information has been collected through face-to-face interview of the Librarians of the Disaster affected Library and Information Centres and as well as the members of the disaster response team and others Library and Information Centre. Besides this, primary and secondary literature regarding this area is another valuable source of information. To avert and alleviate the outcome of any type of disasters, the researchers suggest a framework for Methods and Techniques of Disaster Management for Library and Information Centres keeping in the mind of the need of Library and Information Centres.

## RELATED LITERATURE

The work in this field has been very little in the past; and some work is being carried out in the present decade. As for India, very little work has been done in this area. On surveying the literature, it has been found that--

Peter Water (1979) gave important salvage techniques after disaster. He suggested some ways to minimize the loss and destruction of library and information centre

resources. He suggested some actions and techniques which will be learnt to disaster response team. S.G. Swartzburg (1983) provides a detailed list of objectives of disaster plan. She notes the aims of a disaster plan elaborately. N.B. Olson (1986) noted salvage techniques for non-print materials. He said that disk could be air dried to provide a cool air flow. Soaked disks could be saved and data could be restored. C. England and Keren Evans (1986) conducted a survey on one hundred seventy five Canadian libraries and university libraries. The survey related the fact that only fourteen percent library and information centre had a disaster plan and other library and information centre authorities are unaware of this fact. Tom Watson (1986) describes the fire at Los Angeles Public Library and information centre and its aftermath. Fire destroyed 400,000 books. Another 700,000 volumes are salvaged by commercial drying process, mainly freeze drying. J.W. Morentz (1987) suggested computer software which is helpful to prepare a disaster plan. R.B. Miller (1988) suggested preventive measures against disaster affecting computer data and hardware. He opined that an uninterrupted power supply prevents power surges and resulting data loss. Fire alarm sensors and sprinkles of recent design are suggested. S.A. Buchanan (1988) noted six general guidelines for developing a response to a disaster in library and information centre. A.E. Parker (1989) described the freeze drying process and its effects on various kinds of material. It is one of the significant salvage techniques after disaster. He opined that the technique is time consuming but it is widely accepted and available commercially and is very effective. Ros Haevey (1993) develops a disaster plan depending on a number of factors such as the size of the library and information centre, the number of staff, and availability of special finding. J. Ashman (1995) covered disaster prevention, disaster preparedness, salvaging water damaged library and information centre materials and the training of the staff. G. Matthews and P. Eden (1996) studied the current disaster management practice in U.K. libraries and produced guidelines on disaster management. J. Doig (1997) worked on the development of a disaster plan in libraries. P. Clayton and G.E. Gorman (2001) worked on the management of information sources. They opined that disaster manuals should be kept up-to-date. M.S. Dorfman (2004) suggested the probable risks in an organization and discussed the role of insurance for fighting against those risks. G. Robertson (2005) advised the libraries to make them aware of the dangers posed to the libraries by water in the form of rainwater, river floods, etc. P. Ngulube and L. Magazi (2006) suggested that a survey conducted between December 2005 and February 2006 in public libraries of Kwazulu-natal in South Africa showed that the libraries are not adequately prepared to avert disasters. In addition to that most of the libraries did not have disaster plans for disaster response. B. Lal, S.K. Bose and M. Agnihorti (2006) also worked on the role of insurance in disaster management

and suggested to initiate risk management programme in the library and information centre. The continuity of this attempt has been reflected in the works of J.Aikin (2007) where he advised to prepare a committee to execute a plan to avert disasters and recommended protective action for cultural institutions nationwide. Senyah and Lamptey in 2011 in his article attempted on Personal security and Safety in Academic Libraries and he studied particularly KNU library of Ghana. In 2012 Ketzner discussed the role of risk assessment at the time of digitising special collections and suggested some techniques to combat against risk factors. Rattan (<http://digitalcommons.unl.edu/libphilprac/886>) in 2013 in his paper stresses the significance of library and information centres to combat against a disaster. The main theme of the paper is to highlight the possible roles of the library professionals during and after disaster. In 2015 Ugwuanyi (<http://digitalcommons.unl.edu/libphilprac/1289>) and others in their article in library philosophy and practice stated the different types of disasters happened in university libraries and enumerated some measures to avert these disasters.

### Library and Information Centres affected by Disaster

The following Library and Information Centres have been affected by either natural or man-made disaster-----

- a) The Library of Alexandria, established by Ptolemy I, around 300 B.C. was believed to have been wiped out in a fire 1600 years back. Recently it was reconstructed and was officially opened in Egypt.
- b) In 1813, three thousand books from the Library of Congress were burnt to ashes by the British forces.
- c) Iraq is called as cradle of civilization. But National Library of Iraq, National Archives of Iraq and National Museum of Iraq people are attacked by militants. The books, furniture and other important documents are looted and burnt.
- d) Due to Hurricane some libraries in U.S.A. are affected.
- e) Due to Tsunami some libraries in Sri Lanka are damaged.
- f) People know the damage done by Hitler to Berlin Library in America which was set up by British.
- g) An accidental electrical fire and its consequences at the Port mouth Public Library, Virginia in 1988.
- h) Thousands of manuscripts, rare books are severely damaged by the followers of Sambhaji Brigade in Bhandarkar Oriental Research Institute, Pune.
- i) Nobel Prize of Rabindranath Tagore was stolen from Viswabharati Rabindranath Sangrahasala.
- j) Recently Nandigram Pataspur Library in the district of Medinipur (East) of Bengal is affected by some hooligans.
- k) In the West Bengal Balpai library of Hooghly; Lenin Pathagar of Bargarchumukpur; Anandamohan Library, Calcutta; Jagoroni Sadharan Pathagar of Nadia and Gana Sangha Library of Mathabhanga, Coachbehar, Sangrahasala of Calcutta University (Alipur Campus) are recently attacked by hooligans .

### Basic concepts and related terms of Disaster Management

A disaster is a sudden attack to the day to day activity of a community. It attacks not only the people but also the property. Disaster Management is the method that includes right implementation at right time in a right way to avoid and eliminate risks or hazards. In a nutshell, disasters can happen any time at any place in the twinkling of an eye. It is a cyclic process by which all members of the staff, common people manage hazards or risks jointly. To know about disaster management people should have knowledge about Hazard. Hazards mean critical situation that can cause damage to property, manpower, etc. Hazards can be categorized in the following way--

Natural Hazards:-

1. Bushfire(or wild fire)
2. Cold wave and extreme cold
3. Drought
4. Earthquake
5. Flood, avalanches, and tidal waves.
6. Heat wave and sand storms
7. Landslide
8. Tropical cyclone(Typhoon ,Hurricane)
9. Tsunami
10. Volcanic eruption

Unnatural Hazards:-

- i. Bio terrorism
- ii. Civil unrest
- iii. Cyber terrorism
- iv. Emission of Hazardous materials and toxic
- v. Major Accident
- vi. Mine explosions
- vii. Nuclear power accident
- viii. Oil spills
- ix. Power failure
- x. Residential and industrial fires
- xi. Violence in the workplace
- xii. War and terrorism

### General effects of Disaster on Library and Information Centres

- (a) Individual or mass panic.
- (b) Mass casualties.
- (c) Damage to valuable resources and national infrastructure and systems.
- (d) Loss of library and information centre resources
- (e) Emotional reaction like fear anxiety sadness and depression anger.
- (f) Disruption of services.
- (g) Disruption of lifestyle.
- (h) Loss of livelihood.
- (i) Sociological and psychological change after disaster.

### Methods and Techniques of Disaster Management for Library and Information Centres

As Library and Information Centre is an institution of culture and also a repository. So a proper methods and techniques can be effectively deployed to avert dangers. In this regard a proper disaster planning is necessary.

**Disaster Planning**--Disaster planning of a Library and Information Centre is a complex process. Protecting employees and resources of the Library and Information Centre during a disaster requires planning. They must take steps to lessen the damage done by hazards. These steps must be taken before, after or during disaster.

To chalk out a plan the following steps may be followed:

The first step is to assign the responsibility  
 Second step is to conduct the preliminary research  
 Third step is to identify and then to assess the potential hazards  
 Fourth step is to identify the resources  
 Fifth step is to create contact with local emergency agencies  
 Sixth step is to fix the tasks for team members of the staff  
 Seventh step is to make a survey and enumerate the priorities of salvage techniques  
 Eighth step is related with overall financial assessment  
 Ninth step is to document the plan  
 Tenth step to implement the ease  
 At last step is to maintain the plan with certain modifications as and when necessary. To discuss the disaster planning, people should know about salvage techniques. Salvage is an integral part of the overall disaster planning process, comprising of following phases with steps (See Figure 1)—

Phase one: Before (Prevention and Mitigation): In this phase Library and Information Centre authority have to assess and correct or reduce any hazards that might

cause damages. So the Library and Information Centre authority should anticipate what might happen. Accordingly they put into place systems and emergency supplies that would enable the authority to combat against disaster.

Phase two: During (Response and Preparedness) Using a predetermined plan, the library and information centre authority can start actions and perform functions immediately after disaster to save life and resources of the library and information centre.

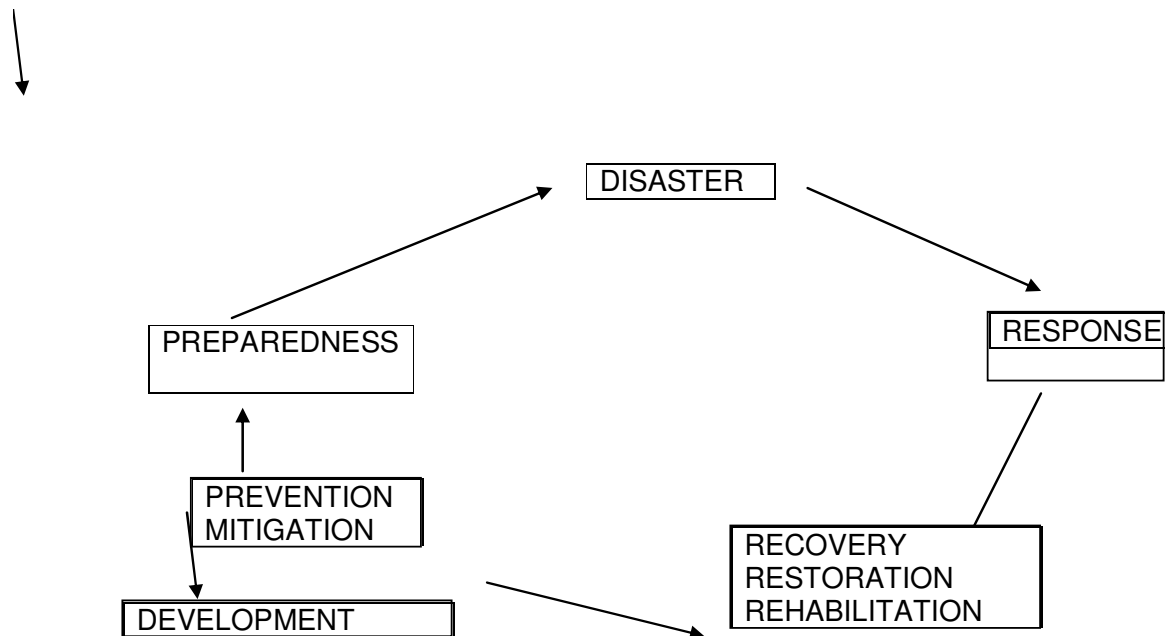
Phase three: After (Recovery, Reconstruction and Development) ---The reconstruction and recovery means restoration of a library in a pre-disaster situation but it takes too time to grow like before.

**Prevention**--It helps to avoid the repetition of past mistakes; it helps in reducing ill effects of disasters. To lessen casualty and to alleviate hardship and suffering and to lessen damage and loss and to arrange equipments and manpower for prompt recovery, prevention is better than cure.

**Mitigation**--These actions help to prevent, alleviate suffering, or diminish the potential effects of a library and information centre in a disaster situation. Actions within this phase are aimed to lessen the effects of disaster on a library and information centre. Other countries follow building standards for library and information centre to build earthquake-proof buildings. The action of mitigation includes--

- Implementation of codes of building;
- Follow rules and regulations of land;
- Obey Safety measures relating to multi storied buildings, control of hazards on resources of the library and information centre;
- System to protect emergency power supplies and vital communications;
- Development of library and information centre from disaster –prone areas;

**Response**--The first step is to save lives and resources of the library, reducing the possibility of damage through quick recovery operations. It involves deploying emergency response personnel to rescue employee and users and library resources. The library and information centre authority should prepare a checklist of do's and don'ts for all the library personnel on how to react at the time of disaster. Effective communication and proper co-ordination is the main criteria for response. Response measures are being done immediately prior to and following disaster impact. Such measures are taken for saving life and protecting resources of the library and information centre, and to deal with the damage caused by the disaster.



**Figure 1:** Cycle of Disaster Management for Library and Information Centres

Response measures include:

- \* Chalk out the plan;
- \* Implementation of the counter –disaster system;
- \* Finding out and rescue operation;
- \* arrange an emergency building where resources are stored;
- \* Survey and assessment;
- \* Evacuation measures;

**Preparedness**--Preparedness is the main step to save resources of the library and users and the staff at the time of disaster .Personal preparedness and protection against library and information centre resources are included in these activities at the time of a disaster. Individuals who work in a library and information centre and also library and information centre users can take steps that that will assist them to minimize structural hazards and facilitate them to escape, and help users to come out from the library and information centre at the time of disaster. Common preparedness measures include the proper maintenance and implementation of warning methods combined with emergency buildings, evacuation plans. This phase includes three parts:

**Warning:** When a hazard has been identified but it is not yet threatening a particular library and information centre or the geographical area where the library and information centre is situated.

**Threat:** When the hazard has been found out and is accessed as threatening a geographical area where the

library and information centre is situated.

**Precaution:** Action taken after the receipt of warning to alleviate effects of disaster impact.

Such action may be as follows-

Closing library and information centre immediately and/or

Arrange powers generators for uninterrupted supply of power

And /or

Arrangement of vehicles is needed for disposal of resources of the library and information centre to another place.

In this respect, the library and information centre authority should:

1. Identify the type of forthcoming hazards that may affect the libraries and lessen the potentialities of libraries
2. Enumerate steps for preparation of disaster.
3. Identify the probable fire hazards in their libraries.
4. Work as a team forgetting all conflicts at the time of search and rescue operation.
5. Study the post – disaster emotional environment and the steps to be taken to relieve psychological problems of the members of the staff and survivors.

**Recovery** is done to restore the affected library and information centre to its previous conditions. Recovery means reconstruction of deplorable and affected library and information centre by repairing essential infrastructure. It also tries to run operations and services as quickly as possible. It is the process by which library and information centre is being helped to initiate the functioning after a disaster. There are three main categories of activity in the Recovery phase. These activities are –Restoration, Rehabilitation. In detail they should be follows as:

- Restoration of essential services.
- Restoration of reparable homes and other buildings /installations.
- Provision of temporary housing.
- Measures taken for long period for the reconstruction of the Library and Information Centre which have been destroyed by the disaster.

Rehabilitation is done to support the affected library and information centre while working as an agent of positive change in regard to its disaster prone resources. Some library and information centre resources are the most vulnerable. So at the time of rehabilitation this point should be kept in mind.

Review after disaster is must as part of the recovery process. It should take place as soon as practicable after the disaster event. Users and the members of the library and information centre staff are encouraged to cope with the new situation after the happening of disaster.

**Development** phase bridges the link between activities concerned with disaster and national development. This phase is included in the disaster management cycle to build the library and information centre after disaster. To develop the library and information centre, the following tasks are to be done.

- applying new and modernized building system ;
- exploiting national, local and international disaster assistance to be benefitted from it ;
- sharing the experience regarding disaster with researches who are interested to carry on future research and development regarding this matter;
- Following any other appropriate means to cope up a particular situation.

## RECOMMENDATIONS

After consulting various disaster management related primary and secondary literature and after interviewing the library officials of different disaster affected libraries and information centres, the researchers enumerated the following steps to be taken-----

## Recommendations for Library and Information Centres during Disaster

- ❖ At the time of disaster, Library and Information Centre authority should instantly bring to the notice of the local police or/and the Disaster Management Authority or/and security agency.
- ❖ Users and the staff should not use elevators and they should not rush for doors during disaster.
- ❖ Use of cell phones is needed at the very moment.
- ❖ The security staff should turn off power supply and they might turn off air conditioner as the case may be.
- ❖ Emergency exit door should be made in the building of the library or information centre.
- ❖ An extra sheet of duplicate bunch of keys is needed.
- ❖ Library and information centre staff should not discuss the threat with other staff. People should not create panic or not jeopardize personal safety.
- ❖ SMS service may be used to communicate with others.
- ❖ The members of the staff and the users should not stay near the windows, mirrors, chimneys, false ceilings and tall furniture's at the time of fire and earthquake.
- ❖ The members of the staff and the users should take shelter under a huge table at the time of earthquake. They should stay inside until authorities directed. They may go to the basement or underground. They should assist disabled persons.

## Recommendations for Government and other agencies for Disaster Preparedness

- ❖ Every gram panchayets and municipalities should work sincerely to cultivate awareness among the community about type of risks, their outcome, way out, etc. They should provide ample information regarding these issues.
- ❖ Information structure in every village/town in state/country should be strengthened to ensure required information support for steady recovery.
- ❖ It has been seen that television and radio are the main sources of information. So more emphasis should be given to Mass Media for its expansion.
- ❖ Local administrative body should be up-to-date with the latest information. They should be educated because a large number of people living in that particular area can ask then about this matter.
- ❖ The Programs of public education and awareness is important. It could be especially useful for disaster education in schools, and for

heightening public awareness (through posters or television programs) prior to high risk seasons, such as a cyclone season or flood season.

- ❖ Government should take active steps to fight against disaster. They should make the authority of the library and information centre aware of these facts. Not only government effort but also non government organization like NGO should come forward to help the library and information centre authority to combat against disaster. Management system regarding disaster in every corner of the state/country should be strengthened.
- ❖ Disaster education in curriculum should be introduced at the school or college level like environmental education. Disaster management should be introduced in the LIS curricula.

#### **Recommendations for Library and Information Centre authority for Disaster Preparedness**

- Library and Information Centre authority should deploy proper staff to visit walls, floors, doors, staircase, and windows, to become always alert to avert danger of collapsing any part of building. Inspect foundation periodically and if found cracks and damage in the wall the authority should consult the engineer immediately.
- Library and Information Centre authority should purchase insurance policy. Awareness regarding insurance and related issues should be informed among the library and information centre professional to overcome the various problems.
- It is necessary for Library and Information Centre authority to arrange adequate equipments to combat against disaster. Demonstrations regarding disaster management equipments should be successfully organized from time to time.
- All the fire extinguisher is properly labelled and the authority should use foam type fire extinguisher. The authority and disaster response team should follow the four steps PASS procedure to use fire extinguisher effectively.
  - **P** for Pull the pin: It opens the operating lever and helps the disaster response personnel to operate the extinguisher.
  - **A** for Aim low point the hose or nozzle of the extinguisher at the base of the fire.
  - **S** stands for Squeeze the button above the handle for discharging the extinguishing agent. Some extinguishers may have a button or a lever.
  - **S** for Sweep from side-to-side: Moving carefully towards the fire, keep the extinguisher aimed at the base of fire and sweep back and forth until the flames appear to be out
- The authority concerned should make a survey to specify the type of disasters and determine the probable outcome for their library and information centre.
- The authority should make aware the users for understanding the importance of disaster management system.
- Library and Information Centre authority should spent money for security purpose.
- The Library and Information Centre authority should know 4-digit code for National Disasters. In India the Bharat Sanchar Nigam Limited has set up 4-digit numbers for national disasters E.g. 1070 for the control room of Central relief Commissioner and commissioner of all states or union territories and 1077 for the control room of district magistrate of each district of the state.
- There is an essential need to make the Library and Information Centre staff aware /literate for understanding the way to avert disaster. Library and information centre authority should take necessary action regarding this matter.
- The Library and Information Centre authority should also have a clear idea of government's responsibility and the responsibility of authority .This applies to all disaster- related matters, including prevention mitigation and national development. The library and information centre authority should allocate lump sum money in the budget for this purpose.
- The library and information centre authority should form a disaster management team and team should be trained by the appropriate authority. Besides the primary responsibility of the disaster response team members, the assignments of the disaster response team members are to be updated regularly for the fulfillment of the different phases of the planning of disaster response. The team should identify the materials or resources which require in the event of crisis. After formulation of disaster management team, the team should survey the library and information centre and place survey report with probable risk factor to the authority. Survey and assessment should be done to identify the impending disaster and what is to be done in terms of response. The team should make a plan. After formulation and finalization the plan, it must be documented. The team should set up liaisons with local emergency agencies. The disaster plan should be simple to adopt during a crisis, the plan should be updated or modified as and when necessary or it may be updated regularly according to the need and demand of the library and information centre.
- The authority of the library and information centre may impose rules and regulation to avert disaster. The library and information centre

authority should display list of emergency contact number on wall in such a position that everybody may identify easily. They should be well informed about the phone no and location of the fire brigade, etc.

- Librarian and the members of the staff should adopt innovative ideas for enhancing their working ability. Librarian and the members of the staff should learn about the importance of disaster management system for the benefit of library and information centre.
- Orientation programme regarding disaster should be organized by the eminent library and information centre association to make aware of the library and information centre professional. Some orientation camps from time to time should be held at regional or national level to make the users, staff of the library and information centre aware of Disaster Management. Library and information centre authority should provide pre disaster stress management training to all probable members of disaster response team. They should speak against spreading rumors. They should stay calm and help others.
- Individual and collective training are needed .Training programme should be mainly on the various aspects of disaster preparedness, response and recovery. Training programmes regarding disaster management facilitates understanding the system and also vital aspects of disaster related activities. Training programs to library and information centre users and the members of the staff is needed.
- Some slogans should be written on cardboard to make the users of the library and information centre aware, e.g. " always alert accident avert", " no smoking" " no rumor"
- Effective warning system should be built immediately. The concerned authority should arrange country warnings for floods, landslides, volcanic eruptions, and earthquake. In situations where there is no advance warning system, disaster response should be started at the post-impact stage. However, the system should be available for passing vital information to the authority concerned including community advice and direction.
- Day-to Day disaster management activities could be an effective reference such as development of plans, progress in preparedness measure, review by the National Disaster Council, and so on and make a calendar against which to check the progress of disaster equipments.
- Periodic check up of disaster related equipments is needed. It is done because to avoid risk at the time of disaster. If the periodic check up is not done properly the equipments cannot run at the

time of disaster. Periodic survey of fire extinguisher should be properly done.

- It is suggested that individual library and information centre suggest the appropriate method of disaster management which is very much suitable to satisfy their needs.
- Battery operated lighting system should be introduced in the building. It will help at the time of disaster when power supply is not available.
- Library and information centre authority must create mock disaster situation to understand the real disaster situation properly.
- Proper planning of library and information centre building including wiring of electric lines is more important. Sectional wiring must be implemented.

The above recommendations are indicative but they are not exhaustive.

## CONCLUSION

In short it may be said that an attack on a library and information centre is an attack on a particular culture. Damage to library and information centre is damage to the country's information infrastructure and can stunt the growth and development of a country. Disasters in libraries destruct the valuable information which is too important for the development of future generation. It is an urgent need to ensure proper disaster management methods/ techniques. So it is the high time for the library profession to become aware of this matter. In this respect it is necessary to implement the method of Disaster management in this field. The importance of disaster management helps to avoid the repetition of mistakes done previously. It helps to improve the disaster response activity for future. Lack of awareness, non observance of regulations and insistence on violation are responsible for Disaster. Preparedness can reduce a great amount of distress and hardship to large number of people and prevent economic loss. The above discussion takes initiative to save the life of documents in a library and information centre. Disaster can occur anywhere and anytime as they are unpredictable. It is to be remembered that the destruction of books or documents in a library which is called LIBRICIDE is similar to the mass killing of people i.e. GENOCIDE. In near future the awareness regarding Disaster Management will develop and it will become an integral part of Library and information centre Management.

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