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Emergency Preparedness and Recovery

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I want to ask three questions, as I do every time at the beginning of a talk dealing with emergency preparedness:

First, how many of your institutions have a plan to deal with disasters and emergencies? Can I have a show of hands?

Now, how many of your institutions have experienced an emergency or disaster during the time you have been there, where books have been destroyed?

Finally, how many of you have ever been involved in a library disaster, even if it was at an institution where you previously worked?

When people are talking about preservation of library and archival materials, they seem to use the terminology "disaster" and "emergency" almost interchangeably. I consider an event that harms even one item or patron an emergency, because if that single item is burned or drenched, it is certainly an emergency for that item!

A disaster, to me, is a larger occurrence, which can affect hundreds of books, your whole library, or, as in the case with earthquakes, hurricanes, tornadoes, and other natural disturbances, your whole community.

Some disaster scenarios which have recently occurred in libraries in the United States include:

- A burst pipe on December 26 when a reduced number of staff was working at the library.

- A fire which started in the early morning hours and had consumed much of the library by daybreak.

- The late-evening tornadoes which struck two Texas towns, including their libraries and city halls, in 1994.

- A bomb threat which happened while the library was open, necessitating a complete evacuation.

- A gang fight which took place in the library because it was considered the center of town.

Management Concerns in Library Disasters

Let me talk about a management and administration-oriented way to react to situations like the ones mentioned above. There are five main steps which you should consider.

ASSIGN. The first step in planning for combating a disaster is to realize that you cannot battle it on your own. There are key roles for the staff of the library to play in a disaster situation, but you do not want to be the only person on staff familiar enough with your building, disaster recovery practices, and important resource people.

I suggest that you ASSIGN a team of your department managers and other interested staff to collect information for disaster planning at your institution, draft a disaster plan, and set up situations when disaster practices or drills can take place.

Next, MONITORING is important. This word has a variety of meanings in the preservation context. First of all, it means monitoring the environment of the library -such factors as temperature, relative humidity, light, and pollutants. A high level of one of these factors, or, worse yet, a combination of environmental problems, can be responsible for such disasters as a mold outbreak or an invasion of pests! So, monitoring the environment for stable temperatures between 65 and 70 degrees Fahrenheit, and relative humidity around 40-50%, will help lessen the chances of these kinds of disasters.

MONITORING the external environment is helpful, too. How many of your libraries are located near busy streets or highways? Do you know if hazardous chemicals are allowed to be transported on these roads? Is your facility near a wooded area, and, if so, do you keep track of the fire warnings which are posted for wooded areas? Knowing the environment of the area where you are located is very important.

ORIENTING your staff AND USERS to your facility--through exit signage, visible placement of fire extinguishers, and practice of disaster evacuation and recovery procedures for the staff is an important step. Many libraries feel that they have reached a milestone when they get a disaster plan down on paper. However, a "theoretical" disaster plan, one which is not practiced and updated annually, is almost worthless. A disaster plan is an "always-changing, always-improvable document," as most of the improvements are made as the result of practice.

COMMUNICATE. There are various "Disaster Team Players," who can assist in the event of a library emergency. I have emphasized the importance of spreading the work among a number of individuals. However, I believe that when communicating about a disaster, the top administrator should be the point person who talks with the public and the press. And, because comments are open to so many forms of interpretation, I suggest that rather than verbal communication with the press, written statements or press releases can be a very

effective method of sending the same message out to a number of media outlets. You will also want to be communicating with other librarians, and other top administrators in your community in the post-disaster phase, in order to line up support for your reopening plans.

Finally, COOPERATE. Because you are involved in the library community, where a concern for our recorded heritage is so important, you are linked to a group of professionals who will understand the basic activities and needs of your institutions. You may want to start right now to develop reciprocal borrowing policies, off site locations for library services, and multi-library disaster teams with nearby libraries.

So, these are some of the management functions which you may want to undertake at your institution, both prior to a disaster in the planning stages, and during and after an emergency.

There are two chief areas of concern in a disaster situation which require the attention of the top administrator: human and financial.

The HUMAN concern should be your main focus. No matter how valuable your collection or building is, your chief concern in a disaster situation should be the safety of your patrons and staff. Informing people of exit routes, making sure that those routes and the public areas of the building allow handicapped people to enter and exit, and practicing evacuation with the assistance of public safety officials are all methods to deal with this top area of concern.

The FINANCIAL concerns mainly center around how you might replace the materials in your library if they are damaged or destroyed during an emergency. Does your library have INSURANCE, or some reserve of money to replace books, furniture, or even the building in which your collection is housed? What type of risks are covered? Fire? Water? Explosions? Theft? Civil Disturbances? Are "Acts of God"--extreme natural disturbances, such as floods, windstorms, hail and snow, or earthquakes--covered? The most frequent cause of damage to library materials is water, so a financial plan for the protection of documents in the case of worn pipes bursting, or sewers backing up, is important. You should also determine if your insurance or reserve money will simply pay for replacement of materials, or whether it will also cover cost of recovery, personnel costs, or special restoration procedures. Having a written POLICY about the steps to take, people to contact, and costs to expect in the event of an emergency is important.

Steps in Disaster Planning

PLANNING AND PRIORITIZATION are areas which you can start on today, but which must be completed successfully for disaster recovery to be possible.

There are five main steps to the disaster planning process which I would like to cover:

1. Establish Authority

You must first establish authority, so that someone in the library, either the director or the "team leader," has control of personnel, equipment, and financial resources when and if a

disaster strikes. This person must be in the position to make many quick decisions on the monies to be spent, staff or services to be used, and methods to be used in the recovery.

2. Establish a Disaster Planning and Recovery Team

The second step is to establish a disaster planning and recovery TEAM. This group of staff people in your library will work together to study the library building, the collection, and the roles of library staff in the recovery process. As I explained earlier, you do not simply want to have one person assigned to recovery. There are some "rules" of the disasters I have worked with that make it very important to have a team to respond to a disaster, as well as BACKUP people for each role on the disaster team (which I will explain in a moment). The rules of the disasters--what we call "Murphy's Laws"--are that they will always happen on weekends, when there is not much staff at the library, and that they often happen at holiday time, when team members are out of town!

The team members which I would suggest you have include:

- THE TEAM LEADER: This is the person we spoke of who has the role of authority. The team leader will coordinate the team, make financial decisions, make insurance contacts, and handle publicity and public relations.

- THE RECOVERY MANAGER: This is a staff member who is knowledgeable of disaster recovery procedures, develops specific recovery procedures for your library, and trains staff and volunteers on how to recover collection materials.

- THE CREW AND BUILDING MANAGER assembles and coordinates work crews, whether they are from your library, from volunteer groups, or from a commercial disaster recovery operation. This person also controls workflow and supplies, and keeps all building-related records and materials, such as blueprints and floor plans.

- One of the most important, but often overlooked, jobs is that of the RECORDER. This person keeps inventory records of all of the damaged materials. This can be very important, because people often move quickly in disaster situations to get books out of the library, and the recorder has the responsibility to make sure the books get back INTO the library in order so they can be put back on shelves in correct order. At one library which was hit by a tornado, the RECORDER said it took only three hours for people to remove the materials from the library, but it took three months to get them back on the shelf in the correct order! This team member also keeps track of all of the information generated by the recovery team.

- Finally, the COMMUNICATIONS MANAGER commands the control center for communication, which often may be by other means than telephone, if the electrical power is out. This person also communicates with outside resources, and deals with all incoming and outgoing calls.

3. Assess the Risks

Assembling the Disaster Team and assigning them to specific roles may take a good deal of time. Once you have established the team, however, they can go directly to work to ASSESS the risks in your institution. I often think of this as "preventive medicine" against a disaster.

The first step of assessing the risk of a disaster is to do what I call an "EMERGENCY HISTORY." This is like a case history a doctor would do. The doctor may ask you if the risk of a certain ailment runs in your family; the disaster team asks if there is a history of roof leaks at your library, and then might identify that as a top risk for a disaster. This type of "HISTORICAL STUDY" of disasters at your library--writing down the details you can remember of any disaster or emergency, and then asking other staff to add details--can help you to try to correct problems, and protect from future occurrences as best as possible.

The team will then move on from finding out about past disasters which may have happened to assessing the risk of future disasters. They do this by looking at two things: the location of your library, including its geographic location, and the building condition. Some of the questions the team may want to ask about the library's location are meant to determine if there is a strong possibility of severe weather, flooding, fire, pests, hazardous materials, radiation, chemical, or transportation accidents around your facility, or if bomb threats or terrorism might be a possible problem.

When the team studies the risks of your library facility or building, they may look to see if the building has a damaged or leaky roof, clogged or damaged gutters or drains, old plumbing and pipes, an unmaintained heating system, faulty or inadequate wiring, and look to see if the library has smoke or heat detectors or fire suppression systems such as hoses or sprinklers. If the team identifies problems with the facilities, these may need to be repaired in order to ensure that the building condition does not cause a disaster. Again, when assessing the condition of the facilities, it is very important to look at areas including architecture, drainage, protection from fire, protection from water, heating/ventilation, security, housekeeping and general cleanliness, and any building, renovation, or construction projects which may be underway.

4. Develop and Implement a Written Disaster Plan

At this point, the Disaster Team is ready to develop and implement a written disaster plan. The plan should include a listing of phone numbers of Disaster Team members and other important people at the institution; location of emergency systems such as keys, first aid kits, fire extinguishers, and water and gas shutoffs; emergency services outside of the library; supplies used in salvage of the collections, and a list of SALVAGE PRIORITIES.

Establishing these SALVAGE PRIORITIES is the most difficult part of planning. In the event that a large-scale emergency DOES happen, your decisions to salvage certain materials ahead of others will be critical. Many wet materials have only 48 hours before mold growth, which can cause irreparable harm, will begin. Other limitations to your salvage efforts can include time restraints by public safety officials, who may not let you into a facility because of dangerous conditions, space limitations for air-drying or freezing of materials, or quantity limitations because of a large amount of damage to the collections. A pre-planned list of salvage priorities will help ensure that your efforts in the critical first hours after a disaster

will be directed toward saving your most valuable collections and records, instead of replaceable, low-value materials.

Priorities should be based upon the following concepts:

a. Is the material critical for the ongoing operations of the institution--that is, is it vital personnel, financial, or collection inventory information without which your library could no longer function?

b. Is it available in another format or another collection? Can it be replaced? Would the replacement cost be more or less than the cost of restoration?

c. Does the material have a high or low collection value or priority--that is, is it a rare and important document, which is one of the prize pieces of the collection?

d. Is it made of material which, because of its composition, would require immediate salvage attention? Materials including coated paper, vellum, or water-soluble inks are among the materials to consider for immediate salvage.

You should attempt to get at least the basic priorities of the institution on paper before a disaster happens. The chaotic time during and immediately after a disaster is not the time to try to remember what decisions you have made!

5. Practice Your Disaster Plan

The last step is a reminder to practice your disaster plan often: at least once a year, so that everyone remembers their role in a disaster!

Let us say that, even though you have done a great deal of planning, your library is struck by a disaster -- a leak from a heavy rainstorm, or a fire, for example.

Mitigation

Mitigation is a term used for the action you take during and immediately after a disaster to lessen or mitigate the damage caused by the event. Your preparedness, quick thinking, and response here are crucial.

As you know from reading about, or being involved in, crisis situations, they are a chain of events, not a single, isolated incident. When faced with a recovery or salvage situation in the wake of an emergency or disaster, you need to take all of the planning, preparedness, and practice you have had, and try to bring order into a chaotic situation.

First of all, as much as you may want to, DO NOT enter your building until it has been declared safe by public safety officials. You do not want to risk your life, or risk arrest for entering the site before police or fire officials have declared that it is safe to enter the facility.

It may be a while before you are let into the facility, particularly if a continuing fire hazard, electrical hazard, or contamination, such as radiation, chemicals, or asbestos, exists. One way to make use of this frustrating down time is to chart a course of action for recovery. You can contact staff and external assistance providers about their roles in the recovery; contact your insurance carrier or financial administrator and gather salvage and financial resources so that you can do as much good as possible, as quickly as possible, once you are allowed to enter the building.

Once you ARE allowed to enter the facility, don't rush in when disaster strikes, ASSESS the damage first.

Make sure you have a pencil (not a pen, which might accidentally mark material permanently) and paper as you walk through the library facility. Having a camera is also an important way to document the situation. Insurers suggest that you don't touch anything at this point, but that may be difficult if you see one of your prized possessions lying face down, open, in standing water. Whatever you do during this initial walk-through, try to leave the site in as close to the condition as you find it so that your insurance representative can see it, or, if they do not need to see the damage first-hand, take photographs to document the specific damage and begin recovery.

You will want to take some particular steps in rather quick succession here:

1. First, ASSESS the damage. Some particular points to look for are how much material has been affected. Is it a few books, a stack range, or the whole library? What kind of damage has occurred -- has fire, water, or mud and sewage entered the library? Finally, what type of material has been affected? Coated paper? Uncoated paper? Media?

2. Secondly, STABILIZE the environment. Get the standing water out of the facility. Measure temperature and relative humidity levels, and try to bring them to the recommended levels of 65-70 degrees Fahrenheit, and 40-50% relative humidity. You may need to use fans or dehumidifiers for this, and these can also help later, in salvage activities. In the worst of situations, you may need generators and other reserve power sources to run the fans and dehumidifiers.

3. CLEAN the area. You may need to wear hip boots, rubber or cotton gloves, and provide face masks for those people working on the recovery, especially if standing water, mud, or sewage is present.

Consider fumigation of the facility, and be sure to pull up and remove any wet carpeting, which is a breeding ground for mold. Be especially certain to remove the carpet backing, and check to make sure any carpeting under shelves is removed, as well.

At any point during this series of activities, depending on the value of the material affected, SALVAGE PROCEDURES may need to begin, so you need to decide how much help you can get from your staff, volunteers, and other librarians in your region, or if an external disaster recovery service may need to be called in.

I believe that emergencies which affect up to 200 items can be handled in the space and by the staff of a library. For events larger than that, you may want to consider calling in disaster recovery experts and commercial firms. In my final comments, I am going to talk about what library staff can do in both small and large-scale emergencies and disasters to dry their books and records.

Recovery Methods

At this point, I want to give you some brief definitions of the various methods used to dry wet book and paper materials which have been damaged in a library disaster--via flooding, a pipe leak, or even in the aftermath of a fire, when fire personnel may have used water to douse flames.

Two major methods exist for drying materials: air drying, which can be done on-site if space and labor allows, and what I have termed "machine-assisted drying" which can be done via vacuum-drying or vacuum freeze-drying.

A. Air Drying

Let me begin by discussing air drying. It is accomplished by passing heated or room temperature air over the surface of wet materials. The moving air absorbs and carries off the moisture. This method can be done using fans, and, if the air is particularly moist, also using dehumidification machines. Books are stood upright on a layer of blotter or other absorbent paper, and turned upside-down when the paper becomes too soaked to absorb more water.

This is a space and labor-intensive drying method, which works well for small quantities of damp, but not soaked books. If the book is extremely wet, air drying may be too slow of a drying method, and may allow moisture to remain in the book long enough to cause swelling and distortion of the textblock and covers, as well as the growth of mold. I consider 200 as the maximum number of books to be handled by this method.

B. Freezing Materials -- An Interim Step

For both slightly-moist materials which will be air-dried at a later date, or thoroughly soaked materials which will undergo machine-assisted drying, freezing, whether it is done in an institutional freezer or a freezer truck, can be a worthwhile interim step. It can buy you time to gather the supplies you need for air-drying, and lets you treat smaller groups of affected books when it is convenient for you to do so. If freezing is done as a step before machine-assisted drying, it will allow you time to contact a vendor, arrange transportation, and find funding to have materials treated. Those materials which exhibit mold growth can be frozen, since freezing halts the spread of mold.

C. Vacuum Freeze-Drying

This method works by causing ice crystals in frozen material to go directly from a solid state (ice crystals) to vapor, without becoming liquid again. By avoiding the "water-state," the harmful effects of distortion and mold have less of a chance to take place.

Books and papers are loaded into a freeze drying chamber, which is sealed. Pressure is then lowered to create a continuous vacuum. Then, the temperature is raised slowly and slightly in the chamber, to allow the ice to turn into vapor. The vapor is then attracted to panels in the machine, and when it contacts these panels, it becomes ice again.

This process can take from two days to over two weeks, depending on how wet the material was initially, what type of material it is, and the type of freeze-drying equipment used.

What librarians can do in the case of materials needing freeze-drying is to wrap the books in freezer-paper (from the butcher shop), and pack them loosely in milk cartons or boxes to allow them to undergo freeze-drying at a commercial facility.

Active mold can be killed by this method, but if materials are moved back into an uncontrolled environment again, the mold may become reactivated. Also in this process, some physical expansion of the items may occur, and some decrease in adhesive and paper strength may also result.

D. Vacuum Drying

This process, also known as thermal vacuum drying, thaws frozen material, then removes moisture by a vacuum process. A chamber is loaded with material; a vacuum is created, and temperature is decreased to freezing. Then, hot and dry air is introduced, and, after picking up moisture from the materials, is pumped out of the chamber. This continuous process is repeated until materials are dry.

This process is effective for newspapers, loose, non-archival papers, and some general collections materials, but should not be used on rare materials or coated paper because books do pass through a wet stage when hot air is introduced, which can re-damage the items. In addition, heat processes speed up aging of materials.

Vacuum-drying can also be done on-site, with materials in place, via desiccant drying. Moist air is pumped out of a section or all of your building, and dry air is introduced. This method is best for moist or slightly damp items.

My purpose today has been to introduce you to the elements of emergency preparedness and recovery, and to immerse you in the first steps of the planning process. This is a very broad area of preservation, with many specific areas of knowledge needed, but preparedness and recovery in the event of a disaster IS manageable.

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