

Disaster Recovery Plan

by Michael McColgin

PREFACE

Public libraries are, with few exceptions, concerned with current information, be it the latest romance, the newest edition of a reference book or internet access. Collections in public libraries are destined to be consumed and replaced, and librarians constantly purchase new materials to replace those that are too battered or antiquated. If need be, almost all materials can be quite easily, if expensively, purchased new.

Since salvaging water-damaged library materials is concerned primarily with saving information, the appearance of salvaged books and periodicals, while a consideration, is secondary. Items that have been through a flood, fire or other mishap will never look as good or be as sound as they were unless they are restored at great cost.

The public librarian, therefore, has some very difficult decisions to make in case of a disaster. Patrons do not like to curl up with a good book that is warped, stained and smelly. On the other hand, replacement is expensive. For this reason, insurance is especially important to the public library. Many rural libraries are underinsured, but they are the ones which need it most, because they are the least able financially to purchase replacements. Sadly, the librarian or library board often has to choose between adequate insurance and books. Books normally win.

Rural libraries are frequently at the very center of community activities ranging from dances to political debates. They also tend to serve as the archives of local history with diaries, memoirs and photographs, all of which are unique and irreplaceable. Replacement in case of disaster, is not an option, and neither is restoration.

In all cases, preventing a disaster is cheaper than coping with the aftermath. Although no facility can be made disaster-proof, very simple and inexpensive measures can be very effective in preventing a disaster or lessening its effects. For example, elevating everything six inches above the floor will prevent most water damage caused by leaks and minor floods. Temporarily sealing windows with duct tape may be unsightly, but it works and it's cheap. Discarding frayed electrical cords may prevent a fire. Inviting the local fire department to check for fire and safety hazards is free. Welding shut the book return that empties into the building will help prevent vandalism. Over one third of *Disaster Planning for Rural Libraries in Arizona* is devoted to prevention— it is that important.

Because so many small libraries have only one or two staff persons, frequently volunteers, the library board and citizens need to be involved in developing a disaster plan for the facility. Creating a disaster plan is time consuming, but it's only a waste of time if it is never needed.

INTRODUCTION TO DISASTER PLANNING

Disasters do not consider one's state of readiness before striking. Knowing what (and what not) to do before, during, and after a disaster will prevent panic, lessen the severity of damage, and enable you to implement an organized recovery operation.

The following guidelines will assist you in the preparation of a disaster plan. The organization of procedures should be tailored to fit your library's needs and idiosyncrasies. Members of the recovery team should receive two copies of the plan— one to keep at work and one to keep at home. The plan should be reviewed and updated at least annually to reflect changes in personnel, holdings, policies, and sources of supplies and equipment.

All staff and volunteers should read and have access to your disaster plan. Training in disaster recovery techniques should be available to all staff members and mandatory for those individuals serving on your recovery team. This training is available from Michael McColgin, Preservation Officer of the Arizona State Archives, (602) 542-4159.

The number of individuals on your disaster recovery team will vary depending on the size of the library. At a minimum, individuals should be assigned the following responsibilities. Note that alternates are required.

1. Recovery Coordinator. Responsibilities are administrative and include overall management of recovery operation: coordination with administrative offices and media; budget allocation for wages, supplies, transportation and services; and public relations.
2. Salvage Specialist. Responsibilities include assessing damage to facility and records, establishing salvage methodologies, coordinating salvage efforts and training work crews.
3. Recorder. Responsibilities include inventory control of damaged materials and photographic documentation.
4. Work Coordinator. Responsibilities include assembling and coordinating work crews, ordering supplies and equipment and controlling work flow.

DISASTER PREVENTION

An ounce of prevention is worth a pound of cure. Be aware of all hazards (situations that have the potential for causing damage) and correct them before they develop into disasters. Man-made disasters can often be prevented by routine inspections of a facility. Cleaning and pest management should be performed on a regular basis. Leaky pipes, frayed electrical wires, untended machinery, open windows, and structural damage can result in unnecessary destruction of materials and possible loss of life.

All electrical equipment should be plugged into surge suppressors and extension cords avoided. Policies regarding food, beverages, smoking, and unauthorized access should be established and enforced. Security checks should be made at closing time to ensure all exits and windows are locked, all equipment has been turned off or unplugged, all lights and water faucets are off, no cigarettes are smoldering in ashtrays or wastebaskets, and no unauthorized personnel are in the building.

Staff members should all be familiar with the layout of the building and of possible danger areas. They should know the location of all fire extinguishers and alarms and how to operate them. Fire exits and alternate escape routes should be clearly marked. Evacuation procedures should be established and practiced regularly.

The objective of a disaster plan is to ensure the protection of people and the collections. Invite your local fire department and fire marshal to inspect your facility and to conduct fire safety seminars. They can be very helpful in helping you develop a disaster prevention and response plan. The more they know about your facility, the better.

All vendors of supplies and services should be contacted in advance in order to explain your needs. When contacting vendors, talk with the person who can make a commitment, and list that individual as the contact. Sources should be contacted at least annually to determine whether those supplies and services are still available and to remind them of their commitment. Keep in mind that in a wide scale, major disaster, your sources may not be available, because they have their own damages with which to deal or because they are assisting someone else. In addition, outside help may not be available for one or two weeks.

Disasters are not linear. Seldom will a disaster occur as predicted or a salvage go as planned, so you must be ready and able to improvise, making decisions based upon sound information. No matter the cause (arson, leaking pipes, lightning, faulty wiring or flood) assume that the result will be wet materials that need attention as soon as possible.

Liability is a major concern for agency employees and volunteers during a salvage operation. Individuals with health problems such as high blood pressure, asthma or back problems may not be suitable for salvage work. Check with your attorney.

The Disaster Prevention/Safety Checklist at the back of this document should be photocopied and used during periodic inspections of your facility.

DISASTER PLAN FORM

Name of Library

Date of completion or update of this form

People to be called in the event of a disaster. **Each requires an alternate**

<u>Position</u>	<u>Name</u>	<u>Home #</u>	<u>Office #</u>
Chief Administrator			
Alternate			
Maintenance			
Alternate			
Recovery Coordinator			
Alternate			
Recorder			
Alternate			
Salvage Specialist			
Alternate	Michael McColgin, Arizona State Archives	602-921-0341 (Home phone in case of emergency only)	602-542- 4159

Off-site services to be called as needed

Service	Name of Contact	Phone #
Fire Department		
Police Department		
Insurance Company		
Legal Advisor		
Electric Company		
Gas Company		
Telephone Company		

Electrician

Plumber

Carpenter

Locksmith

Freezer Space

Janitorial Service

Photo Processing Lab

Computer Vendor

Paper for Interleaving

Portable Toilets

Work Tables

Individuals and/or organizations to assist in salvage

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Inventory/Priority lists

The time to make a list of salvage priorities is before disaster strikes. It is impossible to make good decisions while your books are floating in the aisles.

If you do not have a shelf list, create one. Like the disaster plan itself, it will prove vital in case of a disaster. After you have a shelf list, duplicate it and keep a copy away from the library—it'll do no good if it burns up or gets washed away.

Another list to prepare or update is an inventory of supplies and equipment. Include costs and purchase dates, and keep a duplicate off-site.

Once you have documented what your facility contains, establish a priority salvage list. This is a triage approach and includes three categories:

#1 - Salvage at all costs

#2 - Salvage if time permits

#3 - Salvage as part of general clean-up

The following questions may be helpful in determining priorities:

- A. Is the item especially important to the community, perhaps a piece of local history?
- B. Can the item be replaced? At what cost? Can you afford it?
- C. Would the cost of replacement be less or more than restoration of the item? Will insurance pay for one and not the other?
- D. How important is the item intrinsically? To the collection? To researchers?

DISASTER RECOVERY

If a disaster strikes when the building is occupied, your first concern must be for the safety of the individuals inside. Escape routes, alternate routes and procedures for evacuating the building should be clear to all personnel and visitors. Practice drills should be conducted on a regular basis to eliminate panic during "the real thing." Keep in mind that you must make plans for evacuating people with disabilities. Your local fire officials will be happy to help you with evacuation procedures.

Most disasters tend to occur when the building is unoccupied— during the night, on weekends or during holiday closings. In the event of a major disaster, do not enter the building until it has been declared safe to do so by the local authorities.

Over ninety percent of all disasters will result in water-damaged materials. Mold can develop within forty-eight to seventy-two hours in a warm, humid environment, so you must work quickly to salvage damaged materials and to prevent additional damage from occurring.

The following steps are recommended for an effective recovery operation:

Assess the damage

How much damage has occurred? What kind of damage is it (fire, smoke, soot, clean water, dirty water, heat, humidity)? Is it confined to one area or is the entire building damaged? How much of the collection has been affected? What types of materials have been damaged (books, documents, microforms, photographs, computers)? Are the damaged items easily replaced or are they irreplaceable? Can they be salvaged by the recovery team or will outside help be required?

Walk through the entire area and take extensive notes (use a pencil, as ink will run). Photographs should be taken to document the damages. Contacts should be made at this time with the insurance carrier, vendors of supplies and services, and the Preservation Officer at the Arizona State Archives.

Stabilize the environment

The environment must be stabilized to prevent the growth of mold. The following equipment may be required to stabilize the environment:

- A. Portable generators, in case of power failure.
- B. Pumps, to remove large quantities of standing water.
- C. Fans, to circulate the air.
- D. Instruments to measure the temperature and humidity.
- E. Dehumidifiers, to lower the humidity, although they usually are only effective in relatively small, enclosed areas.

Raising the temperature will accelerate mold growth. Temperature and humidity should be monitored constantly. Good air circulation should be maintained in the damaged area. This may be accomplished by running fans constantly. If possible, they should expel the humid air from the area. Any standing water should be pumped from the area. Extreme caution must be taken, as standing water can conceal hazards.

Activate the disaster recovery team

Organize work crews and be sure their responsibilities are clearly defined. No salvage activity should begin until a plan of action has been determined by the team leader. Disaster and recovery areas should be inaccessible to the public.

Remember: some staff and volunteers, no matter how willing, should not be allowed to participate in certain salvage activities because of health problems. Frequent rest breaks and refreshments should be provided for workers.

Restore the area

After the damaged items have been removed and the environment has been stabilized, the damaged area must be thoroughly cleaned. Removal of smoke odor and fogging with fungicides or insecticides should be performed only by professionals.

SALVAGE PROCEDURES FOR WATER-DAMAGED MATERIALS

Several options are available for treating water-damaged materials. The choice of treatment will depend on the extent and type of damage incurred, and the personnel, expertise, funding and facilities available.

Air drying

Air drying is labor-intensive and requires a great deal of space, but it is tried, true and cheap. It also offers security, as it can be done on-site and materials can be watched. Air drying should be performed only in a stable environment to inhibit the growth of mold. The ideal environment for air-drying is cool and dry.

Instructions are outlined below. This process is not recommended for coated stock, paper similar to that in magazines, because pages will become permanently stuck together unless extreme care is taken.

Freezing

Freezing wet materials will stabilize them and provide you with time to determine your course of action. Mold will not grow and further deterioration from water will not occur when materials are in a frozen state. Books have been left in freezers for more than ten years and successfully thawed and air dried with no resultant damage. Freezing will also help to minimize, but not eliminate, smoke odor.

Rapid freezing minimizes damage from ice crystals (the faster the materials are frozen, the smaller the ice crystals will be). Blast freezing services are available commercially.

Temperatures below 15° F will freeze and tend to dry wet materials. If freezer space is not immediately available, and the outside temperature is below 15° F, place the materials in a secure area outside. Cover them with plastic, if rain or snow is expected. Freezing is an intermediate step. Materials must be dried afterwards.

Vacuum freeze drying

Vacuum freeze drying is the safest and most successful salvage method for paper, although it is also the most expensive. Materials must be frozen when they are placed in a sublimation chamber. This type of chamber operates under high vacuum and applied heat. During the process, the ice sublimates, turns directly into water vapor without becoming liquid. The vapor is like a dense fog and migrates to a cold panel in the chamber and returns to ice.

Vacuum drying

Vacuum drying differs in that wet materials are placed in a chamber that pulls the moisture by means of a vacuum. If frozen materials are vacuum dried, most of the water will pass through the liquid state before vaporizing. As a result, water soluble inks and dyes are more likely to bleed.

Materials dried by either vacuum method will not look like new. They will show signs of swelling and distortion, and tidelines may be present. Costs may range from \$35 to \$75 per cubic foot, depending on the amount and type of materials affected and the type of damage. The

following vendors provide a variety of salvage services ranging from handling the total effort (trained personnel, equipment, transportation, etc.) to drying a few books shipped to them. Some also salvage films and electronic media. Check the Internet for details.

Blackmon-Mooring-Steamatic Catastrophe (BMS CAT), Fort Worth, TX, 817-332-2770, 1-800-433-2940

Document Reprocessors, San Francisco, 415-362-1290, 1-800-437-9464

Disaster Recovery Services, Fort Worth, TX, 817-535-6793, 1-800-856-3333

Munters Moisture Control Services, nationwide offices, 1-800-422-6379

VidiPax, New York, 212-982-5676, 1-800-653-8434, specializes in magnetic media.

STEP-BY-STEP RECOVERY PROCEDURES

FOR ITEMS TO BE AIR DRIED

Saturated volumes

1. **Do not open**—wet paper tears easily!
2. Set volumes on their heads on absorbent paper. Pages tend to droop within the binding when a volume is shelved upright, so setting it on its head will help counteract this tendency. Plastic sheeting should be placed under the paper toweling or unprinted newsprint to protect table tops. Turn the volumes right side up when changing the paper beneath them. Their position should be reversed each time the paper is changed and the wet paper removed from the area.
3. Covers may be opened slightly to support the volume.
4. Aluminum foil may be placed between the cover and the text to prevent staining from the binding dyes.
5. When most of the water has drained, proceed as for wet volumes.

Wet volumes

1. Very carefully open the book (not more than a 45° angle).
2. Keep the volume in an upright position.
3. Place interleaving sheets at intervals of about 25 leaves (50 pages).

4. Change interleaving frequently. Do not reuse interleaving paper.
5. Continue to change the paper underneath and remove from the area.

Damp volumes/Volumes with only wet edges

1. Stand volume on its head and fan open to a 90° angle or slightly more.
2. When almost dry, lay the volumes flat and place weights (not other drying books) on them to minimize distortion. Check daily. **Do not stack wet volumes.**

Documents/Unbound materials

Note that separating wet sheets is very labor intensive and tricky.

1. Place a sheet of thin polyester film on top of a stack of wet, unbound papers. Misting the film with water helps this procedure— place misted side on papers.
2. Rub gently with a squeegee or other flat edge— surface tension will cause the paper to adhere to the film.
3. Peel back the top sheet and place it on top of a piece of polyester web. Non-woven interfacing, such as Pellon, is most effective.
4. Peel back and remove the polyester film.
5. Place another piece of polyester web on top of the wet sheet.
6. Repeat the entire process, separating the wet sheets one at a time and interleaving them with polyester web.
7. Air-dry the sheets (supported by the polyester web) by placing them on absorbent paper on tables or other flat surface, even the floor. Air in the room should be kept circulating, but fans should not blow directly on the materials.
8. The papers may be flattened when they are almost dry by placing them between two sheets of blotting paper (to remove excess moisture) and applying even pressure with light weights.

FOR BOOKS TO BE FROZEN

Removal

1. Clear the floors and aisles first.
2. Begin with the wettest materials. These will usually be on the lowest shelves, unless water has come in through the ceiling.

3. Pack materials on-site, if possible. If not possible, remove by human chain.
4. Keep accurate records of the locations from which materials are removed.

Packing

1. Remove volumes from shelves in order.
2. Wrap freezer paper (waxed side next to the volume) or waxed paper around each volume as a sling and place in plastic crates or cubic foot boxes spine down. This will prevent items from sticking to each other. Do not wrap as you would a gift.
3. Pack boxes or crates one layer deep only, snugly enough that volumes will not slide or lean. You should be able to slide a flat hand between the books and one end of the box. Books and papers will swell as they are frozen.
4. Wrap open books as found and place on top of a packed container. Do not place more than one open volume in a container. Be sure there is a freezer paper barrier between the packed volumes and the open volume to prevent staining from binding dyes.
5. Do not attempt to separate books that are stuck together, but pack them as one volume.
6. Oversize books such as ledgers should be frozen as individual items on their sides.

Record keeping

1. Label each container on three sides with your library's name and assign it a number. Use waterproof markers.
2. On a separate sheet of paper, record the box number and its contents.
3. If the containers are sent to more than one freezer, note which container numbers are sent where.

Transporting

1. Materials should be placed in a freezer facility as quickly as possible to prevent the growth of mold and excessive swelling. Care should be taken that containers do not fall over during transport, as further damage may result. Use stretch wrap as needed.
2. Materials should be placed in refrigerated trucks if they cannot be frozen within forty-eight hours. This will slow mold growth, but not prevent it.

FOR DOCUMENTS TO BE FROZEN

Drawers from filing cabinets may be frozen as is, complete with file folders. This will preserve the original order. Files may also be removed from drawers with their folders and placed in boxes. There is no need to use waxed paper between files. Placing boxes on edge allows wet files to be stacked.

FOR PHOTOGRAPHIC MATERIALS

Salvage prints first, followed by negatives and slides. Water can cause the emulsion to soften and separate from its support.

Photographic materials should not be allowed to dry untreated after they become wet, as they will stick to their enclosures or to each other. Any attempt to separate them after they have dried together may result in irreparable damage. Remove materials from their enclosures and wash off any mud or dirt under cold, clean, running water.

The following options are available for salvaging photographic materials. Note that air drying is the preferred method.

1. Air dry prints flat, face up, on screens or clean, smooth surface. Hang films from lines of heavy fishing line with plastic spring-type clothespins.
2. If there are too many to air-dry immediately, they may be stored temporarily in cold water. Ice may be added to the water, but do not add dry ice or allow the materials to remain under water longer than three days. Transport the wet materials (in sealed polyethylene bags inside plastic garbage pails) to a professional laboratory within twenty-four hours, if possible.
3. If time does not permit air drying, the materials may be frozen, but they will probably be damaged. If necessary, freezing as quickly as possible is recommended (smaller ice crystals will cause less damage). Negatives should be separated before freezing as they tend to stick together when thawed.

FOR MICROFORMS

Silver halide microfilm

1. Keep under water and send to a commercial processing laboratory.
2. The Eastman Kodak Company provides free emergency service for cleaning and drying its own black-and-white roll microfilm. Call the Kodak Testing Lab in Chicago (800 EKC-TEST) for information on how to package and ship.
3. Fuji Photo Film U.S.A., Inc., offers "No Charge Disaster Recovery Services" for restoration of water-damaged Fuji film. Call the Fuji office in Dallas (800 927-FUJI, extension 9326) for information on how to package and ship.

Vesicular and diazo microfilm and microfiche

1. Keep under water
2. Air dry, dry with cheesecloth, or contact commercial vendor.

FOR MAGNETIC AND ELECTRONIC MEDIA

The more high tech the media, the more likely catastrophic failure.

Water is especially damaging to magnetic and electronic media. The longer they have been wet, the greater the damage will be. Salvage is very difficult, even for experts. Check with the vendor of your products for guidelines.

STATEWIDE RECOVERY ASSISTANCE is available through the Arizona State Archives at 602-542-4159. Be sure to provide the following information when requesting on-site disaster recovery assistance:

1. Your name, title, institution, and telephone number.
2. A description of the disaster and the time it occurred.
3. The extent and type of damage involved, including the types of materials affected.
4. Whether or not the in-house recovery team has been activated and the type of salvage operation planned or underway.
5. The salvage and recovery supplies on hand and those that will be needed.
6. Whether or not funding is available for the purchase of additional supplies and the name and telephone number of the individual authorized to approve such purchases.
7. Whether or not the utilities are functioning.
8. Directions for reaching the site and the name of the individual to contact upon arrival.

ASSISTANCE IN DEVELOPING DISASTER PLANS is available from the Preservation Officer at the Arizona State Archives. Contact Michael McColgin.

Telephone: 602-542-4159

Fax: 602-542-4402

Email: mimccol@dlapr.lib.az.us

DISASTER PREVENTION/ SAFETY CHECKLIST

LIBRARY DATE

AREA INSPECTED INSPECTOR

NOTE: If an item does not apply, write N/A (Not Appropriate) in the Remarks column. **DO NOT** leave any items blank.

<u>ELECTRICAL</u>	YES /NO	REMARKS
1. All necessary extension cords of proper rating.		
2. Electrical cords free of splices, cuts, and other damage.		
3. Electrical switches, plugs and surge suppressors operate properly.		
4. Electrical equipment properly grounded.		
5. Appliances (coffee pots, radios, etc.) properly maintained and turned off when not in use.		
6. Electrical equipment disconnected during maintenance.		
7. Adequate lighting available.		
8. Electrical boxes easily accessible with no storage within 3 feet minimum.		
9. Major electrical rooms		

contain no stored materials.

10. Multiple-outlet sockets avoided.

11. Extension cords positioned to avoid tripping hazard.

STORAGE AREAS

YES /NO

REMARKS

1. Area is clean and orderly.
Aisles uncluttered.

2. Materials are needed by
Division.

3. Items are accessible without
undue risk.

4. No materials are stored on
the top of shelving.

5. All materials, except those
expendable, are stored at least
3" above floor level.

6. Shelving is securely
anchored to wall or floor.

7. Lighting is adequate.

8. Step stools or similar
devices available and safe to
use.

9. Materials stacked or piled
properly.

10. Flammable or potentially

dangerous chemicals properly stored.

**FIRE AND SAFETY
FEATURES**

YES /NO

REMARKS

1. Fire extinguishers properly charged.

2. Emergency exit signs illuminated.

3. Emergency exits accessible and illuminated.

4. Emergency lights functional.

5. Smoke detectors operable. Last date checked.

6. Fire alarms operable. Last date checked.

7. Sprinkler system operable. Last date checked.

8. At least 18" of clearance exists between sprinkler heads and anything beneath.

9. Halon system charged.

10. Emergency exits easily opened.

11. Alarm sounds when emergency exits opened. Last

date checked.

12. Pull fire alarms operable.
Last date checked.

13. Signs indicating fire
extinguisher placement
obvious.

14. Fire extinguishers of
proper type.

15. Fire extinguishers
available within 75 feet of any
place in area.

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STRUCTURE

YES /NO

REMARKS

1. Windows and exterior doors
seal properly.

2. Previous water damage
noted.

3. New water damage
discovered.

4. Exposed pipes and joints
dry.

5. Handrails secure and
adequate.

6. Steps include non-slip
surface.

7. Walking surfaces secured to
floor.

8. Non-public areas secured.

- 9. Air ducts unobstructed.
- 10. Ceiling panels in place.

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OFFICE AREAS AND EQUIPMENT

YES /NO

REMARKS

- 1. Equipment properly maintained.
- 2. Furniture stable and safe for intended use.
- 3. Carts and other handling equipment in good repair.
- 4. File cabinets stabilized to prevent tipping.
- 5. Shelving units securely anchored.
- 6. Portable partitions secure.

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STAFF

YES /NO

REMARKS

- 1. Trained in proper use of office equipment.
- 2. Smoking restricted to designated areas.
- 3. Instructed in proper lifting techniques.
- 4. Trained in use of fire extinguishers. Date of last

training session.

5. Eating and lounge areas
clean and tidy.

6. Aware of emergency exits
and procedures. Date of last
fire drill.

7. Instructed in overall safety
program.

8. Have established routines
and duties for closing office.

REQUEST FOR CORRECTION OF HAZARD

Agency Date

Person making request

Person receiving completed form

Description of hazard or problem

Location of hazard or problem

Action taken

Correction made by Date