

## **"Keep collections alive": The 12th January 2014 flood in the BnF as a lesson for the improvement of the Emergency Plan**

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### **Abstract:**

*In the afternoon of Sunday, 12th January 2014, the breaking of a pipe joint in the main building of the French national Library (François-Mitterrand site) caused a huge flood which soaked several thousands of cultural heritage books and periodicals. The Emergency plan was immediately put in activity and during about a month a large part of BnF teams was involved to evacuate, check, list, sort, dry and flatten the wet materials. Even if the rescue is still far from the end, it is already now obvious that almost no document will be lost thanks to the skills and the involvement of the staff. But, even if the implementation of BnF emergency plan was a success globally speaking, some aspects of its organization must clearly be improved, particularly in the general coordination, and team preparation and management. We'll focus notably on the "crisis management" which is crucial to make the organization immediately efficient at the different steps of the disaster. With the benefit of the next months, this paper aims to assess impartially the results of the intervention and to draw from it all the technical and organizational lessons necessary to make our operation even more efficient in the future.*

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### **Introduction**

The 12th January 2014, the French National Library (Bibliothèque nationale de France/BnF) suffered probably the hugest flood of its history, which occurred in its newest building (François-Mitterrand site) and soaked more or less twelve thousands of cultural heritage documents. During the first week, several hundred of people were involved in the rescue, and the consequences were very important for the library in terms of cost but also on usual activities, notably for communication of documents to the public. Even if four months later it is still impossible to make a complete assessment of this disaster (the treatment of the most damaged and/or still frozen

documents has just begun and will take a long time), we do believe that it is already possible - and necessary - to produce a first global analysis, not to establish the responsibilities in its starting, but to examine how people reacted in BnF staff; how the Emergency Plan, which was immediately launched, could be really applied, in which parts it worked well and in which it didn't, and which lessons can be drawn at all levels (organization, equipments, training) to improve it.

In our paper we'll briefly describe our emergency Plan as it was organized before the disaster, and give a factual report of the disaster itself; then we'll analyze in details and from a critical point of view how the rescue operations were carried out, and at the end we'll give our proposals for its improvement - some of them are already effective or in progress.

### **The Emergency Plan as it was before the flood**

The BnF Emergency Plan had been created and organized by the Conservation Department (DSC) in the years 1999 - 2000, when a curator was appointed as Emergency Plan Coordinator, who elaborated its principles and its organization, which up to the disaster remained the same. The BnF Emergency plan - in French Plan d'urgence (PU) - involves disaster assessment, management of rescue and treatment operations for concerned collections; building up of the stocks of equipments and materials which are necessary for emergency interventions in case of disaster; definition of an efficient intervention strategy : depending on the context, what kinds of equipments, materials and other supplies to use, what kind and what size of staff to mobilize, what measures to take...

The Emergency Plan implicates the Collections departments, each of them have to manage its stocks of materials in complement of the main reserve which is managed by the Conservation Department (DSC) on the François-Mitterrand site. Every people hired in the DSC or in one of the collections departments (DCO) must systematically be trained without delay (several training sessions for the Emergency plan are planned every year). In every Collections department an Emergency Plan Coordinator has been chosen, but its place and its part in the BnF hierarchy couldn't be precisely defined yet.

The Emergency Plan is also based on cooperation with the team of firemen (which is located on site because of the French regulation applying to very high buildings which accommodates public), with the Safety Service and the Département des moyens techniques (DMT) which manages the buildings.

During the first years, large financial means were devoted to the Emergency Plan (all the more so since a first huge flood had already occurred in 2004 and damaged a lot of documents in the same building); but from 2005 its specific means continuously decreased and became insignificant: in the last years, budgets to purchase materials or equipments were almost entirely taken in the DSC budget, which itself was widely cut.

During the last years, it became more and more difficult to bring up to date the lists of materials in the stocks, and the lists of people who are part of Emergency Plan organization, or trained for it; to find new people for the intervention teams, and to extend the Emergency Plan operations to the other BnF sites outside from Paris. Despite the links created between BnF and the French Blue Shield Committee (CFBB), it wasn't possible to conclude any agreement with other institutions or private companies in order to take into account the risk of a disaster on a very large scale. And yet each year a lot of little incidents, mainly floods, happened every year in the BnF buildings; even if they didn't damage any document (or damage very few documents), they showed the reality of the risk.

## **The disaster: a very huge flood, from internal cause**

The 12th January 2014, at about 16 p.m., a joint of a pipe under pressure which was used to water the gardens and to wash the esplanade of the François-Mitterrand building broke suddenly near the heritage collections storage rooms, at the L4 level, the upper one of the four storage rooms levels situated in the underground part of the building.

Fortunately the flood was discovered very soon, and the firemen team located onsite could react very quickly; nevertheless, about 25 cubic metres of water had time to flow into the closest storage room and then, through the expansion joints of the floor, into three other storage rooms situated under at the three lower levels, all belonging to the Literature and Art Department (LLA). A group of lifts, some offices and reading rooms were also more or less affected. The documents which were soaked were printed books of various formats, sometimes ancient but mostly from the second half of the XXe Century. All are part of the cultural heritage collections (most of them from the Legal Deposit, but also a lot of foreign documents which had been acquired by the BnF).

The pipe leak could be quickly closed, but for a few days water continued to spread over a quite huge area, because it had impregnated the ceilings and the chipboard floors of the movable shelves, and filtered through all the interstices of the building which were close to the collections. Therefore it was necessary to keep the protecting covers above the shelves, although in this way it was more difficult to watch and intervene in the collections.

Although it was Sunday, the Emergency Plan was immediately put in activity: The Head of the Conservation Department was called at his home and came to the library, and some tens of BnF employees which were onsite worked hard until the night to evacuate a part of the soaked documents to the next reading rooms and the Emergency Plan spaces; several hundred documents were frozen onsite in the DSC freezers.

The next day morning, we were able to implement completely the Emergency Plan :

- A first crisis meeting was hold early in the morning, conducted by 2 general managers of the BnF -Administration and staff (DAP) and Collections (DCO) directors -, in which took part representatives of DSC, LLA, DMT, firemen team and Communication unit (Delcom). An **emergency committee** was convened, which met several times a day during the first week, and then less and less frequently until the end of the second week.

- Under the control of the Emergency Plan coordinator (she belongs to DSC), during the 3 first days **very huge quantities of soaked or only threatened documents were evacuated from the storage rooms (or reading rooms) to the DSC Emergency Plan spaces** and other rooms around it, to be sorted and put on to dry; these challenging actions were realized thanks to the participation of almost 300 people from all the BnF grades and occupations, most of them volunteers and belonging mostly to DSC and Collections departments located onsite. To limit as much as possible the work to be done directly on the floor, folding tables, and some improvised devices (tables made with plastic book crates) were used in addition to the restorers benches. The second day after the disaster, two large additional spaces - a multipurpose hall and the gymnasium) were requisitioned onsite, for respectively one week and 3 days : thus almost 1000 square meters were dedicated temporarily to book sorting and drying. The Security Service was watching on the rooms during the nights and at lunch time.

- **Supplying Emergency Plan equipments and materials:** More than 60 movable fans taken in DSC and DCO stocks were carried onsite to speed up the drying, likewise huge quantities of plastic crates, Polyane® rolls, several kinds of blotting paper, which were cut in several sizes by DSC bookbinders; a huge order had to be put in in emergency to obtain sufficient quantities of some

materials. The whole cost for all the supplies which had to be bought again after the disaster rescue was afterwards estimated at about 20 000 €

**- Drying and flattening treatments, sanitary inspection :** Some damages, varied in nature and degree, appeared on soaked documents: water rings (despite the water was not dirty), sheets stuck together after drying (particularly in volumes made in glazed paper), books put out of shape because of paper swelling or shrinkage of leather covers - moreover soaked leather got often irremediably dark; a lot of bookmarks were soaked off, or became illegible because ink had dissolved; pigment dissolution in ancient original covers or ribbons caused colored marks; a lot of protective sleeves got dirty or damaged and had to be replaced.

Some experienced DSC restorers who had been trained in Emergency plan proceedings, led the treatment teams, showed the right gestures (how to insert blotting paper sheets between the pages of the volumes put upright and open). After 3 days, all the documents have been sorted and the treatment rooms didn't receive new collections anymore; about 400 volumes, completely wet and made in glazed paper were sent to a private company to be frozen. The biologists of the DSC laboratory examined more than 250 documents suspected to be contaminated by mould (fortunately none of them was really contaminated). After 4 days, the percentage of books put out of shape (mainly) or damaged, was assessed at 60%, and the teams began to organize their flattening under binding press, or wooden boards and weights; to speed up this treatment, it was made partly onsite, partly in Sablé and Bussy, two other DSC sites with binding and restoration workshops. After the first week, the number of books with treatment in progress began to clearly decrease, and the daily call for volunteers was restricted to DSC and LLA departments staffs. But more than 3 other weeks were actually necessary to complete the drying of all documents (effective on 4th February), and the flattening went on until about 20th February.

### **Postponed treatments of the documents**

Postponed treatments were used both for dry documents which needed to be repaired or restored, or for frozen documents.

Dry documents were put apart waiting a meeting with the Literature Department which will allow make choices depending to the condition of each document. Freezing is a mean to stabilize the condition of the documents and to postpone the treatments even for the most brittle documents. Of course, firstly we decided to freeze in our own freezers on the François-Mitterrand site, but they were quickly full, and afterwards we were obliged to contract with an external company for the many books which still needed to be frozen. In that way we kept available the freezers of our other sites (Bussy and Richelieu) in case of another flood.

Since March, the DSC is preparing post-freezing treatments: freeze-drying, natural unfreezing. The documents have been sorted between these two ways depending on the expected results. The documents with glazed papers were the only ones to be freeze dried by the private company, which wasn't optimistic about the results of this treatment; for that reason DSC and LLA departments decided that documents which had been frozen onsite would be unfrozen onsite, by DSC staff.

-In the soaked storage rooms, all the documents which had not been evacuated were systematically examined, a buffer zone was created to stock books after they have been sorted and/or dried. With the help of the DSC Laboratory and of air-drying equipments, the DMT Department could without delay control and manage temperature and humidity levels, in order to ensure safe environment

conditions reducing the risk of infestation; a contract was concluded with a private company to remove water from the storage rooms, by making holes in the wooden floor of the movable shelves ( an operation which took 15 days); two reading rooms had to be closed for two days because they needed to be put in order again, and to dry their fitted carpet; special information was given to BnF staff and public. Six storage rooms, containing in total 750 000 documents, were closed until the end of January, without any document communicated to public. **A sanitary assessment protocol of the collections** was defined by the DSC Laboratory at the end of January, and the LLA Department staff was trained to it; thus the assessment operations could begin in the storage rooms at the end of February; they will go on almost until next September.

### **Some figures for an rough assessment** (at the beginning of May):

- About 40 000 documents were moved;
- About 12 000 of which more or less wet had to be dried;
- About 600 very damaged documents (180 of them with leather cover), which had not been frozen, will need to be restored in the next years, or treated in another way to become readable again by the public;
- Almost 2 000 documents were flattened after drying in DSC workshops, with varied results;
- A lot of foreign recent documents, which are not readable any more, and the restoration of which would be too expensive, will be purchased again whenever it will be possible (the global cost is currently calculated);
- The overall cost of all the materials used, which have to be replaced, is more than 20 000 € (including VAT);
- The overall cost of the external services is about 30 000 €(including VAT): about 5 000 € for freezing and vacuum drying, and 25 000 € for the drying of the floors (under the wooden floors)in the storage rooms, and the repairing of the movable shelves;
- The total amount of work time for the staff is very difficult to calculate accurately; it can be roughly estimated at about 10 000 hours, all kinds of staff and task included (but therefore it is nearly impossible to make a financial assessment of it).

## **II – The implantation of the emergency plan: critical analysis**

Beyond three days, a crisis is considered as major. Although the source of the flood was quickly mastered, its adverse effects continued. From Sunday 12 to Wednesday January 15<sup>th</sup> significant amounts of soaked documents were still evacuated. While the immediate damage caused by the flood triggers a range of differed and cumulative effects and threats: increase of the relative humidity rate in the affected storage areas, damage to the mobile shelves, documents blocked in the, mobile shelves. The impact of the flood was multiple: documents damaged, relocated, communication delayed, temporary disruption of the service in two reading rooms, disturbance of the usual activities by the requisition of spaces and the important mobilization of the staff who answered the call for volunteers.

**Response to an emergency includes several temporal dimensions:** a short delay of reaction, a fast pace of delivery, a short time horizon that consequently leads to an immediate assess of efficiency of the actions. In case of a disaster, interventions for the safeguarding of the records deals simultaneously with the risks control in the stricken repositories, the management of temporary spaces for the transfers, and the organization for the first treatments of varying duration in the area of relocation. A common temporal dimension among the various actions was an **excellent responsiveness**. With the collaboration of different departments and more than 200 volunteers each day of the turmoil of the crisis, the management of the incident took a **highly human dimension**.

### 1) Control of risks in affected areas

Important amounts of water have immediately drained under gravity in circumscribed zones of the repositories: 564 central spans on three levels have been flooded with varying degrees of damage. Residual but significant amounts of water have continued to spill in through cracks along an unpredictable circuit. The outflow continued in the gaps between the shelves and in the gaps along the side panels down to the pavement. The repositories are designed with a mobile set of shelves mounted on a wooden false floor covered with a paneling of aluminum. Once electricity has been interrupted, manual opening is technically possible, in spite of the weight of the documents. But rapidly the soaked wooden floor swelled and prevented the opening of the shelves.

Given the emergency of evacuation, the risks management is based on a prioritization and progressive surge of actions in first approach and for the return of the records in the repositories: in chronological order, records protection from outflow, mitigation of damages with the control of temperature and relative humidity, evacuation and preparation of recovery conditions.

The initial reaction consisted in **setting up tarpaulin** upon the shelves. This essential action of protection is indeed quite a tricky process as care should be taken not to create flow paths along the side panels, at the back nor on the front of the shelves. Drifts of water at the back of the shelves involve greater risk as they are difficult to detect, but it is also very important to strengthen the protection at the front. It is recommended to let the tarpaulin run straight down into the ground to prevent the records from water-spraying.

This first step is important to protecting the records. This incident underlined the **importance of the furniture and the positioning of the records** on the shelves in the prevention of risks. The top calp shelf preserves from water flow. A contiguous top calp shelf upon all sections of a span would have conducted the water flow to the extremes ends of the shelves in the central path instead of in the gaps between the sections. A sufficient height must be provided for the base to preserve the records from water spraying. **Finally special care to the positioning of the records on the shelves will**

Despite the numbers of people involved and the energy spent to extract as quickly as possible the documents from the affected areas, some documents remained stucked in the mobile shelves. In fact the wooden floor swollen with moisture restricted the opening of the shelves with two major risks: alteration of wet or damp documents with adhesion of pages of coated paper; and the risk of mold grow in the confined atmosphere of the closed mobile shelves.

The control of **the temperature and relative humidity** in the affected repositories has mitigated adverse effects of the flood. A mold contamination would have had major consequences spreading

through ventilation hoses to safe repositories. The very next day of the flood, the relative humidity rate had reached 58% in the most affected repository. The instructions of relative humidity have immediately been corrected to compensate the moisture in the floors, in the air and in the records still on the shelves. The chilled water used for the air conditioning system has been lowered to 3,5°C, and the instruction for the relative humidity revised to 30%. The monitoring system transmitted twice a day by the Département des moyens techniques (DMT) attested a relatively stable situation with values between 48 and 50% of relative humidity in the repository the most affected. In order to ensure the conditions closer to the records, additional sensors have been placed in the shelf space at medium height. No micro-climate has been detected and the values higher than those transmitted by the air conditioning system were still in an acceptable range between 52 and 54% of relative humidity. This efficient control of the indoor conditions permitted to avoid a risk of “kickback” of the crisis.

**The evacuation of the collections** started on Sunday afternoon as soon as the authorization of entrance was given. The stock of boxes of the emergency plan rapidly constituted immediate means of transfer available in sufficient quantity. In a few hours, some documents had swollen. Some covers and bindings have been weakened by the operations to extract them sometimes with difficulty from the shelves.

It was a matter of emergency to evacuate the documents, but the operations should have been better documented: transfers have continued uninterrupted during three days with no preliminary quantitative evaluation, nor setting of priorities, nor list of documents. This lack of information made it difficult to provide the crisis unit with exact figures in relation to the quantities and the evaluation of the measures carried out.

Once the situation in the repositories was stabilized, documents were progressively **relocated in their original repository**. Already made fragile by the flood, many handlings and transfers, and the drying operations, these documents were even more vulnerable to mold. As soon as they turned back to their repository, they were provided a **sanitary screening** according to a simple protocol of visual control. To face the quantity it has been decided to make a statistic evaluation conducted according to the standard NF Z 40.011. The checks focused on a sample of 400 documents per repository representing 5% of the documents kept in the affected area, and in smaller proportion documents kept in safe parts of the repositories. Of the 5900 documents checked only two have been extracted and treated by the microbiological laboratory. Both had absorbed water left at the back of the shelf, and presenting a safe aspect had not been detected.

In a situation of emergency not yet stabilized and without a quantified description, the management of risks is hazardous. The availability of wide spaces and adequate human and material resources has helped to mitigate the impact of the disaster. It is through climate control in the repositories that the crisis has been contained. In this situation the lack of procedures for monitoring the quantity and location of the documents was an additional factor of risk.

## 2) Logistics core part of the intervention

**The response strategy to the collections damage** has been proposed at the first crisis management meeting, based on the analysis of different factors, first the type of collections and the nature of the disaster, then the means immediately available.

Records had been adversely affected by direct immersion, sprayings, and absorption of water remains in the bottom of the shelves. The amounts were important but the documents were considered only slightly vulnerable. In fact, most of soaked documents were modern ones and relatively easy to treat. Moreover paper treatments are well mastered at the BnF. Only coated papers could create problems but in small quantities, they could be treated separately. On the other hand, the water that spread in large amounts was not contaminated, and the difficulty lied mostly on the quantity of documents to treat.

Therefore, **logistics were decisive criteria**. We were fortunate to have ample and scalable spaces at relative proximity of the disaster site. In fact, the space adjacent to the emergency workplace could be freed up and accommodated to receive large amounts of documents. Being secured, records could be transferred without any additional measures to the ones used for internal transfers. As the first mass treatments could be carried out on site, outsourcing was considered a later potential recourse. It has been decided to interleave most of documents, deepfreeze damp and coated-papers and then freeze-dry coated-papers.

In 20 minutes, thanks to the agents of the department of Conservation present early in the morning, the space of 800 meters<sup>2</sup> had been freed up and put up. The day after, the gymnasium and the theatre of the BnF were both requisitioned and set up in the same way.

**The organization of the operations reflected in the space:** space for checking and reception of affected documents, space for the crates removal, pre-sort area, waste removal area, and different areas for drying according to the state of the documents (wet or damp). Documents suspected of mold-damage were isolated in an adjacent office. At first, a stock of folding table camp of the emergency Plan have been displayed in 4 lines providing corridors wide enough for circulation around these workstations. Rapidly other pragmatic proposals have permitted to enlarge the drying surface. Pallets mounted on solid paperboard boxes were tables of 80 cm height. Specialized area have been gradually delimited and dedicated to the treatments of more vulnerable documents: leather soaked documents treated by specialists, coated-papers put apart.

**The reception and the pre-sort zones** are strategic spaces until all documents have been evacuated from the repositories. The surface dedicated took into account the space needed for the crates and trolleys circulation in order to avoid the congestion of space. The pre-sort area was also wide enough to display the documents on tables, gather them according to the chain treatments, and possibly stock them before their distribution. It has been also useful to provide a space of transit for dry documents to move back to the repositories.

The positive identification of the spaces by such means as panels for instance, would have contributed to a major clarification of the organization, and probably facilitated the orientation of

the volunteers. But we had to face an unexpected reality: the surface and the distribution of the treatment zone cannot be fixed. A dynamic management capability of spaces had to be adopted as a response to the evolution of the amounts of documents in the different treatment processes of drying, and to treat the constant flow of documents arriving from the affected repositories until Wednesday. At first, books were dispatched in two areas according to their levels of drying, wet or damp. But from about the second day on, a third area was set up: the area dedicated to **the almost dried documents**. Indeed the progressive distribution of the documents in the areas corresponding to their level of drying fosters the conditions necessary for drying and facilitates the control of the documents. In the same way when the emergency was over, we reconfigured the space to organize further treatments such as **drying under weights**. The pre-sort area of the first days has been reconfigured the third day in, when the checkings in the repositories ended and the amounts of dried documents in the treatments workspace increased. At this point, the pre-sort area has been transformed into a space for the **constitution of return crates** to the repositories.

Logistics needs implemented into the modularity of the treatments spaces are completed with security standards. In fact, the space made available for the safeguarding of documents in case of a disaster becomes for the duration of the treatments **a working area**. The configuration of the space must take into account technical and logistic needs such as circulation and the security standards associated. Circulation aisles of more than two meters wide at first seemed oversized and were often considered as a dead space. In fact, since the treatments started they offered space for simultaneous installation of fans, cart passage and the move of people while guaranteeing security standards to the people affected to the interfoliage.

In addition to logistics and security standards, this space must meet technical needs. The flow of moisture brought by the document must be compensated to reach the conditions required for drying. **The control of temperature and relative humidity or ventilation options** are indispensable to avoid a risk of mold grow. All the spaces used for the treatments met these requirements. It has been more difficult to satisfy the need for plug in large amounts of fans, despite the electricity supply masts in place.

With rudimentary means a space for recovery treatments can be efficient. But that apparent simplicity hides a larger implication, and any space cannot be transformed into a treatment space.

### **3) Beyond the immediate time frame of the crisis situation**

The safeguarding actions covered all the affected records. The prioritization process has been defined at the treatment phase distinguishing two stages of intervention:

- immediate drying « great mass » ; drying by specialists for leather or parchment
- deferred treatment for the most vulnerable records (coated-paper in particular)

12 000 documents have been humidified at varying degrees, and many thousands with no specific problems have been treated between 12 and 24 January. A complete chain of treatment has been organized with drying, drying under weight and a sanitary check. Most of the differed treatments

have been completed in July. There are still 78 leather documents to be affected to a preservation chain, restoration or digitization...

The implementation of a contingency plan for records meets multiple and varying time constraints. To the urge of evacuate the repositories follows the rapid display of treatments. The pre-sort phase is thus an important stage and probably the most critical. The possible carry-over is not possible, and all the records brought to the pre-sort area must be displayed in the adequate chain before the end of the day. The contradiction between timely action inherent to an emergency and the duration of achievement depending on the quantities to be treated is not in itself unusual. It can be resolved by an effort adjustment. The duration of drying and its variability for different types of paper is however an unpredictable factor that had a strong incident on the operations management. We have noted that it takes an average of two to four days for most records to dry. But this time could exceed one week for records identical in physical size and appearance. The difficulty to mastering this part of the treatments impacted the management of space as well as the volunteers' working time management.

Volunteers have taken part to the diverse stages of the intervention, but most of them were dedicated to interleave. In fact, to help the process of drying, blotters were changed two to three times a day, which required a large workforce. Given the quantity of documents to treat, the operative mode was rapidly mastered. The shifts team and the evolution of the level of moisture in the documents prevent from leading to a routine way. In practice, the distribution of space was daily called into question, new teams trained, and the perception of the degree of dryness necessarily readjusted. The degree of dryness is never the same from one day to another. The evaluation of documents is subjective and depending a lot on the context of evaluation. Several factors influence the interpretation: the degree of drying of the rest of the documents, the rate of moisture in the air, and the experience of several hours or days in the participation to the safeguarding operations. The arrival of important amounts of documents in a different stage of drying from those previously treated can also disrupt key features. A document considered as wet at the beginning of the operation can seem damp when the rest of the documents are almost dry. Therefore visual, organizational and perception cues in an intimate connection to the book change continuously.

In a context where human factors and physical drying conditions are uncertain, time takes variable dimensions between emergency of action, immediacy of demands for communication on tangible results, and the need to take time to act with a view in the best interests. The management of this crisis culminating three days long, from Sunday to Wednesday, lasted until 27 January with the last emergency meeting. Postponed treatments were completed at the end of July.

The decision to differ the treatments enables to gain in terms of both serenity and objectivity with more reliable evaluations of quantity and results. This delay also enables to plan and allocate human and material resources more efficiently. However other factors are important parts of the decision: the resumption of the service to the public and the schedule of the restoration workshops.

#### **4) Teams management in crisis situation**

The flood occurred during a period of relocation of the restoration workshops and of transfer of the Emergency plan coordinator's office. In spite of a limited workforce, we could have the

cooperation of a staff prepared for any contingency. A spate of trivial injuries at the end of the year kept the emergency planner on the alert, and provided the staff with training. As soon as the alarm was given, the Emergency plan was triggered and the first volunteers joined the team who was already there. On the other hand we had no predefined hierarchical structure to lead the volunteers. Having a lot of volunteers, sensitized and implicated in collection care is a chance for the BnF. The supervisory of more than 200 people in the workstations, with different backgrounds and areas of expertise bring forward a series of questions, unexpected in the context of a crisis and yet inevitable. Generally speaking, extreme situations reveal and exacerbate features of character, thus obviously give a management challenge. Then an underlying crisis of the action will inspire critic, judgment and doubt. The training and the long story of the emergency plan also have their negative effects: the impression for some people to know how to act. In this context, self-proclaimed managers sometimes have given priority to rapid action instead of an orderly and concerted response. Changes in working hours and attending meetings are not always compatible with an organization widely based on volunteering. The difficulty to bring team leaders together probably generated unexpected questioning and collective fear: the rumor of molded blotters led to throw away soaked blotters, the quality of the blotters has been questioned, the filling instructions for the transfer monitoring sheets have not been followed. The intervention of team leaders could not be limited to physical treatments, to the implementation of the first acts and to care handling. These skills are complementary to an important prerequisite: capability to fit into a team and engage into a coordinated effort. Coordinate safeguarding actions in the case of a disaster needs to be able to take into account the individual as well as collective reaction to stress. The prior existence of a hierarchy and of an well known in advance organization of activities is a building component of a necessary consensus.

### III – Results

The disaster demonstrated not only the **high responsiveness** of the emergency plan but also the BnF' **capacity to mobilize large numbers of staff and resources**. The immediate solidarity of the staff who volunteered to participate to the collection care as of Sunday afternoon demonstrates a commitment to the collections. The existence of training to the emergency plan since the year 2000 enables to mobilize a staff aware and trained to the first actions.

The disaster response also enabled to **complete the training** to preventive and curative conservation. The mold control in the repositories has been conducted by the staff of the department Littérature et Art, trained by the microbiological laboratory. In the same way, the natural thawing of documents so far not widely practiced has been substantially improved and widely taught in the restoration workshops and to the emergency plan cell.

Overall, the management of affected documents gives an opportunity to question current practices, revise opinions and specify treatments protocols by practical implementation on a large scale.

The development of the emergency plan will have to take into account the **treatment of more complex situations** and of more vulnerable documents, audio-visual documents for instance. Indeed the emergency plan must permit to face up to difficult choices in case of a major disaster.

To be a useful management tool, it must provide with essential information: **identification of priority collections** and the evaluation of their quantity are key points at this draft stage. They will

enable the definition of adapted safeguarding strategies, the evaluation of the available or necessary means to be provided. The information in the Emergency Plan must be known, validated and shared with the whole hierarchy.

Whereas action often premises on prior reflection, the Emergency plan will contribute to **rationalize the onset of crisis** thanks to standard operating procedures. The evaluation of the situation, the initial and formal exact overview determines the arbitrations and strategy to be made. To achieve this, drafting proceedings providing and disseminating the documentation associated are major priorities. This approach will be reinforced by setting out the tasks to fulfill at the different stages of a disaster response and the **drafting of datasheets** describing briefly the actions and procedures. The dissemination of this handbook as an action guide will facilitate integrating and managing stress.

The implementing measures should be drawn up in advance. To encounter the conditions for achieving an essential consensus, the emergency plan will define **a training program** for supervisory staff and organize training sessions for each role in addition to more theoretical training courses.

Finally, a **constant budget** for the emergency response has been completed. An annual allocation will guarantee the renewal of the stock used on smaller incidents as well as the replacement of expired supplies.

#### **IV - Improvement already made (mid -June 2014)**

The BnF has recently taken structuring measures for the safeguarding of the collections:

- **An on-call system is in place at night and on weekends**, outside opening hours. Five persons in shifts to provide 24 hour-emergency response all year round.
- The creation of a **network of team leaders identified**, which responsibility is determined in advance. The conservation department has created a rapid response cell comprised of diversely-skilled agents: restorers, book binders, operators. This first responder cell rapidly mobilized is supplemented by a second level of interveners identified and trained. These restorers will lead teams of volunteers. In the same way the direction of Collections has prompted each department to identify team leaders.
- A **method for prioritizing collections** proposed to the collections responsible is being implemented in two departments. The expected benefits are dual: during the planning stage to enable the Coordinator of the emergency actions plan to anticipate the needs and techniques of recovery, and then to treat more rapidly the most vulnerable collections.

A real test of an emergency plan is carried out in its implementation during real disasters. Such operations enable to test concepts and scheduling assumptions. Whereas a drafting of an emergency is never quite complete, further objectives criteria should be defined to measure progress.