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# How to Preserve Local Historical Culture

## Methods and Ideas for Rescuing Materials during Disasters

Contents



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## Part 3 Preparation for Materials Rescue

# Foreword

OKUMURA Hiroshi (Graduate School of Humanities, Kobe University)

This book represents a vital part of the research project "From Local Historical Material Studies to Regional Historical Culture: Creation of a New Research Field for Resilient Local Communities in a Country of Natural Disasters" (Principal Investigator: OKUMURA Hiroshi, Project Number: 19H05457), supported by the Grant-in-Aid for Specially Promoted Research.

Since the Great Hanshin-Awaji Earthquake, we have developed collaborative research in Local Historical Materials Studies (LHMS) nationwide. Seeing the recent challenges facing Japan, it became all the clearer that it gets increasingly and rapidly difficult to pass on local histories and cultures because of such factors as frequent large-scale natural disasters, population decrease due to the drastic changes in the social structure caused by globalization, greater mobility of population, and transformation in values since the economic miracle.

Empirical research using local historical materials (LHM) lays the academic foundation in humanities and social sciences, but it presupposes preserving the historical materials. Unless society recognizes that the preservation and inheritance of the materials have social value, they disappear. It is a vicious circle that diminishes the importance of related research, which weakens public awareness and causes further loss of the materials. Preserving historical materials unknown to academics requires the research community to collaborate with the locals to discover and evaluate them; those involved agree establishing new methodologies and research fields is also necessary for such a purpose (OKUMURA Hiroshi (ed). *Rekishibunka wo daisaigai kara mamoru: chiikirekishishiryogaku no kochiku*

[Protecting Historic and Cultural Resources from Natural Disaster: Construction of Studies about Local Historical Materials]. University of Tokyo Press, 2014).

The approach of LHMS, serving as the foundational study for civic society formation, inherits the challenges of post-war Japanese history, which aims to link specialized knowledge of university researchers with societal knowledge based on local communities to form civic values that support Japanese society after WWII; in practical research through responses to large-scale natural disasters, LHMS has become enriched over time (OKUMURA Hiroshi. *Daishinsai to rekishishiryohozon: Hanshin-Awaji daishinsai kara Higashinihon daishinsai e* [Great Earthquakes and Historical Material Preservation: From the Great Hanshin-Awaji Earthquake to the Great East Japan Earthquake]. Yoshikawa Kobunkan, 2012).

Our research team have prioritized this aspect. AMANO Masashi and MATSUSHITA Masakazu have led practical research, consolidating and analyzing practical methods for historical material rescue activities during large-scale natural disasters and disaster prevention/reduction of LHM. This book, as one of the research achievements, presents a systematic approach to serve as a guide for practical activities in the actual large-scale disasters. We want it used across Japan and hope to receive feedback and suggestions from readers to improve and refine our work for the benefit of all.

It is worth noting that such trends in Japan align with global social changes and new developments in historical studies and historical material preservation worldwide. For further insights on this matter, see our publication, *Yoroppa bunkaisankenkyuu no saizensen* [Front Line of Cultural Heritage Research in Europe] (Kobe University Press, 2023), authored/translated by Sonkoly Gábor, OKUMURA Hiroshi, NEMOTO Takeru, ICHIHARA Shimpei, and KATO Akie.

# Introduction

AMANO Masashi (National Museum of Japanese History)

## ■ How Can We Promote Material Rescue Activities Led by the Locals?

Disaster response is a critical issue in today's society, where natural disasters occur frequently. Natural disasters cause significant damage to human lives, their livelihoods, and various historical and cultural objects, requiring us to perform rescue activities for the damaged materials across Japan. Amidst the frequent occurrence of large-scale disasters, in which many areas are at risk of being damaged in the future, disaster response for the diverse historical and cultural materials handed down is being discussed. In particular, community-based activities to preserve and pass on historical culture, represented by the "Shiryo-Network" (Historical Materials Network) in each region, are actively involved in rescue activities for materials in a disaster. Within this context, handling materials damaged by water or due to other reasons which require unusual treatment has undergone trials and errors.

Many introductions and manuals on rescue techniques related to the response to disaster-damaged material rescue, from the Great Hanshin-Awaji Earthquake to the Great East Japan Earthquake up to the present day, have been presented. The outcomes of these disaster response experiences include detailed first aid methods, restoration techniques, and specific equipment. However, the damage varies greatly depending on the geographical situation and extent of the disaster, and the condition of the materials is not consistent. Therefore, to implement measures with past disaster response practices in mind, an approach based on

specific practical examples is necessary. What should we consider when dealing with disaster-damaged materials, and under what objectives? Moreover, from what perspective should we observe them, and to what extent should we examine countermeasures? The methods to deal with damaged materials, examination of specific countermeasures, and selection of technology are important topics for promoting the material rescue activities led by the locals.

Bearing the above issues in mind, this book presents ideas for disaster prevention and risk reduction of local historical materials, including countermeasures from the finding of damaged materials to their temporary storage and emergency treatment, and tips for deciding what technique to choose for the rescue in anticipation of the disaster-stricken area. Along with the progress of disaster countermeasures, researchers have accumulated many case studies; while specific techniques gained across the country are available, we focused on the following two points in this book.

## ■ Organizing Purposes and Concepts of Disaster Response

First, we should organize the purposes and concepts of disaster response. As mentioned above, research has accumulated diverse case studies on historical material rescue; technology developments and manual formulations are in progress; the public has started recognizing disaster response as an important topic in efforts to preserve materials. However, while many detailed techniques are available, organizing information for practical use, such as which techniques are effective in which situations, to what extent we should apply them and for what purpose, is a major challenge. Experts in preservation and restoration techniques who handle the damaged materials are not always available. In Japan, it is not uncommon for municipality officials and the locals to take charge of the initial response, and various individuals often set the choice of technology and end goal. Thus, it is an urgent task to select the techniques from the vast amount of accumulated information and organize the points to be considered to take appropriate measures. In other words, the first objective of this publication is to organize material preservation as a disaster response from a practical perspective and to present ideas for setting specific work processes and goals to be achieved.

## ■ Organizing Purposes of Preparation and Discussion toward Disaster Response

Second, we need to organize the purposes of disaster preparation and discussion. Disaster response is one aspect of preserving and passing on materials. Although rescuing materials from a disaster site and saving them from extinction is a major objective in the preservation, for medium/long-term preservation and inheritance, in addition to the physical approach, we need to explore the materials' relationship with the people and society surrounding them. In recent years, the relationships of experts and expertise with civil society have attracted attention. In the venue of preservation and inheritance of materials, experts from various fields seek ways to engage in dialogue with the people at the site of material rescue and in the process of preservation and inheritance. This book focuses on the relationship between the people and communities surrounding the materials, and the challenge is to contemplate how we can utilize expertise in society through several initiatives practised during the process, from rescue to inheritance.

## ■ Hints for Practical Activities

This book has three parts. **Part 1, "Prerequisites for Materials Rescue,"** introduces methods to collaborate with organizations and groups surrounding the community regarding communication and cooperation in a disaster. **Part 2, "Approaches to Materials Rescue and Preservation,"** presents the goals and points to remember for preservation as an emergency response to rescue damaged materials, with the target being paper documents, photographs, folk implements, and artworks. **Part 3, "Preparation for Materials Rescue,"** introduces the purposes of disaster preparation simulations and communication with the community. Seeking to utilize expertise and techniques and collaborate with diverse actors to ensure their survival, local communities promote local practices that introduce diverse "specialized knowledge" and "social knowledge" to inherit historical culture. How can we preserve and succeed community histories in today's disaster-prone society? We hope this project provides hints for practical activities for preserving and inheriting historical culture in each community.

To convey the events introduced in each chapter more extensively, we trans-

lated this book into English (this part). We planned this in anticipation of future discussions on how to use the efforts undertaken in Japan globally. We hope that this will assist international collaboration in materials preservation and inheritance.

# Part 1

# Prerequisites for Materials Rescue

# Chapter 1

# Communities and Materials in the Event of a Disaster

AMANO Masashi (National Museum of Japanese History)

## Introduction

In our life, the threat of natural disasters is ever-present. While people involved in local communities study and prepare for frequent earthquakes, windstorms, and floods in every way, those in history and culture also try to devise the means to protect and pass on the historical/cultural materials handed down from generation to generation in each community.

The historical and cultural materials handed down in a community are diverse: we generally think of written records (collectively called old documents), artworks like hanging scrolls, and folk tools revealing the lifestyle and culture in the community. In recent years, audiovisual records such as photographs and audio/video clips have gained attention as local historical and cultural information. Although these entities have many terms ("cultural assets," "cultural heritage," or "historical materials"), all of them are objects sharing or having shared historical and cultural values in a certain space. While the authors call them "historical materials" or "resources" in this book, in recent years, more and more researchers have begun to use the term "local historical materials (LHM)". When we use this word, we focus not only on the materials themselves but also on the agents and processes involved, and consider and practice initiatives to make people aware of the existence of "historical materials" in a local community. With this perspective in mind, it will be necessary for the local community to take initiatives in preserving and passing on the various materials handed down in

the community, in addition to specific measures to implement the initiatives when historical materials are in a state of crisis, particularly due to natural disasters.

This chapter reviews the progress of disaster countermeasures for historical materials in each community and discuss the concept of community-based materials rescue.

## 1. Disaster Response Progress

After natural disasters, various activities relive the affected areas: first, those directly related to human survival and livelihood, for example, lifesaving and lifeline restoration; then, those for historical/cultural materials begin. Many of the materials rescued after a certain interval are likely at considerable risk of deterioration or disappearance due to destruction or water damage. Such damaged materials tend to be discarded during debris removal or cleanup activities; however, some researchers try to rescue not only symbolic properties like national treasures and important cultural properties but also diverse materials from critical situations. Collaboratively working with the locals, they pass them down to future generations.

Only after the Great Hanshin-Awaji Earthquake (1995) did we start to appreciate the importance of such efforts in Japan. While the Agency for Cultural Affairs led a rescue program, saving various materials held by private individuals became a challenge, which made a voluntary activity necessary to protect and pass on local materials. Later, during continuous disasters, similar projects started in each affected area: the organizations collectively known as “Shiryo-Network” spread throughout Japan.

This chapter reviews some examples of community-based disaster countermeasure practices, mainly conducted by Shiryo-Networks, and shows communal activity trends and characteristics. Around 2004, members of Shiryo-Networks began to discuss how to save affected materials. In Hyogo, after Typhoon Tokage (2004), Siryo-net (Kobe) surveyed the devastated areas and rescued water-damaged materials found in the survey. The main target was old documents and other paper-based materials stored in private homes. It was a volunteer activity by university students, local government officials, museum curators, and the residents

in the Kansai region, headquartered in the Faculty of Letters of Kobe University (MATSUSHITA and KONO, 2009).

After Typhoon Nabi (2005), similar rescue activities in Nobeoka, Miyazaki, saved photographic materials in private homes. In addition to unfolding and drying the adhered parts, the participants digitized the images for preservation (YAMAUCHI, 2005; YAMAUCHI and MASUDA, 2007). These activities led to the establishment of the Miyazaki Shiryo-Network, which has organized activities for the preservation and succession of materials in Miyazaki.

Several subsequent efforts have saved materials from flood damage since then. Among them a major turning point was the Great East Japan Earthquake (2011). The tsunami that struck off the Pacific coast of East Japan devastated innumerable local materials, destroying museums and other storage facilities. Therefore, those involved in all fields related to history and culture, including history, folklore, archaeology, and fine arts, struggled to relieve them in the disaster areas. In addition, specialists from many fields examined and practiced concrete measures for saving endangered materials. Amid these efforts, local Shiryo-Networks also rescued materials, mainly from private homes, and sought to preserve and pass them on. Siryo-net (Kobe), in particular, emphasizes dialogue and practice to rescue, protect, and inherit the materials, with the local community playing a central role [Fig. 1: Activities in Hiroshima during the 2018 Torrential Rains in Western Japan (30 July, 2018)].

Fig. 1

Since the 2011 earthquake, Japan has seen many large-scale torrential rains and typhoons nationwide, including the 2015 Kanto/Tohoku Torrential Rains, the 2016 Kumamoto Earthquake, the 2018 West Japan Torrential Rains, and the 2019 East Japan Typhoons. Confronted with these damages, Shiryo-Networks have implemented initiatives after earthquakes and windstorms across Japan and have continued the quest for materials inheritance.

## 2. Disaster Preparation Practices and Leaders

### 2.1. "Rescue" Developments

We often refer to rescue activities for materials in a disaster as "rescue" activities. After the 1995 earthquake, the term "cultural properties rescue" appeared, and since the 2011 catastrophe, "rescue" has been gaining currency. TATEISHI Toru, for example, defines "cultural property rescue" as "the rescue and transportation of cultural properties, mainly movable cultural properties, from the disaster area to storage areas (including temporary storage), performing necessary emergency treatment" (TATEISHI, 2023, p. 43). This concept presupposes the fact that the "Tohoku Region Pacific Offshore Earthquake Disaster Relief Project (Cultural Property Rescue Project)" in 2011 aimed to "rescue cultural properties in need of urgent conservation measures, take emergency measures, and temporarily store them at museums and other facilities with conservation functions in the prefecture or neighboring prefectures." This was the background for "Cultural Property Rescue Projects"[1], and this understanding has been valid in subsequent disaster countermeasures.

Because of frequent tsunamis, typhoons, and torrential rains, it is impossible to complete the "rescue" only by moving them to a safe place; the objective is to get the materials out of hazards like water damage.

What kind of entities are responsible for activities mentioned above? In the case of a wide-area disaster, as in 2011, the government responds to it comprehensively and nationwide, but local governments, museums, and universities usually take the initiative for local disasters. In particular, as for Shiryo-Networks activities, the locals and those involved in the community lead the projects in addition to university faculty, museum curators, archivists, and other specialists from many fields. The distinctive feature of Shiryo-Networks is that the research-

ers from diverse fields aim to research, preserve, and pass on local history and culture, focusing on diverse values through dialogues with the residents. On the other hand, the networks do not necessarily have specialists in conservation or restoration, and participants still try and fail when handling damaged materials. When the damage is extensive, each practitioner has to deal with an enormous amount of materials. Usually, citizen volunteers help with the work. Thanks to the accumulated experiences, we have many reports on handling materials from the immediate aftermath of the disaster to their temporary storage. We need a summary of the achievements and issues related to disaster countermeasure practices based on a series of experiences and a proposal for future countermeasures.

### 2.2. Expansion of Disaster Preparation

Since the Great East Japan Earthquake, efforts to save archival materials have undergone several transformations. One is the involvement of conservation and restoration specialists in local activities. Of course, experts had saved local materials, particularly folk and art materials. However, it was after the great earthquake that we could see the practice of collaborative rescues by Shiryo-Networks and the residents more often across Japan.

For example, OKADA Yasushi, a specialist in the conservation and restoration of sculptures and cultural properties, led a rescue for Buddhist statues handed down in the communities and damaged or destroyed by the earthquake and tsunami during the 2011 earthquake. When restoring Buddhist statues, Okada does not move the materials to a workshop but restores them on-site and shares the restoration process with locals by opening it to the public. Okada explains that this aims to allow the public to feel the restoration process of Buddhist statues as symbols of the community while linking it to that of the disaster area (OKADA Yasushi. “Higashinihondaishinsai ni okeru chokokubunkazai no hisaigo no taio to hisaimae no taisaku ni tsuite [Dealing with Sculptural Cultural Assets before/after the Great East Japan Earthquake]”, in: *Bulletin of Tokai National Higher Education and Research University Archives*, 2021). Such efforts to empathize with the local significance of rescued materials while confirming their contents with the residents in the recovery and reconstruction from the disaster were also carried out in the rescue activities of damaged folk tools (KATO Koji. *Hukko Kyureshon*

[Restoration Curation]. Shakai Hyoron Sha, 2017), and are also notable as activities to reposition damaged materials as local materials.

Another characteristic of recent rescues is that they have become increasingly substantial and diverse. If we define the scope of "rescue" as the whole activity process, a series of community-based activities also need specific responses to damaged materials. Many practices nationwide try to save paper materials, such as old documents, based on the experience of the Great East Japan Earthquake, and participants tackle various issues like handling water-damaged or stuck materials and combatting mold and odor hazards. Indeed, conservation and restoration specialists sometimes take the initiative. However, the projects are usually volunteer projects led by a *Shiryo Net*: cultural property staff in local governments, museum curators, university faculty, and the locals play a vital part in it.

## 3. Objectives and Goals of Materials Rescue

As we have seen, "non-experts" often lead recent community-based activities to save archival materials, prompting us to seek and practice measures that do not require advanced techniques or specialized equipment. However, we have different issues depending on the damage to the target materials. Various practical examples and reports are available, depending on the situation in the affected areas and the nature of the response personnel, and we have a wide range of manuals and other documents based on thumb rules. An overview of these manuals reveals that although they use the same terminology, they sometimes have different objectives and methodologies. Furthermore, participants do not always share the process and goals of the "rescue". To understand "rescue" as a generic term for on-site work in disaster response and to examine past efforts as practical examples for the future, it is necessary to organize the concept of the work required in "rescue" [Fig. 2: "Rescue" flow].

An essential task in the "rescue" process is first aid (treatment). HIDAKA Shingo clearly states the purpose of this process as follows:

> First aid measures are to halt the deterioration of damaged cultural properties and to provide a bridge to the next stage of restoration, that is, the full-


**Avoid disappearance and rapid deterioration of the material**

Fig. 2

scale restoration. At the same time, keeping the temporary storage areas mentioned above clean is also essential (HIDAKA, 2015, p. 39).

According to him, emergency measures are temporary measures before we implement necessary "full-scale restoration", and in addition to controlling the progress of deterioration of the materials, they also include the maintenance of the storage space environment. In this case, emergency measures are positioned as a preliminary response before the restoration and differ from restoration activities. Symbolized by the word "rescue," the process of first disaster countermeasures is preliminary, and restoration actions involving dismantling and cleaning are not inevitable. However, with recent natural disasters becoming more frequent and severe, the "rescue" process tends to be time-consuming. In some cases, they carry out the work beyond the scope of emergency measures during long-term temporary storage.

Then, to what condition should emergency measures bring the damaged materials? Since many materials in various media are damaged, it is not realistic to immediately restore all the materials to their perfect condition. Therefore, it is crucial to avoid or control the rapid deterioration by applying emergency measures to as many materials as possible in the affected areas and formulating and implementing a work plan to proceed to conservation and restoration for the

materials' expected subsequent utilization and succession. For details on specific methods for typical materials, see the discussions in Part 2.

First, let us discuss the purpose of emergency measures. With varying degrees of deterioration, the primary objective is to control the progression of deterioration of the target material. In other words, the primary objective is to eliminate the severe risks posed by disasters. For example, the primary objective for water-damaged ones is dehydration, which requires temporary treatment by freezing or drying. In the case of materials collapsed or damaged by the earthquake, it may be necessary to pick up the damaged parts or check the damaged areas.

Next, the criteria for the level of emergency measures differ in each region. The ideal situation would be to position the first aid phase as a temporary measure and focus on drying work, keeping the materials' shape intact, controlling deterioration factors such as mold, and simple cleaning for temporary storage. More specifically, emergency measures aim to bring the materials to a condition that will allow them to withstand temporary storage for two to three years. However, in the case of a great disaster like the Great East Japan Earthquake, "rescue" activities took more time than expected due to extended damage. As a result, they performed more than just temporary measures at the emergency measure stage. Some have started to call such practice "stabilization treatment" since the 2011 catastrophe, referring to actions that go beyond the scope of emergency measures and include some restoration actions. It is a measure that arose after a large-scale disaster where long-term temporary storage is necessary before restoration work. This concept applies to artworks, for which the practitioners need specialized techniques and knowledge even in the rescue stage. Based on this understanding, this book deals with the emergency measures stage rather than the "stabilization treatment" stage, and introduces its practice and concept.

As described above, the three stages of "rescue" activities generally include rescue, emergency measures as a subsequent response, and temporary storage. In principle, emergency measures should be temporary in anticipation of future restoration. However, depending on the damage and the nature of the materials, sometimes dismantling and cleaning may be necessary in the restoration process. In this regard, Prof. HIDAKA pointed out that "when considering the ideal emergency measures, it is necessary to seek for the ones that do not only seek to stabilize the condition of damaged cultural properties but incorporate the method-

ology of conservation and restoration of cultural properties for their subsequent utilization".[2] We, therefore, need to discuss ideas by paying attention to the social environment where the materials are, and not just by focusing on technological matters. To this end, it will be necessary to share the purpose and awareness of materials preservation and inheritance among the entities involved, and to discuss and confirm the goals.

## Conclusion

This chapter reviewed the progress and situation of materials preservation as a disaster countermeasure and organized materials "rescue" activities in a disaster. Many private materials handed down in local communities are often stored in warehouses or storerooms. They are not always stable preservation environments, and it is difficult to receive public support for their restoration and conservation financially. When such materials are damaged, volunteers, especially those from a Shiryo-Network, often lead "rescue" activities. Local governments and museums do not always have specialists familiar with the target materials, so usually, non-specialists have to lead "rescue" activities. To prepare for such situations, it is first necessary to recognize the basic concept of the "rescue". It is also important to know about the fields and experts of materials preservation.

**Notes**

1 Decision of the Deputy Director-General of the Agency for Cultural Affairs (30 March, 2011), "Implementation Guidelines for the Tohoku Region Pacific Offshore Earthquake Disaster Relief Project for Cultural Properties (Cultural Property Rescue Project)". https://www.bunka.go.jp/earthquake/rescue/pdf/bunkazai_rescue_jigyo_ver04 .pdf (last viewed 25 December, 2023)

2 HIDAKA Shingo, "Daikibosaigaiji ni okeru bunkazaireskyu no kadai [Issues with Cultral Asset Rescue in Large-Scale Disasters ]", in: *Bulletin of the National Museum of Japanese History*, 214, 2019, p. 50.

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# Chapter 2

# People Involved in Materials Rescue

MATSUSHITA Masakazu (Kobe University)

## Introduction

As mentioned in Chapter 1, materials rescue involves more than specialists handling of cultural properties or restoring materials. In particular, as for privately owned materials rescue, the main target of Shiryo-Networks, a diverse group of people participate in it: in addition to cultural property researchers at universities or government officials, the locals and volunteers from outside the affected area are also a part of the project.

With Japan's population declining and aging at an accelerating pace and natural disasters occurring more frequently, fewer and fewer people can help with materials rescue; meanwhile, we have more and more materials to deal with. The challenge is efficiently rescuing materials with limited human, financial, and material resources. In addition to the technical and efficiency aspects of material rescue, it is necessary to explore materials rescue that allows the people who have inherited them to maintain their communities.

This chapter focuses on Siryo-net[1] (a volunteer organization based at the Faculty of Letters, Kobe University, established in the wake of the 1995 Great Hanshin-Awaji Earthquake) and their activities in Hyogo, analyzing what kind of institutions, groups, and people have participated in materials rescues. As a researcher at the university, I would primarily discuss the current situation and issues facing the preservation/utilization of "undesignated cultural properties": they are private properties, including various materials located in the private sector, which are unlikely to receive public support in a disaster.

# 1. Wide Area Collaboration System

## 1.1. Development of a Nationwide System for Rescuing Cultural Properties and Damaged Materials

Since the founding of Siryo-net (Kobe), more than 30 historical materials networks (Shiryo-Networks) have emerged throughout Japan—because of a large-scale disaster or as a pre-disaster preparedness measure (AMANO and GOTO, 2022). Since 2015, they have organized the "National Shiryo-Networks Research Meeting" to share information and prompt networking between them. In addition, based on the connections formed during the Cultural Heritage Rescue and Rescue Project after the Great East Japan Earthquake, 27 organizations (as of June 2023) related to various cultural heritage, including Siryo-net (Kobe), established the "Cultural Heritage Disaster Prevention Network Promotion Council". They share information during peace and launch a rapid, effective disaster relief activity when a disaster occurs. In 2020, the National Institutes for Cultural Heritage set up the Cultural Heritage Disaster Prevention Center as the headquarters facility to create a cultural heritage disaster prevention system, develop technologies, and support rescue activities in a disaster (KOHDZUMA et al., 2023). Furthermore, the National Institutes for the Humanities, led by the National Museum of Japanese History and Tohoku University and Kobe University, launched the "Inter-University Research Institute Network Project to Preserve and Succeed Historical and Cultural Resources". Working with other Shiryo-Networks, they create mutual support systems and wide-area networks for future disasters. Thus, compared to the 1990s, nationwide support systems at many levels have greatly advanced, as have the systems for dealing with various cultural properties and materials damaged in disasters and the networking for connecting organizations nationwide. To cope with increasingly diverse and complex natural and artificial disasters, disaster-related networking consisting of various fields is still necessary.

In addition, a system for cultural properties rescue aided by a wide-area framework is emerging; for example, in 2013, nine prefectural governments in the Chugoku and Shikoku regions, in addition to those of Hiroshima and Okayama City, already formulated the "Mutual Support Plan for the Protection of Damaged Cultural Properties in Chugoku and Shikoku". In 2018, the Kansai region made the "Guideline for Responding to Damage to Cultural Properties Based on the

Basic Agreement on Mutual Support in a Crisis in the Kinki Region" in anticipation of a Nankai Earthquake. The prefectures comprising the basic agreement are Fukui, Mie, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama, Tokushima, and the Union of Kansai Governments (including Tottori); the Union of Kansai Governments includes Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama, Tokushima. As the 2011 catastrophe made clear, it is difficult for a disaster-affected prefecture alone to respond to a large-scale disaster, and a support system including multiple prefectures plays a significant role. For example, the Azuchi Castle Museum of Archaeology in Shiga vacuum-freeze-dried the water-damaged materials of Toyooka and Hidaka, Hyogo, when Typhoon Tokage (2004) hit Japan, using the mutual support framework by the Boards of Education of the then six Kinki prefectures (MATSUSHITA and KONO, 2009).

Thus, under such a comprehensive plan based on regional unions, actors prepare individual plans for cultural property preservation and sometimes support communities. We hope that a counterpart support system provided by Shiryo-Networks in a disaster will further develop for undesignated cultural properties.

### 1.2. Issues on Collaboration in Undesignated Cultural Properties Preservation

As mentioned above, Japan now has many Shiryo-Networks, which hold yearly meetings. When a large-scale disaster occurs, each Shiryo-Network gathers information. However, we need a platform for consolidating information on damage to undesignated cultural properties and effectively providing disaster areas with human, material, and financial support and know-how. Of course, this is not to say that each network cannot provide adequate support. In addition, the local network should take the initiative for small- to medium-scale disasters. However, in a large-scale disaster, if each local network were to request information from those in affected areas separately, the local governments would be overburdened with responding to repeated inquiries. It may be necessary to unify the contact points to reduce the burden on the areas, such having a specific Shiryo-Network as a centralized information center.

To facilitate damage assessment and restoration activities when staff in charge of cultural properties in the affected areas return to their original duties after completing lifesaving, evacuation shelter establishment, and lifeline restoration,

Shiryo-Networks must prepare a logistical support system outside the affected areas. Specifically, this includes the following: obtaining information on the whereabouts of materials and damage in the affected areas; preparing personnel with rescue know-how and supplies for first aid; securing funds for activities through subsidies and donations; and accepting damaged materials (for first aid or cataloging). Many remote support activities have become feasible after online conferences using Zoom, Microsoft Teams, or Google Meet have become common due to the COVID-19 pandemic. Compared to public infrastructure, cultural restoration is a long-term process. When a large-scale disaster occurs, building a long-term support system incorporating logistical support may involve a diverse range of people, including those unable to visit the disaster area.

## 2. Prefectural Maintenance Systems

### 2.1. Preparation for Undesignated Cultural Properties in Prefectural/ Municipal Disaster Prevention Plans

In connection with the national basic plan for disaster reduction set by the Basic Act on Disaster Countermeasures, prefectures and municipalities have regional disaster reduction plans. We have pointed out the importance of including cultural property protection in regional disaster prevention plans and regarding damaged cultural property preservation as a part of reconstruction projects after a disaster (MATSUSHITA, 2014). In recent years, more and more prefectures have explicitly indicated that not only designated cultural properties but also undesignated cultural properties need identification, catalogue, preservation and handling promotion, damage assessment, information sharing, and manuals (see examples of Akita, Niigata, Ishikawa, Saga, Wakayama, Yamagata, and Oita). By specifying "designated cultural properties, etc."—this "etc." is the trick— in the plan, local governments can handle undesignated or unregistered cultural properties.

Recently, many prefectures have formulated "Cultural Property Disaster Response Manuals". Hyogo, for example, has developed a manual for its administrators in 2021 and one for cultural property owners in 2022. The latter manual covers cultural properties, whether designated, registered, or undesignated, although those for administrations cover only designated and registered ones[2]. The

manual also states that they request Siryo-net (Kobe) for assistance in preserving historical and cultural materials when responding to windstorms and floods.

To support the possible participants, we should continue to encourage all municipalities in Japan to clearly state their response to undesignated cultural properties, including municipal and regional disaster prevention plans and cultural property disaster response manuals.

## 2.2. Shiryo-Networks in the General Guidelines for the Conservation and Utilization of Cultural Properties and the Regional Plan for the Conservation and Utilization of Cultural Properties

The 2018 amendment to the Law for the Protection of Cultural Properties newly institutionalized the formulation of a general plan for the preservation and utilization of cultural properties by prefectures and the preparation of regional plans for the preservation and utilization of cultural properties by municipalities, in addition to their approval by the Commissioner of the Agency for Cultural Affairs.

The former stipulates disaster prevention and response in a disaster as a basic measurement. This should be an opportunity to specify cooperation with universities and other private organizations like Shiryo-Networks and to create a cooperative system in a disaster. In the case of Hyogo, although it does not mention Siryo-net (Kobe), the general plan refers to daily cooperative relationships by specifying the names of universities related to cultural properties, for instance, Kobe University.

As of the end of 2023, 139 municipalities have prepared regional plans for preserving and utilizing of cultural properties[3], and some have attached a list of undesignated cultural properties to their plan. After the 1995 earthquake, research pointed out that a lack of information on the location of undesignated cultural properties in a disaster could delay the initial rescue (OKUMURA, 2012). Therefore, we hope these regional plans will lead to progress in the identifying undesignated cultural properties and their disclosure (but with attention to theft and other crime prevention measures).

Furthermore, in Hyogo, more and more cities and towns—as of the end of December 2023, Kamikawa, Kami, Akashi, Kobe, and Fukusaki—name indicates a Siryo-net (Kobe) as a partner for surveying the damage to historical and

cultural heritage and their preservation/utilization. Thus, it will be necessary to recommend that the general guidelines and regional plans include each local Shiryo-Network.

### 2.3. Cooperation between Cultural Property-Related Organizations

Securing regular communication and cooperation routes in each field will also be essential. Along with the cooperation between those involved in cultural properties, those in social education need to organize a system. For example, in 2017, the Hyogo Prefectural Museum Association created a protocol ("Protocol of Mutual Cooperation and Liaison and Collaboration with Related Institutions and Organizations in a Disaster") that includes provisions for requesting the dispatch of staff from member museums to rescue disaster-stricken museums, and members have mutually signed this code. This system allows staff members to work not as volunteers but as part of their duties by submitting requests for dispatch to curators willing to provide disaster relief. The Gifu Museum Association has a system to contact the person in charge of cultural properties after a disaster to confirm the damage. When they contact the person in charge, sometimes they are unavailable; addressing the cause of the problem serves as actual disaster prevention training (SHOMURA, 2020). Making and confirming a contacts network will be essential for support and assistance in a disaster, even in regular times.

Some prefectures have established rules and agreements with Shiryo-Networks, governments, and various cultural property-related organizations to build partnerships and cooperative relationships in times of disaster and everyday life. For example, in 2015, Wakayama started the "Wakayama Prefecture Liaison Council on Disaster Countermeasures for Museum Facilities" for a cooperative relationship to rescue and conserve damaged cultural properties in the prefecture, including undesignated and private collections. *Wakayama* Shiryo-Network, Wakayama University, other research institutions, museums, libraries, prefectural government, and municipal boards of education participate in the council. Similar efforts are underway in Okayama, Tokushima, Ehime, and others.

Although Hyogo does not currently have such a protocol, it has some cooperative relationships: the Cultural Properties Division of the Hyogo Prefectural Board of Education has issued to the municipal boards of education in the prefecture a request for cooperation in the survey of Siryo-net (Kobe) when the network

examined damaged historical materials in the prefecture. The Cultural Properties Division of the Hyogo Prefectural Board of Education, Community Outreach Center (Kobe University), and Siryo-net (Kobe) hold "Hyogo Prefecture Cultural Heritage Disaster Prevention Workshop" every year, where staff in charge of cultural properties in Hyogo practically practice the first aid for damaged cultural properties. While learning from the aforementioned advanced efforts in other prefectures to assess the damage in a disaster regardless of movable or immovable cultural properties, Siryo-net (Kobe) has held many discussions with members of the Hyogo Heritage Organization, to which many architects belong, the Hyogo Prefectural Museum Association, and the Hyogo Prefectural Board of Education. These collaborative relationships daily will make it possible to facilitate materials rescue activities in a disaster.

## 3. Connections with Diverse Sectors

### 3.1. Response to a Disaster

Once receiving a disaster prevention order, administrative staff in the affected areas cannot always deal with cultural properties. Even if they return to ordinary work, the first step is to examine designated cultural properties. Therefore, Siryo-net (Kobe), whose main goal is undesignated cultural property preservation, refrains from contacting the disaster areas immediately after a disaster strike when they are busy lifesaving and setting up evacuation centers to avoid burdening the areas as much as possible. When they have restored lifelines and established evacuation shelters, researchers visit the affected areas with staff in charge of cultural properties, members of community history research groups, and town chairpersons. Outsiders only visit the areas with the acceptance and approval of the residents. The first prerequisite for rescue activities targeting privately owned damaged materials is not to interfere with the reconstruction. In addition, securing a temporary storage place for the damaged materials is desirable. Cooperation with the governments, universities, and residents is essential (MATSUSHITA and KONO, 2009).

However, since the Great Hanshin-Awaji Earthquake, research has argued that a delay in visiting the disaster area leads to the disposal of materials (OKUMURA, 2012). The disposal of undesignated cultural properties and materials in private

collections accelerates, especially when "free garbage disposal" and publicly funded demolition of houses begin after a disaster. Therefore, it is crucial to encourage the owners to prevent their disposal and to inform them of consultation services for temporary storage and emergency treatment. In recent years, on the Internet, more and more local governments and museums in disaster areas have called for preventing such disposal and publicizing their consultation services.

Unless immediately after a major disaster when infrastructure is unavailable, Siryo-net (Kobe) provides information on handling local materials to disaster victims through publicity from town halls (PR magazines, handouts for supporting victims, and community association liaison routes), information from social welfare councils and volunteer centers, and multimedia such as newspapers, TV, radio, CATV, and disaster prevention radio. Recently, SNSs like X and Facebook have been of use. However, sometimes, in disaster-stricken areas where infrastructure is unavailable, paper-based local media can be more effective in disseminating information. Before a disaster occurs, we have to prompt social welfare councils and volunteer centers to ask volunteers working on the front lines so that they can encourage the owners to handle the items related to "family memories" carefully. Siryo-net (Kobe) used to send faxes to local governments in the affected areas, asking them to prevent the disposal of materials. However, given the trouble it takes them, the network has reduced this to a notice on its website and, in recent years, has left it to local Shiryo-Networks in or near the areas to deal with the issue.

The Ministry of the Environment has formulated the "Guidelines for Disaster Waste Management" as a compilation of emergency measures for the proper, smooth, and prompt disposal of waste generated in a disaster[4]. The guidelines provide the handling of "mementos": albums, photographs, Buddhist mortuary tablets, certificates, planners, safes, and valuables (wallets, passbooks, seals, jewelry), and state that "municipalities need to pay attention to how to handle mementos and valuables when removing disaster waste, and should stipulate the rules in advance and make them public, after confirming the procedures and responses under the Lost and Found Law and other related laws and regulations. Possible rules for the handling may include their definition, ways of identifying the owners, collecting, storing, and returning". The authorities are to deliver the valuables to the police, so the guidelines ask them not to dispose of other

mementos, to store them, and to turn them over to the owners as much as possible (*Disaster Waste Management Guidebook*). Since the guidelines do not cover historical and other materials, we propose that they include the issue of disposal of historical materials, collaborating with the Japan Society of Material Cycles and Waste Management and other organizations.

The "Earthquake Disaster Countermeasures Plan"[5] section of the Regional Disaster Prevention Plan of Kasai, Hyogo (revised in 2021), states that "if there are damaged cultural properties in the neighborhood, a temporary collection site for cultural properties will be set up at a temporary refuse collection site". It is a unique approach to securing a temporary storage site in the disaster area after a rescue operation.

### 3.2. Post-Disaster and Day-to-Day Activities

Fewer and fewer people are involved in the daily preservation of local historical materials: the nation's whole population is ever-shrinking; municipal mergers downsize the cultural property administrations; local historical societies are losing members; (junior) high school teachers, the important bearers of local history studies, are too busy to participate in community history societies.

In this context, what can universities do to preserve and pass on historic materials and records remaining in communities and homes, both in a disaster and everyday life, and keep the public interested in these materials? Naturally, we have to have those not involved with cultural properties understand the importance. Researchers need to develop a curriculum that explains the significance of record preservation in museology, archives-related studies, and first-year standard education courses for undergraduates in the social, natural, and life sciences in addition to for those in the humanities (OKUMURA, MURAI, and KIMURA, 2018). Since 2002, the Community Outreach Center (Kobe University) has been working with the locals and the governments to promote community development that makes use of their history and culture. The work tells the public the importance of local materials and records preservation regularly before a disaster strikes (Community Outreach Center, 2013).

Siryo-net (Kobe) makes a provisional catalogue of rescued materials and returns them after the locals and owners have restored their lives. At the time, we always explain the contents of the materials and the significance of the preserva-

tion. For example, for materials damaged by Typhoon Etau (2009), we worked with the Sayo Board of Education and the Sayo Community History Society members to rescue, provide first aid, and read the materials. The members have continued reading and transcribing the materials for publication (MATSUSHITA, 2013). In the case of the documents of the community association in Uruka, Shiso, ITAGAKI Takashi and YOSHIHARA Daishi, who belong to Siryo-net (Kobe), exhibited and explained the rescued documents at a community center, conducting joint research with the locals since then (Uruka Community History Editorial Committee, 2018).

In addition to undergraduates and postgraduates involved in cultural properties, many senior citizens participate in the volunteer activities of Siryo-net (Kobe) in providing first aid, organizing, and photographing damaged materials. Living in an urban area, many of the senior volunteers are "nomadic", who travel back and forth between the Hanshin area and the disaster-stricken areas, and have experienced different types of volunteer work such as removing the lining from sliding doors, reading old documents, and washing and joining earthenware. We hope to encourage the public to participate in Shiryo-Network activities by working with people with such diverse interests.

## Conclusion

The foundation for responding to disasters is daily research, conservation practices, and the development of institutional and human networks. Our society has fewer children and more older adults. More than that: the population never ceases to decrease; more families have no heirs; more villages are disappearing; storms and floods become more frequent due to climate change; large-scale earthquakes continue to hit us. In short, it is no longer possible to force the individual locals (owners or property managers) to preserve the materials in the community.

The General Guidelines for the Conservation and Utilization of Cultural Properties call for conserving cultural properties by the "community as a whole". However, it is not enough to emphasize the negative aspects in this way, pointing out fewer people working on them due to the declining population. Some researchers study "public archaeology", arguing that archaeological sites are protected not just by researchers but by the public involvement and understanding

of the significance (OKAMURA and MATSUDA, 2012). Similarly, the historical heritage remaining in a community gains more value through such involvement and understanding. How can we preserve private historical materials as "public property" through the involvement of diverse people? We will continue to learn from practices across Japan and deepen local historical materials studies with a focus on the rescue/utilization of damaged materials by the residents; at the same time, by making more people interested in and involved in the preservation and use of cultural properties, we will realize the participation by the "community as a whole" in the sense of giving meanings to and protecting cultural properties, and promote the creation of institutions and networks to maintain the communities.

**Notes**

1 For more information, see the website (http://siryo-net.jp/). (All the websites here last viewed on 23 January, 2024)

2 Hyogo Prefecture Board of Education. *Hyogo Prefecture Cultural Properties Disaster Prevention and Response Manual*. (https://www2.hyogo-c.ed.jp/hpe/bunka/cont_cate/兵庫県文化財防災・災害対応マニュアル/)

3 Agency for Cultural Affairs. *Regional Plans for the Conservation and Utilization of Cultural Properties, prepared by local governments*. (https://www.bunka.go.jp/seisaku/bunkazai/bunkazai_hozon/92040101.html)

4 Ministry of the Environment. *Disaster Waste Management Information*. (http://kouikishori.env.go.jp/guidance/guideline/)

5 Kasai City. *Kasai City Regional Disaster Prevention Plan (revised in 2021)*, *Chapter 3: Disaster Emergency Response Plan* (https://www.city.kasai.hyogo.jp/uploaded/attachment/16252.pdf)

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# Part 2

# Approaches to Materials Rescue and Preservation

# Chapter 3

# Rescuing Paper Materials



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## Introduction

The paper materials covered in this chapter refer to records generated and accumulated by people during their lives. These materials, mainly written records, are made of various types of paper depending on the period and purpose, ranging from old documents with recognized historical and cultural value to everyday memos and journals. A vast, diverse group of materials remains across Japan.

While many public institutions such as museums, libraries, and archives hold paper materials, individuals have enormous materials at home, which they have inherited from ancestors to convey the history of the community and the family. They come in records maintained by organizations, personal diaries, writings, and books. However, in most cases, the owners treat them as a group, so in a disaster, those who rescue them must handle a massive amount at once; in such cases, they must accurately identify and treat water-damaged materials.

## 1. Rescuing Damaged Paper Materials

If a disaster damages the storage space, materials not contained in containers are at risk of being scattered. In addition, a tsunami or torrential rains can deteriorate paper materials—easily contain water—due to decay and mould, destroying some of the text and other material information, and even the materials themselves [Fig. 1: Materials damaged by tsunamis (rescued on 23 March, 2012)].

Letters and documents are sometimes stored as a group of several items, tied together with string or in envelopes and bags. The custodian may have organized them by age and contents when storing them. In a regular organization of materials, the practitioner needs to record the condition and structure of the materials before transportation; it is fundamental to organize the materials while retaining their original shape and arrangement, as the storage space per se is essential information.

Fig. 1

However, it is difficult to make such detailed records following these basic principles in a disaster because of the need to transport materials rapidly within a limited time. Therefore, it is desirable to record the on-site removal process with photographs or videos and keep them as reference information for later organization work. As for paper materials, it is not easy to determine whether they are historical at the on-site work stage. Usually, it is impossible to immediately grasp information on materials at the disaster site due to water damage or mud stains. Saving as many materials as possible requires removing them first and then sorting them out while grasping their contents during the first aid phase.

When handling, the practitioner should be careful to avoid damage or dissipation of the materials, as they are vulnerable when wet. Since most paper materials are groups of records accumulated by a house or organization, they are generally stored as a single group, often in boxes or containers. When transporting, it is necessary to keep them together as much as possible, and if stored in a container, move the container itself; if not, the practitioner needs to put them into plastic bags or cardboard boxes before transportation. The order should be maintained, but it is challenging to maintain detailed order under limited circumstances, so it is necessary to record the condition with photos or videos before transferring.

## 2. Condition Assessment and Temporary Storage

### 2.1. Grasping the Condition

Dealing with damaged paper materials requires the practitioner to confirm the presence or absence of breakage and water damage. Earthquakes can tear or break the paper materials, while water damage by rainfall, storm surges, and tsunamis sometimes destroy them, too. We should not leave them unattended, or water damage will lead to decay and mould, making it impossible to maintain and pass on the materials as historical ones. Therefore, the practitioner must check the following points.

#### (1) Approximate Number of Materials

Precisely counting the number of materials at the rescue stage is almost impossible: check the approximate number of items for planning the work process. Paper materials are usually lie in containers, so it is necessary to carry them as they are. Otherwise, put the materials into containers like cardboard boxes and count the number of the containers. In addition, check the forms of materials (books, documents, letters, postcards, coated paper) as best as possible.

#### (2) Water Damage

Determine the cause of water damage: rainfall, storm surge, tsunami, river, or moisture or leakage at the storage location. We can focus on dealing with the water in the case of rainfall or moisture. However, river or sea water may contain contaminants which need work other than drying.

Check the extent of the damage, whether entirely or partially, and see whether the water is so wet that it is dripping or has already started to dry.

#### (3) Damage level

Confirm mould, rot, odour, and paper adhesion. However, at this point, see only the extent of the damage seen by surface observation. Mould, decay, and odour can pose health hazards, so avoid putting your face too close to the material. Adherence can break the material if wet. Do not separate the sheets forcibly.

### 2.2. Temporary Storage After Transportation

Storing water-damaged materials at room temperature will cause them to rot; dry them as quickly as possible. If the total number is under 100, it may be possible to dry them immediately after transportation. However, many items need preparations for treatment, and immediate response becomes difficult. Frozen storage using a freezer is sometimes necessary during the preparation for treatment [Fig. 2: Frozen-stored water-damaged materials].

Fig. 2

The advantage of frozen storage is that it can control decay and deterioration, including biological damage. During frequent typhoons, high temperature and humidity aggravate the risk of rapid decay; temporary freezing and storage make it possible to adjust work timing, for example, to conduct full-scale work after the weather becomes cooler and drier.

If possible, pack each item in a plastic bag and frozen. However, if the items are in too poor a condition to separate one another, pack them in a plastic bag and frozen as a whole. Since it is not easy to immediately secure a large freezer, it is advisable to identify nearby facilities with large freezers before a disaster and ask them to cooperate in an emergency.

## 3. First Aid Measures for Damaged Paper Materials

Regarding the first aid measures of paper materials, many practical examples of disaster countermeasures and manuals are available in Japan and abroad, introducing detailed process techniques. This chapter focuses on the required response and the concept of first aid rather than presenting specific techniques.

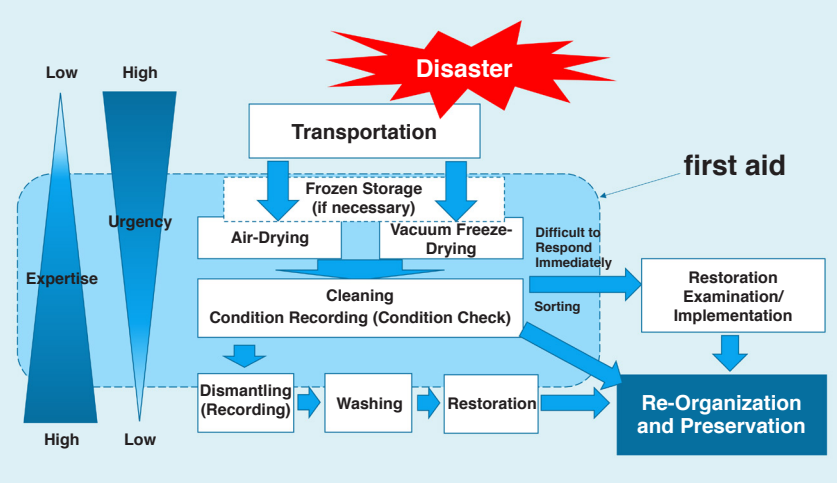
One of the goals of such measures is to prepare for the data recording: count the number of materials and eradicate major concerns—decay, breakage, or mould—about storing and managing at average temperatures. Drying, cleaning, and adherence separation are necessary.

### 3.1. Drying

The drying process is the highest priority. However, we use different methods depending on the condition and scale of the materials and the number of practitioners. Methods practised or introduced are diverse and come into three patterns regarding methodology and purpose.

The first is air drying [Fig. 3: Air-Drying (Hiroshima Prefectural Archives, 30 July, 2018)]. Practitioners spread the materials in a space out of direct sunlight and dry them with natural air or a circulator. This method is more cost-effective and technically feasible than others. However, considering the risk of spoilage, it is most effective when dealing with materials with only minor mould or stains and just beginning to dry out.

Next comes water absorption drying [Fig. 4: Water Absorbent Drying (1): Wrapping materials in absorbent paper (Hiroshima Prefectural Archives. 11 December, 2018), Fig. 5: Water Absorbent Drying (2): Degassing in a pouch (Hi-




Workflow after rescue

Fig. 3


Fig. 4

Fig. 5

roshima Prefectural Archives. December 12, 2018)]. Some researchers have recently proposed specific processes with various practical examples. However, the basic concept is the same: wrap materials in absorbent paper and squeeze out the moisture by applying pressure. This method is effective for materials containing a large amount of water. It can effectively extract water by wrapping each material or a single mass of materials in absorbent paper and applying pressure.

When handling large quantities, it is possible to squeeze out the moisture by placing the material in a pouch and deaerating it with a vacuum cleaner.

Water absorption drying alone takes a long. Therefore, this method is usually used for the preparation of air drying. When they can open the adhered paper roughly, the practitioners use air drying.

The third method is vacuum freeze drying. This method is large-scale, uses vacuum freeze-drying equipment, and effectively handles large volumes of materials (more than several thousand). In Japan, researchers used this method for the first time in 1992 in Soka, Saitama, to dry materials damaged by water due to a private house fire and firefighting activities. Since then, researchers have used this method for large-scale water damage, but it is not a silver bullet because coordination with facilities that own equipment is necessary and the cost is not low. Therefore, when we anticipate a large-scale disaster, we must coordinate in advance with nearby museums and research institutions that own the equipment.

As described above, several methods are available for drying materials. However, selecting a technique that suits the situation and purpose is necessary rather than sticking to a specific one. Generally, when working manually, it is vital to avoid applying heat or other methods that may damage the materials and to avoid rapid temperature changes. In addition, coated paper sheets may adhere to one another too firmly if dried thoroughly.

In any case, it is often difficult to dry the materials completely using only one method. Combining several ways depending on the condition of the materials and the workforce is necessary.

For example, see the practice after the torrential rains in western Japan in 2018. The torrential rains caused water damage to several thousand paper materials (account books, postcards, letters, and paintings) stored in private homes in Hiroshima. The Hiroshima Prefectural Archive accepted these materials and carried out the drying process according to the following procedures.

Selecting an Appropriate Drying Method

| | Air-Drying | Water Absorbent Drying | Vacuum Freeze-Drying |
|---|---|---|---|
| Cost | ◎ | ○ | △ |
| Work Efficiency | △ | △ | ◎ |
| Versatility | ◎ | ○ | △ |
| Anticipated Usage | Minimal mould and staining/minor water damage | Temporary treatment for air-drying; used when the material has a lot of moisture | In the case of extensive damage |

**(1) Classification**

First, they classified the materials by genre (account books, pamphlets, postcards, letters, and paintings).

Then they sorted the classified materials into three categories: (a) those containing a large amount of water and are at a severe risk of decay, (b) those beginning to dry out, and (c) those already dry and with no evidence of water damage.

**(2) Treatment**

(a) They wrapped each item in a plastic bag, put them in a cardboard box to prevent odour and moisture, and stored them frozen.

(b) They prepared shelves and air-dried the materials in a well-ventilated place out of direct sunlight.

(c) They cleaned the materials after checking the mould and staining. At this stage, they focused on adherence separation described below rather than stain removal, confirming that they are dry to the depths.

**(3) Thawing and Drying of Frozen Materials**

For (a), since it was summer, they froze 17 cardboard boxes and stored them until when spoilage was less likely to progress. When winter came, they started the drying process.


Work process at Hiroshima Prefectural Archives during the 2018 torrential rains in Western Japan (Amano et al., 2019)

Next, they removed the frozen materials from the plastic bags and wrapped each item with absorbent paper (newspaper).

Putting the materials into pouches, they observed the progress in deaeration. After about 1 to 2 days, the frozen materials returned to room temperature. Confirming that the paper absorbed the moisture, they took the materials out of the pouches, replaced the paper, and degassed them again.

Repeating the process several times to separate the adhered materials from one another, they finally dried them with air.

In this case, they could perform such a work process because they had ample space at the archive and could use freezers, and many workers helped them with the work. Depending on the location, it may be challenging to follow this process as the power supply and pouches may not be available. For example, we can prevent dehydration without pouches by wrapping the materials in absorbent paper, laying them on a flat surface, and placing something on top. The principle is the same, and selecting a method that does not damage the materials is crucial.

### 3.2. Purpose of Cleaning

Cleaning is necessary to make it possible to temporarily store the materials after drying. We have two options: dry cleaning (done in a dry condition) and wet cleaning (done with water). The purpose of cleaning is to remove any spoilage from the materials, but the extent of the treatment is an important issue. Since most paper materials are documents, the process includes separating the adhered materials to prevent them from sticking to one another.

If wetting causes the adhesion, we can separate them by carefully making a gap in the sticking area with a spatula or tweezers [Fig. 6: Material adhered by water damage (sample)]. This process needs care and time: never run the risk of breakage, and try to open from a different part. The opening can be highly challenging if mud or mould causes the adhesion. It is a good idea to stop the work, document the current situation, pack the mouldy or dirty material to prevent it from scattering and focus on temporary storage to complete the emergency measures. In this case, it is desirable to remember that the first aid is only temporary and to proceed with arrangements for the repair plan.

Depending on the damage, the dried materials may still have mud, mould, or other contaminants [Fig. 7: Material adhered by mould]. Therefore, it is necessary to remove mould spores on the surface by removing the mould with a cloth or paper dampened with ethanol. We can remove mud stains so that the process does not damage the materials, but dry cleaning has a limited effect. Moreover, brushing can run the risk of scattering. Therefore, during the dry cleaning stage, opening up adherence is better than struggling to remove all the stains. Health

Fig. 6

Fig. 7

hazard measures are necessary for this work: wear industrial masks with high dust-proof performance and high particle collection efficiency to prevent inhalation of mould and other contaminants. In Japan, DS2 masks meet the National Inspection Standards set by the Ministry of Health, Labor and Welfare, as do N95 masks American standards and FFFP2 masks European standards, respectively.

Even if most of the work is adherence separation, mould and contaminants scatter to some extent, so sufficient ventilation is necessary. Install air purifiers to keep the work environment clean.

The first aid measures for paper materials aim to grasp the overall condition of the materials; completely separate the adherence caused by water damage; and prevent odour, mould, and stain spreading for temporary storage. As forcible attempts may result in large-scale damage, if even simple repair afterwards seems impossible, adherence separation should be temporarily suspended. Sometimes, wet cleaning may also be effective as an emergency measure to remove contaminants and odours. Usually, however, water-based cleaning requires the disman-

tling of the materials. In this case, too, it is a prerequisite to have the technology and equipment to handle the materials after cleaning. Depending on the damage, the dried materials may still have mud, mould, or other contaminants. In rescuing documents, we tend to focus on bringing the textual information to a readable state as quickly as possible. However, from a long-term perspective, it is effective for the preservation and inheritance of the materials to proceed in a step-by-step and systematic manner.

## Conclusion

Paper materials remain in vast quantities throughout Japan, and when rescued, they are damaged, and the items come in large quantities. They are vulnerable to water and breakage and require an extremely rapid response from the rescue to the drying. Many practical reports are available, including those on familiar materials (refer to them for specific techniques and information). However, it is important to note that the work process should be simple and that the first aid should have specific goals. Thus, it will be essential to keep the following basic objectives in mind: (1) dry the materials to get out of the immediate crisis, (2) open the materials to get an overview, and (3) manage the materials to proceed toward a full-scale response. See the work mentioned in the reference for specific and simple ideas and methods in this process (YAMAGUCHI, 2022).

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# Chapter 4

# Rescuing Photographic Materials



MATSUSHITA Masakazu (Kobe University)

## Introduction

Historical materials, the preservation target of the Siryo-net (Kobe), are undesignated cultural properties in private ownership. The rescue of these documents, detailing the history of communities and families following the Great Hanshin Earthquake, focused on local records maintained by long-established families and neighborhood community associations. The aim was to understand the historical and geographical background essential for restoring areas affected by the disaster. Meanwhile, photographic materials are found in any typical household, and depict the history of each person, family, and community. Specifically, when the general public participated in rescuing and cleaning photographs damaged during the Great East Japan Earthquake and the Kii Peninsula flood disaster of 2011, volunteers in the affected areas were strongly impressed by the method as a means to rescue the records and "memories" of families and people.

Thus, in this Chapter, we specifically discuss rescuing photographic materials from among family records. Since the time when digital cameras and mobile phones became popular, photographic records have been stored as digital data in various recording media. Therefore, I should discuss the rescue, storage, and restoration of digital media as well. However, since the allocated space is limited, I will define photographic materials discussed in this Chapter as black-and-white and color prints of photographs (photographic paper), pocket photo albums, and adhesive mount photo albums. We will discuss the steps taken from the rescue,

drying, and cleaning of such photographic materials that are stored in a typical household.

## 1. Rescue and Temporary Storage of Photographic Materials

Wind and water damage obviously affects documents, but following an earthquake, damaged buildings can experience water leakage. Subsequent rain, snow, and tsunamis can also cause water damage to materials. Since earthquakes often lead to fire, fire and associated water damage can occur. In any case, water damage of materials from disasters cannot be avoided; therefore, we discuss the rescue of water-damaged photographic materials.

As we saw in the areas affected by the 2011 great earthquake, all manner of materials affected by tsunamis and floods are washed away from their original locations. Some are recovered by the Japan Self-Defense Forces, but in the worst case, they are lost forever. Even if materials are not washed away, when silver halide prints (typical black-and-white and color photographs) and negatives are immersed in water for a long time, the image layer (gelatin, silver halide, and pigments) becomes deteriorated, leading to images disappearing, dissolving, discoloring, or fading [Photo. 1: Photographs with the image layer dissolved due to a long exposure to water]. Specifically, decomposition occurs rapidly in hot and humid disaster-affected sites during the summer, which makes decomposition of the gelatin layer on the surface of the photographs and biological damage by insects more likely. In the case of floods and tsunamis, domestic wastewater, salt from seawater, and so on become adhered to the surface of photographs, which further promotes deterioration.

Photo. 1

While naturally drying water-damaged photographs, rescuers often discover that images are lost since some photographs have adhered to each other, albums are moldy, images have adhered to the protective film of albums, and so on [Photo. 2: Photographs that became adhered to the protective film of a pocket album due

to tsunami damage].

Photo. 2

Rescuing photographic materials happens more often by request than during patrols of affected areas. At rescue sites where the Siryo-net (Kobe) took the lead, such as during flood damage of Sayo, Hyogo Prefecture (Typhoon Etau, August 2009), a person found out about our rescue effort for damaged materials in a newspaper article and consulted us about photographs that had become adhered to water-damaged albums. We performed emergency treatment, such as cleaning the albums at the person's residence (removing mud), drying, and making copies by taking photographs with a digital camera. However, it was extremely difficult to perform tasks since there was no easy access to water and the missing floor provided no room to work [Photo. 3: Cleaning the damaged photographs in Sayo Town (Taken on October 12, 2009)]. Since 2011, we have been performing our tasks at locations with accessible water instead of the affected sites as much as possible.

Photo. 3

As previously mentioned, if materials remain wet, deterioration of the surface will be promoted. To minimize the damage to the images, securing a freezer and temporary storage so that mold would not grow on photographic materials would be ideal. If a freezer cannot be secured, photographs should be dried in the shade using a fan, and so on. At temporary storage sites, humidity should be kept as low as possible.

When removing materials from the affected areas, a simple record of the current conditions, such as photographs of the damage, should be prepared. After confirming the number of damaged photographic materials (number of

albums and so on), a written agreement of loan is created with the owners. Most important at such a point is a sufficient understanding by the owners regarding the treatment of damaged photographs. Since these tasks are mainly performed by volunteers with varying levels of skills, an agreement must be reached ahead of time that not all photographs will be fully restored, and photographic materials that are mostly of private information will be seen by many staff during the process. Specifically, cleaning makes a notable difference in how much of the image survives. In the case of heavily damaged photographs, cleaning will almost certainly remove the image layer. However, if left dirty, biological damage will further promote deterioration, thereby making the photographs impossible to view. Therefore, owners need to understand the advantages and disadvantages of each treatment.

## 2. Treatment of Disaster-Affected Photographic Materials

Below, we present the treatment policies for color photographs that have been water-damaged and soiled in floods and tsunamis by referring to the treatment of personal albums and photographs following the 2009 Typhoon Etau (flood damage of Sayo), tasks performed at Hiroshima Prefectural Archives following the torrential rain of August 2014, and tasks performed at Seki Cultural Properties Protection Center by the Gifu Museum Association following the Torrential Rains of July 2018.

The point to note while performing these tasks is not to inhale mold, mud, or dust when handling any other water-damaged materials. Therefore, we paid attention to the hygiene of volunteers by encouraging them to wear a dust mask and latex gloves, to practice hand washing and gargling, and to ventilate the rooms. Refer to the following in terms of materials used for the tasks [Photo. 4: An example of tools used to treat disaster-damaged photographic materials].

Depending on the damage to the photographs, these tasks were not always performed according to the procedure. For black-and-white and heavily damaged photographs, we recommend having professional photographers perform the repair.


Photo. 4

**Items required to remove a photograph from an album.**

- **Mask and rubber gloves (thin)**
- **Spatula (bamboo or rubber), brush, and tweezer**
- **Pallet knife, X-Acto knife, scissors, and cloth**
- **Ethanol (70%) for disinfection and spray bottle**
- **Newspaper and paper towel (for absorbing moisture)**
- **Parchment paper and rayon paper (for flattening)**
- **Digital camera for recording, air purifier, dehumidifier**

**Items required to clean photographs.**

- **Mask and rubber gloves (thin)**
- **Bucket for cleaning water (two: one for washing and one for rinsing)**
- **Small soft brush**
- **Sponge mat to drain water, towel, rack, or paper towel**
- **Clothespins to dry photographs, clips, laundry drying rope, and vinyl string**
- **Newspaper**

From Hiroshima Prefectural Archives, *Doshasaigai de hisaishita arubamu shashin eno taishoho.*

## 2.1. Recording Current Conditions and Removing Photographs from Albums

### (1) Numbering albums and taking photographs

As examples of damaged photographic materials, we consider cases of photographs stored in pocket albums and adhesive mount photo albums, and also cases where photographs are kept in a bundle that has become adhered together. In all cases, since these photographs must be dried, the first step is to remove one photograph at a time. However, when separating photographs, images may become damaged. In addition, to record the information such as the order of photographs in an album, before taking albums or bundles of photographs apart, the current conditions must be recorded using a digital camera.

Each album should be numbered, and where pages can be opened, the entire page should be photographed. Specifically, notes written or inserted in pocket albums and adhesive mount albums often preserve the information about the photograph and must be recorded along with the relevant photographs.

### (2) Removing mud from albums

First, mud on the outside of albums is removed. Mud on the cover, back cover, and text block is removed using a bamboo spatula, brush, paper towel, or cloth. If possible, albums are wiped using a firmly wrung-out cloth or are disinfected with a paper towel soaked with ethanol. Subsequently, the album is opened one page at a time, and mud and soil are removed one page at a time.

Dirt on the protective film of pocket albums and the adhesive mount must be removed with a bamboo spatula or brush. However, if there is moisture between the protective film and the surface of the photograph, pressing firmly on the film could shift the image. Thus, cleaning must be done with utmost care.

### (3) Photographing the conditions after the removal of mud

As each page of an album is opened, the entire page is photographed using a digital camera or scanned with a scanner. If possible, it would be ideal to record one photograph at a time. This is because, when the protective film is removed or cleaned, the image may be lost.

### (4) Drying albums

If possible, albums should be dried with pages open and standing. Using an air purifier, dehumidifier, or a fan, albums should be dried in a clean temporary storage with low temperature and humidity and with as little direct sun as possible.

### (5) Removing photographs

If the damage is severe, such as with dirty water inside of the protective film, photographs must be removed from pocket or adhesive mount photo albums to be dried. The protective film is removed by running a knife along the outline of a photograph [Photo. 5: Removing a photograph from an adhesive mount album (taken on September 8, 2014)]. If there is dirty water between the protective film and the photograph, and forcefully removing the film would damage the image, or if the image has transferred onto the protective film, the protective film should not be removed. When removing a photograph from adhesive mount albums, photographs are peeled using a pallet knife or bamboo spatula. If this is not possible, the mount should be separated into front and back sheets, removing the photograph with the mount still attached.

Photo. 5

## 2.2. Cleaning and Drying Photographs

Soiled photographs removed from albums continue to deteriorate if left as they are; therefore, dirt must be removed. However, since the image may be lost through cleaning, a copy must be created by taking photographs with a digital camera before cleaning. When handling photographs, latex gloves and a dust mask are required.

### (1) Cleaning

Soiled photographs are soaked in a tray filled with water. Soil from the image layer is gently removed using a small brush or the pad of a finger. At such time, a corner or an edge of the photograph should be dipped in the water to confirm that the water does not remove the image. Specifically, subjects such as people should not be washed too aggressively [Photo. 6: Cleaning a photograph with a small brush]. The back of photographs should be washed in the same manner. Attention should be paid to how photographs are held, such as pinching the edge of the photographs with fingers to avoid touching the image layer on the front. If the image layer of the photograph has already become dissolved and reds and yellows are marbled, the photograph should not be cleaned [Photo. 7: The surface of a marbled photograph].

**(2) Rinsing**

Lightly-washed photographs are placed in a tray with clean water and then lightly rinsed [Photo. 8: Rinsing a photograph].

**(3) Draining water**

Rinsed photographs are drained on paper such as newspaper or absorbent paper towel.

**(4) Drying**

Photographs are hung on a laundry rope or net using clothespins for drying. As much as possible, number tags for album and page numbers should be hung so that albums and orders are clear [Photo. 9: Drying a photograph]. If space for drying is limited, photographs could be placed flat on paper such as newspaper that absorbs water or placed on a slit board. If photographs have curled after drying, each photograph should be wrapped with rayon paper or parchment paper, then a weight placed on top to make them flat.

Dried photographs should be stored in a new pocket album if there is no stickiness. If stickiness remains after drying, a paper such as parchment paper is placed between the photographs before storing.

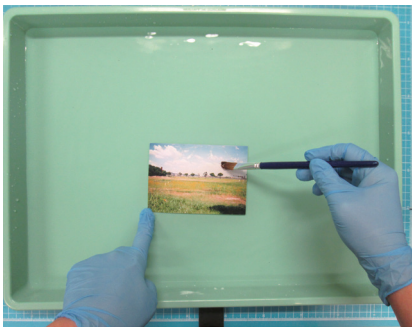

Photo. 6

Photo. 7

Photo. 8


Photo. 9

### 2.3. If Photographs Are Not Being Cleaned

As previously mentioned, if the image layer of a photograph has dissolved and appears marbled, the photograph should not be cleaned. In addition, if the damage to the album is limited (no mud on the surface, no odor), it should be dried without cleaning. If photographs can be removed from pocket albums or adhesive mounts, these photographs should be individually dried.

Generally, to maintain the subjects of photographs, the damage to the image layer should be kept to a minimum. Although photographs were not cleaned in the Hyogo and Gifu cases, there were requests to clean photographs in Hiroshima even if this damaged the images, since marbled images reminded people of the disaster. As such, the treatment policy for such private photographic materials will change based on the owners' wishes. Therefore, before starting the tasks, the treatment policy needs to be agreed on with the owner.

### 2.4. Challenges Associated with Cleaning Photographs

Deciding how to store severely damaged albums and photographs is difficult. Wedding and birthday albums often have decorations on the surface, which

should be maintained as much as possible. However, since damaged photographic materials deteriorate faster due to water damage, it is often difficult to keep the original. Therefore, along with the dried, damaged photographs, copies are prepared with a scanner or digital camera, and digital data are provided as DVD and so on. Furthermore, the Miyazaki Shiryo-Network used photographic data for digital restoration.

Photographs stored at typical households are not likely to receive government support, basically relying on volunteers. This is the same challenge as other undesignated cultural properties. However, in recent years, some companies have provided information on handling damaged photos or photography storage goods such as pocket albums. After the Torrential Rains of July 2018, the "Mono Committee" of the Gifu Museum Association led the treatment of damaged albums in Seki. Seki, Gifu Prefecture, mentioned the support they received on cleaning photographs and albums in their *Disaster Victim Support System Guidebook* that was distributed to disaster victims. Through this publication, disaster victims found out how to request cleaning of their damaged albums. These are cutting-edge attempts and model cases for the local government to handle disaster-affected photographic materials in the future[1]. Going forward, joint rescue activities by Shiryo-Networks, volunteer groups, governments, and companies with photography cleaning expertise will be effective.

## Conclusions

Especially since printed photographs have gradually decreased since the start of 2000s, providing opportunities to inform people of how to give emergency treatment to photographs in albums from the pre-digital days is necessary. At the time of disasters, film companies and photography associations published guidelines on rescuing photos, and offered support, but it is also important to have the practical actions of volunteers who cleaned the photographs in the affected areas along with the rescue activities by Shiryo-Networks of each area[2].

By rescuing materials that are packed with people's "memories" and "attachments," perhaps we can help ease the sense of loss and help regain normal life for people in the affected areas. Furthermore, when people have lost loved ones and their homes in a disaster, having items that are associated with the family

will give them strength for mental recovery. This has been documented in many disaster-affected areas. As photographic rescue following disasters becomes more known, we hope that it conveys the importance of preserving individual records not only during disasters but even during normal times, and the significance of our disaster-affected material preservation activities that save the history of families and communities.



**Notes**

1 Seki City prepared the *Disaster Victim Support System Guidebook* (First Edition) following Typhoon Lan of 2023, informing disaster victims of emergency treatment support for disaster-affected ancient documents and photographs.

2 A list of photograph cleaning volunteers is available on the Disaster-affected Photograph Cleaning Activities @ Nagareyama blog page (updated on September 20, 2023: https://ameblo.jp/sunnyblog/entry-12744745156.html) (the website was last viewed on January 23, 2024).

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# Chapter 5

# Folk Implements Rescue



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## Introduction

Cultural property rescue is an initiative undertaken by the Agency for Cultural Affairs to urgently preserve cultural properties, mainly arts and crafts, that natural disasters have damaged and to prevent them from being disposed of, dissipated, or stolen[1]. In the rescue of cultural properties, folk implements are the subject of many requests for help. These items originally existed in large numbers, so as a cultural property group, they provide an overview of the living culture of that community. Therefore, cultural property rescue activities will rescue enormous numbers of implements. Despite the number of requests for help, however, we need to understand folk implements more generally, regarding them as cultural properties of great importance at a local level, and herein lies a discrepancy. When a disaster threatens to wipe out a local community altogether, for the disaster victims, these folk implements their ancestors have handed down become an indispensable anchor for the identity of the disaster-affected community and the victims themselves. They endure as a representation of everyday life or the memory of the lives of ancestors, and in doing so, these folk implements also provide the whole community and the residents with a new opportunity to think about communal regeneration. This chapter focuses on folk implements rescue conducted as a part of cultural property rescue (rescue, temporary storage, and emergency treatment) after the Great East Japan Earthquake. Note that in culture property rescue, the activity's main pillars are "rescue, temporary storage, and

emergency measures". Still, this chapter gives specific examples of treatment, so it uses the term "emergency treatment".

## 1. Disaster-Affected Folk Implements Rescue

Following the Great East Japan Earthquake, the rescue of folk implements first started with searching for buried items while removing the broken glass scattered across the floor and clearing away the sludge that the tsunami had brought with it. It was physically exhausting work, which soon had the goggles I wore clouded from perspiration and my body drenched with sweat [Photo. 1: Folk implements rescue at a disaster-hit museum (June 2011, taken by WADAKA Tomomi)]. I often couldn't tell whether I was handling folk implements or just rubble and detritus. The value of folk implements as cultural properties lies in their ability to preserve the memories of everyday life. In a sense, this scene of destruction, where everyday objects had become nothing but rubble and detritus, was perhaps their fate. As I struggled to judge whether I was handling rubble, detritus, or folk implements, I decided to rescue everything. If you discarded it, it would be gone forever; if it later turns out to be rubble or detritus while sorting, you could discard it. A worker's capacity for judgment inevitably diminishes when working in the harsh environment experienced during post-disaster rescue activities. Thus, it is necessary to err on the side of caution and rescue anything that could be a folk implement. Rescued folk implements are covered in dirt to varying degrees from the dust generated by the rubble [Photo. 2: Example of folk implements covered with dust following the disaster (February 2010, taken by HASHIMOTO Sachi)]. In some cases, disaster-affected cultural properties are no longer in their original shape due to damage from the impact of falling over or falling from a height or the shelf on overturning [Photo. 3: Folk implements damaged and no longer in the original form (June 2011, taken by the author)]. To find folk implements in this condition among the rubble and detritus, it seems essential for the rescue team to include curators from museums and art galleries, who are used to dealing with cultural properties daily.

Next, let us see the system for rescuing disaster-affected folk implements. Rescue is an activity which, above all, requires many people. Since the Great Hanshin-Awaji Earthquake, several big disasters have repeatedly hit Japan and

damaged cultural properties. In response, a system has been established for staff from cultural property preservation institutions in addition to curators from public and private museums and art galleries, to assemble at disaster sites. Experience in rescuing disaster-affected cultural properties and museum materials has accumulated, leading to excellent results. However, the teams carrying out this work consist of curators and researchers from all over Japan with various areas of expertise. Therefore, if the team members work according to their value judgments and areas of expertise, their efforts would become disjointed, and achieving the overall objectives would not be possible. It is, thus, necessary to appoint a team leader in charge of the whole rescue site who can devise a work plan and give instructions to the rest of the team.

The team leader's job starts with a preliminary survey of the rescue site [Photo. 4: Preliminary survey before rescue work (June 2011, taken by WADAKA Tomomi)]. The team leader works out an effective plan to avoid accidents. Cultural property rescue takes place during the restoration phase of a disaster-hit area, so much of its road network is still in disrepair. The rescue activities following the 2011 earthquake were carried out in just such conditions, and it would generally take about three hours to get to the site—a journey time that would be inconceivable in normal times. It directly impacts the ability to secure enough working time at the site. In the preliminary survey, it was essential to devise a thorough plan that considers how to achieve results from the rescue activities most effectively within a limited timeframe.

Before the actual work begins, the team leader must first hold a pre-meeting to explain the objectives and plan to all [Photo. 5: Pre-work meeting in June 2011 (taken by KAWAMURA Yukako)]. If all the team members did not share the goals, work plan, and the work objectives for that specific day, it would be impossible to obtain effective results. Supervising the site is necessary to ensure regular breaks during working hours and to secure the site's safety to avoid accidents and prevent injury or illness. In particular, it is essential to adhere strictly to instructions about breaks. As described above, the rescue site is a harsh environment. Not taking proper breaks increases the risk of dehydration and heat stroke. When this happens, you ultimately rely on disaster victims' help: you need to take breaks to rest and regain your composure. One of the team leader's most important roles is to be aware of this and to share that awareness with the rest of

Photo. 1

Photo. 2

Photo. 3

Photo. 4

Photo. 5

the team. When I was team leader during the rescue activities following the Great East Japan Earthquake, we took 10-minute breaks every 40 minutes. As a result, no one got injured or sick, and we were able to carry out effective rescue activities.

Finally, the team leader writes a daily report of the rescue each day for the benefit of the next team leader. The area hit by the 2011 catastrophe was vast, and circumstances occasionally required a change of team leader. It is necessary to establish a system for doing a proper handover of the work by maintaining a daily report.

## 2. Temporary Storage and Sorting/Recording

Temporary storage means moving cultural properties from the rescue site [Photo. 6: Transporting items to temporary storage (June 2011, taken by WADAKA Tomomi)] and storing them safely [Photo. 7: Putting items in temporary storage (June 2011, taken by the author)]. The term "safe" in this context includes protection from wind and rain and security in terms of crime prevention measures, such as locking and managing the storage facility.

With temporary storage, the person in charge of the disaster-affected museum or other cultural property storage facility will only be present for a limited amount of time, so moving all cultural properties to the storage site in one go is necessary. You have no time for "art packaging" when transporting large quantities of folk implements in a limited timeframe. Apart from fragile items, therefore, all other items with a reasonable degree of robustness should be loaded onto the truck bed as far as possible [Photo. 8: Loading up a truck with as many disaster-affected folk implements as possible (July 2011, taken by the author)]. In addition, when transporting the disaster-affected folk implements, the truck drivers are not specialist drivers but people like the author, who are not used to this kind of work. The roads are often unstable, and the destination is some 50-100km away, so great care is required to avoid accidents. In these difficult conditions, expecting one person to manage all the driving safely on their own is unreasonable. Securing several drivers, taking turns driving, and being ever-mindful of safety while on the move is of great importance.

The work from rescue to temporary storage requires swift action within a

limited timeframe. However, we should remember that we are dealing with many folk implements temporarily moved from their designated locations. It is also essential to keep a record of moved items. Suppose you have no record of the number of items of cultural property X at facility A. In that case, it will become impossible to confirm the number of rescued folk implements during subsequent rescue activities. Therefore, while doing the work of temporary storage, it is necessary to sort and record the items to confirm their overall number—even if it is only a rough count. However, it is not possible to draw up a perfect list when transporting disaster-affected cultural properties within a limited timeframe. In the case of the Great East Japan Earthquake, we counted the number of stacking boxes containing the rescued folk implements. To keep a record of which folk implements had been packed into the boxes, we took a photo of the contents of each box and saved the image data with the number assigned to the corresponding box [Photo. 9: Sorting materials using stacking boxes (May 2011, taken by the author)]. When we later came to perform the emergency treatment, we were finally able to sort and record each item.

Next, let us discuss the temporary storage environment. In addition to damage from the disaster, the wind, rain, and dust deteriorate folk implements. They are exposed to elements while rescued and moved to the temporary storage site, which is why we have to rescue, temporarily store, and perform emergency treatment as quickly as possible. However, the temporary storage site is not an environment where we can regulate the temperature, humidity, and light, like the storage area of a museum. In a large-scale disaster, various facilities sustain damage; we need to use most of the locations and environments that are still in relatively good condition as evacuation shelters for disaster victims and storage areas for relief supplies. Therefore, the locations provided as temporary storage sites for disaster-affected folk implements are not ideal for evacuation shelters or storage sites for relief supplies, and they are very often empty classrooms in schools or the entrance halls of unused facilities [Photo. 10: Temporary storage site at facility not currently in use (July 2011, taken by the author)]. Thus, trying to stabilize the environment at the temporary storage site is of importance. The places provided as temporary storage sites during disasters tend to have large windows and doorways, and the air conditioning system rarely functions. The large windows and doorways make the environment susceptible to the influence

Photo. 6

Photo. 7

Photo. 8

Photo. 9

Photo. 10

of the outside air. It can give rise to large fluctuations in temperature and humidity, which increase the risk of embrittled folk implements becoming damaged or deformed. Even small gaps in the rails, which the sashes for opening and closing large windows and doorways are attached to, can allow dust into the room, which then gets on the folk implements. These gaps can also allow insects to enter and feed on the folk implements, creating an environment susceptible to biological damage. Furthermore, the folk implements are exposed to other deterioration factors, such as the ultraviolet rays from sunlight coming through the large windows.

It is desirable to work with a conservation scientist familiar with museum environments to tackle these challenges. Conservation science is a field of research that takes an academic approach to conserving cultural properties, including museum environments. "Conservation of Museum Collections" was designated as a mandatory module (mandatory in FY2012) in the Course for Prospective Museum Workers in the Ministerial Ordinance Partially Amending the Ordinance for Enforcement of the Museum Act published on 30 April 2009; around this time, conservation science research results on the museum environment were published in various forms[2]. These publications itemize factors significant for temporary storage sites, such as temperature and humidity control and measures against biological damage, so we should refer to them to ensure the preparation of the best possible environment.

## 3. Emergency Treatment for Disaster-Affected Folk Implements

Emergency treatment is work to halt the deterioration of damaged cultural properties. When earthquakes or floods damage cultural properties, what we can observe first is surface contamination from dust, sludge, and sand. The impact of the disaster itself and damage sustained from falling or from shelves overturning can also be seen. The dust, sludge, or sand contaminating the surface attracts moisture, which in turn can encourage the growth of mold. Furthermore, this dirt makes it difficult to handle the folk implements themselves and significantly hampers the work of trying to sort them. Therefore, the first emergency treatment is cleaning to remove the substances that have soiled the disaster-affected folk implements [Photo. 11: Emergency treatment for disaster-affected folk implements (August 2011, taken by the author)]. However, this cleaning work is the absolute

minimum. An important factor in rescuing as many disaster-affected cultural properties as possible is reducing the time spent on each folk implement. Since overly meticulous work will limit the number of items that can receive emergency treatment, the team leader must supervise the overall work while closely monitoring how the members implement the treatment. Cleaning the materials as part of emergency treatment, I distributed six cleaning kits to the members: a small, medium, and large paintbrush, a small and large scrubbing brush, and one type of calligraphy brush [Photo. 12: Cleaning set]. Of course, we may use fewer varieties of brush depending on the disaster situation. We then set a rule that the team should only do cleaning work using this cleaning kit and no additional cleaning. The curators and conservation specialists who work daily with museum materials and cultural properties probably felt that this cleaning work needed to be improved. However, we persuaded them that work requiring specialized skills, such as full-scale cleaning or fixing damaged parts using adhesives, would be carried out in the next phase of conservation and restoration activities.

Next, let us introduce the specific emergency treatment activities carried out after the Great East Japan Earthquake. In this case, sea sand contaminated the surfaces of the disaster-affected folk implements. Brushing with a scrubbing brush easily removes the sand once it is dried. Therefore, we brushed the sand off many disaster-affected folk implements using as little water as possible while sticking to the abovementioned rule: just removing what we could by using the cleaning kit.

The 2011 catastrophe was a tsunami disaster, a type of disaster I had not experienced before. A particular concern was that the salt content in the seawater

Photo. 11

Photo. 12

would be a major cause of deterioration for the disaster-affected folk implements. Researchers tackled this problem for cultural properties, including excavated artifacts, natural history objects, and ancient documents, by performing emergency desalting treatment at the cultural property rescue site. They hold training sessions on this kind of treatment, and the methodology is publicly available online. I also wanted to know whether desalting treatment is necessary for the folk implements affected by the earthquake. However, given the limited time they would have been exposed to seawater during the tsunami, it was necessary to carefully prioritize when removing the salt content that would have permeated during that time.

Compared to other cultural properties, folk implements are generally stable during regular times, mainly because people have used them until relatively recently in everyday life or for work. As they have been manufactured for practical use rather than for being admired as works of art, they have a certain degree of inherent durability. Therefore, the folk implements that seem to need desalting treatment for conservation and restoration are items exposed to salt water daily, such as fishing gears or salt-producing or soy sauce-manufacturing equipment regularly exposed to high salt concentrations.

In 2011, when I observed the condition of the folk implements affected by the Great East Japan Earthquake, none at that stage showed signs of deterioration due to salinity. Indeed, I felt that the desalting treatment would pose a more significant problem: that of the environment where researchers perform the treatment. Folk implements come in various shapes and sizes. While most are wooden, some are of various materials, including metal, paper, and lacquer. In addition, a large number of items need to be processed together at the same time. When desalting folk implements, therefore, it is necessary to observe the condition of multiple constituent materials. It is also necessary to prepare a large water tank [Photo. 13: Desalting tank for large artifacts (August 2012, taken by the author)] or lots of smaller water tanks [Photo. 14: Multiple desalting tanks for different types of artifacts (August 2012, taken by the author)] to perform mass treatment. In other words, when judging whether to carry out desalting treatment, we must consider whether we can prepare for this work environment. In addition, when immersing wooden objects in desalting solution, they need to be dried out after the treatment. When wood that has absorbed large amounts of water is dried out

Photo. 13

Photo. 14

too quickly, it can shrink, become deformed, or crack. Therefore, preparing a place to dry the wood slowly over a certain period after the desalting treatment is necessary. Furthermore, metal parts will rust if immersed in water, so a space for performing anti-rust treatment is also required. Having managed to rescue items from the disaster site and transport them to the temporary storage site, it did not seem feasible to solve the problems mentioned above within the limited space available.

For the folk implements affected by the 2011 earthquake, we ultimately decided not to carry out desalting treatment; instead, we prioritized cleaning work focusing on removing sand and sludge adhered to the materials by the tsunami. However, that is not to say we shelved the salt issue altogether. After concentrating on the cleaning work in 2011, from February 2012, we carried out preliminary experiments in desalting, and then from March onwards, we provided technical instruction mainly within Miyagi Prefecture for full-scale desalting treatment [Photo. 15: Technical instruction for desalting treatment (2014, taken by WADAKA Tomomi)] [3].

Photo. 15

Finally, I would like to summarize the procedures and ideas for emergency treatment of disaster-affected folk implements. When cleaning such implements in emergency treatment, the basic idea is to remove as much dirt as possible with cleaning tools but without

Photo. 16

Photo. 17

water. However, in the case of items where mud has adhered to the surface and cannot be easily removed, or folk implements with complicated shapes where mud or sand has filled the nooks and cracks, you can immerse them in a tank filled with water [Photo. 16: Cleaning by soaking in a water tank (May 2011, taken by KAWAMURA Yukako)] or remove the dirt using running water [Photo. 17: Cleaning with running water (May 2011, taken by KAWAMURA Yukako)]. When using water for cleaning, it is necessary to prepare a space at the work site for drying the folk implements after washing them. If you clean using water in a work environment with high humidity or where there is no space for drying the folk implements, it can lead to outbreaks of mold, which then take time to deal with. For this reason, we should carefully decide whether to use water for cleaning.

In addition, note that emergency treatment is not an opportunity to show off one's technical skills. The priority should always be to stabilize as many folk implements as possible. When performing cleaning and other emergency treatment, we should always be mindful of the necessary work at any given moment and how that work will connect to the next phase of the work.

## Conclusion

Based on the experience of dealing with folk implements in the immediate aftermath of the Great East Japan Earthquake, we have considered the main pillars of activity of cultural property rescue, namely rescue, temporary storage, and emergency treatment. However, this work alone is insufficient for the folk imple-

ments to be reborn as items handed down to future generations as local cultural properties. The work carried out after this point is also important.

That work involves conserving disaster-affected cultural properties deemed needing full-scale restoration by specialists [Photo. 18: Restoration of disaster-affected folk implement by specialist (June 2010, taken by HASHIMOTO Sachi)] and preserving folk implements at restored museums and other facilities [Photo. 19: Permanent storage of disaster-affected cultural properties (November 2010, taken by the author)]. The next step is to compile the findings from the cultural property rescue activities so far and specialist research activities at the museums and other facilities where the cultural properties are permanently stored, and link this to activities where those results are published and utilized [Photo. 20: "Rescuing History and Culture" Special Exhibition of disaster-affected folk implements (July 2010, taken by the author)]. Through these research and utilization activities, museums should fully use their function to firmly embed an

Photo. 18

Photo. 19

Photo. 20

Photo. 21

understanding among the locals that folk implements are an inherent part of their community's identity. Based on this, by developing activities to think about how to mitigate against the next disaster together with the whole community [Photo. 21: Discussion forum with the locals on cultural property disaster prevention (November 2010)], I think it is possible for folk implements to be reborn as cultural properties the community will pass down to future generations.

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# Chapter 6

# Rescuing “Works of Art”



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## Introduction

We use the term “Works of art” to refer to items such as paintings, calligraphic works, carvings, and handicrafts that have obtained artistic appraisal. The term is also employed to indicate items that have a certain commercial value, however this definition is regarded as imprecise. Certainly, items that have been officially recognized as cultural assets are easy to identify; however, this does not imply that such artworks are the only ones that should be saved. In some cases, cultural heritage items that have not been officially designated as such are still given appraisal for their historical or artistic value, as these are handed down for generations and have an emotional value for the owner’s. Certain reproducible items, such as woodblock prints and photographs, that are also highly praised as works of art. When a disaster strikes and artworks get damaged or lost, it is difficult in pragmatic sense to use these as criteria for classification (triage). As such, we will vaguely bundle them all together under the definition of “Works of Art” (include works that have not currently received artistic acclaim and works that can be reproduced).

Furthermore, this chapter will focus on Oriental paintings and calligraphy with mounting. Regarding sculptures, crafts, and Western paintings such as oil paintings, the materials and structures are very different, so I hope that a report will be written by an expert on each in the future.

# 1. The Materials and Structure of Japanese Paintings and Calligraphic Works

## 1.1. Paintings and Calligraphic Works with Mounting

Mounted works of art is a term that is not limited to any specific designation and, in principle, it refers to paintings and calligraphic works that have mounting. In other words, the work itself is the painting or calligraphy written or drawn on silk or paper (which is regarded as the main body of the work). The silk or paper is reinforced by pasting a backing paper on the back, and is mounted (=assembled) into forms such as sliding doors, folding screens, scrolls, bookletsthe (we usually use the term "binding" when assembling a booklet, but in this chapter, we use "mounting" instead), hanging scrolls, and picture albums, depending on the purpose for partitioning or reading or appreciation. The most distinctive feature of these forms is that the main paper is pasted and integrated with the mounting (lining and other parts). In other words, serious repairs for this type of works involve remove the paper lining from the main body, repairing the main body, giving it backing support, and shaping each part of the mounting. In the case of paintings and calligraphic works that have been handed down over a long period of time, multiple repairs should be done up to the present day. However, in an overwhelmingly large number of cases, the mounting is remodeled during repair, meaning the original mounting is not handed down. Mounting can be thought of as a garment that enhances the main body and, as it gets old and dirty, it needs to be replaced. Therefore, making new mounting is considered common sense, as repairing and reusing the old mounting represents a process that is too complex. This is precisely what happens in the tradition of paintings and calligraphic works in Japan. Unmounted items are also sometimes included in the category of works of Art.

## 1.2. Repairing the Main Body

The base for the main body is made of silk or paper; the majority of these works are on paper, but the status of the works is higher for those on silk. On this base material, the calligraphy or painting is expressed with ink or paint colors, respectively. The base and coloring materials (ink or paint) are usually fixed with some kind of adhesive, as it is essential for it to keep its adhesive strength. The

goal of main body repair is to improve the flatness of the base material, the adhesive strength of the coloring material and the base material, and remove foreign substances on the surface so that the color and quality of the ink or paint can be clearly seen. To improve the flatness of the base material it is necessary to compensate for any missing parts and return it to a single-sheet structure; if the shape cannot be improved with the base material alone, it will need reinforcement from its backing. To ensure the strength of adhesion of the paint, peeling needs to be prevented. Further, to make the colors clearer, it is essential to clean the surface to remove or reduce impurities or stains.

### 1.3. Preparing the Mounting

After repairing the main body, the process for assembling the backing and the mounting begins; specifically, for works on silk, the most important process in repairing is replacing the backing (removing the old backing paper and affixing the new one). Some schools of thought include the removal of the first backing paper that is directly adhered to the main body as part of main body repair. Afterward, each form is assembled; however, since these differ greatly depending on the form, the structure and process of hanging scrolls and folding screens is shown as a representative example [Fig.1: Hanging scroll structure and 2: Folding screen repair process].

These show the general process lined up in order. Depending on the work’s materials or state of deterioration, the process may involve more steps or have the order changed. For example, the “Limited Moisture Method for the first lining removal” may be used, in which a front support is added to the surface of the work and the first backing paper is removed. Furthermore, depending on the state of the paint, peeling prevention may be carried out not only in the first half of repairs, but also after treatment using water. Here, the tasks of recording and taking photographs during and after repairs are omitted.

For any of these forms, it is clear that, unless one is an expert, it is extremely difficult to assemble the mounting, even when following a manual. This is to say nothing of the fact that, in main body repairs, it would be unthinkable to grasp the materials and structure, scrutinize the level of deterioration and damage, and carry out proper treatment without an abundant degree of experience. Furthermore, the only professionals who are able to achieve long-term preservation

1. Examination before repairs
2. Dismantling the mounting (leaving the first backing paper)
3. Cleaning
4. Preventing paint layer from peeling off
5. First lining removal (with Removal of old silk or paper repairs)
6. Filling the missing area with silk or paper
7. Lining the first layer
8. Lining of silk fabric used for mounting
9. Lining the second layer
10. Treatment of bend acutely areas
11. Setting to mounting
12. Lining the third layer
13. Lining the last layer
14. Temporary tension for drying and flattening
15. Color matching of new silk or paper repairs
16. Final assembly of mounting
17. Conservation report

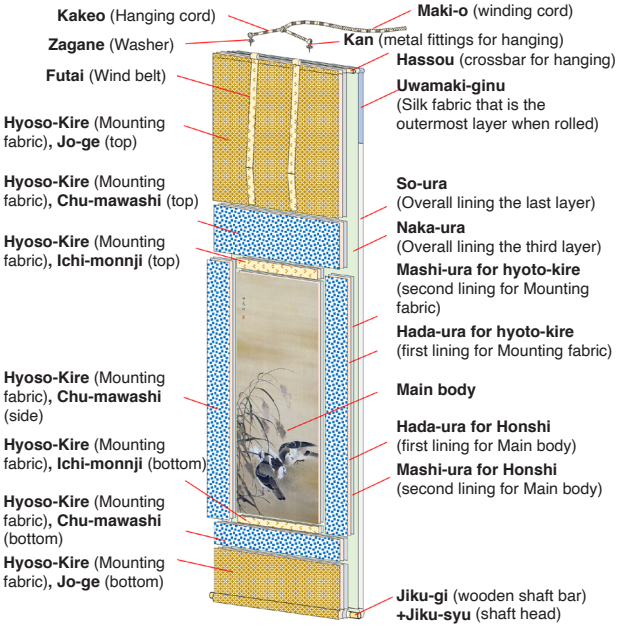



Fig.1

1. Examination before repairs
2. Main body disassembly
3. Cleaning
4. Preventing paint layer from peeling off
5. First lining removal (with Removal of old paper repairs)
6. Filling the missing area with paper
7. Lining the first layer
8. Lining the second layer
9. Temporary tension for drying and flattening
10. Color matching of new paper repairs
11. Lining of silk fabric and backside paper used for mounting
12. Making paper panels (made of 8 layers of 6 types paper on a lattice-shaped wooden frame)
13. Attach the main body to the panel
14. Attaching fabric of mounting/ Paste paper on the hinge
15. Setting wooden edges
16. Conservation report

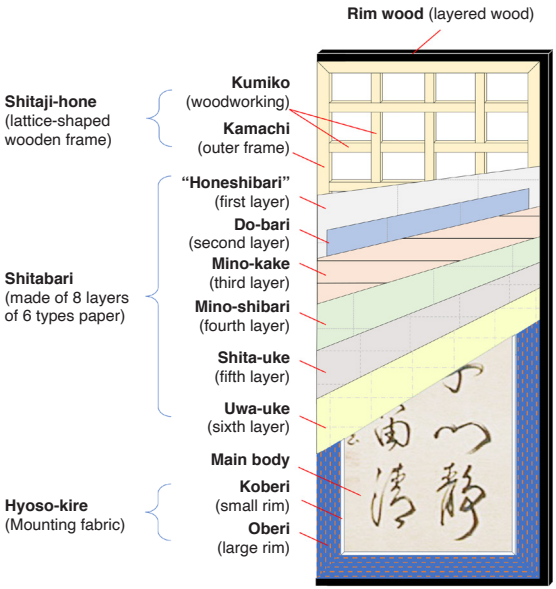



Fig.2

of works at the cultural asset level are mounting technicians who specialize in assembling mounting and who are capable of designing and executing repair specifications in line with the principles and general rules of cultural asset repair. However, only a limited number of such specialists exist. It would be ideal for such specialists to be involved in everything from rescue during disasters, to emergency procedures and serious repairs. However, in Japan, professionals with this kind of knowledge, experience, and skills mainly belong to private organizations such as companies; therefore, it is quite difficult to have them on site from the time a disaster strikes. Nevertheless, the longer these tasks are postponed, the more likely it is for the work to have zero chances of being handed down with an official valuation as a work of art. This chapter will examine what can and should be done on site during disasters to avoid this consequence.

## 2. Works of Art as Victims of Disaster

From the standpoint of a repair technician, what is important is the state of the main body and the type and degree of deterioration, regardless of the type of disaster the artwork has suffered. This chapter will start by listing the nature of deterioration and damage that characterizes each type of disaster.

### 2.1. Earthquakes

When an area containing artworks is hit by an earthquake, physical deterioration caused by items falling from high places is assumed, as well as the artwork being crushed under collapsing structures. The main types of damage to main bodies are Damage caused by thrusting, snapping, missing parts, scratches, as well as damage to the mounting (hanging scroll, folding screens, sliding screens) [Photo. 1: Perforation, scratches (sliding screen owned by C Family in Ofunato City)]. However, earthquake damage is not limited to what happens during the initial disaster. It often happens that infrastructures are lost in the disaster, or that humidity and temperature can no longer be controlled, leading to biological damage from mold. Further, if buildings are destroyed, water damage to artworks can occur due to rain and water tank leaks.

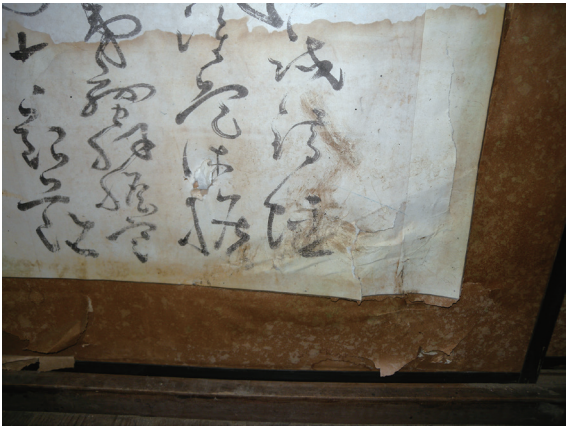


Photo. 1

### 2.2. Flooding, Tsunami (High Water), and Landslides

The deterioration caused by flooding, tsunamis, and landslides is classified under water damage. They differ from water leaks because works of Art themselves may go missing or be lost due to entire buildings being swept away, or the materials being dragged outdoors. Furthermore, Japanese painting and calligraphic works use paper and silk as base materials. This means that most of them use water-soluble adhesives as color fixing agents and many of the components of the mounting (including the lining) are assembled by being adhered with water-soluble wheat starch. Given this, being immersed in water is greatly damaging to these artworks. This damage is further compounded if it happens over a long period of time. The paint layer may suffer advanced peeling and, if the base material is paper, the hydrogen bonds could break, weakening it. If a hanging scroll is exposed to water damage while rolled up, the surface of the painting and the backing paper may cling to each other, with part of the paint layer possibly adhering to the lining [Photo. 2: Pasting part of paint layer to full lining (Nagano City, Chomei Temple). Paint is stuck to the back side (full backing paper). Of course, the paint remaining on the surface side had lost adhesive power and was at risk of peeling off.]. Not only the paint layer, but the paper of the main body itself may adhere to the lining, meaning the surface of the painting will be lost [Photo. 3 Front/Back: Pasting part of the main body paper to the full backing (Nagano City, Chomei Temple). main body paper is pasted to the back side (full backing paper)

Photo. 2

Photo. 3

of the hanging scroll]. If folding screens are exposed to water damage while in a closed position, the surfaces of the paintings may stick together.

Despite being called water damage, it is rarely just water. In fact, even rain leakage on its path from the roof to the damaged materials becomes dirty water, containing various foreign substances. Moreover, it goes without saying that the water in floods, tsunamis, and landslides is dirty water, containing various dissolved and undissolved materials from the surrounding environment. Even if the water that reached the damaged materials was initially pure water, it would become dirty because of the dust and other foreign substances on the surface and interior of the work itself, resulting in deterioration. In fact, such dirty water can cause impurities to adhere to the surface of the painting [Photo. 4-1 Before repairs/After cleaning: Stains (mud) adhering to scroll (unmounted hanging scroll

Photo. 4-1

Photo. 4-2

owned by S Family in Ofunato City) and Photo. 4-2 After cleaning: Breaks, missing pieces (unmounted hanging scroll owned by S Family, Ofunato City). The scroll was in a rolled up position when the tsunami hit and spent a long time with mud adhered to it. The paper of that section had decayed and broken, some parts were missing and even after cleaning not all of the stains could be removed.], cause stains, and leave boundary lines from drying, if it dries unevenly [Photo. 5 Before repairs/After repairs: Stains (with edges) (sliding screen owned by C Family in Ofunato City). The scroll absorbed seawater, leaving it with dark-colored ring stain (with edges) due to dirt sticking at the borders of where the water dried.].

Stains to works of Art are not only caused by dirty water from outside. If the works of Art themselves were made with coloring that is vulnerable to water, the color can move to places outside the original expression as it gets wet and elements that were originally part of the main body can cause visual damage. This can happen if dye-based paints were used [Photo. 6: Running of dye-based

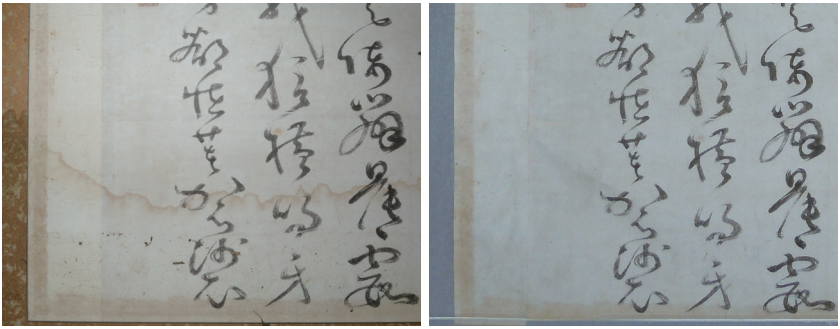


Photo. 5

Photo. 6

paint (ukiyo-e woodblock print owned by S Family in Ofunato City). Many of the carmine and composite dyes used in Meiji period woodblock prints are vulnerable to water and, since they were stacked in storage, the staining caused by water transferred and spread.], if water-based ink was used to write characters, or if the dyes used to color the mounting fabrics for hanging scrolls were not fixed [Photo. 7 Front/Back: Transfer of dye from mounting fabric (Nagano City, Chomei Temple). The scroll was stored rolled up, but the mounting fabric (middle layer) purple dye was exposed to water in a flood and transferred from the middle of the second inner layer to the main body, staining it.]; these can all cause visual

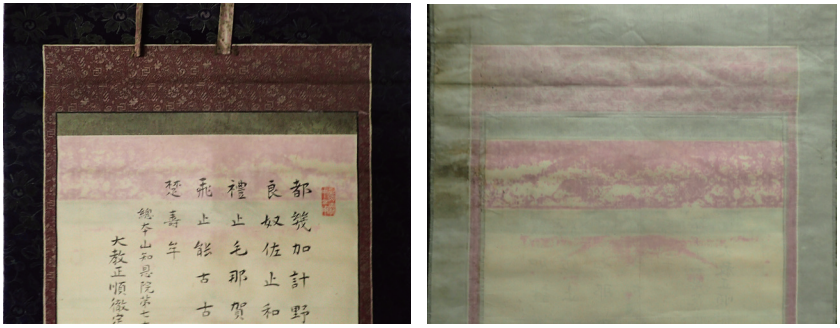


Photo. 7

damage in other parts of the main body.

Further, in most cases, after the disaster, water damage produces biological damage, with the most ubiquitous being damage from mold. This is not a merely cosmetic problem: fungal mycelium growth can destroy the color layer or the base materials themselves and, in the growth process, other darker colored substances are produced [Photo. 8: Coloring due to chromogenic mold production (Hand scroll Owned by S Family in Ofunato City)], causing visual damage. Furthermore, if the material is immersed for a long time, sclerotia will form when the fungal mycelia cluster together, potentially destroying the base material itself and germinating [Photo. 9].

Immersion in seawater causes other forms of deterioration: when the surrounding environment drops below a certain humidity level, the moisture in salt water evaporates and dries, leaving the salt content inside the base material. Since salt content deliquesces (the phenomenon of a substance absorbing water vapor and spontaneously becoming an aqueous solution) when the environmental humidity level goes above a certain point, even if it is dry, it will approach a state of wetness when rainfall or other weather causes the humidity to rise, even if the material is not directly touched by water. If this is repeat-

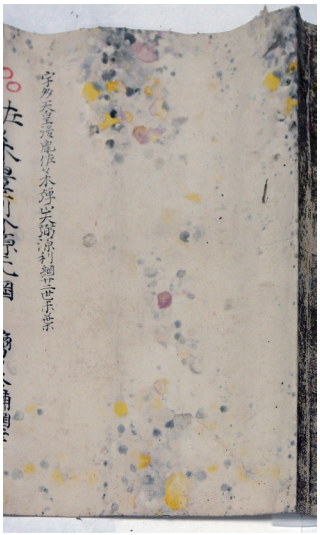
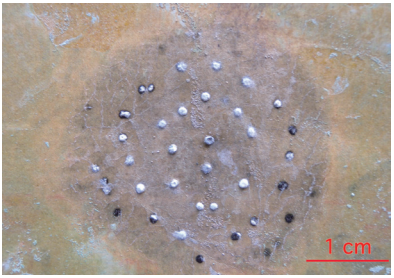
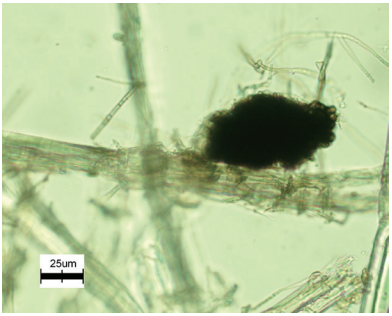


Photo. 8



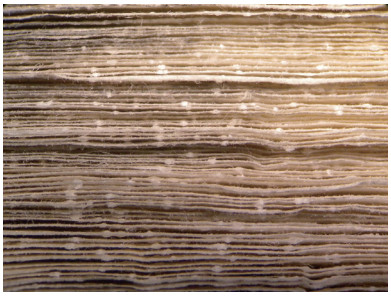

Folding screen

Hanging scroll

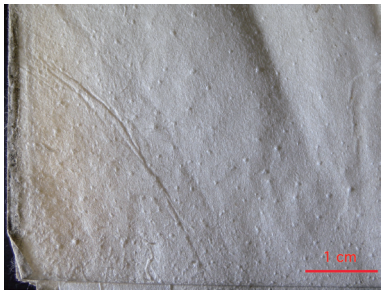



Micrograph

**Photo 9. Sclerotia (Owned by S Family in Ofunato City)**
If an item stays wet at low temperatures for a long time, fungal myceliums will form clusters called “sclerotia”. When they germinate they penetrate the main body paper and produce white and black spot-like bumps on the surface. These are generally seen in crops such as cabbage, but, if the conditions are right, they also form in works of Art.

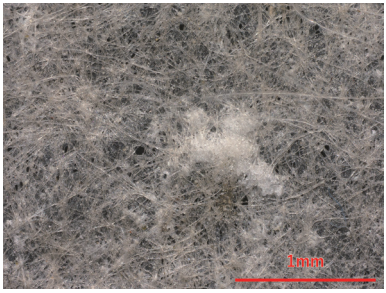


Book edge




Book surface

**Photo 10. Paper breakage due to salt content crystallization (Owned by S Family in Ofunato City)**
If the salt content in the paper repeatedly deliquesces and dries under specific conditions, crystals form clusters. This can be seen in the breakage that happens in some of the unions between the paper’s fibers, so this may result in a decline in the base material’s strength (this is not an art material, but the photo is placed here because the same thing could undeniably happen).




Micrograph

ed, the material will remain wet for a longer period of time, which may aggravate deterioration. In some cases, as the salt content repeatedly deliquesces and dries, it can form concentrated crystalline clumps [Photo. 10]. In that sense, it is essential to remove the salt content.

### 2.3. Fire

In fire disasters, most materials get lost, but, luckily, some materials survive. This is because, although artworks featuring paper as base material carbonize in intense heat [Photo. 11: Burned sutra (Senpuku Temple sutra). When paper is charred and carbonizes it becomes brittle and could break or peel simply by being bent, so it will need a surface coating to cure the surface of the piece or some reinforcement from backing.], other artworks made of silver that has blackened over time may be deoxidized and return to the work's original white color. However, in disasters caused by fires, the water employed in firefighting may affect an item; this means that even when such artwork is not affected by high temperatures, it will still suffer water damage. Furthermore, in recent years, various firefighting substances are being used. However, research is still lacking on the effects of chemical firefighting substances on works of Art.

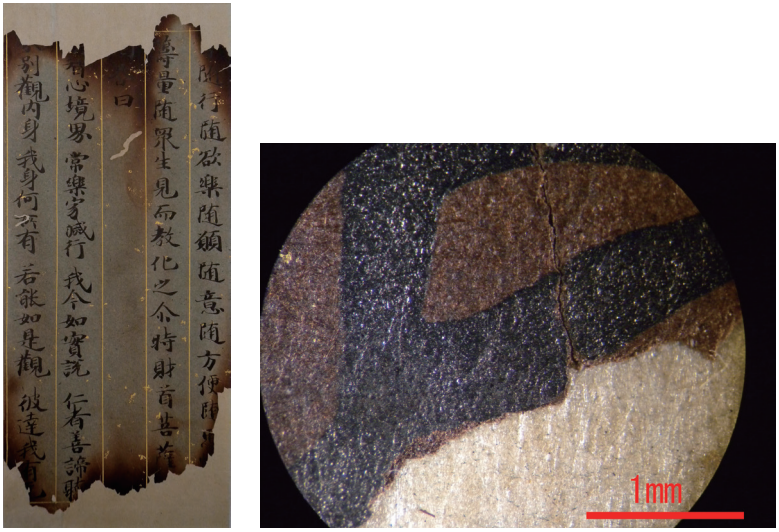



Photo. 11

## 3. Stabilization Measures during Disasters

As mentioned above, when paintings and calligraphic works with mountings suffer a disaster, a suitable restoration period is needed to finish assembling the mounting, restoring their original shape and allowing for them to be handed down. This is not the kind of thing that can be done in a short period immediately following a disaster. Furthermore, disassembling works of Art must be done with an understanding of the main body’s material structure and condition, as well as the structure of its mounting. This would be rather difficult without the help of a specialist. In that sense, the biggest issue is whether a specialist can be involved from the beginning of the restoration work. If it is possible to involve one, it would be preferable for that person to think of the entire journey up to the completion of repairs and decide on the spot which measures will be taken. If it is not possible to involve a specialist from the beginning, those involved should think of their objective while keeping the works of Art in a stable condition until a specialist can carry out the repairs. This is no easy task, considering the infinite variety of art material types, material structures, types and degrees of disasters, and conditions. Therefore, although it is not always possible, seeking the advice of a specialist at the very beginning is directly linked to the post-repairs outcome and will even influence the retaining of the artwork’s value when being passed down.

Stabilization measures start from the rescue at the disaster site.

### 3.1. Grasping the Situation (Decisions at the Disaster Site)

The first decision to be made at a disaster site is selecting which items to rescue. This means deciding whether or not something should be kept as a work of art and therefore rescued and moved (if possible, after confirming with the owner). Further, at this time, the question of whether stabilization measures are needed is determined and, if necessary, the items in question are rescued with the assumption of moving them to a place where repairment measures can be taken. Sometimes the decision about essential timing for stabilization measures (namely defined as “urgent”, or “can be handled later”) will influence the decision about the destination the artworks will be moved to. Another important decision is whether the materials are in a condition that allows them to be moved as they are.

Those involved will need to consider these aspects while conducting the rescue operation, give instructions on storage methods at the temporary storage space, give directions to workers on items that need immediate handling, or consult with a specialist, and so on.

### 3.2. Confirming a Policy for Storage Measures (Examination and Treatment for Temporary Storage Spaces and Work Spaces for [Stabilization] Measures)

After rescued items have been transported to a temporary storage space, it will be necessary to further assess and confirm how they will be stored and what kinds of measures need to be taken and when. To this end, the presence of a specialist who views the items directly would be useful; however, if that is not possible, those involved must gather information for consulting with a specialist at a later time. The following is an organized list of examples of minimum required information about the artwork.

**-Condition of materials that have suffered the disaster**

First, the overall state of the artwork must be grasped, meaning not only the main body, but also the mounting. Is there any physical damage, and has the material been damaged by submersion in water? If so, is it still wet, or has it already dried? Will its current condition allow it to be picked up and moved? Additionally, check whether the works of Art are in a storage box or wrapped in packaging, whether that packaging is protecting it, or if, instead, the packaging is causing damage to the main body. Then, proceed with checking the following key points.

**-Damage from mold** [Photo. 8]

The growth of colonies or production of pigmentation can be observed with the naked eye. With works of Art, the base material itself and the adhesives contain nutrients necessary for the growth of mold. As such, mold will invariably grow if the humidity level rises at a certain temperature. The likelihood of mold growth is especially high if an item has been submerged and then dried, whether in fresh or seawater. Mold damage is not only visual: it causes the base materials and adhesives to physically deteriorate, so disinfection measures are needed to keep mold from propagating any further. However, bacteria exist everywhere and there is a high likelihood of outbreak even after treatment is done. Therefore,

once the treatment is complete, it is essential to consider the post-intervention storage environment at the same time.

**-Adhesion and impregnation of substances that (may) accelerate deterioration**

During disasters, foreign substances may adhere to the surface of the main body (base materials and paint layer) or impregnate and settle inside it. As previously mentioned, impregnation caused by submersion is especially likely to leave various organic and inorganic matter inside the main body, which eventually accelerates deterioration. It is not an exaggeration to say that cleansing work is the most important stabilization measure. Removing salt content is essential for metal materials and paper, which has also been seen to be worsened by salt, depending on conditions. Therefore, rinsing with water is essential for substances removal [Photo. 11].

**-Paint layer deterioration damage**

Due to the structure of pigment, fixing agent as animal glue or other materials is used to affix it to the base material (paper, silk, wood, etc.). If the material is stuck to the other side of a scroll mounting (hanging scroll or reel) or folding screen, it can be confirmed relatively easily by observing it with the naked eye. However, in some cases it may be difficult to detect a simple decrease in adhesive strength. Particularly in cases of water damages, if the material is submerged for a long time, the cement will lose adhesive strength and, even if it appears the same after drying, it has a greater likelihood of peeling off, especially with the artwork being subjected to even the slightest amount of physical force. In these cases, the artwork needs to be examined by touch, a task that is incredibly difficult to carry out without experience. Moreover, the choice of which stabilization measure to take is deeply related to the repairs that will take place later, so it is preferable to follow specialists' instructions. Dye-based colors (including ink) are highly likely to blur if submerged, moving not only laterally, but also transferring to the paper back side or to other materials, which can be confirmed with the naked eye [Photo. 6].

**-Base material deterioration damage**

If the material has been physically damaged due to the disaster, visual detection becomes simple; on the other hand, strength decrease due to deterioration is

hard to detect with the naked eye. In certain cases, examination by touch can be helpful, although, it depends on experience.

**-Mounting deterioration damage**

If the mounting is broken, the immediate assumption is that it will be replaced. However, at this stage, what needs to be kept in mind are cases in which the mounting may damage the main body. It may not be much of a problem if the item is being placed in a storage case without any work being carried out on it, but the mounting may become a nuisance if other stabilization measures, such as rinsing, are being taken. For example, if the dyes used in the mounting fabric dissolve in water, the fabric will need to be removed first [Photo. 7]. Further, when removing foreign substances or dealing with mold, it may be complex and time consuming to completely remove the backing paper, if there is any. In those cases, it is best to consider the overall strength of the main body and remove the backing paper if necessary.

Other types of deterioration may occur depending on the type of works of Art and the type of disaster, meaning it will be necessary to ascertain and deal with each one separately.

### 3.3. Approaches to Stabilization Measures

Works of Art will eventually need to be brought into a specialized laboratory to have repairs done, or they will no longer be able to be handed down as works of Art. The stabilization measures mentioned here are carried out with the aim of preserving the materials' current condition, namely stopping or delaying the further deterioration until the item can be treated. They could also serve as measures for cases in which taking immediate steps would be more efficient than waiting for treatment if the date for serious repairs has not been set. Of course, there will be differences depending on the material structure of each main body, the state of the mounting, the degree of deterioration or damage, and the amount of time that has passed since the disaster. However, when it comes to works of Art such as paintings and calligraphic works, it is essential to think not only about what should be done to keep the deterioration from worsening, but also find a way to preserve the expression of the work.

In case of physical damage only, it is sometimes possible to package the item as is and setting it aside, if the storage environment meets the necessary conditions.

Moreover, in the case of submersion, drying is a necessary measure for curbing deterioration and preventing the growth of mold. However, works of Art often have paint adhered to the base material with resin and mountings whose structures are pasted together with starch glue. In these cases, drying them is not sufficient. The items will need to be dried in a way that does not alter their shape or structure: an extremely difficult task.

Furthermore, in the event of water damage from flooding, tsunamis, or other types of natural disasters, the water often contains both water-soluble and non-water-soluble foreign substances; if they remain in and on the main body, deterioration is likely to accelerate. Unless cold storage is used, mold damage will be inevitable. Therefore, removing these substances as much as possible is prerequisite while waiting for repairs. One thing that makes this task particularly difficult is when the mounting, which is the structure that supports the main body, is in contact with the main body while it has foreign substances on it that could aggravate deterioration. Therefore, because the backing paper is united with the main body, the task of rinsing and drying involves the backing paper too, meaning that it will require more water and more time, placing the main body under even more stress. In that sense, removing the mounting and only working on the main body is an effective part of stabilization measures.

Once the materials are rinsed, one method for drying submerged materials, such as books, is vacuum freeze-drying. Rinsing and then freezing the materials when they are still wet, and drying them in a vacuum, can prevent the pages from sticking together through hydrogen bonds. On the other hand, since this will release starch glue and other types of bonding, this method can only be applied to works of Art with specific conditions. In particular, it is limited to items that do not include paint. However, when disasters occur, there can be cases in which something must be necessarily done to keep mold damage in check.

Subsequently, to preserve the expression of the item as an art material, the structure of the base material and the paint layer must be preserved. However, even experts can have a difficult time determining whether materials can withstand methods such as rinsing, or whether they will weaken after undergoing such

treatment. Nonetheless, neglecting to make such decisions may mean that the item will no longer be regarded to as an artwork. Taking measures to increase the paint's adhesive power and keep it from peeling is also a task that is safer in the hands of a specialist; when securing a specialist proves be too difficult, in some cases the item can be treated by pasting a covering paper to it. In any case, it is preferable to carry out these repairs under the guidance of a specialist.

Beyond stabilization measures, it is preferable to have definitive repairs done as early as possible. Since massive quantities of works of Art emerge during disasters, it is not realistically possible to repair all artworks at once. In such cases, once some time has passed since the disaster and those involved can think calmly, it is advisable to weigh the changes in artistic value caused by the disaster, as well as the meaning of the item when it was passed down. Once that has been done and the budget has been considered, those involved need to decide on the order and priority of repairs.

## 4. Examples of Stabilization Measures (Sliding Screen owned by C Family in Ofunato City)

### 4.1. Initial Examination

The site survey was conducted on May 6th, two months after the disaster. We were surprised to find that the main body was wet when we checked the sliding screen's damage conditions on that day; we later established that this was due to the deliquescence phenomenon from the salt content remaining in the main body [Photo. 12: Site survey]. We knew that as long as the salt content was not removed, it would get wet every time it rained or humidity levels rose and would dry again every time the weather cleared up. Repeating this cycle would clearly mean further deterioration, so we determined that stabilization measures to remove the salt content would be necessary. We considered whether to do these stabilization measures on site and realized that it would have been difficult to arrange the materials

Photo. 12

needed (a worktable on which to treat the sliding screen, equipment such as a sprayer, and materials such as absorption paper); therefore, we decided to transport the sliding screen to a lab to work on it.

Photo. 13

### 4.2. Rescue

We tried to remove the sliding screen itself and transfer it, but the effects of the earthquake were such that the weight of the lintel above the screen made it impossible to remove it screen. Therefore, we hurried to remove the main body only and transfer it to a workable place. Plain paper was attached around the main paper to make all the works the same size, and then decorative paper with golden foil pieces scattered around it was placed around it. We decided to cut out the main body exactly where the decorative paper was and remove it with a bamboo spatula, together with the underlying floating layer [See Fig.2, Underlay structure diagram] [Photo. 13: Removing the main body].

### 4.3. Stabilization Measures

#### 4.3.1. Survey

When the main body arrived in Kyoto, we examined it further to determine a policy for stabilization measures.

**-Condition of the main body**

During the tsunami damage, something that was flowing collided with it, and part of the main body was destroyed. Additionally, the lower third had been submerged in dirty water, thus, a dark brown mark was left around the edges that considerably hindered the appreciation of the piece. Upon closer inspection, a green discoloration was seen around the main body, where the decorative paper sprinkled with gold leaf pieces was joined. This indicates that the source of the

inlaid gold leaf is not real gold leaf, but is actually brass leaf, which changes color when wet and takes on a greenish color.

The reason we transferred it to Kyoto was to remove the was salt content from the dirty water of the tsunami in the main body. The piece was in danger of suffering more physical deterioration and mold damage. The cause of this lied in the repeated phases of getting wet and dry, due to changes in environmental humidity levels. If this process was not stopped, it would not have been possible to keep it in a stable condition until official repairs. Thus, the most important measure to be carried out was that of rinsing with water and, essentially, the main body needed to be examined to determine whether it would withstand that treatment.

There were no significant traces of the ink used for coloring having bled or transferred, even if it did sustain damage. The paper was determined to be either bamboo paper or Xuan paper (Later identification revealed that it was bamboo fiber.), common in the calligraphy of Edo-period literary people (Confucian scholars). Constant exposure to outside air and light, which is the destiny of all sliding doors mountings, contributed to the surface of the paper already being deteriorated.

**-Mountings**

When the piece was transferred, the main body had been cut out and removed, but some decorative paper with brass pieces was still attached around the main body. It would not be possible to know how many layers of backing there were behind the main body without disassembling it, but it was clearly visible that missing parts had been mended in past repairs, and breaks (cracks) had been pieced together, showing that prior repairs had been done on the lining at least once. Furthermore, since it was removed with a bamboo spatula when it was dismantled on site, one floating layer from the underlayer was still attached to the main body side. In other words, it was clear that there were at least two layers of paper other than the main body.

**-Previous repairs**

Repair paper was attached to the missing part. However, there were some places where the direction of screen trace did not match the main body, and I felt that it looked strange.

### 4.3.2. Deciding a Policy for Measures

Based on the results of the examination, we set up a policy for stabilization measures.

The priority was to remove salt content and rinse with water. This was the same water rinsing method used for general repairs of mounted cultural asset works, which is to place the main body on top of ten layers of blotting paper, spray it with purified water (filtered water with metal ions and foreign substances removed) from the painting surface side, and use gravity and the capillary action of the paper to make the blotting paper absorb the water. This dissolved the foreign substances on and in the main body (for water-soluble substances) or moved them (for non-water-soluble substances small enough to pass through the gaps in the fibers of the paper), allowing to remove them from the main body. We considered what was needed to minimize the burden on the main body and maximize the effect of doing this treatment.

**-Examining whether to remove things other than the main body**

As mentioned in the previous section, since there was a possibility during rinsing that the brass leaf mounting paper would transfer substances that would give greenish discoloration caused by rust to the main body, this needed to be removed in advance. Moreover, the other two layers of non-main-body paper (floating paper) and backing paper that were attached needed to have their salt content removed. Doing so would have required greater volumes of rinsing water, making the treatment process longer and risking putting too much stress on the main body. Therefore, we decided it would be best to remove these as well. Initially, I had planned to replace the additional paper to make the different sizes of the main body uniform and use new paper, but since there was no major damage to the original paper, I decided to use it without removing it.

**-Examining whether the main body can withstand rinsing**

The expression of the main body was written in India ink and the included a red signature and seal. These are known to have a certain resistance to water, however, we still carried out a patch test (a test to determine whether there was any transfer after placing a small piece of wet blotting paper) and verified that there was no transfer.

### 4.4. Stabilization measures

#### 4.4.1. Mounting paper removal method

We added a small amount of water to the seams of the mounting paper that remained around the main body to loosen and remove the adhesive glue.

#### 4.4.2. Removal Methods for Old Underlayer Paper (Floating Paper) and Old Backing Paper

Photo. 14

For old upper floating layer we placed the piece backside-up on the worktable, sprayed it with purified water and removed it [Photo. 14: Removing backing paper]. We removed the old backing paper in the same manner. When we started to remove it, we found that two layers of backing paper were present. The main body is made of short fiber paper and has deteriorated considerably (its strength has decreased), but the cracks have been connected with the old backing paper, and the missing parts have been filled in with another repair paper. In order to remove this first backing paper, it is necessary to remove the old supplementary paper in the missing area on the spot, fill it with new supplementary paper, and apply (paste) the new first backing paper, in other words, perform a full-scale repair. Therefore, we decided to leave this first layer of backing paper and wash it with water. Thus, we decided to leave this one layer of surface backing paper and proceed with the water rinsing treatment.

#### 4.4.3. Water Rinsing Treatment

We conducted the water rinsing treatment, placing the main body with only the first backing paper remaining on top of the layered blotting papers and spraying it with purified water [Photo. 15: Water rinsing. To place less stress on the main body, we spray it and impregnated it with water; the excess was removed by being absorbed by blotting paper placed underneath.]. The water took a significant amount of time to penetrate the areas that contained salt from the tsunami. We repeated the spraying several times, measured the concentration of salt in the water in the blotting paper directly beneath the main body, and finished the rinsing when the paper's salt content was approximately zero [Photo. 16: Measuring

Photo. 16

Photo. 15

salt concentration. We determined whether the salt content had been removed by measuring the salt concentration in the top layer of blotting paper.].

This rinsing also alleviated the brown edge line that had resulted from the borderline of where the sliding screen had been submerged, becoming nearly imperceptible.

### 4.4.4. Drying

After the rinsing was complete, we placed the main body on a blanket and let it dry naturally. It still had old backing paper and was secure, so there was almost no roughness after drying [Photo. 17: Drying. Abrupt drying causes ring stains, so we let it dry slowly and completely on a blanket.].

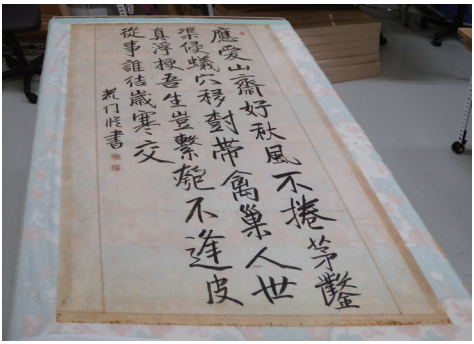


Photo. 17

### 4.4.5. Storage

After drying, since there were no concerns about color peeling, we layered the main body and rolled it up for storage.

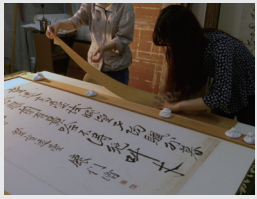
Above was the course of events and details of measures taken in 2011 to

# Full Repairs

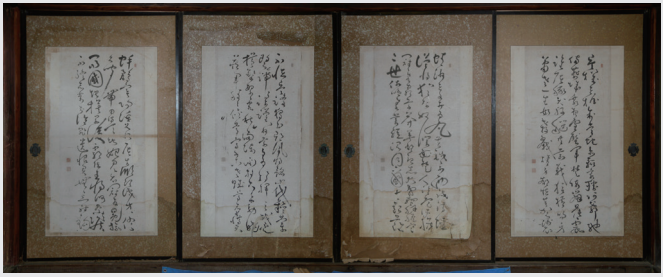
Three years after the stabilizing measures, our budget grew, and we were able to conduct a full repair. During the stabilizing measures we realized that it would be difficult to remove the old first backing paper without this overly stressing the main body; we have now reconfirmed that decision. It was confirmed again that it is difficult to remove the old first backing paper without putting a burden on the main body(paper). The old first backing paper was left as part of the main body, and the old repair paper was oriented diagonally, causing an odd feeling, so I removed it all and replaced it with a new repair paper that looked similar to the main body. A second backing paper was applied. The base frame was solid and didn't warp, so I added 6 types of 8 layers of underlay to create a panel, and pasted the main body on top of it. Brass foil had been used the decorative paper, which had stained the main body with a greenish copper rust color due to the water damage. Thus, we made a new mounting paper with real gold foil. We used the original handle and assembled it with a newly made black-lacquered wood. We fit it to the slope of the threshold, lintel, and pillars on site; then, we adjusted it and put it in place.

Lining (first backing paper)

Underlayer (second layer)

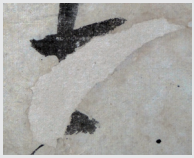


Attaching fabric of mounting



Antechamber (before repairs)

Repair paper (before repairs)



Repair paper (after repairs)

Antechamber (after repairs)

stabilize works of Art following the disaster. I think these measures could have been possible on site if the conditions had been met; on the other hand, it did feel remarkably more secure to treat this piece in a well-equipped, familiar environment, while checking the conditions of the artwork. This case example involved writings in India ink; however, if it had been an art material whose expression had been done with paint (color), I wonder what would have happened if we had had to treat it on site.

(Regarding this art material, we were able to ultimately complete the repairs in 2014, with special research funding from the Kyoto University of the Arts and aid from the Tohoku University International Research Institute of Disaster Science and the Japan Conservation Project. See Column below.)

## Conclusion

First, I would like to focus on the challenges of the status quo. In the present day, a very small number of people are capable of repairing and treating works of Art, aside from the specialists in workshops and other places. I feel that we need to create a system that allows these private sector specialists to be involved in the event of a disaster and that trains talent who have the knowledge and experience to consult with specialists, also handling emergency measures if needed. Even if they cannot do full repairs, in any event of a disaster, human resources are needed in handling emergency stabilization measures. Nonetheless, as this does not seem an immediately reachable goal, for now, people will have to rely on points of contact that can introduce them to specialists. Such consultations can now be made at the Cultural Heritage Disaster Risk Management Center of Japan National Institutes for Cultural Heritage, which deals with cultural assets. In the private sector, this is handled by the *Siryo-net*; however, for works of Art, specialists respond more directly through the NPO Japan Conservation Project, which also provides recommendations on affiliated specialists. Moreover, the Japan Society for the Conservation of Cultural Property can introduce their member specialist.

Finally, as the author, I would like to close with remarks about what I experienced during my involvement in the repair and treatment of several works of Art affected by disasters. When repairing works of Art which suffered a disaster, I feel that often measures for dealing with deterioration and damage from neglect

and aging over many years have greater relative importance than the measures for damage from the disaster itself. In other words, I am encountering an ironic reality in which items that had reached the stage of needing repair were neglected only to then be repaired when disaster struck. Of course, it is reasonable to think about and prepare for measures and repairs when disaster strikes, but in the case of works of Art such as these (non-designated works of art), it is important to preserve their artistic value independently from the occurrence of a disaster. This highlights the question of what to do to protect these materials in the day-to-day, while conducting maintenance.

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# Part 3

# Preparation for Materials Rescue

# Chapter 7

# Rescue Simulation: Action Plan

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## Introduction

Disasters occur annually across Japan, and the number of damaged cultural properties is endless. Sometimes, disasters directly damage cultural properties, such as destruction or defacement; at other times, facilities storing or containing cultural properties get damaged, even if not directly. In any case, we must rescue the materials as soon as possible. The risk of loss or damage if left unattended during a disaster is high; thus, it is necessary to move them to a relatively safe location at some point after a disaster occurs. It is essential here for the people who are to take on the rescue in a certain area to know when they should perform the work and what kind of personnel and equipment preparations are necessary.

Modern administrative policies include regional disaster prevention plans as well as other plans and manuals addressing various natural disaster risks, and administrators modify them according to the situation—for example, "hazard maps" created from the perspective of damage forecast and disaster risk reduction; "evacuation planning" establishing evacuation actions such as identifying evacuation routes and sites; an "evacuation shelter management guidebook/manual" defining the process from preparation to closure of the shelters; "disaster waste disposal plans" for the disposal of waste generated during a disaster; and a "memorabilia handling manual" aiming to return the victims' cherished possessions to them instead of disposing as waste. These have been developed to examine many issues that have arisen in past disasters and to make it possible to respond to similar situations in the future.

In the field of museum and cultural property protection, in some cases, actions in a disaster are still limited to confirming the condition of designated cultural properties; in other cases, a BCP (Business Continuity Plan) is unavailable, partly due to the limited number of staff responsible for disaster management. Although municipalities that have experienced major disasters usually have manuals, handbooks, guidelines, and the like in place in preparation for high risks in various areas of their administrative measures, they must also anticipate cases where the staff will not pass on know-how due to a change in personnel over time and other similar situations.

Hence, it is vital to continuously build and examine operational plans for disaster preparation in museums and cultural property protection. In this chapter, we examine activities that aim to establish disaster prevention and risk reduction management in municipalities, particularly at the city, town, or village levels, and to build consensus among related institutions, such as municipalities and private organizations, through simulations related to materials rescue in anticipation of a disaster.

## 1. Disaster Preparation Simulation

The plans and manuals prepared for a disaster often may not be followed exactly as described when a disaster occurs. However, the only way to react is, even if not perfect, through the process of exploring and developing the best possible actions by assuming possible conditions. This is why local governments responsible for disaster management activities, schools and companies that have long continued disaster prevention education, and community disaster prevention organizations develop such manuals.

It is necessary for us to "prepare", even in positions involved in the preservation of museums and cultural properties (both government and private).

The Aichi Prefectural Museum of Art holds "simulation meetings" for practical responses to expected situations in a disaster, and they repeatedly revise the response policy[1].

The Kanagawa Prefecture Museum Association holds "Comprehensive Disaster Prevention Planning Activities" every year; these include remote information transmission drills to consolidate information in multiple block units within

Kanagawa, and they set other conditions, such as the establishment of a system to enable backups if the pre-determined representative museum suffer from an accident[2]. In addition, they established a system to ensure that the staff can pass on know-how through continuous disaster prevention training, changing the personnel in charge.

In addition to museums, the administration of cultural property protection has widely started similar practices with the release of the "Cultural Property Preservation and Utilization Guidelines" in each prefecture. In fact, Gunma Prefecture has a section in its [Cultural Properties Disaster Prevention Guidelines] entitled "Disaster Preparedness Efforts: Creating a Disaster Prevention Plan" that states to "create a timeline in a disaster." The timeline is formulated by the Ministry of Land, Infrastructure, Transport, and Tourism and other ministries as a disaster prevention action plan related to disaster prevention and risk reduction actions[3], but Gunma Prefecture encourages cultural property owners and management organizations to formulate own timelines based on the flowchart, like *My Timeline*, an action plan for each resident.

In Kagoshima Prefecture, "Disaster Prevention, Crime Prevention, and Disaster Response" in its [Cultural Property Preservation and Utilization Guidelines] includes a section entitled "Providing Information in Online Workshops on Learning Skills and Knowledge for Materials Rescue in the Event of Flood Damage." They have held many workshops on disaster prevention of cultural properties and handling materials damaged by disasters. Now that the world is online, holding these workshops between remote locations has become more common.

Cities, towns, and villages that are directly involved in disasters need to ponder certain issues in recent years when dealing with disaster response for cultural properties, such as the possible inability to pass on knowledge and skills due to workforce shortages and transfers, including generational changes, caused by staff reduction and declining staff ratio. Sometimes, small municipalities cannot fill professional staff positions and instead assign their relevant tasks to the general administrative staff. Concerns arise about the decline of professional work not only in disaster response but also in museums and cultural property protection. Coordination in a wide regional area among municipalities and with private organizations such as Shiryo-Networks and Heritage Manager is also essential. Although, in many cases, municipalities take charge of both museums and

cultural property protection, the conditions for rescue activities are different for museums, which are specified public facilities, and for cultural properties, which are widely distributed throughout the local community; thus, individual response for each case is necessary. Moreover, local history research groups are shrinking due to the ageing population, and schoolteachers have become increasingly busy and are more frequently transferred, which makes it difficult for them to deal with local materials; therefore, we need to develop and nurture new citizen volunteers who can help in the local scene.

In this sense, we must explore various activities for rescuing cultural properties and materials during disasters— "protection of cultural properties" in general— to build consensus among government officials and the groups involved in such activities.

Thus, the Miyazaki/Kagoshima Shiryo Networks hold DIG (Disaster Imagination Game), a simulation training that anticipates disaster, as a workshop for understanding the know-how of information, personnel, and equipment that changes on a timeline, the maintenance of facilities for evacuation of materials, coordination with external organizations, and safety management, in anticipation of the materials rescue in museum and cultural property protection [Fig. DIG of materials rescue in a disaster]. We originally designed this as an operational training exercise for coordination among local Shiryo-Networks, where labor-force

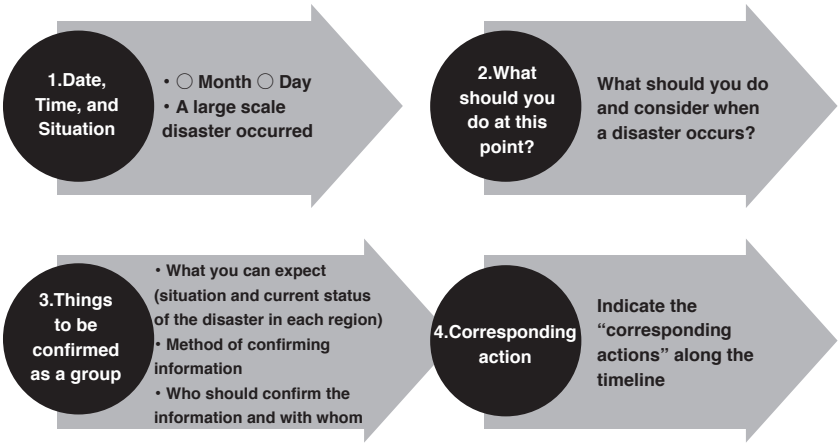


Fig.

shortages are common. However, in checking with persons in charge in municipalities from preparation to implementation and assessment, we found it easy for all parties concerned to grasp, understand, and share the necessary systems and issues in a disaster in the municipalities in question. Participants have confirmed their understanding of the “lack of preparation for disasters” and the “importance of cooperation from diverse standpoints,” and they have identified issues connected to manageing cultural properties in a disaster.



### 1.1. Attempting DIG

DIG was initially developed by the (then) Defense Agency’s National Institute for Defense Studies and Mie Prefecture in 1997 as a simulation of a municipality in a disaster, based on a command post exercise conducted by the Self-Defense Forces[4].

The objective is to prepare for disasters by examining methods of responding to one at a certain point in time and according to ever-changing situations. It has a wide range of applications, and currently, they often implement disaster prevention training for municipalities, volunteer groups, and other civic organizations all over Japan. The authors have applied this program to cultural property rescue with the advice of meteorologists and disaster prevention experts and have improved the program. Although we started it to confirm and strengthen the cooperative relationship between the two neighbouring prefectures of Miyazaki and Kagoshima in southern Kyushu in a disaster, we have extended it to municipalities protecting cultural properties, museum curators, lifelong learning institution staff.

Our DIG consists of three major phases: <preparation>, <implementation>, and <assessment>. Below are the specific steps for each phase.

### 1.2. Preparation

In the preparation phase, we decide the workshop's purpose, implementation timing, target, and the type of disaster targeted and prepare accordingly. Our workshop's mission is simple: "to transport materials from the disaster-stricken area to a safe place," we can change this to any other mission. It would be more effective to plan the timing of the workshop based on the season when weather disasters are most likely to occur and when earthquakes and tsunamis have oc-

curred in the past.

The setting assumes the largest disaster that has ever occurred in the target municipality or region. Participants should, of course, use hazard maps and other topographic maps as references, but to establish a timeline, they must understand the progress on the disaster's time axis [Table]. In the case of weather disasters and earthquakes, the Japan Meteorological Agency discloses the chronology of the disaster since its occurrence. Information related to the maintenance of class A rivers is available at each region's river and national highway office affiliated with the Regional Development Bureau of the MLIT, where we can check the location of past disasters, records of rising water levels, and direct causes of disasters. Moreover, it is beneficial to read municipality magazines and disaster record magazines (if published) as resources for municipality information. With the cooperation of the crisis management division, these magazines can provide information on timelines documenting the municipality's response to disasters. Municipalities have fewer records of disasters from older periods, such as the Showa period (1926–1989), but we can utilize information from public information in the past and newspapers of that time. However, regarding a Nankai Trough earthquake, records that meet modern standards are limited; we need to pay attention to writing scenarios. Although records can help us understand not only the occurrence of disasters but also how municipalities and communities responded to them, when setting up a timeline as a scenario, since old disaster responses are different from the modern administrative countermeasures, we should modify the contents in the light of the current situation, even if only partially.

We examine a material rescue system along with the timeline. This includes checking the location of materials at high risk of being damaged, securing human resources, establishing a communication system, and setting up temporary storage after transportation. At this stage, we reaffirm the extent to which the relevant local material rescue system is organized. In particular, after the Great Heisei Mergers, even in the same municipality today, differences remain in the sense of land and understanding of the local communities, such as between the main office and branches of the former municipality, and we are often reminded of the need to confirm the conditions related to the materials rescue.

Table　Rescue timeline of materials based on past typhoon disasters
(from a case study in Takanabe Town, Miyazaki Prefecture)

**[Premise]**

On 19 September 1983, a weak tropical cyclone formed over Chuuk Lagoon and developed while moving west-northwestward, becoming Typhoon Forrest over the ocean south-southwest of Guam on 21 September. It rapidly developed into a ferocious typhoon with a central pressure of 885 hpa and maximum wind speed of 55 m/s over the ocean 1,000 km southeast of Okinawa on 23 September. Its direction changed from north to east in the northern East China Sea from the 26–27, gradually weakening as it moved eastward and making landfall near Nagasaki City at around 10:20 am on the 28. After making landfall on Kyushu, it accelerated its speed and moved eastward, crossing central Kyushu, and becoming an extratropical cyclone near Sukumo City, Kochi Prefecture on the 28. This low-pressure area then increased its speed and moved eastward over the southern sea of Honshu, and at 9 am on the 29, it advanced to a location about 450 km east of the Kanto region.

A fall rain front that had stalled over the southern Sea of Japan as the typhoon moved northward became active on the 25, and strong rains began to fall mainly over the Pacific Ocean side of the Kyushu-Kanto region. Heavy rains fell mainly in Kyushu and Shikoku from the 26-27, and the passage of the typhoon caused widespread heavy rains from Shikoku to Kanto. "Linear rainbands," as they are called in current meteorological terms, may have occurred in many areas.

This typhoon caused damage in 38 prefectures, and in addition to flooding and landslides from mountains and cliffs, notable drowning accidents occurred involving schoolchildren due to rising water levels. Many large and small rivers rose or were flooded, and considerable damage was made to transportation facilities.

**[Damage]**

The Miyazaki area was initially hit by the typhoon.

Torrential rains hit Nichinan City and Kushima City on the 26, and on the 27, small and medium-sized rivers overflowed one after another, mainly in Miyazaki City and Koyu district, causing a series of flood damage. In Takanabe Town, 85 mm of heavy rain fell between 3 and 4 am on the same day, causing the river to overflow in areas along the Miyata River. Floodwaters spread toward the Shiota River, which branches off from the Shiota sluice gate on the left bank of the Miyata River. The closing of the flood gates caused the water in the Shiota River to come to a standstill, making it flow back into irrigation canals and drains, flooding the center of town. In areas such as Matsubara-cho, Asahi-dori, Tokamachi, and Ikada district, 136 households were flooded above floor level and 445 households below floor level, and three households were partially damaged. The rainfall from the time it began on the 25 until 6 am on the 28 amounted to 494 mm.

Water from the Miyata River often flows back toward the Shiota River, causing the city area to flood, which also occurred with Typhoon Trami in September 2018.

| Dates | Time | Timeline based on 1983 weather conditions | Situation | What should you do at this point? | What should be confirmed as a group | Reference materials to be prepared |
|---|---|---|---|---|---|---|
| 25-28 Sep | | Rain continues from midnight throughout Miyazaki Prefecture due to the approach of the huge typhoon from the 25 | In areas such as Matsubara-cho, Asahi-dori, Tokamachi, and Ikada district, 136 households were flooded above floor level and 445 households below floor level, and three households were partially damaged. | | | |
| | | Heavy rains in Kushima and Nichinan City on the 26 | | | | |
| | | Torrential rains mainly on Miyazaki City and Koyu District on the 27 | | | | |
| | | The typhoon passes through after making landfall near Nagasaki City | | | | |
| | | The total rainfall in Takanabe from the 25–28 reaches 472mm | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | A disaster response headquarters was established for precautionary measures. | | | | |
| | | The Nippo Line was closed early in the morning, and many trains were suspended. Both inbound and outbound lanes of the Kyushu and Miyazaki Expressways were closed to traffic. | | | | |
| 29 Sep | | Many public institutions were suspended. According to JR Kyushu, all lines in Kagoshima Prefecture were suspended—particularly the Nippo Line, which had been cut off by landslides and other issues. This was expected to affect a total of 80,000 people in all prefectures on both the 6 and 7. | The typhoon passed through, and the full extent of the damage came to light. Inland flooding occurred due to the closing of the flood gates from Miyata River to Shiota River.<br>Since there was information that several historic buildings and public facilities in the city are being flooded, the City Cultural Properties Division staff went to confirm.<br>⇒ Two warehouses, including the former Meirin-do library on library grounds, and a historical building managed by the Council of Social Welfare (the old SUZUKI Masaya villa, a registered tangible cultural property) were found to be submerged in water/it was speculated that the historical materials in these places may have been damaged. | • What should you implement when confirming the situation and communicating information?<br>• What should you prepare and expect during this period? | • What should be the methods and objects when confirming the situation, and how should you handle correspondence with the agencies concerned?<br>• To which groups of people should you send the information on the whereabouts of the materials?<br>• How should you consolidate information at this stage?<br>• How should you secure and allocate the personnel and materials? (Which groups of people? What is necessary?) | • Flood Hazard Map and Landslide Disaster Prevention Map |
| 30 Sep | | Start of acceptance of bulky garbage due to disasters | With the start of the acceptance of bulky garbage due to disasters and the establishment of volunteer centers, cleanup work begins simultaneously in the affected areas. | | | |
| | | Establishment of volunteer centers | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 Oct | | | Municipal employees were given priority in managing evacuation centers; thus, work on cultural assets was postponed to a later date. However, since the Council of Social Welfare had jurisdiction over the old Masaya Suzuki villa, they offered to coordinate its cleanup with the Board of Education as it was a registered tangible cultural property. The Council of Social Welfare requested that the building be cleaned as soon as possible, especially with the removal of tatami mats and the removal and drying of sludge that had accumulated under the eaves. | | | |
| 3 Oct | | | A plan was made to remove the materials from the affected areas. The materials were to be moved to the general gymnasium archery field. | | | |
| 5 Oct | | **JR Kyushu suspended all train service until the morning of 5 October. Power and phone outages remained in some areas of the prefecture. Some sections of the Kyushu Expressway and national roads also remained closed. Many major roads, including prefectural roads, were closed or have only one side of traffic open.** | Ascertain damage information while determining the timing of on-site materials rescue | | ● How should you confirm the safety of the site?<br>● How should you confirm the travel route?<br>● What precautions should you take for the staff?<br>● Shouldn't you reconsider the travel route? | ● A travel route map to Kagoshima, Miyazaki, Nobeoka, and around Koyu District would be useful. |
| | | | The library staff kept the doors of the warehouse open during the hours when they were able manage the collection and dry out the room. Water damage to the materials was confirmed during this time. | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 Oct | | | The Council of Social Welfare contacted the Social Education Division about the condition of the interiors of the old SUZUKI Masaya villa, confirming that the fusuma was partially damaged by water and that a piece of paper with words written in them was affixed to it. | | | |
| | | | Preparations were made for the treatment of waterlogged materials. | | | |
| | | | Coordination with the Miyazaki Prefectural Board of Education and the Miyazaki Shiryo-Network for technical and material support was ensured. | | | |
| 8 Oct | 8:00 | | Town staff and Miyazaki Prefecture/Shiryo Network Members who could participate in rescue activities gathered in front of the Takanabe Town History Museum. Everyone moved to the site after role assignments were confirmed (car and pull cart). | ● What should you do when travelling to the site and after arriving? | | |
| | 9:00 | | Rescue activities begin. Water damage to materials is greater than expected. | ● What do you need during record keeping?<br>● What should you do when the work ends, during transportation and storage? | | |
| | 10:30 | | ● Records were created if possible, then the materials are moved out. If creating records is difficult, photographs of the situation are taken, and the materials are moved out.<br>● The condition of the materials varies, with some identified as partially muddied and others as relatively lightly muddied. | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | ⇒ Checked for items that have begun to dry with mud stuck on them, or records (photos, etc.) that have begun to deteriorate due to foul odors, mold, or bacteria.<br>• Difficulties were observed in moving and temporarily packing materials from the site, and by 3pm, workers were fatigued. The removed materials were taken to the parking lot. Workers temporarily packed and loaded materials into vehicles in the parking lot. | | | |
| | 16:00 | | Work ends at the site. | | | |
| | 17:00 | | Materials are transported and placed in temporary storage. | | | |



### 1.3. Implementation

The reasonable number of participants in the workshop would be 4–7 per group. Groups unfamiliar with the workshop may not know the procedure, in which case, a table facilitator[5] can facilitate the process.

The organizers prepare a map of the target area (enlarged to A1 size), a hazard map (about A3 size), records of past disasters, pens (water-based and oil-based fine-point ones that can write clear letters), sticky notes (square, preferably with solid adhesive, at least two colours), thick mounting paper (A3 size) to attach sticky notes printed (see below), transparent sheets for writing (writing sheets or a whiteboard), a projector, and a PC. The projector projects the timeline created with PowerPoint on one side of the screen and a hazard map (MLIT's "overlapping hazard map" is helpful but needs a network connection) with targeted points on the other. Desks are arranged, and the enlarged map, hazard map, and sticky notes are placed on top. Having a transparent sheet to write on overlaid on the map is functional. Moreover, the timeline should be tabulated and distributed to each table for easy reconfirmation of the participants.

Along with the primary facilitator who oversees the entire process, having an expert in conservation science or conservation and restoration as an advisor can provide a broader knowledge of material preservation and more persuasive ex-

planations. At this time, the organizers should be ready to present helmets, masks (DS2/N95 or their equivalent), dust-proof glasses, and nitrile gloves, which will be required during the rescue.

The primary facilitator explains the workshop's content and develops scenarios according to the timeline. In addition to confirming the situation during the disaster, the damage and response, and the restoration status of the affected areas and roads, the facilitator states that materials were damaged and need to be rescued; moreover, they talk about the process from preparation for implementation and the actual rescue of materials to moving them out and setting them in a temporary storage area.

The organizers ask questions now, and the authors have chosen the following three questions.

Question 1: What should you implement when confirming the situation and communicating information?
What should you prepare and expect during this period?
Question 2: What should you do when travelling to the site and after arriving?
Question 3: What do you need during record keeping?
What should you do when the work ends, during transportation and storage?

In this way, we ask participants to examine the "actions they should take, their response behaviours," to describe them on the sticky notes, and then paste them onto the A3-sized questionnaire [Photo.1: Ideas written on sticky notes are pasted onto the mount]. We can modify the questions if necessary. For each question, participants have 15 minutes to think and write down their ideas on a sticky note; during this time, they must write one text per sticky note as, if they list multiple items on one, it will be difficult to classify them later. Each participant is responsible for writing on a sticky note. Next, they classify these sticky notes as a group according to their contents and place them back on the mount. Through this activity, they exchange opinions and reconfirm their ideas. After the prescribed 15 minutes, the advisor explains each question. If an expert in conservation science is not available, the primary facilitator explains; however, it would be best to obtain advice from an expert beforehand in this case as well. During the explana-

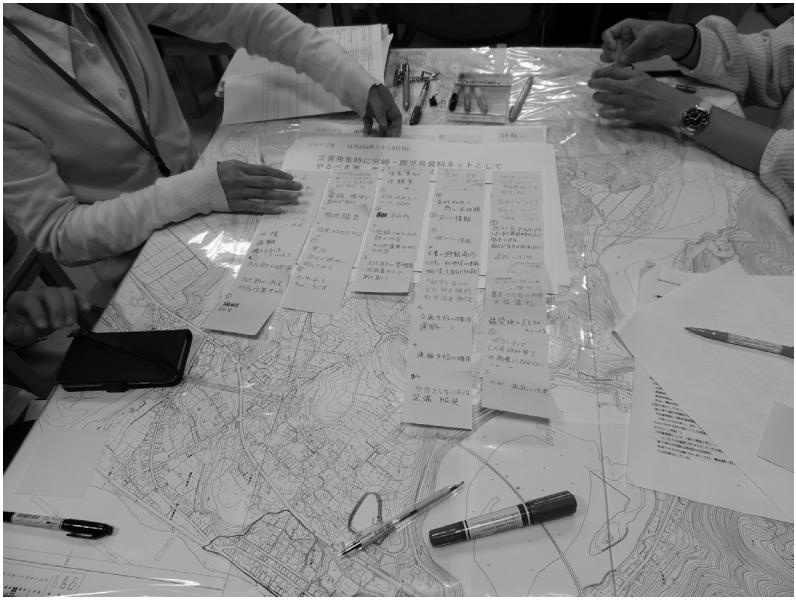

Photo.1

tion, it should be noted that no “right answers” exist and that presenting diverse ideas is the goal.

After completing the timeline, each group makes a presentation; this allows participants to reflect on the workshop and consolidate what they have learned. The time required to reach this point is approximately 2.5–3 hours from the start, with breaks in between. We can hold such programs online; in these cases, it would be practical to use online whiteboards such as "miro." Holding them online allows a broader range of audiences across regional locations to participate.

### 1.4. Assessment

After the workshop, the organizers ask participants to fill out a questionnaire. They list what they understood through the workshop and what they think should be issued and receive feedback on the results.

Below are some examples of the questions.

- What did you understand the most from this workshop? Select only one.

The process of materials preservation activities / What preparations are necessary for materials preservation activities, and what preparations you did or did not do/ Knowledge and skills necessary for materials preservation/ The current state of local communities, such as declining population, ageing population, and an increasing number of vacant houses/ The difficulties and importance of collaboration among private organizations (here activities related to materials preservation) and with the government

- What did you find most confusing about the content of the workshop?
  I did not understand the methods to anticipate damage and what information I should collect/ I did not understand the procedures for materials preservation/ I did not understand what equipment and tools are necessary for materials preservation / I did not picture the geographical image in my head because I am unfamiliar with the area/ I did not sense anything particularly difficult.
- What were you able to sense the most regarding the significance of this workshop? Select up to two from the following eight options.
  Protecting cultural properties and museum materials from disasters leads to the maintenance and sustainment of local communities/ Protecting cultural properties and museum materials from disasters leads to preparation for future large-scale disasters/ In many cases, materials are held not only by museums and other institutions but also by individuals, and it is important for the owners and the local communities to protect them/ Cooperation among people in various positions is necessary to preserve a community's history and culture / Collaboration among neighbouring communities is extremely important in a disaster/ To prepare for future disasters, the younger generation should get involved/ Although I could somewhat understand the significance of the activity, in terms of the details of the work or the relevant roles, I did not understand well / I did not understand the significance of the activity or the importance of the various roles at all.

## 2. Future Development

Municipalities across Japan are formulating the "Regional Plan for the Conservation and Utilization of Cultural Properties," and in many cases, they include

Photo.2



the preservation of cultural properties in disasters. Next, although an implementation plan to address this issue is necessary, it is crucial to establish disaster management and disaster prevention in advance, and simulation is a process for establishing such management [Photo.2: Workshop in Takanabe Town, Miyazaki Prefecture]. Moreover, we can improve the simulation mentioned here by adding an activity that involves handling actual disaster-damaged materials after the simulation.

One of the lessons learned from the Great East Japan Earthquake disaster response was the phrase "the only thing that was useful was what had been prepared," and "only being prepared was insufficient."[6] We need activities that enable a certain level of reaction to disasters, even if imperfect.

**Notes**

1 SOEDA Kazuho. "Shumireishon miitingu to bousaikunren [Simulation Meetings and Disaster Drills]", in: *Report on "Museums for Everyone," a project to support the creative activities in art and history museums in collaboration with local communities FY2014*, "Museums for Everyone" Project Executive Committee, 2015, pp.169-173.

2 Kanagawa Prefectural Museum Association Comprehensive Disaster Management Plan Promotion Committee. “Kanagawa-ken hakubutsukankyokai sogobosaikeikaku katsudohokoku [Kanagawa Prefectural Museum Association Comprehensive Disaster Prevention Plan Activity Report”, in: *Kanagawa Prefectural Museum Association Bulletin*, No, 88, 2017, pp.62-79.

3 The definition of timeline includes the following: “A plan that organizes disaster prevention actions and their implementation entities in chronological order, focusing on the ‘when,’ ‘who,’ and ‘what’ will be done based on the premise that a disaster will occur and on the assumption that disaster prevention-related organizations will work together to anticipate and share the situations that will occur in the event of a disaster.” (MLIT Disaster Prevention and Disaster Risk Prevention Headquarters for Water-Related Disasters Working Group for Disaster Prevention Action Plan, *Timeline (Disaster Prevention Action Plan) Development and Utilization Guidelines*)

4 HIRANO Atsushi. "Saigaikyuuenji ni okeru atarashii borantia no arikata to saigaizuzyoukunren-DIG [New Methods of Volunteerism in Disaster Relief and the Disaster Simulation Training DIG]", in: *Modern Firefighting*, 36-3, 1998, pp.148-152.
Mie Prefecture Fire and Disaster Prevention Division, Promotion Department. “Shiminkeihatsugata no saigaizuzyoukunren-DIG no gaiyou to kadai [Overview and Issues of Citizen Awareness Disaster Simulation Training DIG]”, in: *Fire Science and Information*, No.63, 2001, pp.44-48.
KOMURA Takashi. “DIG (Disaster Imagination Game)”, in: *Fire and Disaster Prevention*, Fall 2004, 2004, pp.92-102.

5 The types of facilitators are two: floor facilitators who oversee the entire workshop venue, and table facilitators who work together to facilitate small groups (“squads”); in particular, to “create the venue” as well as the “atmosphere” for the workshop is considered the table facilitator’s main job. (The Great Hanshin-Awaji Earthquake Memorial Disaster Reduction and Human Renovation Institution, *Saigaiboranthia jissen wakushoppu gaido* [Disaster Volunteer Practice Workshop Guide], 2006, p.19.

6 The Tohoku Regional Development Bureau, MLIT. *Higashinihondaishinsai no jittaiken ni motozuku saigaishodoki shikikokoroe* [Disaster Initial Response Command Guidelines Based on Actual Experiences during the Great East Japan Earthquake]. (2013)

Chapter 8

# Rescue Simulation: Disaster Preparation Practices

AMANO Masashi (National Museum of Japanese History)



## Introduction

Promoting materials rescue prerequisites the training of personnel. As described in Part 2, we must rescue various materials and take emergency measures when a disaster strikes. However, it is the staff members of museums, libraries, and archives that lead the practice in a disaster area, some of whom do not have special knowledge and skills for materials preservation and restoration. After a disaster, when information gets tangled up, accurate judgment of the situation and prompt work planning are inevitable. Thus, to develop human resources for disaster response, we must train the staff to select specific techniques and think in a way that enables them to plan a series of tasks from rescue to emergency treatment and then adjust for permanent preservation.

In this context, we have hold workshops for disaster preparation. The contents vary, but in recent years we have the following three types.

The first is an enlightening one. *Shiryo-Networks* and museums promote this type, whose purpose is not to specify the target materials but to introduce practical practices to publicize the activities of material conservation and expand the bearers for future preservation and inheritance. They try to let the public understand the importance of materials preservation by introducing water-absorbing drying of water-damaged materials using familiar household utensils and other materials.

Next is a technical training one. Its main target is technicians involved in materials repair and preservation, aiming to train specialists with the necessary

techniques for first aid treatment and for subsequent full-scale repair— developing such techniques is also its aim.

The third is an action-planning one. This type studies the communication system and the transportation of the materials to the site in a disaster through tabletop exercises with the stakeholders in a specific community [Fig. 1: Types of workshops designed for disaster preparation] (See Chapter 7 for details).

While these workshops are effective in grasping the required actions for materials rescue, what the practitioners need in a disaster is to analyse the situation and manage the whole project by planning the work process from rescue to temporary storage, including negotiations with outside experts and coordination with volunteers. During the work process, observing the target materials and planning the workflow based on the observation are important, and it is necessary to select the most appropriate method using various techniques and knowledge. Therefore, in addition to understanding the entire work process, understanding the focus on the materials and simulating specific measures are necessary: training and examination through workshops are quite effective. In setting up a workshop, we need to provide participants with an opportunity to experience the actual work process from the planning stage to see what was influential in the process they devised

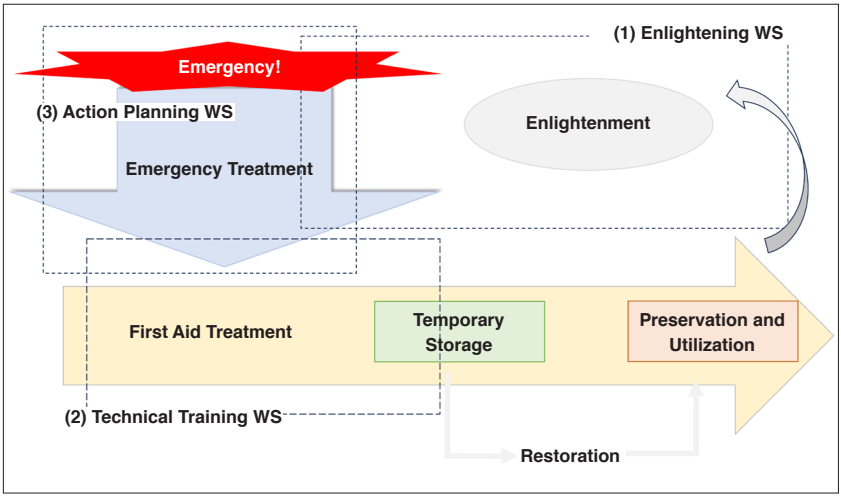


Fig. 1

and what the problems were, including failures, so that they can share the concept of disaster countermeasures and a concrete image of actions.

In this context, this chapter presents the objectives and methods of a workshop designed for material rescue, aiming at improving skills in total rescue management.

## 1. Purpose

The author has held workshops mainly for those in charge of on-site work to rescue materials, such as local government officials, museum curators, university faculty, staff, and students. The central theme is to examine specific measures after rescuing damaged materials, especially water-damaged and challenging ones. Rather than a one-way introduction of ideas and techniques, the workshop aims to allow participants to discuss specific issues and engage in trial-and-error.

This workshop is a practical examination of what, to what extent, and how to tackle the series of work processes from first aid after the rescue to temporary storage. It emphasizes material observation upon seeing the damaged materials besides the practice and concept of handling them based on the observation. Frequent natural disasters led to the accumulation of disaster response experiences, thanks to which many reports and manuals are now available. Reading them, even those inexperienced can get some idea of the proper countermeasures; on the other hand, to put the acquired knowledge into practice, it is necessary to understand the full scope of the work, at what stage they should use the knowledge and skills, and specifically for what conditions they are effective. Participants need to observe the materials in our workshop and think about the proper measures. Furthermore, by discussing the results with other participants and attempting to put them into practice, these challenges enable them to acquire the necessary skills and improve disaster management.

## 2. Preparation

### 2.1. Preparing Samples and Tools

The workshop simulates the first aid treatment of damaged materials. Organizers prepare sample "damaged materials", because it is difficult to offer actual ones. This section introduces samples of paper-based materials.

The target materials are old documents from the Edo period onward, many of which remain in museums, libraries, archives, and private homes across Japan. Using Japanese paper (Kozo paper), organizers make paper bundles imitating account books, letters, and attachments and then damage them intentionally by putting them in plastic bags, soaked with black or green tea leaves (or used coffee beans) and lukewarm water to simulate staining, and left overnight at room temperature to fasten staining and deterioration. Mixing mud to simulate defacement is possible, but materials should be as non-harmful as possible, considering the venue's environment and participants' health [Fig. 2: Sample of simulated old documents, Fig. 3: Mixed with tea leaves and steeped in lukewarm water, and Fig. 4: Sample of pseudo-afflicted condition].

Fig. 2

Other samples should be as general as possible. For example, for absorbent paper, use newspaper or kitchen paper; for tools, prepare items that anyone can obtain at a home improvement store,

Fig. 3

Fig. 4

such as tweezers and brushes. Sometimes, it is possible to encourage participants to bring what they consider necessary for material salvage. The trick is to use only vague words such as “material rescue”. Such a drill enables organizers to understand how the participants perceive material rescue and what tools they think they need.

The facilitator who supervises the entire workshop should preferably be someone with experience in disaster site management or an expert in conservation science or restoration, but others can serve if advice is available.



### 2.2. Setting Tasks

Organizers set tasks assuming the response immediately after the rescue. Participants can obtain the whole picture of material rescue by taking part in this type of workshop and action-planning workshop (introduced in Chapter 7 in detail) in succession.

When assuming a disaster, it should align with the geographical environment of the participants’ residential areas. For example, if the area has a large river flowing nearby, assume river flooding; if on the coast, assume storm surge and tsunami; if along a mountain, assume landslides caused by heavy rains. In this way, assuming damage based on past disasters in the area makes it possible to share a more concrete image.

The participants play a role as on-site personnel responsible for materials rescued in a disaster, and each participant shall be given a group of prepared sample materials and examine how to treat them. They shall examine the following: (1) material observation, (2) goal setting, and (3) work process.

#### (1) Material Observation

Observe the images of the damaged materials projected on the screen and the sample materials distributed. Determine the initial task, considering the risks related to deterioration and damage.

When dealing with the risks, identify the points that need attention regarding the work environment and health.

#### (2) Goal Setting

To develop a work process within the scope of first aid, determine the specific conditions to which the materials should be brought. In addition,

examine the points to remember when temporarily storing the materials after the first aid.

**(3) Work Process**

Determine the work process to put (1) and (2) into practice.

First, each participant considers the above on themselves. Then, in groups of three to five, participants discuss what they have examined and formulate a work process as a group [Fig. 5 and Fig. 6: Sample text for discussion].

## 3. Practice

Each working group has 3-5 participants. After the facilitator explains the tasks mentioned above, the participants consider the issues independently for 10 minutes, then discuss them as a group for 20 minutes and implement the work based on the process that each group has derived. The facilitator watches the discussion, and the participants are responsible for reviewing and implementing the process [Fig. 7: Workshop (20 May, 2023, Fukushima University) and Fig. 8 Workshop (27 November, 2023, Saitama)].

After completing the work, each group presents their review, and then all the participants review. During the discussion, the facilitator comments on the evaluation, issues, and suggestions for improvement, particularly on the following points.

First, the validity of the observation. The critical point is whether the participants can concretely envision the damage situation based on the season and the time required for rescue, the scale of the materials as a group, and the nature of the materials. The facilitator needs to explain the damage that participants cannot perceive through images or samples, especially the risk of odour and mould, and to encourage them to pay attention not only to the approach but also to health hazard measures and environmental measures at the storage destination as part of the preliminary preparations.

As for the goal setting and work process, the facilitator evaluates whether the participants could make a feasible plan, presupposing that first aid is only temporary. Suppose some participants have experience in rescue activities. In that case, the facilitator sometimes comments on the importance of flexibly responding

**Question 1: If you were asked to deal with a huge amount of water-damaged materials, what risks of the materials would you first focus on?**

(1) Mould on the material
(2) Mud stains on the material
(3) Odour resulting from decay
(4) Moisture absorbed by the material
(5) Others:

**Question 2: Based on the risk you focused on in Q1, what work goals would you set?**

(1) Goals of "rescue": what and to what extent do you respond?

(2) Points to keep in mind for temporary storage

**Question 3: What methods do you envision to achieve the goals of Q2? Work out specific work procedures.**

Fig. 5

**For summarizing group opinion**

| Question 1: If you were asked to deal with a huge amount of water-damaged materials, what risks of the materials would you first focus on? |
| --- |
| |
| Question 2: Based on the risk you focused on in Q1, what work goals would you set? |
| |
| Question 3: What methods do you envision to achieve the goals of Q2? Work out specific work procedures. |
| |

Fig. 6

Fig. 7

Fig. 8



while respecting their experience and achievements and presents the need for a comprehensive review considering various opinions and methods depending on the situation.

After commenting on each opinion, the facilitator explains the basic concept of the process from rescue to first aid, summarizing the overall discussion. In workshops, the author presupposes the concepts introduced in Parts 1 and 2 of this book. Based on the concepts, the facilitator reviews the work to identify safer and more effective processes, showing them to the participants with samples. Finally, the participants confirm which stage in the overall disaster preparation process the work practised during the workshop belongs to.

## Conclusion: Experiencing and Validating Failures

The workshop aims to allow participants to examine and discuss proactively and to acquire ideas on the work process planning for damaged material rescue and the selection of necessary skills. When we conduct a workshop, we focus on confirming what role the knowledge and skills possessed by the participants can play in the actual work site rather than on delivering a one-way lecture. Indeed, sometimes participants damage the sample materials during examination and practice, but failures enable them to verify the causes by themselves and to work out solutions through mutual discussion. Experiencing failures that cannot be experienced in the actual field and learning lessons from them are important opportunities in a workshop.

In the future, it would be ideal if a curriculum to develop the ability to manage a series of work related to material rescue is provided in university education and training programs for local government officials and museum curators. In addition, it is also necessary to cultivate the ability to deal comprehensively with diverse materials that are not limited to paper-based materials: we need to discuss and deepen the methodology of material rescue training.

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Chapter 9

# Communicating with Local Communities

ABE Koichi (Fukushima University)



## Introduction

This Chapter covers the challenges associated in communicating with local communities, which is necessary in disaster countermeasures and material rescue for preserving local historical culture. The target of our discussion is mainly the Siryo-net (Kobe) that rescues and preserves historical materials that are mostly in private ownership (for further information on the Siryo-net, see Part 1). When rescuing materials in disaster-affected areas, rescuers are rarely familiar with the area through surveys and research. In most cases, rescuers are visiting the area for the first time because of a disaster. Under such circumstances, for external experts to meet the local government officials in charge of cultural properties, local historians, owners, and residents, and perform material rescue activities smoothly, communicating with local communities is obviously an important key. It is clear that, if opportunities for locals and outsiders to become acquainted prior to a disaster exists, work would be more effective, thereby leading to better results.

However, "communicating with local communities" is not simple as it is extremely difficult to generalize how people will convey their ideas to each other, which is the core of diverse communication. It is also not suited to the creation of models or manuals. Japan has about 30 Shiryo-Networks (historical materials networks) across the nation, some of which have ample experience and have achieved notable results. However, given the page allowance limit, I focus on the Fukushima Shiryo-Network of which the author is the representative, and the Soma Shiryo-Network of which the author is an executive.

## 1. Launching the Fukushima Shiryo-Network and Challenges Faced

The Fukushima Shiryo-Network was launched in November 2010 as a liaison for experts, government, and citizens by progressively disbanding the Fukushima Cultural Heritage Preservation Network established in 2005 by Fukushima Prefecture Cultural Promotion Corporation (Corporation, presently called Fukushima Prefecture Cultural Promotion Foundation) with the Corporation, Fukushima Prefectural Museum, Fukushima Prefectural Historical Society, and Fukushima University as promoters. The idea of HONMA Hiroshi from the Corporation, who liaised and coordinated each facet, was that the participation of citizen volunteers is essential in the comprehensive understanding and preservation of historical and cultural heritage including undesignated items. To gain the trust of owners, the participation of government personnel in charge of cultural properties is also recommended, which allows for a horizontal link beyond municipalities.

However, merely four months after its launch, the Great East Japan Earthquake and Fukushima Daiichi Nuclear Power Plant Accident occurred in March 2011. The Fukushima Shiryo-Network chose the representative and secretariat in April and took on the work of rescuing materials of municipalities and individuals who requested support. By June, the Fukushima Shiryo-Network had surveyed and conducted rescue in 25 cases, but the challenges faced were diverse. The main challenges were as follows:

(1) Inadequate data on the location necessary to perform the rescue: There was no location list, leaving volunteers to rely on the *Fukushima Prefecture Ancient Documents Location Confirmation Survey Report* compiled in 1980 by the Fukushima Prefecture Board of Education, or on individuals providing the materials.
(2) The local government not participating with the Fukushima Shiryo-Network: Presently, the relationship is still one-sided, limited to e-mails.
(3) Inadequate communication with local communities: The presence of the Fukushima Shiryo-Network is not well known, and even if there are materials needing rescue, the requests do not reach the Fukushima Shiryo-Network. This situation has not improved.

(4) A lack of citizen volunteers: From the viewpoint of crime prevention, the information on the disaster-affected areas was only shared among those involved. This limited the rescue activities to those who were available from the promoting agencies, limiting the recruitment of volunteers.
(5) Issues associated with being the liaison: The Fukushima Shiryo-Network was unable to take on responsibility for the management of rescued materials. It was also difficult to secure temporary storage and a place to work.

In terms of the topic of this Chapter, the activities that began while "communicating with local communities" remained inadequate.

In May 2012, the Fukushima Prefecture Damaged Cultural Properties Relief Headquarters was established. When rescue activities began at museums of the former restricted areas of Futaba, Okuma, and Tomioka Town in the summer, interested parties' interests shifted to the former restricted areas. The Fukushima Shiryo-Network, as merely the liaison, could not get involved in any way. As the author put effort into tasks at a temporary storage outside of the former restricted areas as a member of Fukushima University, promotors worked on the rescue of the cultural assets through each of their official positions. However, rescue cases in private ownership decreased in number, and the presence of the Fukushima Shiryo-Network was forgotten. This was a challenge unique to acting as the liaison.

## 2. Development of the Fukushima Shiryo-Network

The author became the representative in July 2012 and worked to overcome the challenges by shifting the axis of substantial activities to the university and continuing the routine activities with students while keeping the Fukushima Shiryo-Network as the base liaison for the promotors.

(1) Regarding the inadequate data, with the support of a research assistant, a list of owners in the prefecture was organized using Microsoft Excel wherever possible so that they could be searched and identified as needed. As a result, in Shinchi Town, which was affected by an intensity 6+ earthquake during the 2021 Fukushima Earthquake, we compared an owner list, *Shinchi Town History* (as the regulations on personal information were not strict at the time, owners' ad-

dresses were recorded in full) with an older residential map to prepare a list. We cooperated with the Miyagi Shiryo-Network and attempted to conduct a location survey on-site. During this process, we were able to rescue materials from three commercial storage locations that were not on the list. This is a good example of how true information cannot be found unless one goes to the site.

(2) There is no change in the lack of participation by municipalities in the Fukushima Shiryo-Network. A network between municipalities was realized through the "Agreement on Mutual Support during Disasters Regarding Cultural Assets in Fukushima Prefecture" between Fukushima Prefecture and 59 municipalities, which was the result of the formulation of the Fukushima Prefecture Cultural Assets Preservation and Utilization Guidelines in March 2020. In November of the same year, the "Agreement on Support Activities during Disasters Regarding Cultural Assets in Fukushima Prefecture" was signed between the prefecture and four involved organizations including the Fukushima Shiryo-Network. Information is exchanged and training is provided once a year through a liaison meeting. The Fukushima Shiryo-Network was to indirectly cooperate with municipalities through liaison meetings, finally taking the steps it should have been able to take in the beginning. However, the rescue targets were limited to cultural assets managed by municipalities during disasters, and mutual support of routine removal activities was not assumed. The Network is not utilized to rescue undesignated cultural assets that are privately owned. As such, many challenges remain.

Tomioka Town and Fukushima University have signed an agreement, and the project team at the town hall continues to receive support with the storage and recording of materials rescued via donations and requests. The Fukushima Shiryo-Network offers support by recruiting citizen volunteers during busy times.

(3) Regarding the inadequate communication with communities, we attempted to solve this problem through student education. In Kunimi Town, located in the northern part of the prefecture, we conducted a damaged material survey with cooperation from those in charge of cultural assets, local history research associations, and neighborhood associations. As a result, we confirmed multiple unintroduced materials that were not known by *Kunimi Town History*. Based on this result, we rediscovered local cultural assets from the perspective of students while learning from the locals, and developed the "Local Marugoto Museum"

activity, which leads to material preservation [Photo.1: Marugoto Museum (Kaida, Kunimi Town)]. This activity shifted the stage to the Yanagawa neighborhood of Date City, where the students' survey study was advanced with the cooperation and guidance of local historical research associations and NPOs. Even during the COVID-19 crisis, we cooperated with the locals of Kanayagawa Ward where the university was located, and conducted a survey study of Kannon worship, hymns, and history. These were all successful thanks to the understanding and cooperation of historians and the residents who know the local communities well. The students' survey results were summarized in a pamphlet and are being used for a better understanding of the area and tourism.

Photo.1

(4) Regarding the lack of citizen volunteers, by shifting the axis of routine activities to the university, the initial plan of citizen volunteers became impossible. Even then, we held night classes on the organization of documents called paleography training, which allowed people to participate after work. Nearby residents with interest responded to the advertisement by the Fukushima Shiryo-Network and attended voluntarily, taking photographs of ancient documents and making a list of contents with the students. They sometimes brought documents they had preserved themselves and took photographs. From 2014, we began holding a two-day summer camp in August, which has become an annual event where citizen volunteers both from, and outside of, the prefecture gather.

Regardless of participation in the activities at the university, citizen volunteers' interest in the local materials is quite high. Citizen volunteers gathered every time to participate in the preservation work of water-damaged materials at the Motomiya City History and Folklore Museum that was heavily damaged by the 2019 Typhon Hagibis [Photo.2: Preservation activities of water-damaged

materials in Motomiya City]. Many of these volunteers are seniors who participate in cultural assets lectures and citizen circles. There was definitely something to note about the skills and personalities of staff who are routinely involved with citizens. Every community has a coordinator with skills to make projects work smoothly by connecting people. To say that communicating well with such a key person is an important element in succeeding in communicating with local communities and building networks is not an overstatement.

Photo.2

The last item (5) is a challenge unique to the position of liaison. The problem of inadequate temporary storage locations and spaces to work was resolved by the establishment of the Fukushima University Fukushima Future Center for Regional Revaitalization (presently Fukushima University CommunityFuture Design Center), completion of center buildings (presently converted to the Faculty of Food and Agricultural Sciences building), appointment of a historical document manager, and securing of a material storage room. Presently, we have shifted the storage to the Faculty of Administration & Social Sciences and are continuing the preservation work in practice rooms and such.

The Fukushima Shiryo-Network still does not have a corporate status and remains a voluntary organization acting as a liaison. The reason we are still able to work is that, for the last 12 years, ironically, Fukushima has faced numerous disasters. Material conservation activities in a nuclear disaster area are described with the words, “in progress,” but the meeting of the Fukushima Prefecture Damaged Cultural Property Rescue Team Headquarters that audits the countermeasures was a place for the Fukushima Museum, Fukushima Prefectural Museum of Art, Fukushima Cultural Property Centre Shirakawa Branch (Mahoron), Fukushi-

ma Prefectural Archives, Fukushima University, and Fukushima Shiryo-Network to meet in person and continuously exchange information and opinions. During the 2019 Typhoon Hagibis, the mutual support agreement imagined by the prefecture was implemented early, and related organizations arrived to provide support. Among these were the promotors of the Fukushima Shiryo-Network. We heard encouraging statements that when these members participate in an official manner, they act as representative of the affiliated organization, but when volunteering they act as a member of the Fukushima Shiryo-Network. This was an opportunity to confirm the manner in which the Fukushima Shiryo-Network functions as a liaison. Cooperation between experts functioned in rescues during the 2021 and 2022 Fukushima Earthquakes, thereby preserving materials from the perspectives of diverse experts.



When we look back, the result was quite different from what was initially imagined. However, we were able to establish a certain path to solving the problems initially faced. We are halfway through building a comprehensive cultural asset network that connects the government, academia, business, and citizens of Fukushima. To this end, we need to value connections with municipalities, local communities, and owners that came out of the material rescue and preservation on site and keep building upon them. That being said, since disasters keep occurring in such a wide area, rescue and preservation of materials often remains incomplete as those tasked to do so cannot keep up. In parallel to material rescue activities, our next challenge is to build a foundation so that not only the continuing support from external sources, but also long-term material preservation activities can continue within local communities. A method that is usable for non-experts also needs to be established.

## 3. Launch of the Soma Shiryo-Network as a citizen network

While Shiryo-Networks are centered around universities, museums, and municipalities, the Soma Shiryo-Network is the first Shiryo-Network in Japan that is organized and operated by citizens [Photo.3: Preservation activities of fusuma underlay document rescued from the residence of SUZUKI Tatsuro].

The Soma Shiryo-Network was launched in September 2022, and consists of citizens and those born in Soma, with a Japanese painter, SUZUKI Tatsuro,

as the representative. SUZUKI works on his creative activities in Tokyo, but after the Great East Japan Earthquake, he became involved in the support of his birthplace, Soma. His home in Soma is located on an estate that belonged to a samurai within the former Nakamura Domain. It is a building with both Japanese and Western aspects, built during the early Showa Era. The building withstood the Great East Japan Earthquake, but it suffered cracks in its pillars during the 2021 Fukushima Earthquake. While repairs and seismic updates were being considered, the 2022 Fukushima Earthquake occurred, which made the house lean. To see the main entrance built to welcome the head of the Soma household collapse due to the weight of ceramic roof tiles was especially shocking.

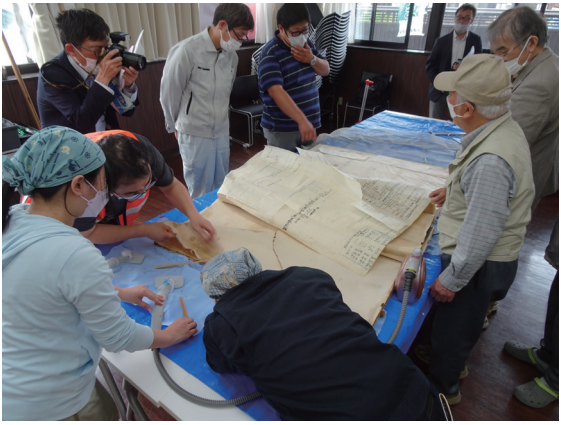

Photo.3

The Fukushima Shiryo-Network worked with the Miyagi Shiryo-Network, and following Shinchi Town in 2021, an interview of material owners began in 2022 in Kashima Ward, Minamisoma. At that time, the author was able to contact SUZUKI with the information received from NHK staff visiting Soma City.

While being a disaster victim, SUZUKI saw old buildings in the neighborhood destroyed, historical materials ruined, and traditional crafts facing extinction. He was alarmed by the loss of the history and traditional culture of Soma. SUZUKI's old classmate and the Chairman of the Fukushima Prefecture Folklore Society, IWASAKI Masaki, and KUSANO Kiyotaka, the Chairman of the Soma Chamber of Commerce and Industry who operates a construction business, were also concerned that houses were demolished after each disaster while vacant lands increased, thereby leading to the loss of the historical landscape of the town around a castle. In this manner, local volunteers and staff from the Fukushima and Miyagi Shiryo-Networks all met in person, proposing the launch of a network

from the common understanding that there needs to be an entity that receives all the information gathered to rescue materials. With the proposal from KUSANO, this network was named the Soma Shiryo-Network. Subsequently, along with the rescue of materials at the SUZUKI home, members of the organization were carefully selected, and the network was officially launched in September 2022, six months after the Earthquake.

The Soma Shiryo-Network with its characteristics as the liaison is filled with residents of Soma, and those who were originally from Soma, with which the Fukushima and Miyagi Shiryo-Network are involved. It is an industry-academia-public network consisting of coordinators, the head of the Soma Chamber of Commerce and Industry, Soma Local Study Group chairman and members, Bajokai (Soma High School Alumni Association) chairman, Fukushima Prefecture Folklore Society chairman, chairman of the Association of People from Sendai, journalists, tax accountants, Tohoku Gakuin University faculty members, and Fukushima University faculty members, with the faculty members of Soma High School serving as secretary general. At its core is the connection between alumni of Soma High School and interested parties. According to SUZUKI, staff was recruited from those associated with Soma High School in consultation with TAKEUCHI Yoshiaki, the secretary general and faculty of the school. Soma High School is a long-established school that began as Fukushima Prefecture Daiyon Junior High School in 1898 (Soma High School Auditorium built during the time of the old Junior High School is a registered tangible cultural asset). Many talented graduates have come from this school, succeeding both locally and in a wide range of fields. For a community-based network, to have the alumni association of a long-established school as the parent body is an advantage. When attempting to communicate with a community from the outside, an existing network is extremely helpful. The reason they were able to put activities on track in just one year and achieve successive results is exactly because of this advantage. We are thankful for the keen eyes of SUZUKI and others who focused on the alumni network.

The advantages of a community-based citizen network are ease of collecting information on the location of materials to be rescued, and the ability to flexibly respond to sudden requests. When a long-established restaurant in the city decided to close and tear down the building owing to the earthquake damage and the

sudden passing of the owner, local study group members led the preservation of the paintings created by the owner along with historical materials. Their passion was obvious during the exhibition of rescued materials planned in conjunction with the first symposium.

Another characteristic of the Soma Shiryo-Network is that the coordinator is a journalist who is also an alumnus. TERASHIMA Hideya presents activity reports based on detailed interviews on an online news site, TOHOKU360. A Shiryo-Network with a dedicated journalist is surely rare. Another strength of the Soma Shiryo-Network is that their activities are shared across Japan.

Although the Soma Shiryo-Network has its advantages, disadvantages also exist. Generally, the alumni organization is dominated by seniors who miss the old days. This is also the case for the Soma Shiryo-Network. This makes the Soma Shiryo-Network unsuitable for physical work on-site, for example. They have no experience in material rescue activities such as clearing a storage shed, no human resources, or expert knowledge and know-how of material preservation. However, a system is in place where the representatives of the Fukushima and Miyagi Shiryo-Networks play the role of coordinators to provide experience and know-how to the Network, reaching out to experts, students, alumni, and citizen volunteers to secure enough staff to provide support.

In this manner, in September 2023, a year after its launch, a symposium was held at Soma High School to share the results and challenges of the Soma Shiryo-Network with citizens of Soma and interested parties across Japan. On the day, more people attended than expected, and there were many reactions to the report and the presentation of new materials. The current challenges confirmed at the symposium were securing long-term storage for rescued materials and a framework for expanding the scope of citizen participation. Cooperation of the government is the most urgent challenge at the present time. In the long run, the organization must be set up and human resources must be secured to maintain the ground-breaking attempt known as the citizens' network. In addition, a culture needs to be established for citizens to protect their history with their own hands. We hope that the ground-breaking attempts of the Soma Shiryo-Network operated by the citizens are a major inspiration, encouraging similar attempts across Japan.

## Conclusions

I must apologize that we could not meet the task of communicating with local communities that is needed in disaster countermeasures and materials rescue of local historical culture. However, I believe there were some key findings. In local communities, there are always people who care about the local history and culture, know the locations of materials, and are ready to act out of concern over loss. Furthermore, these people are often equipped with the characteristics to become local coordinators. To achieve results with material rescue and disaster prevention measures in communities, cooperation with key people from local communities must be prioritized, and the circle of cooperation with residents must spread from there. Connection with existing networks, such as local history study groups, neighborhood associations, citizen circles, and alumni associations is also quite effective. Building networks with the government is just starting in many areas, but if there are opportunities for a Shiryo-Network to participate, sharing of disaster-affected material information and setting up of support systems might drastically advance. The role demanded of Shiryo-Networks is to create close cooperation between experts and act as a liaison connecting existing and diverse networks horizontally. This must lead to the true meaning of "passing on cultural assets including those undesignated by the entire community and society," indicated in the outline of the Amended Cultural Assets Protection Act.



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Chapter 10

# Specialized Knowledge and the Preservation of Historical Documents

ICHIZAWA Tetsu (Kobe University)



*The following is an abridged version of the Japanese chapter by the same author in this volume.*

## Introduction

In this chapter, we will re-examine three topics that have been discussed throughout this volume: **knowledge**, **methods**, and **activities** for the conservation of historical documents in the event of a disaster. We will discuss these topics while keeping in mind the problems surrounding the role of specialized knowledge in modern society. Historical preservation activities bear fruit when specialists and non-specialists combine their skills together, so I would like to consider the potential that **knowledge**, **methods**, and **activities** might have for dealing with these larger problems.

## 1. The Present State of Expertise

TAKEKURA Fumito's *Dogu o yomu—130 nenkan tokarenakatta Jomon shinwa no nazo* was awarded the prestigious Suntory Prize for Social Sciences and Humanities in 2021, the same year it was published.[1] The debate that surrounded TAKEKURA's book is a noteworthy commentary on the standing of "specialized knowledge" in modern society. The problems of the book have already been discussed from several perspectives in *Dogu o yomu wo yomu*, but

here I would like to review the issues raised by this book that relate to the topics of this chapter.[2]

As it is well known, TAKEKURA, who is not a specialist in archaeology, presents his own views in *Dogu o yomu*, and his work was not received well at all by archaeologists. As explained by SUGA Yutaka in *Dogu o yomu wo yomu*, *Dogu o yomu* mainly summarizes TAKEKURA Fumito's interpretation of *dogu*. Beyond its main arguments, however, the book was perceived as a critique of specialists.[3]

As SUGA points out, this point is well illustrated in an interview published in *The Asahi Shimbun GLOBE+* under the title *"Dogu o yomu* no ura theme wa senmonchi e no gimon 'shiroto' to yayu suru fucho ni kikikan*"*.[4] As implied by the title, TAKEKURA's *Dogu o yomu* is appraised as a book that raises doubts about specialized knowledge and criticizes those who disregard "amateurs."

In the interview, author TAKEKURA says the following:

> Actually, the reason I decided to write *Dogu o yomu* like this was the distrust toward expertise that came out of the 3.11 nuclear disaster.
>
> No matter how many times the local citizens pointed out the dangers of nuclear power, experts treated their concerns as "amateur opinions" and did not take them seriously. Nevertheless, the nuclear power plant that we had been told was absolutely safe had a meltdown before our eyes.
>
> Without a doubt, specialists are necessary, but instead of being condensed into practical knowledge that can improve our lives, their expertise is locked away and monopolized as a vested interest. This way of handling specialized knowledge continues in various fields.
>
> So how can we transform specialized knowledge into a more practical knowledge? The answer is to make it available to the public through liberal arts education and networking. I hope movement in that direction accelerates going forward.

TAKEKURA criticizes the closed and privileged nature of specialized knowledge, but this kind of criticism is certainly nothing new. One could say that it is a variation of the "absent-minded professor" trope that has often been made about specialists. Regarding the issue of the nuclear power plant in Fukushima, while

TAKEKURA claims that specialists ignored citizens' opinions and set up a power plant in a high-risk location, he himself completely ignores the fact that there were also specialists who argued that it was dangerous.[5] The fact that the media has made such a big deal about this unoriginal, clumsy argument shows just how strong our society's negative opinion of specialists has become.

Also in the GLOBE+ interview, Nakajima Takeshi says the following:

> Archaeology cannot be the only way that we approach our thinking about antiquity. I believe many possibilities will open for us if we confront antiquity with the collective wisdom of philosophy, anthropology, and other disciplines. I think it is important to use this kind of approach to antiquity when we think about the Jomon period today.

Nakajima's opinion that we should study the Jomon period not only through archaeology, but also by marshalling the wisdom of other fields, is completely respectable. However, it is also an interesting phenomenon that this respectable opinion is tied in with a theory that so clumsily criticizes specialists.

## 2. Expertise and Daily Life

Moving on, let us consider the actual task of preserving historical records. Even in this field, there are problems related to specialized knowledge.

For example, there is the "Okuri-ie Project," in which volunteers clean out homes that are abandoned or will be abandoned, and hand them over to new residents. In an interview with YAMADA Noriko, the leader of the project, I heard the following story.[6] While cleaning out the former residents' belongings at one old house, they found a large number of old documents. The volunteers could not handle it, so they called a researcher to the site. The researcher said they would need to conduct an examination and asked the volunteers not to touch anything. However, the researcher's examination did not progress quickly, delaying the volunteers' work at the house. The researcher's schedule and the lives of the townspeople who were cleaning out the house did not align.

In a similar vein, psychologist TOHATA Kaito has cautioned that while mental disorders are determined to be illnesses and given proper medical treat-

ment by specialists, these are problems that originally would have been addressed in people's daily lives but have been turned into a medical problem.[7] TOHATA's argument that there is a negative side to specialized knowledge and that specialists cannot operate effectively without worldly wisdom, is similar to the point made in the interview mentioned above.

The activities of ANDO Ryoko and others in the Suetsugi district of Iwaki City, Fukushima Prefecture, are also very helpful in considering the relationship between daily life and specialized knowledge.[8] Amidst anxiety over the amount of radiation from the Fukushima nuclear power plant meltdown, specialists presented various safety standards based on their own theories, and authorities repealed safety standards without satisfactory explanation. This all caused confusion in the region and conflict of opinion among residents intensified. Naturally, distrust toward specialists also increased. As their livelihoods were shaken, ANDO took action to restore residents' confidence in their local environment by helping them to measure radiation levels themselves. This project has been supported by specialists who have been involved consistently and provide expert advice based on the measured values. The project of ANDO and her colleagues was to restore trust in the local environment—including healthy relationships among the local people—and their work is a rare example of connecting specialized knowledge to our daily lives.

With these examples in mind, let us once again consider those three topics discussed throughout this book: knowledge, methods, and activities.

## 3. The Aim of Activities for the Preservation of Historical Materials

The three topics discussed throughout this book (knowledge, methods, and activities) are characterized by the fact that they have been developed through the actual rescue of historical materials and restoration of damaged materials during disasters in collaboration with various actors, including local citizens. In such a setting, specialists inevitably share their expertise and reconcile problems of daily life with specialized knowledge.

So, what kinds of methods, based on what kinds of assumptions, should be used to realize this "reconciliation"? Let us broaden our perspective a little. A

2022 book entitled *"Senmonka" to wa dare ka* grapples with this question head-on.[9]

The book works with the premise that there is a certain inflexibility of specialized knowledge. OKI Sayaka, for example, discusses how experts are called upon to give their opinions in a "hybrid forum" (Michel Caron), where a wide variety of topics intersect, including science, technology, society, politics, economy, and government regulations. The experts who are summoned to these forums are asked to answer questions outside their own fields of expertise. The specific issues are often interdisciplinary, and there are often strict time constraints on their answers.[10]

KAMISATO Tatsuhiro describes parliamentary briefings in which the government consults a council of experts as an oppressive "yoke." Some of the questions asked in these briefings cannot be answered by the research available at the time. However, the council members cannot fulfill their role by answering, "We don't know." As a result, they give the best assessment they can and the government then cherry-picks what it deems convenient from the council's report, which is limited to begin with. The constraints of these rules are like a heavy yoke on the shoulders of the council members. Kamisato further asserts that behind this "yoke" is a system in which "one part of the administrative structure, the secretariat, sets the agenda for the council, gathers the experts, and manages the council under secretariat leadership."[11]

So, what steps ought to be taken to apply specialized knowledge, which is inherently narrow, to real-world problems? On this question, the articles in *"Senmonka" to wa dare ka* make the following points.

The first is that actors other than specialists in a narrow field should also be involved in discussions to resolve a problem. In his proposed solution to the "yoke" problem mentioned above, Kamisato draws on the work of Erik Millstone and suggests that before a council is formed to assess risk, there should be a "social framing" stage in which there is discussion about what exactly specialists will be asked to assess, what range of specialists ought to be invited (for example, specialists not only in the natural sciences, but in the humanities and social sciences, as well as citizen representatives from local communities), and how much time will be allotted for the council to prepare answers.

SUGA Yutaka also argues for the importance of such a forum for specialists

and non-specialists (which includes specialists in other fields) in his call for **knowledge governance**. According to SUGA, knowledge governance is the ideal "quality control" of knowledge, "a networking of specialists and non-specialists to perform quality control of knowledge from multiple perspectives, and to understand the multifaceted nature of one another's knowledge."[12]

In the case of the preservation of historical materials, there are various actors involved besides the owners and researchers. In *Link*, a periodical published by the Kobe University Community Outreach Center, we have conducted a series of interviews with individuals who are not historical researchers but are involved with historical documents or with the retelling of history through popular media, christening them "neighbors of historical research." We have heard from people such as a house clearance agent,[13] an antiquarian bookstore owner,[14] an editor of history books aimed at the general public,[15] a representative of the "Okuri-ie Project" discussed above,[16] and a newspaper reporter.[17] In these conversations, it became clear to us that researchers are only one of the many actors who handle historical materials.

The second point is a focus on the role of facilitators who connect specialists and society.[18] The SMS (Science Media Centre), which facilitates the distribution of information between the mass media and researchers in science and technology fields, was established as an organization to play such a mediating role.[19] In addition, there is a need for "cultural translators" who can communicate what is happening in other fields and link specialists with other specialists.[20]

The third point is the encouragement of research that involves participation in the subject. Rather than separating themselves as observers looking at a subject "objectively," researchers ought to become involved with the subject and transform themselves through their research.[21] This way of doing research has a lot in common with the participatory development theory advocated by NAKAMURA Hisashi, in which "outsiders" participate alongside locals in a regional development project, and through this process become personally vested in the project.[22]

The above problems concerning specialized knowledge (the gap between the range of knowledge possessed by experts and the answers sought from them) and the prescriptions for these problems ([1] participation of diverse actors, [2] mediation between specialists and society, and among specialists, and [3] research that involves the researcher with the subject) are also applicable to the rescue and

preservation of historical materials. Rescue and preservation cannot be realized without the collaboration of various actors, and researchers in the field must be in a position to connect their expertise with society. At the same time, historical document specialists, conservation scientists, government officials, and experts involved in disaster recovery and reconstruction need to work toward mutual understanding. And finally, without a deep commitment to the people and places that have preserved and passed on the materials, it would be impossible to fully convey the meaning of these materials to future generations.

The knowledge, methods, and activities involved in the rescue and preservation of historical materials are deeply related to the problems surrounding specialized knowledge and have meaning as a practical way to overcome those problems. The knowledge, methods, and activities were born through experience in the field and refined through a reflective cycle with each new project. I think this process itself is a working example of the three prescriptions described above.



## Conclusion

In this chapter, we have re-evaluated the meaning of the methods, knowledge, and activities in the preservation of historical materials by looking at problems relating to expertise. Returning to the topic of historical materials as a matter of historical research and study, we must of course also mention the issue of public history.

According to OKAMOTO Michihiro, public history is a somewhat ambiguous term, but "We can basically divide it into two categories: 'history *to the public*' and 'history *in the public*.'" The former refers to history as it is presented at museums and other institutions that educate the public, as well as archaeological sites and artifacts, novels, films, comic books, and other media produced by specialists. In contrast, the latter refers to history based on customs, oral traditions, and memories created by ordinary people, and was formerly outside the scope of professional research. Rather than thinking of these two categories as being in opposition to one another, healthy debates among scholars tend to emphasize their interdependence.[23]

One can argue that the preservation of historical materials is an activity that

is both **to the public** and **in the public**. Moreover, if we consider the fact that it fosters collaboration between various kinds of actors in addition to specialists, we might say that the preservation of historical materials is an activity in which people with various skills and interests related to historical documents work together and create a new public space—to adapt OKAMOTO's theme, they **make the public**.[24]

In modern society, anyone can freely communicate about history to the world. We often see discourse in which a person's desires masquerade as history. Conspiracy theorists claim that experts know the truth but are covering it up. In such times, a public space where people, including experts, can work together toward the goal of preserving documents that communicate history, and exchange opinions about how to rescue and restore such documents, is extremely important.

The knowledge, methods, and activities for rescuing historical materials are designed to achieve a specific objective. However, they also have value in that they connect the research of specialists with citizens and society. I hope that this point will be investigated more deeply in the future.

**Notes**

1 TAKEKURA Fumito, *Dogu o yomu—130 nenkan tokarenakatta Jomon shinwa no nazo*, Shobunsha, 2021.

2 Jomon ZINE, (ed.), *Dogu o yomu wo yomu*, Bungaku Tsushin, 2023.

3 SUGA Yutaka, "Chi no 'kanteinin'—Senmonchi hihan wa senmonchi hitei de atte wa naranai", Ibid.

4 The Asahi Shimbun GLOBE+ interview is available online at https://globe.asahi.com/article/14400149 (Accessed September 9, 2023).

5 SOEDA Takashi, *Genpatsu to otsunami: Keikoku o homutta hitobito*, Iwanami Shoten, 2014.

6 YAMADA Noriko et al., "Interview Series *Rekishi kenkyu no rinjin-tachi* Dai-nikai dai-sanbu: Ikkyu kenchikushi Yamada Noriko-san", *Link*, no. 13, 2021, pp. 52-83.

7 TOHATA Kaito, "Shakai kihyo", The Asahi Shimbun Morning Edition, June 6, 2021.

8 ANDO Ryoko, *Umi o utsu—Fukushima, Hiroshima, Belarus ni te*, Mizuho Shobo, 2019; ANDO Ryoko, *Steve & Bonnie—Sabaku no Genshiryokumura in America*, Shobunsha, 2022.

9 MURAKAMI Yoichiro, (ed.), *"Senmonka" to wa dare ka*, Shobunsha, 2022.

10 OKI Sayaka, "Kagaku to 'senmonka' o meguru sho-gainen no rekishi", Ibid.

11 KAMISATO Tatsuhiro, "Risk jidai ni okeru gyosei to senmonka—United Kingdom BSE mondai kara", Ibid.

12 SUGA, op. cit.

13 YAGI Akihito, et al., "Interview Series *Rekishi kenkyu no rinjin-tachi* Dai-ikkai: Ie-jimai adviser® Yagi Akihiko-san", *Link*, no. 11, 2019, pp. 63-88.

14 HARA Tomoko, et al., "Interview Series *Rekishi kenkyu no rinjin-tachi* Dai-sankai: Shoshi Hara Tomoko-san", *Link*, no. 14, 2022, pp. 64-96.

15 YAMAZAKI Hiroshi, et al., "Interview Series *Rekishi kenkyu no rinjin-tachi* Dai-nikai dai-ichibu: Shinsho henshusha Yamazaki Hiroshi-san", *Link*, no. 13, 2021, pp. 8-42.

16 YAMADA, op. cit.

17 This will be published as the fourth interview in the series in *Link*, no. 15 (Forthcoming).

18 KOBAYASHI Tadashi, "Shakai to kagaku o tsunagu atarashii 'senmonka'", MURAKAMI, op. cit.; SUZUKI Tetsuya, "Undo toshite no senmonchi", MURAKAMI, op. cit.

19 SEGAWA Shiro, "Journalists to senmonka wa kyodo dekiru ka", Ibid.

20 See KOBAYASHI, op. cit. In addition, FUJIGAKI Yuko draws on the European discussion of "Responsible Research and Innovation" (RRI), which advocates for collaboration among actors in society. She asserts that "meddling in neighboring fields and flexibility through exchanges are essential" for this. FUJIGAKI Yuko, "Tonari no ryoiki ni kuchi-dashi suru to iu koto", Ibid.

21 SUZUKI, op. cit.

22 NAKAMURA Hisashi, "Tojishasei no tankyu to sankagata kaihatsu—Sri Lanka ni miru daigaku no shakai koken katsudo", SAITO Fumihiko, ed., *Sankagata kaihatsu—Mazushii hitobito ga shuyaku ni naru kaihatsu ni mukete*, Nihon Hyoronsha, 2002.

23 OKAMOTO Michihiro, "Public history kenkyu josetsu", *The bulletin of the Institute of Human Sciences, Toyo University*, no. 22, 2020.

24 For more on this way of thinking about "public," see SAITO Junichi, *Publicness*, Iwanami Shoten, 2000.

# Conclusion

MATSUSHITA Masakazu and AMANO Masashi

This book is part of the results of Group A, “Inheritance of LHM” of the Grant-in-Aid for Specially Promoted Research Project “From Local Historical Material Studies to Regional Historical Culture: Creation of a New Research Field for Resilient Local Communities in a Country of Natural Disasters" (Principal Investigator: OKUMURA Hiroshi, Project Number: 19H05457). The members of this joint research project are working to rescue, preserve, and pass down various historical materials in each community in response to the natural disasters that have frequently occurred across Japan since the Great Hanshin-Awaji Earthquake in 1995. Moreover, by examining the issues confronted in the process, the authors have made practical progress in finding a foundation for the inheritance of historical culture in local communities. Each author is still promoting own activities, and this publication is a condensed version of the philosophy of historical material rescue and inheritance discovered through these efforts.

To pass on historical materials within a community, it is only natural to protect the materials themselves. Therefore, we need to take prompt and appropriate measures to handle damaged materials, but handling the large number of materials scattered all over Japan takes much work. An overview of past efforts shows that municipality officials, the locals, and other individuals who are not experts in preservation and restoration often take the lead in responding to disaster-affected areas. These days, cases of disaster response activities in the past are available on many occasions, and encountering these activities enables us to get an idea of what they entail. Conversely, disaster situations differ depending on their timing, historical and geographical background, scale, and type of disaster. The target

materials are also diverse depending on the activities' composition. Disaster response requires efforts beyond specific techniques and manuals; putting them into practice is always challenging. After much discussion among the authors, we decided that the chapters would not end with an introduction of methodologies and practices but would present ideas for rescuing of each material. Our purpose is to organize what the situation is like during the stage of material rescue and escape from immediate danger, what to keep in mind, and the critical points for achieving that goal so that readers can use them as references for future field responses.

Relationships with the people surrounding the materials are essential elements in preserving and passing them on. In particular, the locals in each community have passed down their materials while keeping close contact with them. Confronting local materials requires dialogue with the histories and people of that community. How do history and culture experts get involved in the process? We need to develop a method of passing on historical and cultural traditions through dialogue. In this book, ICHIZAWA Tetsu describes "make the public" as the dialogue between experts and the local community, symbolized by the Shiryo-Network activities in the recent materials rescue. Suppose we form such a public space through new relationships developed by activities. In that case, efforts to preserve materials will have to play a sustained role that goes beyond the rescue of objects. Many pursue the efforts to this end across Japan, and we can expect further development. During the planning, we discussed how our practices and investigations in Japan can be understood to benefit international efforts. Hence, we prepared the English and Japanese versions and had them publicized online so that more people can read them. NEMOTO Takeru supervised the English translation. Again, we would like to thank him for his hard work reviewing our English.

On 1 January 2024, just during the compilation of this book, a massive earthquake and tsunami hit the Noto Peninsula in Ishikawa Prefecture. Rescue activities are still underway in all fields, and those for disaster-damaged materials will follow. We would like to express our deepest sympathies to the victims of the disaster and hope that this book will assist them in the future.

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