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Introduction

Written by Nobuyuki Kamba (Tokyo National Museum)

On the coast of the Tohoku district of Japan which was, hit by the Great Eastern Japan Earthquake and the subsequent tsunami on March 11, 2011, many cultural institutions including museums, libraries and archives were severely damaged. In response to the outbreak of the large-scale natural disaster, the Agency for Cultural Affairs, the National Institutes for Cultural Heritage and other organizations started the recovery of cultural assets. These efforts to salvage damaged museum collection involved museums in Japan, such as member institutions of the Japanese Association of Museums and the National Museum of Nature and Science. In the affected area along the coast of Iwate Prefecture mentioned in this book, curators connected by the network of museums in the prefecture completed salvage of most of the objects by the middle of June, 2011. As of the end of August 2014, among 560,000 items managed by Rikuzentakata City, approximately 460,000 items had been salvaged, 150,000 of which were stabilized with protective measures. However, other salvaged items were waiting for establishment of stabilization treatments, and some are stored in freezers in Rikuzentakata City or Morioka City while care is being taken not to allow their degradation.

Following this disaster, stabilization treatments have been conducted in cooperation with an unprecedented number of organizations, attaining some success. At the same time, many issues remain unsolved from the perspective of salvage and stabilization of damaged cultural properties even after four years have passed since the outbreak of the disaster. We are dealing with many important issues including: the realization of the Blue Shield organization which

enables dispatch of specialized teams such as the Self-Defense Forces for salvaging cultural property; triage used for determination of priority
of salvage; setting up of an environment to store salvaged objects temporarily; understanding and establishment of methods to stabilize objects by sterilization, sludge removal and desalination in order to protect them from deterioration due to mold and microbes, corrosion by contaminated substances, and deformation by acute absorption and release of water. Moreover, it is important to keep in mind a uniquely modern
problem: decontamination of cultural assets polluted by radioactivity in Fukushima Prefecture.

Transportation of objects from the afflicted areas to a safe place is called primary rescue, while taking the minimum measures for the objects at a safe place is called secondary rescue. Stabilization processing of materials is the major activity in the secondary rescue. The conservation measures for the damaged objects taken after many past natural disasters were basically removal of contaminating substances (sludge, sand, etc.) attached to the surface of objects and repair of broken parts. The damage due to this disaster is totally different from the previous damage, with contaminating substances permeating into the materials (sludge lifted from the sea bottom by the tsunami, various bacteria contained in the sludge and drainage, and salts contained in seawater), and many kinds of physical damage with breakage, chafing and exfoliation. Although they were not submerged in the water for long, the damaged objects that were left alone contaminated by seawater and sludge for at least one month afterwards. This seems to be the reason for the permeation of contaminating substances, and increased the severity of the damage to the assets. In addition, the environment for temporary storage of salvaged and stabilized objects had not been properly prepared, and mold grew rapidly with increase of the air temperature in May. This is also regarded as one of the factors which facilitated deterioration of the assets.

The major operations of the secondary rescue effort following completion of primary rescue activities are, as mentioned above, removal of degrading factors that had permeated the objects, taking proper countermeasures against physical breakage or deformation of the objects, and storage and maintenance of the objects in a safe environment during and after these operations. Full restoration of breakage is distinctly different from stabilization processing, and has to be done after completing stabilization. The objects damaged by the tsunami will deteriorate further in the long term, and we are deeply concerned they will have a harmful influence on, undamaged objects near them, as well as the surrounding environment, due to degrading factors remaining in the objects. Accordingly, damaged items which have not been stabilized must never be stored together with intact items, and full restoration of objects in such conditions must be avoided as far as circumstances permit. Furthermore, observation is strongly recommended, even for objects which were stabilized. Only objects which have been

regarded as safe for many years after stabilization processing will be permitted to be stored in a general standard storage facility. Stabilization techniques are thus in the process of being developed, and stabilized objects should be carefully observed. It is necessary to check for defects by observation after stabilization processing, correct them, to establish high credibility and safety of the methods used.

The Iwate Prefectural Museum and the Tokyo National Museum, which have been supporting the Rikuzentakata City Museum, as well as many other related institutions, have accumulated a considerable amount of understanding concerning storage and restoration of damaged cultural property, especially knowledge and techniques for stabilization processing with the mutual cooperation of the organization involved. It is necessary to make such information widely available to other countries as well as persons involved in domestic museums to prepare for upcoming disasters. This book includes a description of the methods acquired through trial and error by many experts who had been involved in the primary and secondary rescue activities. These are invaluable experiences and research achievements. Recording them will help all of us in preparation for future disasters, as well as in establishing stabilization methods for the salvaged, but still frozen objects.

"Stabilization Processing"

Multi-Organizational Co-Operative Project for Preserving and Restoring
Cultural Assets Damaged by Tsunami on March 11, 2011

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