

# EAP DRM KnowledgeNotes

## Disaster Risk Management in East Asia and the Pacific



### DISASTER PREPAREDNESS FOR CULTURAL HERITAGE

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#### INTRODUCTION

A comprehensive guide on disaster preparedness for cultural heritage was produced by the International Center for the Study of Preservation and Restoration and the Committee of the Blue Shield about 10 years ago to provide guidelines for local and national authorities in countries and regions at risk of natural hazards.

As seen in many countries where cultural assets are ir-

replaceably lost or severely damaged (e.g., the 2,500-year-old citadel of Bam in Iran was reduced to rubble by an earthquake in late 2003), practical precautionary measures can safeguard important cultural resources.

The basic principles of disaster preparedness for cultural heritage can be summarized as:

- Integration of cultural heritage assets into existing disaster management plans.
- Use of preventive approaches that improve or maintain the condition of heritage assets to ensure the survival of the heritage and its significant messages during and after natural disasters.<sup>1</sup>

The Swiss are considered to have developed international good practice for integrative disaster management planning. In the Swiss system, a heritage department is incorporated into the Federal Office for Civil Protection (the Office), which deals with providing aid in the event of a disaster and protection from armed conflict. In addition to the legislative and administrative obligations, the Office also mandates that localities make specific financial contributions to safeguard heritage.<sup>2</sup>

For preventive conservation, risk management can provide a framework for decision making. There are four recognized steps to using a risk management approach for preservation issues: (i) identify all risks to heritage; (ii) assess

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the magnitude of each risk; (iii) identify possible mitigation strategies; and, (iv) evaluate the costs and benefits associated with each strategy.

### INTERNATIONAL EXPERIENCE AND LESSONS LEARNED

#### Integrative planning for Istanbul, Turkey

In 1999 a devastating series of earthquakes occurred in the Marmara Region of Turkey. It was estimated that over 17,000 lives were lost and between 1.5 to 3.3 percent of GNP had been destroyed. It was concluded that lax building codes and regulations led to inadequate structures that could not withstand the force of the earthquake. After the earthquake, the Government of Turkey was interested in examining the cost-effectiveness of strategic planning for disaster management and investment in mitigation. As such, the government resolved to be proactive in addressing disaster management issues through a project focused on seismic risk mitigation and risk preparedness for the city of Istanbul.

The city of Istanbul in addition to being the financial, commercial, and industrial center of the country, producing 56.6 percent of total exports, is also the cultural crossroads of Eastern and Western heritage. It has the highest population of any city in Turkey and also has the most museums.<sup>3</sup> Istanbul was settled thousands of years

ago and currently hosts some of the most important monuments of the Roman, Byzantine, and Ottoman Empires. For Istanbul, the likelihood of a devastating earthquake is estimated at 62 percent (plus or minus 12 percent) within the next 30 years. Cultural patrimony is immeasurable at all times; estimated economic loss to Istanbul as a result of a large-scale earthquake would range from USD 20-60 billion.

The Metropolitan Municipality of Istanbul, therefore, prepared an earthquake master plan that “was comprehensive in the treatment of risks and mitigating measures and integrated in the protection of natural and historic assets. The plan is internationally recognized as a strategic instrument for assessing risk in megacities to enhance the safety and total quality of life in the city and was the framework under which the project was designed.”<sup>4</sup> The project was keenly aware of the importance of the cultural heritage of Istanbul, not only as a national or global public good but also as a key component of the lucrative tourism industry. In addition, it was widely recognized that all disasters are ultimately ‘local’ whereby emergency response and management are dependent on the capacities and organization of the local governments, the private sector, nongovernmental organizations (NGOs), local communities, and residents.<sup>5</sup> Subsequently, a significant effort in training at the local level was instituted; it included specific preventive conservation seminars and workshops for museum staff and a “community-based disaster mitigation best practices day.”

In terms of mitigating damage to cultural heritage assets, the government prepared an action plan that mandates the development of a comprehensive inventory of cultural heritage assets, conducts detailed feasibility studies to determine seismic vulnerability and recommend technical mitigation measures, and carries out the design/construction of a long-term (20-year) plan.<sup>6</sup> A database of cultural assets, including cataloguing of

structural conditions and heritage values, was developed and used as a guide for the 66 museums in the city. The museums were able to put into effect simple, practical measures to safeguard their extensive collections (e.g., using plastic sheeting over display cases, changing the lighting systems, preparing evacuation plans, and training museum volunteers for community disasters).

In addition, the World Bank financed Seismic Risk Mitigation project provided funding for retrofitting public buildings, which included historic buildings or sets of buildings in cultural districts. Typically, proper maintenance of these buildings is the first important step in protecting them against the devastating effects of earthquakes and other natural disasters. However, the improper introduction of materials without regard for conservation principles can cause more damage and irrevocable harm to historic structures. For instance, Doric columns are able to withstand seismic activity since the drums can move freely in relation to one another; reinforcing the columns with steel would restrict the movement and lessen this capacity.

When intervening in historic buildings in areas prone to earthquakes and other natural disasters, it is important that traditional building methods be carefully considered as they have often been adapted to safeguard life and property. For instance, in the old city of Lijiang, a World Heritage site in Yunnan, China, housing frames were built to be flexible and the upright timbers canted slightly inward to increase stability.<sup>7</sup> Modern methods to strengthen the mud brick walls were developed and resulted in rebuilding Lijiang within the context of its ancient architecture and maintaining its unique cultural character.

### Preventive conservation in the cultural heritage project, Georgia

Preventive conservation and maintenance of historic buildings and artifacts are important steps in mitigating



damage from natural disasters (e.g., earthquakes, floods, and fire). In 1998 a World Bank financed Cultural Heritage project was launched in Georgia; its objective was to rehabilitate historic sites and revitalize cultural traditions in order to promote economic growth, mainly by encouraging tourism. Since Georgia is prone to seismic activity, preventive conservation was integrated into the project through the Emergency Rehabilitation program.

The program provided USD 1 million to community groups, NGOs, and institutes to prevent the loss and permanent damage of cultural heritage throughout the country. It was implemented as a grant facility using a competitive process of selection. Proposals focused on stabilizing buildings in danger of collapse, microfilming and archiving old manuscripts, and recording traditional songs and dances. More specifically, the 58 projects helped to protect over 100 cultural and historic treasures such as churches, monuments, frescoes, and archeological sites as well as folk music, photos, films, and dances from further deterioration or permanent loss. Proposals were selected for funding through a fully transparent process

### Key lessons learned from international experience

- The key to effective protection of cultural heritage at risk is advanced planning and preparation.
- Advanced planning for cultural heritage properties should be conceived in terms of the whole property and provide integrated concern for buildings, structures, and associated contents and landscape.
- Advanced planning for the protection of cultural heritage against disasters should integrate relevant heritage considerations within the overall disaster prevention strategy for the property. For instance, a sprinkler system may be unwelcome by conservation experts but may be essential in saving entire collections.
- Preparedness requirements should be met in heritage buildings by means that have the least impact on heritage values. An example is applying waterproof coatings to the foundation of a building to decrease humidity levels instead of using a dehumidifier.
- Heritage properties, their significant attributes, and the disaster response history of the property should be clearly documented as a basis for appropriate disaster planning, response, and recovery. For example, risk mapping was used successfully in Italy.
- Maintenance programs for historic properties should integrate a cultural heritage-at-risk perspective.
- Property occupants and users should be directly involved in the development of emergency response plans.
- Security of heritage should be a high priority during emergencies.
- Following a disaster, every effort should be made to ensure the retention and repair of structures of features that have suffered damage or loss. In other words, conservation specialists should be integrated into all phases of risk management, including recovery.
- Conservation principles should also be integrated where appropriate in all phases of disaster planning, response, and recovery. If collections become waterlogged, air drying is preferable to adding heat since the latter may cause brittleness and exacerbate damage.

organized by the Georgian Cultural Revival Board. Two-fold assistance was provided by the Fund for the Preservation of Culture Heritage of Georgia to the selection committee and to beneficiaries: (i) screening proposals to ensure compliance with required criteria, and (ii) monitoring and evaluating the implementation.

The project also sponsored the conservation of historic buildings in the old town of Tbilisi: The aim was to help maintain the extant structures and prevent any further deterioration. Tbilisi has enjoyed a period of revitalization and economic development as private investors joined in renovating important historic monuments and also invested in various businesses that have been successful in attracting residents back to the historic core.

In addition, coverage by the media of specific projects under the Emergency Rehabilitation program increased public awareness and interest in preserving the varied and rich cultural heritage of Georgia.<sup>8</sup>

### RECOMMENDATIONS FOR RISK PLANNING, RESPONSE, AND RECOVERY<sup>9</sup>

Internationally accepted frameworks and procedures for environmental assessment can be applied to the protection of cultural heritage, and are fungible with reconstruction planning.

Preparing a national inventory of cultural heritage should be the first step in analyzing risks and assessments. Since



these inventories serve as the key instrument necessary for effective emergency planning, they should be kept up to date, easily accessible, and spatially related by using geographic information systems (GIS). During emergency operations for threats to cultural assets from the floods, fires, or landslides often triggered by earthquakes, GIS enables policy makers and planners to create an accurate picture. National inventories often include documentation on previous disaster-related incidents and maintain records on the structural conditions of the individual assets and their historic significance.

Mitigation procedures should be put into place (i.e., to ensure that museum display cases have been adapted for seismic conditions or important collections are not stored in basements in flood-prone areas). In addition, the buildings, whether they house important collections or are of heritage value themselves, must be properly maintained to building code standards.

Heritage staff and professionals should be included in the national, provincial, or local disaster planning exercises and should be informed of imminent natural disasters. Planning at the level of heritage sites requires these professionals to be trained in emergency management and able to communicate and train their own staff and communities.

The international community benefits from sharing the knowledge on and promoting the principles of disaster preparedness for cultural heritage as countries become more aware of the potential danger of permanent loss of these treasures. In effect, cultural heritage should be considered in all aspects of disaster management planning, including preparedness and recovery. Risk preparedness should not be conceived only in emergency situations but interwoven into the routine management of cultural heritage resources.

Heritage also can play a catalytic role when it comes to economic recovery after a major disaster. While tourism

is often one of the first industries to feel the direct effects of a natural disaster, it is also the most resilient after a disaster. Reviving tourism, including cultural tourism, brings much-needed revenues and opportunities for the recovery of a country. Reconstruction should take into consideration that some local communities are dependent on tourism revenues, and that as tourism facilities are rebuilt, in the interim, these communities may require additional support to survive.

## End Notes

- <sup>1</sup> Stovel, H. 1998. *Risk Preparedness: A Management Manual for World Cultural Heritage*. Rome: ICCROM.
- <sup>2</sup> Taboroff, J. 2003. *Natural Disasters and Urban Cultural Heritage: A Reassessment, Building Safer Cities: The Future of Disaster Risk*. Washington DC: World Bank.
- <sup>3</sup> Erturk, N. 2004. "Earthquake Preparedness Towards Cultural Heritage Losses: The Case Study of Istanbul Museums." *International Symposium on Cultural Heritage Disaster Preparedness and Response*. Cristina Menegazzi (ed.). Paris: International Council of Museums (ICOM) Publications, 243-248.
- <sup>4</sup> World Bank. 2005. *Istanbul Seismic Risk Mitigation and Emergency Preparedness Project, Project Appraisal Document*. Washington, DC: World Bank.
- <sup>5</sup> See note 3.
- <sup>6</sup> See note 4.
- <sup>7</sup> Read, G. and K. Ebbe. 2001. *Post-Earthquake Reconstruction and Urban Heritage Conservation in Lijiang*. In *Historic Cities and Sacred Sites: Cultural Roots for Urban Futures*. Serageldin, I. et al. (eds.) Washington, DC: World Bank, pp. 102-114.
- <sup>8</sup> World Bank. 2004. *Georgia: Cultural Heritage Project, Implementation Completion Report*. Washington, DC: World Bank.
- <sup>9</sup> See note 1.



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