



Risk Preparedness for Cultural Heritage

A. Introduction

1. A comprehensive guide on risk preparedness for cultural heritage was produced by ICCROM (International Centre 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. As seen in many countries where cultural assets are irreplaceably lost or severely damaged, such as the 2000 year old citadel of Bam in Iran which was reduced to mostly rubble by an earthquake in late 2003, practical precautionary measures can safeguard important cultural resources.

2. The basic principles of risk preparedness for cultural heritage can be summarized as:

- the integration of cultural heritage assets into existing disaster management plans and;
- the use of preventive approaches that improve or maintain the condition of heritage assets to ensure survival of the heritage and its significant messages during and after natural disasters.¹

3. 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) that 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.²

4. For preventive conservation, risk management can provide a framework for decision making. There are four recognized steps to using a risk management approach to preservation issues.

- Identifying all risks to heritage
- Assessing the magnitude of each risk
- Identifying possible mitigation strategies, and
- Evaluating the costs and benefits associated with each strategy

¹Stovel, Herb, Risk Preparedness: A Management Manual for World Cultural Heritage, ICCROM, Rome, 1998.

²Taboroff, June, Natural Disasters and Urban Cultural Heritage: A Reassessment, Building Safer Cities: The Future of Disaster Risk, World Bank, Washington DC.



B. International Experience and Lessons Learned

Integrative Planning for Istanbul, Turkey

5. In 1999, a devastating series of earthquakes occurred in the Marmara region of Turkey. It was estimated that 17,000 lives were lost and 6% of GNP had been destroyed. It was concluded that loose building codes and regulations led to inadequate structures that could not withstand the force of the earthquake. After the earthquake, the Government of Turkey understood 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.

6. The city of Istanbul in addition to being the financial, commercial and industrial center of the country, producing 56.6% of the nation's exports, is also the cultural cross-roads of eastern and western heritage. The city which has the highest population in Turkey also has the most number of museums³. The city 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% (+/- 12) within the next 30 years. While the loss of such important cultural patrimony is immeasurable, the economic losses were estimated between \$20-60 billion if an earthquake of significant magnitude were to occur.

7. Therefore, the Metropolitan Municipality of Istanbul began to prepare an Earthquake Master plan that “was comprehensive in the treatment of risks and mitigating measures and integrated the protection of natural and historic assets. The Plan is internationally recognized as a strategic instrument for assessing risk in mega-cities to enhance the safety and total quality of life in the city and was the framework under which the project was designed.”⁴ 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 were dependent on the capacities and organization of the local government, communities, private sector, NGOs and residents.⁵ Subsequently, a significant effort in training at the local level was instituted which included specific preventive conservation seminars and workshops for museum staff and a “Community-based Disaster Mitigation Best Practices Day”.

8. In terms of mitigating damage to cultural heritage assets, the government has prepared an action plan that will mandate the development of a comprehensive inventory

³ Erturk, Nevra, Earthquake Preparedness and Cultural Heritage Losses: The Case Study of Istanbul Museums, Yildiz Technical University, Turkey

⁴ Project Appraisal Document, Istanbul Seismic risk Mitigation and Emergency Preparedness Project, April 2005, World Bank, Washington, DC.

⁵ Erturk, Nevra, Earthquake Preparedness and Cultural Heritage Losses: The Case Study of Istanbul Museums, Yildiz Technical University, Turkey



of cultural heritage assets, conduct detailed feasibility studies to determine seismic vulnerability and recommend technical mitigation measures, and carry out the design/construction of a long term (20 year) plan.⁶ A database of cultural assets including cataloguing of their structural conditions and heritage value was developed and used as a guide for the 66 museums of the city. The museums were able to put into effect simple, practical measures to safeguard their extensive collections; for example using plastic sheeting over display cases, changing the lighting systems, preparing evacuation plans and providing community disaster-volunteer training.

9. In addition, the project on Seismic Risk Mitigation 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 improper introduction of materials without regard to 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 each other however reinforcing with steel would restrict the movement and lessen this capacity.

10. 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 are canted slightly inward to increase stability.⁷ Modern methods to strengthen the mud-brick walls were developed which 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

11. Preventative conservation and maintenance of historic buildings and artifacts are an important step in protecting them from natural disasters such as earthquakes, floods and fire. In 1998, the Cultural Heritage project was launched in Georgia with the objective to rehabilitate historic sites and revitalize cultural traditions in order to promote economic growth, mainly by encouraging tourism development. However, as Georgia is prone to seismic activity preventive conservation was integrated into the project through its Emergency Rehabilitation Program and indeed two earthquakes shook Tblisi towards the end of implementation of the project,

12. The Program provided \$1million to community groups, NGOs and institutes to prevent the loss and permanent damage of cultural heritage throughout the country. The program was implemented as a grant facility using a competitive process of selection.

⁶ Project Appraisal Document, Istanbul Seismic risk Mitigation and Emergency Preparedness Project, April 2005, World Bank, Washington, DC.

⁷ Read, G. and Ebbe, K, Post-Earthquake Reconstruction and Urban Heritage Conservation in Lijiang, pp. 102-114, Historic Cities and Sacred Sites: Cultural Roots for Urban Futures, 2001, The World Bank.



Proposals focused on stabilizing buildings in danger of collapse, microfilming and archiving old manuscripts, recording traditional songs and dances. More specifically, the 58 projects helped to protect over 100 cultural and historic treasures such as churches, monuments, frescoes, 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 of the Georgian Cultural Revival Board. Assistance was provided by the Fund for the Preservation of Culture Heritage of Georgia to the selection committee and to beneficiaries by screening proposals for presentation to ensure compliance with the criteria and monitoring and evaluating the implementation.

13. The project also sponsored the conservation of historic buildings in the Old Town of Tbilisi, helping to maintain and prevent further deterioration. It is well known that proper maintenance and rehabilitation of historic structures strengthens their resistance to disasters such as earthquakes and can mitigate damage. In the end, 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 into the historic core. In addition, coverage by the media of specific projects under the Emergency Rehabilitation Program increased public awareness and interest in preserving Georgia's varied and rich cultural heritage.⁸

Key lessons learned from international experience

- The key to effective protection of cultural heritage at risk is advance planning and preparation.
- Advance planning for cultural heritage properties should be conceived in terms of the whole property, and provide integrated concern for its buildings, structures, and their associated contents and landscape
- Advance planning for the protection of cultural heritage against disasters should integrate relevant heritage considerations within a property's overall disaster prevention strategy. (A sprinkler system may be unwelcomed by conservation experts but is essential in saving entire collections)
- Preparedness requirements should be met in heritage buildings by means which have least impact on heritage values. (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. (Risk mapping 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 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. (Integrating conservation specialists into all phases of risk management including recovery)
- Conservation principles should be integrated where appropriate in all phases of disaster planning, response and recovery. (If collections become waterlogged air drying is preferable to adding heat as this may cause brittleness and more damage)

⁸ Implementation Completion Report, Cultural Heritage Project, Georgia, June 2004, The World Bank.
World Bank Good Practice Notes



C. Recommendations for Risk Planning, Response and Recovery⁹

14. Internationally accepted frameworks and procedures for Environmental Assessment can be applied to the protection of Cultural Heritage. In planning for reconstruction this method can be used.

- ***Analysis of risks and assessments of cultural heritage*** should begin by preparing national inventories which will serve as the key instrument necessary for effective emergency planning. These inventories should be up to date, easily accessible and spatially related by using geographic information systems (GIS). GIS enables policy makers and planners to create an accurate picture during emergency operations regarding threats to cultural assets from floods, fire or landslides often triggered by earthquakes. Often national inventories also document previous incidents related to disasters and maintain a record regarding structural condition of the individual asset and its historic significance.
- ***Mitigation procedures*** should be put into place such as 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 adequate building codes 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 on the heritage site level requires that these professionals are trained in emergency management and they are able to communicate and train their own staff and communities.
- The international community benefits from ***sharing of knowledge and promotion of the principles of risk preparedness*** for cultural heritage as countries become more aware of the danger of permanent loss of these treasures to natural and man made disasters. 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 can also 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. Getting tourism back on track, including cultural tourism, brings much need revenues and opportunities for recovery for a country. Reconstruction should bear in mind that local communities are dependent on tourism revenues and that as tourism facilities are rebuilt these communities need the support to survive.

⁹ Stovel, Herb, Risk Preparedness: A Management Manual for World Cultural Heritage, ICCROM, Rome, 1998.