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Towards a More Strategic Approach to Disaster Risk Reduction

Introduction

It is evident that the damage from disasters, including to heritage resources, is increasing every year with tragic consequences for people and their livelihoods. It is believed that the risks from disasters can be significantly reduced through appropriate policies, practices, and proper planning. The intention of this paper is to highlight some of the efforts made by ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) together with its partners in achieving these objectives. Furthermore, the paper highlights one of the activities recently carried out on the theme of integrating traditional knowledge systems into risk management strategies.

ICCROM over the last years has worked with its Member States and partners to address the issues relevant to disaster risk planning and management by understanding the existing knowledge gaps and developing appropriate approaches to address them. Attention has also been paid to understanding the role of heritage in disaster risk reduction, as this paper will emphasize. In the process of working on our activities in this field, it was revealed that there is a lack of sufficient capacity within the heritage field to effectively plan for disaster risk, and a lack of resource materials to support those in charge of planning for disaster risk.

As an initial response to these two important problems, in 1998 ICCROM, in cooperation with ICOMOS and the UNESCO World Heritage Centre, published *Management Guidelines for Risk Preparedness for World Cultural Heritage* by Herb Stovel, which has been widely diffused and has been translated into several languages. Furthermore, with assistance from the World Heritage Centre, ICCROM developed a set of training materials which have been tested in a number of countries. Risk management components have also been incorporated into various training programmes of ICCROM, and a specific line of action on Museum Emergency Planning has been introduced in conjunction with ICOM and the Getty Conservation Institute.

Activities

Through this initial work, ICCROM recognised that the heritage sector cannot work in isolation. There is a need for recognition of the heritage sector by the national and international actors in the disaster risk management sector, and a need to integrate heritage concerns within wider disaster risk management strategies. In order to achieve these objectives, ICCROM, working with the UNESCO World Heritage Centre and other partners, engaged in a number of activities on an international level. Brief descriptions of the following key activities are given below.

1. »Thematic Session on Cultural Heritage Risk Management« within the framework of the World Conference on Disaster Reduction (Kobe, Japan—2005)
2. »Strategy for Reducing Risks from Disasters at World Heritage Properties« (2006)
3. »Integrating Traditional Knowledge Systems and Concern for Cultural and Natural Heritage into Risk Management Strategies« within the framework of the International Disaster Reduction Conference (Davos, Switzerland—2006)

I. »Thematic Session on Cultural Heritage Risk Management« within the framework of the World Conference on Disaster Reduction (Kobe, Japan—2005)

This was the first time a thematic session on cultural heritage has taken place at a major international meeting on disaster risk reduction. The World Conference on Disaster Reduction, an intergovernmental conference attended by more than 160 countries, produced the *Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters.*[1]

Specifically, the thematic session on cultural heritage was organized by ICCROM, the UNESCO World Heritage Centre, and the Agency of Cultural Affairs of Japan, with the coordination of Ritsumeikan University. The thematic session discussed a number of important themes, including:

1 International Strategy for Disaster Reduction (ISDR): Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters. World Conference on Disaster Reduction, Kobe, Japan, 18–22 January 2005.

– the systematic integration of cultural heritage and traditional technology, skills and local knowledge systems within the general development framework as an effective means of reducing the impact of disasters;
– the integration of cultural heritage into existing sustainable development goals and disaster reduction policies and mechanisms at international, national and local levels;
– the mobilization of local communities and civil society by actively involving them in the preparation and implementation of risk management plans and in all stages of disaster recovery;
– the development of scientific research and academic, education and training programmes incorporating cultural heritage in both its tangible and intangible manifestations into risk management and disaster recovery;
– the strengthening of existing networks on cultural heritage risk management and the need to link them to larger networks for disaster management.

The resulting recommendations of the thematic session on the need for better integration and research were aimed at intergovernmental organizations, nongovernmental organizations, national governments, and training and research organizations.

II. »Strategy for Reducing Risks from Disasters at World Heritage Properties«

The »Strategy for Reducing Risks from Disasters at World Heritage Properties«[2] was prepared by the World Heritage Centre and ICCROM, in collaboration with the other advisory bodies to the World Heritage Committee, ICOMOS and IUCN (International Union for Conservation of Nature). The strategy was requested by the World Heritage Committee as a means of better preparing World Heritage sites for the challenges faced in times of disaster emergencies. The purpose of the World Heritage strategy is to:

1. strengthen the protection of World Heritage and contribute to sustainable development by integrating heritage into risk reduction policies and incorporating concern for disaster reduction within site Management Plans;
2. provide guidance to integrate risk reduction into World Heritage strategic planning and management.

2 See: Issues related to the state of conservation of properties inscribed on the World Heritage List: Strategy for reducing risks from disasters at World Heritage Properties. Document WHC 06/30.COM/7.2, UNESCO, Paris, 26 June 2006, and Issues related to the state of conservation of World Heritage properties: Strategy for reducing risks from disasters at World Heritage properties. Document WHC-07/31.COM/7.2, UNESCO, Paris, 10 May 2007.

As a basis for the strategy, a number of guiding principles were developed, including:

– the need to consider heritage as a positive element in sustainable development and particularly disaster risk reduction;
– the need to promote advance planning and a culture of prevention;
– the importance of cultural diversity, local knowledge, and diverse populations;
– the need to consider heritage in all its manifestations.

Based on these considerations and the overall purpose of the strategy, a series of five objectives was developed. These objectives closely followed the five priority areas of the *Hyogo Framework for Action 2005–2015*, the result of the 2005 World Conference on Disaster Reduction. The use of the Hyogo Framework was done purposely to put this World Heritage strategy strongly within the larger framework of the international disaster risk reduction field. The objectives of the strategy are:

1. strengthening institutional support and governance for reducing risks at World Heritage properties;
2. using knowledge, innovation and education to build a culture of disaster prevention at World Heritage properties;
3. identifying, assessing and monitoring risks from disasters at World Heritage properties;
4. reducing underlying risk factors at World Heritage properties;
5. strengthening disaster preparedness at World Heritage properties.

Ten priority actions, two for each of the objectives, were also identified as part of the strategy:

Action 1.1: Promote cultural and natural heritage, and its potential positive role for disaster reduction as part of sustainable development, within relevant international development institutions, conventions and global forums and with other potential financial partners, as a means of raising support for the protection of heritage from disasters.

Action 1.2: Strengthen policies and funding provisions for disaster reduction within the World Heritage system, for instance by including disaster and risk management strategies in the preparation of tentative lists, nominations, monitoring, periodic reporting and international assistance processes.

Action 2.1: Develop up-dated teaching/learning and awareness-raising resource materials (guidelines, training

kits, case studies and technical studies, glossaries) on disaster reduction for World Heritage, and disseminate them widely among site managers, local government officials and the public at large.

Action 2.2: Strengthen the capacity of World Heritage property managers and community members, through field-based training programmes, to develop and implement risk management plans at their sites and contribute to regional and national disaster reduction strategies and processes.

Action 3.1: Support risk identification and assessment activities at World Heritage properties, including consideration of climate change impacts on heritage, consideration of underlying risk factors, all necessary expertise and the involvement of relevant stakeholders as appropriate.

Action 3.2: Develop a World Heritage Risk Map at the global level or at regional levels to assist States Parties and the Committee to develop better responses.

Action 4.1: Give priority within international assistance to helping States Parties in implementing emergency measures to mitigate significant risks from disasters that are likely to affect the »outstanding universal value,« including the authenticity and/or integrity of World Heritage properties.

Action 4.2: Develop social training programmes for communities living within or around World Heritage properties, including consideration of heritage as a resource to mitigate physical and psychological damage of vulnerable populations, particularly children, during and in the aftermath of disasters.

Action 5.1: Ensure that risk management components, with identified priorities, are integrated within management plans for World Heritage properties, as a matter of urgency. For World Heritage cultural properties, the scope of these plans should address ways of protecting the key assets that contribute towards the »outstanding universal value« and should also include the protection of any significant original archival records that contribute to their heritage value, whether or not they are located within the boundaries of the World Heritage property. For natural properties, such plans should be oriented to protect the key values for which the properties were inscribed as well as their integrity.

Action 5.2: Ensure that all those concerned with the implementation of disaster reduction plans at World Heritage properties, including community members and volunteers, are aware of their respective roles and are well and systematically trained in the application of their tasks.

III. Thematic session on »Integrating Traditional Knowledge Systems and Concern for Cultural and Natural Heritage into Risk Management Strategies« (Davos, Switzerland—2006)

The thematic session on ›Integrating Traditional Knowledge Systems and Concern for Cultural and Natural Heritage into Risk Management Strategies‹ at the International Disaster Reduction Conference addressed two issues:

1. integrating heritage concerns into national level disaster risk reduction strategies;
2. integrating traditional knowledge systems into risk management strategies.

Integrating heritage concerns into national level disaster risk reduction strategies

This part of the special session provided an opportunity for participants to define possible actions that could be taken to overcome the apparent gap between national disaster risk reduction strategies and concern for the cultural and natural heritage.

Efforts to develop overall, sustainable disaster risk reduction strategies at the national level have become stronger in the recent past, with more and more countries trying to develop proactive approaches. Unfortunately, most of these strategies have either ignored or failed to integrate concern for the cultural and natural heritage. At the same time, a few countries have developed disaster risk reduction strategies for their heritage. These strategies, in most cases, are administered by heritage agencies outside the mainstream disaster reduction infrastructure, and therefore have a limited value in responding to disasters when they occur. Problems of integration even exist at the level of terminology with heritage planners using different terms that are not well understood by the larger disaster reduction community.

Acknowledging that primary importance should be placed on protection of human lives, professionals in the heritage field feel that the positive role of heritage as a factor for sustainable development, including its role in reducing risks from disasters, is not adequately recognized within global disaster reduction policies and objectives. The de-prioritization of cultural and social concerns and its repercussions may indeed add to the existing vulnerability of affected communities. Recent examples such as the aftermaths of earthquakes in Flores, Indonesia in 1992 and Marathwada, India in 1993 demonstrate that in overlooking the importance of heritage and cultural continuity, communities are left debased and can actually experience further disaster vulnerability during the reconstruction process.[3]

3 T. Boen and R. Jigyasu: Cultural Considerations for Post-Disaster Recovery: Challenges for Post-Tsunami, in: Asian Disaster Management

Heritage professionals feel that consideration of these factors prior to disasters occurring would have the double effect of strengthening community by conserving cultural heritage and identity, while preventing or reducing damage in the response and recovery phases.

The question for the special session was, therefore, where to begin the integration process, what implications and perceptions are involved, and what kind of convincing evidence there is to prove the importance of cultural heritage in disaster risk reduction. Cooperation between governments, NGOs, IGOs and other relevant organizations is a start; however sustainability also begins at the local level, building capacities, raising awareness, and making use of the existing knowledge base, all at the community level.

The recognition of the importance of this theme was well reflected in the final Davos Conference Declaration as follows:

»Concern for heritage both tangible and intangible should be incorporated into disaster risk reduction strategies and plans which are strengthened through attention to cultural attributes and traditional knowledge.«[4]

Integrating traditional knowledge systems into risk management strategies

One of the suggested approaches in reducing risks from disasters is to integrate traditional knowledge systems (TKS) into disaster risk reduction strategies. This part of the special session was dedicated to exploring the potentials and challenges of using traditional knowledge systems as one approach for reducing risks from disasters in all phases of the process. Through a review of current initiatives taking place in different parts of the world and of the work carried out by various professionals and academic institutions in the form of case studies, the benefits of using TKS for preventing or mitigating the impact of disasters can be established and possible methods for capturing these benefits within wider disaster risk reduction strategies can be explored. Issues connected to the exploration of TKS include a better understanding of their definition, an identification of stakeholders, the compatibility of TKS with scientific knowledge, and how they are best used in larger strategies of disaster risk reduction.

Traditional knowledge is an important resource that has proven its usefulness and sustainability through its development and survival over time. Unfortunately, it is often overlooked in the face of a rising dependence on modern technology and scientific methods. Whereas western science is »truth focused, certainty-seeking knowledge technology,« traditional knowledge can be considered as value-based and decision oriented, relying on know-how and social behaviour.[5] Given that traditional knowledge has a firm standing within many cultures as a result of centuries of trial and error, refinement, and accurate prediction, it deserves to be seen as an important tool to complement modern technologies and provide nations with a useful asset for disaster prevention and mitigation without either of the two replacing the other.[6]

Traditional knowledge pertains to many aspects of a society, existing in the form of rules, beliefs, customs, and know-how created to protect populations and enable them to harness nature for their survival. Hence, TKS have been developed to combat regular environmental factors such as rain or droughts, diseases, and to predict disasters.

One example of TKS helping in disaster risk reduction is the study of animal behaviour as a warning sign for natural phenomena such as earthquakes. Changes in animal behaviour were also noted in areas that were stricken by the 2004 tsunami. Countless instances have been recorded of both domesticated and wild animals behaving erratically prior to a disaster occurring. As a result, this has become a topic of research at several institutions around the world. In 2003 a Japanese medical doctor conducted a study which demonstrated that irregular behaviour in dogs could be used to forecast earthquakes.[7] Moreover, applications of TKS regarding animal behaviour are widely used in African countries such as Swaziland, where the height of birds' nests can predict floods and moth numbers help predict drought.[8]

Traditional knowledge systems also determine the built environment, whereby traditional or historic structures in disaster-prone areas are resistant owing to long-established techniques and use of certain materials. Communities have traditionally settled in locations that were as safe as possible from immediate dangers, and that were adapted to local conditions. Structures were, therefore, more often than not, resistant, movable, or easily rebuilt. Twentieth-century activities have had serious consequences on traditional settlements and building methods owing to political, social, economic and technological implications such as resettlement programmes or modern building designs. Consequences not only include loss of life or damage to the living environment, but a loss over time of many traditional beliefs and customs that can actually be used to save lives and conserve culture.

News, vol. 11, no. 2, 2005, pp. 10–11, retrieved 11 August 2006, < www.adpc.net/Infores/newsletter/2005/4–6/02.pdf>

4 International Disaster Reduction Conference: Davos 2006 Declaration, Participant's Self-Commitment for Action, Davos, Switzerland, 8 September 2006.

5 J. Dowie: Western science and traditional knowledge—no gap to bridge, in: The Environment Times, 2004, § 2, retrieved 11 August 2006, <www.environmenttimes.net/article.cfm?pageID=31>

6 Dowie (note 5).

7 M. Mott: Can Animals Sense Earthquakes?, in: National Geographic News, 11 November 2003, retrieved 28 June 2006, <http://news.nationalgeographic.com>

8 J. Kamara: Indigenous knowledge in natural disaster reduction in Africa, in: The Environment Times, 2005, retrieved 11 August 2006, < www.environmenttimes.net/article.cfm?pageID=132>

Lessons can be learned from prior incidents, and integrating TKS into management strategies can prove cost effective and timely and could help prevent damage to cultural and natural heritage properties. The study and application of TKS could also be an effective means of bringing the community into the planning process, not only for disaster risk reduction, but also for overall management planning for heritage sites.

Consideration must be given to determining the most appropriate means in which to apply TKS to broader disaster plans and thus their most appropriate use for beneficiaries and other stakeholders. Of particular importance for the heritage is how TKS, in particular building materials and techniques, as well as town planning issues, can be integrated into the recovery phase in order to ensure that rebuilding done after a disaster has struck will lead to sustainable communities that are more resilient to future disasters.

At the thematic session in Davos, presentations on TKS were made by Kanefusa Masuda, Herb Stovel, Rohit Jigyasu, Narumon Arunotai, Randolph Langenbach, Herman Kiriama and Giovanni Boccardi. The emerging issues discussed at the meeting are summarized below.

Advantages of using heritage in disaster reduction strategies

It was revealed that the use of heritage in disaster situations is already ongoing in some situations and that there are certain advantages of utilizing heritage, both directly and in the form of traditional knowledge systems (both tangible and intangible), in disaster reduction activities. The advantages include:

1. heritage places are already available and often key landmarks in the community;
2. traditional knowledge used in disaster reduction is time tested;
3. application of the appropriate technology often is already taking place and is easy to apply;
4. heritage can be a key to integration with wider risk reduction systems;
5. traditional knowledge is not merely objective-empirical but also experiential;
6. use of heritage allows for optimum use of local resources to ensure sustainability.

Direct use of heritage

Direct use of heritage can happen at two levels. The first is the use of heritage buildings as shelter and meeting points at the time of disasters. This was proved during the recent tsunami. Heritage places were among the buildings that were saved during the tsunami because of their location and the often superior building technology. These characteristics rendered the heritage accessible to communities in their time of need. As an example, the Moken community of the Surin Islands in Phang-nga Province of Thailand sought shelter in temples during the tsunami. In Sri Lanka, the Buddhist temples that were not destroyed provided shelter for thousands of displaced people and served as places for distribution of food and clothing.

A second direct use of heritage is through existing social systems (leadership, institutions, social networks, and decision making processes) for disaster reduction planning and decision making. An example from Australia illustrated how existing social organizations of aboriginal communities were used for the development of disaster reduction plans. Such institutions are also in a position to mobilize a community quickly during disasters and in the recovery stage.

Use of traditional knowledge systems (tangible)

Within the scope of traditional knowledge systems, there are already many tangible examples currently in use for disaster reduction. Defensive methods against disasters, such as the use of disaster resistant materials and construction techniques, are among the examples. Particular materials and techniques such as wattle and daub construction with bamboo as reinforcement material, traditional masonry construction, and wood frames with masonry infill have all proved to be successful examples of disaster resistant systems, as have some projected balconies and joinery details.

Traditional structural forms have also proven effective in time of disaster. Masuda explained how the five-storied pagoda at Horyuji, Japan has stood for more than 1,300 years, withstanding many earthquakes. He pointed out that structural engineers have contributed to the structural theory of seismic resilience for modern high-rise building by learning from the traditional construction systems of pagodas.

Sustainable land use, site selection, and traditional planning are also some of the methods that have been utilized for the reduction of risks from disasters. The Kayas in Kenya, for example, had at least eight zones in their settlements with varying degrees of access to minimize and control risks. Another example is the settlement planning of the Moken community, which features large setback spaces and marine visibility to contribute to disaster preparation and early warning.

Use of traditional knowledge systems (intangible)

Intangible aspects of traditional knowledge systems existing within communities help to reduce risks from disasters. Among them are the traditions, myths, beliefs, taboos, and rituals that exist in traditional societies. People use them for predicting disasters and for signalling the community. The tsunami incident has proven that the Moken's indigenous marine knowledge and their almost forgotten »legend of the seven waves« saved them and others (especially tourists and park staff) from the disaster. Certain legendary

stories, unwritten historical records and oral traditions helped them to be warned about disasters. Of utmost importance is the transfer of these knowledge systems from generation to generation, to ensure continuity.

Conclusion

It is hoped that progress will be made towards a more systematic approach to disaster risk reduction management, which includes concern for heritage. There is a need for effective models of integration which take the heritage into account, not just as a resource to be protected, but as a means of providing more sustainable, practical disaster reduction policies for many communities around the world. In order to accomplish this integration, however, there is a need for more research in all aspects of heritage and disaster reduction. In particular, traditional knowledge systems should be examined and more examples brought to light and analyzed to draw important lessons.

In doing so, heritage will take its place along with other more modern technological approaches to provide a balanced, effective means for disaster risk reduction.