

# ICCROM PROGRAMME ON DISASTER AND RISK MANAGEMENT

## A BACKGROUND PAPER

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### **Introduction**

In recent years, there has been a significant increase in the number and the damaging impacts of disasters. A 2008 study, undertaken by the World Economic forum, reported that the number of natural disasters had risen from an average of 150 a year in 1980 to over 450 a year in 2007[1]. In 2012, this number reportedly came down to 310 disasters a year, yet the resultant economic losses registered an unprecedented increase [2]. Global climate change is likely to further exacerbate the situation, as both natural and human-generated climate changes can influence the frequency, spatial extent and duration of some extreme weather events. Of equal concern, are the violent armed conflicts that are increasingly targeting civilians and their cultural heritage e.g. recent conflicts in Libya, Mali and Syria.

Amidst growing uncertainty about future risks to life and property (including those to cultural heritage), one thing is clear: the same natural hazard will have catastrophic consequences in certain contexts, while in others it will be managed effectively. Some of the key factors that would influence the outcome include good governance, institutional strength, availability of resources as well as expertise, organized systems for preparedness and response-all, underpinned by systematized processes for risk management.

Consequently, in its 2012-2013 Programme and Budget, ICCROM has identified Disaster and Risk Management as one of the key programmatic areas, and over the next two biennia, plans are underway to develop a long-term, multi-partner programme, which will bring together a number of key international and regional institutions, both in the cultural heritage and the disaster risk management field. The aim is to build upon the organization's previous experience in this area and develop a concerted strategy for protecting cultural heritage from disasters, involving all actors and Member States [3]. To determine the objectives and scope for such an initiative, and define its potential activities as well as partners (both financial and technical), an exploratory meeting will be organized at ICCROM in July 2013.

### **About this Paper**

This document is meant to serve as a background paper for initiating discussions at the forthcoming exploratory meeting. It is based on a survey of the existing literature on disaster risk management of cultural heritage and consultations with ICCROM staff and a select group of experts who have assisted in shaping the organization's activities on the subject. These consultations have involved meetings as well as questionnaire-based interviews. Two different questionnaires on risk management (methodology and tools) and disaster risk management were used for the interviews. The names of the people consulted and the questionnaires used are given in Appendix C.

The paper is structured around the following sections:

#### **I Managing Disaster Risks for Cultural Heritage: development of the present discourse**

This section traces the evolution of the discourse on disaster risk management in the cultural heritage field and lists key meeting reports, conference proceedings and policy documents that have contributed to the current thinking on the subject.

## **II Challenges vis-à-vis Risk and Disaster Risk Management**

In this section, main challenges and issues related to risk and disaster risk management for cultural heritage have been discussed. These have been drawn from the consultative process mentioned above.

## **III Possible Areas of Action**

Areas of action that could be developed within the framework of a global strategy are suggested in this section. Appendices and references are given at the end of section III.

Appendices contain: a glossary of technical terms used in the field of disaster risk management; a list of international meetings, conferences and workshops that have contributed to the development of disaster risk management of cultural heritage; experts consulted and the questionnaires used for interviews.

# **I Managing Disaster Risks for Cultural Heritage: development of the present discourse**

After the widespread destruction of cultural heritage during the Second World War, the Convention for the Protection of Cultural Property in the Event of Armed Conflict was adopted at The Hague (Netherlands) in 1954. It was the first international treaty to be dedicated exclusively to the protection of cultural heritage in the event of an armed conflict. The next catastrophic event that drew world's attention to the cause of protecting cultural heritage was the 1966 Flood in Florence (Italy), where thousands of books, documents, works of art and many historic buildings were damaged by the flood. The large-scale salvage operation that was subsequently undertaken led to the development of various mass-treatments and several guidelines for stabilizing wet and damaged cultural materials in the following two decades [4]. At the same time, this emergency started discussions on the need to train volunteers and develop ways of effective communication as well as team management.

The 1990's however, witnessed a renewed interest in disaster preparedness that was stimulated by losses suffered due to a series of disasters and wars (e.g., forest fires in Australia, earthquakes in Kobe, the Gulf war and armed conflict in former Yugoslavia). Several cultural heritage organizations, both, in Europe and in North America, began to develop their own prototypes for writing emergency plans (some for immovable cultural heritage but several for movable heritage) aimed at providing effective post-event response, preferably, within the first '48-72 hours'-considered as the most crucial lag-time for safely recovering cultural materials [5].

At an international level, the idea of an inter agency task force to coordinate response and to ensure protection of cultural heritage from disasters (both natural and man-made), took firm shape in the form of the International Committee for the Blue Shield (ICBS) co-founded by International Council on Monuments and Sites (ICOMOS), International Council of Museums (ICOM), International Council on Archives (ICA) and International Federation of Libraries Association (IFLA) in 1996 [6]. The ICBS derived its name as well as logo from the emblem of the 1954 Hague Convention.

Two years later, in 1998, United Nations Educational, Scientific and Cultural Organization (UNESCO), ICOMOS and ICCROM jointly published *Risk Preparedness: A Management Manual for World Cultural Heritage*. This manual was meant to be field guide to enhance the capacity of the site managers for protecting cultural heritage at risk encompassing monuments, groups of buildings (or ensembles) and

sites. However, the manual also included concerns for the protection of the collections associated with cultural sites. Moving away from a reactive and remedial approach to conservation, it emphasized:

The importance of adopting a new conservation paradigm focused on prevention: a cultural-heritage-at-risk framework. It has come to be understood that this framework offers a more holistic outlook than conventional approaches to conservation; an outlook viewing all sources of deterioration as linked in a single continuum, from the daily attrition of use at one extreme, to the cataclysmic losses occasioned by disasters or conflicts at the other. [7, p.2]

This *cultural heritage at risk frame-work* that links and analyzes various sources of deterioration or hazards has been crucial in developing subsequent methodologies and tools for risk management of cultural heritage (both movable and immovable).

Nonetheless since 1998, large-scale disasters (e.g. the Indian Ocean tsunami and hurricane Katrina) have fundamentally changed the understanding of the term ‘disaster’. From an earlier perspective of it being as a one-off event caused by a single hazard (natural/or man-made), disaster has come to be understood as complex phenomenon that “results from a combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences<sup>1</sup>” [8].

Furthermore, given the inevitability of disasters, the mainstream disaster related policies and programmes have moved away from avoidance of the natural hazard to mitigation or reduction of disaster impacts by taking appropriate pre/post-event measures that include: reduction of the exposure to various hazards, lessening of the conditions of vulnerability of people and property and enhancement of preparedness. Emphasis is now being placed on building resilience against disasters through better prevention, new coping mechanisms and adaptation to climate change [9].

The current thinking on disaster risk reduction has in part, evolved from the Hyogo Framework for Action (HFA) 2005-2015, which was adopted at the World Conference on Disaster Reduction held in Japan in January 2005. HFA laid out a comprehensive and systematic structure for reducing disaster losses by identifying ways of building disaster resilient communities and nations to cope better with the hazards. It embraced an integrated and multi-hazard approach to disaster risk reduction to be incorporated in policies and programmes aimed at sustainable development, relief and recovery in post disaster and post-conflict situations.

By linking sustainable development with disaster risk reduction, the UN endorsed the Hyogo Framework document also highlighted the inherent interdependence between society, economy and culture. Moreover, the role that cultural heritage plays in risk reduction and building resilience is especially mentioned under priorities of action within the document:

3.1. (a) Provide easily understandable information on disaster risks and protection options, especially to citizens in high-risk areas, to encourage and enable people to take action to reduce risks and build resilience. The information should incorporate relevant traditional and indigenous knowledge and culture heritage and be tailored to different target audiences, taking into account cultural and social factors. [10; p3]

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<sup>1</sup> Potential negative consequences of disasters may include loss of human lives, impairment of mental and physical health of local population, destruction of property and cultural assets and environmental degradation leading to social as well as economic disruption (Refer to [UNISDR Terminology on Disaster Risk Reduction](#)).

The connection between cultural heritage and disaster risk reduction, among other aspects, was discussed in detail in one of the thematic meetings on Cultural Heritage Risk Management organized at the World Disaster Reduction Conference. This thematic meeting led to the inclusion of cultural heritage in the HFA document and was jointly organized by UNESCO, ICCROM and the Agency for Cultural Affairs of Japan (Bunkacho). The discussions held during the meeting underscored the need for mainstreaming concerns for cultural heritage protection (tangible and intangible) in the national as well as regional disaster risk reduction policies and programmes.

Subsequent to finding an expression in the Hyogo Framework, the idea that cultural heritage can contribute to the reduction of disaster risks and that it needs to be protected in the event of a disaster was articulated with more clarity at different fora and meetings, outcomes (reports, papers and policy documents) of which have helped in shaping the discourse on disaster risk management of cultural heritage. Some of the key advances on the subject from 2006 onwards are summarized below while a complete list of meetings, conferences and workshops from which these advances have been drawn, is given in Appendix B.

In 2006, two important meetings highlighted the role that cultural heritage (especially, intangible cultural heritage) plays in risk reduction and recovery processes. The first was a special session on Traditional Knowledge for Disaster Risk Reduction, held at the International Disaster Risk Reduction Conference in Davos, Switzerland. It was organized by the World Heritage Centre, ICCROM and other partners. The second was an international conference organized by the Prince Claus Fund of Netherlands that uniquely positioned culture as a basic need and advocated for the integration of cultural emergency response with humanitarian relief to give a sense of hope and continuity to the affected communities [11].

In the following year, policy documents emerging from the work of the World Heritage Committee of UNESCO and the European Parliament respectively emphasized the need for a strategic framework for risk reduction of cultural heritage [12; 13]. They recommended better integration of the concerns for cultural heritage with the relevant national policies and programmes that would translate into setting up of effective prevention and response mechanisms for the heritage at risk. This endorsement, led to the organization of several regional workshops and conferences aimed at operationalizing disaster risk reduction of cultural heritage and the publication of a resource manual on *Managing Disaster Risks for World heritage Sites* by UNESCO, ICCROM, ICOMOS and IUCN (International Union for Conservation of Nature) in 2010.

In 2008 there was an attempt to renew the Blue Shield movement and empower its national committees through the formation of Association of the National Committees of the Blue Shield (ANCBS). The aim was to decentralize and enhance the capacity for first response at regional and national levels.

By this time, after the experience of hurricane Katrina (2008), the importance of involving first response agencies such as the civil protection, the military, humanitarian aid organizations etc., had fully permeated the disaster related discussions within the heritage field. This idea was advanced further through the UNESCO led meetings in the aftermath of a devastating earthquake in Haiti in 2010. In addition to establishing an International Coordination Committee for recovery of Haitian Culture [14], UNESCO joined the World Bank and United Nations' Development Programme (UNDP) in developing Post-Disaster Needs Assessment and Recovery Framework (PDNA/RF) that comprises an approach to harmonize the assessment, analysis and prioritization of damages, losses and needs by a range of

international and local stakeholders in support of the national government in the aftermath of a disaster [15]. UNESCO is developing the guidelines for culture within the PDNA/RF, which is a significant step towards the inclusion of culture in the overall planning for relief and recovery in a post disaster situation.

From 2010 to 2012, UNESCO and its regional offices organized several important meetings elaborating on the organization's role in post-conflict and post-disaster situations (PCPD). This reflection was stimulated by the conflicts in Tunisia, Libya, Egypt, Mali and Syria. Noteworthy, among its outcomes, is the report on *Policy Interventions of a Single Donor in a Specific PCPD-Situation: the experiences and practices by Dutch organizations and institutions in Afghanistan between 2001 and 2010* [16], published by the Netherlands National Commission for UNESCO. The report mentions many important 'lessons learned' including the concepts that culture, education and media are not politically neutral sectors of society and that post-conflict and post-disaster situations require a different approach.

In parallel to the above discussions, the Office of the United Nations High Commissioner for Human Rights, appointed an independent expert to investigate the viability of declaring the access to cultural heritage, among other cultural rights, a human right [17]. This was an important move that introduced a human rights-based approach to the protection of cultural heritage. If approved, it would have the potential to strengthen the existing punitive measures for the intentional targeting of the cultural heritage of a community especially, in the event of an armed conflict. However, there are several loopholes in the current proposal such as balancing preservation and access, defining values related to cultural heritage and their mutation by socio-political processes, selection and prioritization of heritage etc. Some of these are extremely contentious issues nevertheless; they merit further debate and discussions by all concerned.

Around the same time (2010-2011), IFLA (international Federation of Libraries Association) established Principles of Engagement to guide its activities in recovery situations. These activities will be evaluated according to the Development Assistance Committee (DAC) criteria adopted by Organization for Economic Co-operation and Development (OECD). This is noteworthy, as for the first time, terms and conditions for making cultural heritage an integral part of planned development assistance (to be provided in the aftermath of a crisis) have been specified [18].

The concept that cultural heritage is essential for sustainable development and building disaster resilient cities received a further boost through the 2012 international conference on *Building cities' resilience to disasters: protecting cultural heritage and adapting to climate change*" organized in Venice, Italy[19]. This meeting was ground-breaking as it linked a city's resilience against disasters with urban planning, cultural heritage protection and adaptation to climate change thus paving way for strengthening cooperation between provincial governments, municipalities, town planners, emergency responders and heritage agencies.

### **ICCROM Initiatives**

Through its participation in the international discussions mentioned above, its relevant training activities and publications, ICCROM has contributed significantly in advancing the thinking on disaster risk management for cultural heritage.

In the aftermath of the 1966 flood in Florence, Italy, ICCROM coordinated the international aid for salvage and recovery operations [20]. Ever since then, disaster management has remained central to its work. In addition to organizing specialized training on the topic, modules on disaster preparedness have

been included in all preventive conservation courses for professionals working in museums, archives and libraries.

In 1987, ICCROM and the Getty Conservation Institute (GCI) jointly published a hand-book, *Between Two Earthquakes: Cultural Property in Seismic Zones*, concerning the protection of historic buildings, monuments, and archaeological sites located in seismic areas. ICCROM has also helped in mobilizing professional advice and technical assistance for cultural recovery in several post-disaster situations including: Guatemala (1976), Friuli, Italy (1976), Montenegro (1979), Arequipa, Peru (2001), Bam, Iran (2003), L'Aquila, Italy (2009) and Haiti (2010).

In the wake of the Indian Ocean tsunami (2004), ICCROM issued a report on its response to the cultural emergency and its strategy for protecting cultural heritage against future disasters [21]. In the subsequent year, four key initiatives were taken:

- ICCROM formed a strategic partnership with the World Heritage Centre, the Ritsumeikan University, Kyoto, Japan and ICOMOS to carry out a series of international and regional training courses on disaster risk management for built heritage [22]. These activities have emphasized an integrated risk management approach for cultural and natural heritage sites, mainstreaming concerns for the safeguarding of cultural heritage in the general disaster risk reduction policies and planning at the national as well as regional levels.
- From 2005-2009, international courses *on Reducing Risks to Collections* aimed at disseminating an innovative methodology for assessing risks, identifying priorities and informing conservation decisions, were held in different countries. Organized in partnership with the Canadian Conservation Institute (CCI) and the Netherlands Cultural Heritage Agency (RCE), the ambit of the training was expanded in 2009 to include immovable heritage.
- Following the destruction caused by the Indian Ocean tsunami, ICCROM joined hands with ICOM (International Council of Museums) and the GCI (Getty Conservation Institute) to organize a regional training project on Teamwork for Integrated Emergency Management (TIEM) for Asian museums. This training combined a workshop with a distance-learning programme to assist the participating museums in developing functional disaster management plans. This initiative was the first of its kind (within the movable heritage domain) as it provided a methodology for conducting risk assessments in order to prioritize risks and inform emergency planning for collections held in museums. Another TIEM was organized from 2007-2008 for museums in Southeast Europe.
- A forum on *Armed Conflict and conservation: promoting cultural heritage on post-war recovery* was held at ICCROM. The aim was to assemble a credible body of knowledge on how cultural heritage can help affected communities to recover from the trauma of violence and physical displacement in the wake of armed conflicts.

Later on, from 2010-2012, the Forum on Armed Conflict, mentioned above, provided the basis for developing an international training on First Aid to Cultural heritage in Times of Conflict. The aim was to build capacity for protecting cultural heritage in conflict afflicted areas. The training took into consideration a number of issues unique to the present-day asymmetric wars. Primary among them were, the deliberate destruction of cultural heritage and working toward its protection in highly insecure environments, involving multiple actors and interests.

Additionally, over the past eight years, ICCROM has organized other courses, workshops and meetings that have both led and followed the trends in disaster risk management of cultural heritage. A list of ICCROM activities on the theme from 2005 onwards is given in Appendix B.

## II Challenges vis-à-vis Risk and Disaster Risk Management

Effective disaster risk management has come to be associated with an integrated framework that links institutional planning and development to five inter-dependent phases i.e., risk assessment, risk mitigation, preparedness, emergency response and recovery (refer to the glossary in Appendix A). Yet, in practice, sustainable implementation of disaster risk management of cultural heritage remains challenging. Some of the main challenges and issues are discussed below<sup>2</sup>.

### Global Challenges

#### *Lack of Awareness*

Despite its articulation in several policy documents, the role that cultural heritage could play in reducing disaster risks and post-event recovery is not fully understood both within and outside the sector. For example, in many post-earthquake situations, houses and historic buildings using traditional building materials as well as techniques were torn down as they did not conform to modern engineering standards. This is a general misconception. A growing body of knowledge now advocates the adoption of traditional materials and building techniques in areas of high seismic activity as they tend to withstand earthquakes better e.g., *Dhajji-Dewari*, traditional construction form in western Himalayas that uses timber frame and brick or stone infill, and the mud-brick structures in Peru.

Furthermore, many perceive cultural heritage to be an elitist notion and tend to overlook its instrumentality in the renewal of local economies and building confidence in post-disaster or post-conflict situations. This misperception prevents it from being placed on the list of response priorities along with food, water, health, sanitation, education etc. Whereas, past experience clearly indicates that cultural and humanitarian aid goes hand-in-hand e.g., in the aftermath of cyclone Nargis in Myanmar (2008), several artisans and performers associated with the tradition of puppet-theater suffered heavy losses. A Prince Claus Fund grant helped in restoring the livelihood of the affected community and ensured the continuity of the ancient tradition [23].

#### *Global Climate Change*

Global climate change has been associated with the increase in frequency as well as the scale of extreme weather events, which pose a great threat to life and property including (e.g. hurricane Sandy 2012, Thailand floods 2011). Human induced (anthropogenic) climate change is expected to further aggravate the situation, unless a swift scaling up of efforts for mitigating and adapting to climate change is carried out [24].

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<sup>2</sup> The challenges and issues have been drawn from the questionnaire based interviews and meetings with ICCROM staff (for names of those consulted and questionnaires used, see Appendix C).

### *Armed Conflicts*

*The World Development Report 2011: Conflict, Security and Development* published by the World Bank notes that 1.5 billion people are affected by violence and civil strife. It further records the interaction between horizontal inequalities, a combination of economic and ethnic polarization, and identity as one of the key factors for outbreak of violence [25]. Thus, Identity based heritage has become all the more vulnerable, as also demonstrated in the recent conflicts. The involvement of non-state actors in such conflicts has made the protection of cultural heritage more complex- requiring a multi-pronged response that includes joint programming with humanitarian, security and development agencies as one of the key strategies.

### *Economic Downturn*

In many countries around the world, economic downturn, among other things, has resulted in reduced spending on cultural heritage and its risk reduction. An associated issue is that of reactive spending i.e., a lot of money is spent on relief and recovery initiatives instead of developing programmes on risk reduction [26]. Countering the effects of these trends, to start with, would require more emphasis on strategies for mitigation, prioritization and resource-sharing.

## **Institutional Challenges**

### *Incorporating Risk Management in the day-to-day functioning of a cultural heritage resource remains challenging*

It is generally felt that people charged with the responsibility of preserving and managing heritage sites and collections are pre-occupied with every day issues and are therefore, reluctant to be proactive in anticipating future issues. The other reason cited is the lack of human resources and institutional commitment. The lack of information and data for risk analysis as well as an overall inability to prioritize actions for long-term preservation of heritage assets seem to have added to the problem.

The main impediment, however, appears to be the general lack of 'risk culture' among heritage institutions-a system of values, attitudes and management structures that would promote a common understanding of the risks to cultural heritage assets and enable shaping of conservation/management decisions accordingly [27]. The 'risk culture' should also extend to agencies and larger organizations at the municipal/regional level involved with the prevention, response, and recovery of larger-scale risks that also affect heritage.

### *Integrating cultural heritage with the general disaster risk management field*

Including cultural heritage in the general agenda for disaster risk management, at the national and international levels, is an ongoing challenge. It involves consideration of several issues, key among them are mentioned below.

i) Terminology: terms and concepts related to disaster risk management are described and emphasized differently among various disciplines within the heritage field. For example, in the realm of movable heritage, the term 'disaster' is generally defined as an 'unexpected' event-ranging from flood, earthquake to a burst pipe, pest invasion and theft-that causes or threatens damage to an institution's building and its contents and puts staff and visitors at risk [28; 29].

This definition of a disaster covering different types of hazards (both slow and fast acting) alludes to its manageability through appropriate preparedness measures taken at the level of individual institutions. It also corresponds to the notion that an 'emergency can turn into a disaster, if immediate action is not taken to secure staff, visitors and the collection' [30].

Moreover, many guides and manuals, aimed at assisting memory institutions-museums, archives and libraries-in developing their disaster management plans, mainly focus on emergency preparedness and response and do not seem to place sufficient emphasis on mitigation measures. *If* and *how* a heritage resource would be exposed to a hazard, say earthquake-which part of the collection would be most susceptible to an earthquake; what would be the likely damage and to what extent the institution can cope with it - is often not included in their analyses. In addition, while all of them mention risk assessment as an essential first step in disaster management planning, many limit themselves to a list of hazards and only a few elaborate on how to undertake risk assessments.

The immovable heritage field however, uses terminology that is very similar to the one established by UNISDR e.g., it defines 'disaster' as a calamitous event resulting in widespread loss and damage of life and property including cultural heritage, which exceeds the coping capacity of those affected [31]. Furthermore, the resources on the subject, consulted for the purpose of this study, outline steps for analysing factors that would increase a given site's exposure to a particular hazard and seem to place equal emphasis on mitigation and preparedness [32].

A possible reason for this variation in the description of terms and emphasis could be the difference in the type and extent of damage suffered by movable and immovable heritage as a result of a specific hazard event.

ii) Different methodologies for risk assessments: variants of two methods for risk assessment i.e., qualitative and quantitative are being used in the heritage field. The qualitative method has been used more widely especially in the immovable heritage field. According to this method, risk is estimated by analyzing *if* and *how* a particular hazard would interact with various vulnerabilities<sup>3</sup> of a heritage resource to cause damage (to tangible or intangible elements or both), which in turn could have an impact on one or more values associated with it.

The quantitative method of risk assessment is not as well disseminated and has been put to use mainly in the area of preventive conservation of cultural collections. However, over the past eight years, ICCROM in partnership with the Canadian Conservation Institute (CCI) and the Netherlands Cultural Heritage Agency (RCE) has taken a lead in disseminating a quantitative risk based decision-making method among professionals, working in both movable and immovable heritage fields.

The quantitative method is based on probabilistic analysis of risks wherein risk is estimated (in numerical terms) according to the likelihood or rate of occurrence of hazardous events or cumulative damage processes, and their impact in terms of expected fractional loss of value (e.g., 1/2 or 1/3) in a

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<sup>3</sup> Here, vulnerability is understood as a characteristic and/or circumstance of a cultural heritage site or an object that makes it susceptible to the damaging effects of hazards. Examples may include poor design and construction of buildings, inadequate protection mechanisms, use of incompatible materials for repairs etc. It is to be noted that while analysing risks for immovable heritage inter-relationships between various values as well as their qualifiers i.e. integrity, authenticity and sustainability have to be taken into account.

heritage resource or collection based on the assumption that each component contributes to the sum total of the resource's value. Quantifying the *fractional loss of value* associated to different types of damage (caused by fire, water, earthquake, and other hazards) instead of simply estimating the type and extent of damage, is thus, one of the key distinctions between the two methods. Nonetheless, these differences are not insurmountable; the specificities of various disciplines and methods can be better understood with further debate and discussion. Furthermore, there are common challenges to be overcome e.g., the lack of scientific data (to be sourced from multiple disciplines) for risk analysis, the overall confidence of heritage agencies in risk assessments, level of expertise required for undertaking risk assessments and so on [33].

iii) Coordination and Collaboration: at an operational level, there is a need for greater co-ordination between the culture sector, the disaster risk management field and other relevant organizations. In 2005, the United Nations established a system of clusters i.e. groupings of UN agencies, non-governmental organizations (NGOs) and other international organizations around a sector or service provided during a humanitarian crisis e.g., food, shelter, education etc. [34]. Although there is an ongoing debate about the efficacy of the cluster system, exclusion of culture from the system has further weakened the sector's capacity for effective disaster risk management.

iv) Legislation: stringent national legislation is required for ensuring that cultural heritage is included in the national disaster risk reduction plans and that heritage institutions carry out periodic risk assessments in order to systematically address risk mitigation and preparedness. For example, a 2004 survey of libraries, archives and museums in the United Kingdom revealed that only half of them had disaster management plans that formed a part of the larger institutional planning [35].

#### *Lack of Documentation*

Lack of baseline information on heritage resources at all levels is a key challenge to the implementation of disaster risk management. The field lacks up-to-date inventories, geo-referenced data on heritage sites and their boundaries, hazard maps and other relevant information for risk assessments. Furthermore, ensuring that the critical documentation on heritage resources is backed-up and stored safely in multiple locations is a major concern. Systematic collation of data and sharing it with relevant agencies during emergencies are some of the other challenges that have added to the complexity of the issue.

#### *Expansion in Heritage Typologies*

Over the past decade, the notion of cultural heritage has been expanded to include newer typologies as well as materials. A direct example is that of intangible heritage, which gained formal recognition through a UNESCO convention in 2003. Consequently, there is a greater awareness of the need to protect it against disasters, yet the field lacks knowledge and experience to ensure its systematic risk reduction and post-event recovery [36].

#### *Capacity for Disaster Risk Management*

At present, the culture sector lacks capacity for managing disaster risks. It needs both institutions and expertise. On one hand, heritage professionals require specific training for risk mitigation, preparedness and response. On the other, purposely created organizations such as the International Committee for the Blue Shield and its subsidiary, Association of the National Committees of Blue Shield are struggling for resources. This leaves a total vacuum at all levels: coordination mechanisms (national and international), disaster risk reduction systems (national and international), research, overall awareness,

etc. Moreover, local communities are not sufficiently engaged in the risk reduction and recovery of cultural heritage (refer to the discussion under working with local communities).

#### *Recovery: specific issues*

In general, Cultural institutions lack business continuity plans; this prevents early recovery and resumption of services. Additionally, in many countries it is assumed that the ministries of culture would have the necessary resources to provide response and underwrite all damage, which is often not the case at all.

The sector especially lacks experience in rebuilding heritage institutions that can respond to the twin challenges of nation building and sustainable development, after a prolonged internal conflict and instability. This also applies to cultural recovery programmes undertaken after a natural disaster in fragile countries e.g. cultural recovery efforts in Haiti.

#### *Protecting Cultural Heritage from Armed Conflicts: A special subset of disaster risk management*

Response to both, natural hazard and man-made disasters are often considered together mainly because their direct impacts on cultural heritage are similar e.g., fire and/or water damage, collapse of structures, etc. Nevertheless, there are a few specificities, which are crucial in all phases of disaster risk management:

i) Cultural heritage and conflict: in stark contrast to natural disasters, present-day armed conflicts tend to target as well as venerate cultural symbols to promote conflict ideologies. Thus, in order to integrate heritage protection with the efforts for conflict transformation, recovery and sustainable development, a shared vision of 'national' cultural heritage, involving all parties, should be evolved [37].

ii) State fragility: a general lack of government as well as non-government organizations adds to the complexity of engaging in countries affected by conflicts.

iii) The role of the military: although armed forces may have an assisting role in the aftermath of a natural disaster, their role in the case of an armed conflict is extremely significant. Recent discussions within the culture sector have made a strong case for working within the framework of civil-military cooperation to protect cultural heritage in areas of conflict. However, this could bear some implications on the sector's neutrality. If the culture sector chooses to follow the humanitarian response models rooted in the 'principle of neutrality' and 'human imperative' then this issue would have to be resolved.

#### *Working with local communities*

Local communities often possess valuable traditional knowledge for disaster risk reduction and coping with crises. Examples include: traditional building techniques, indigenous early warning systems and performances or ceremonies that provide psychological relief and a sense of continuity in the aftermath of a disaster. Yet this knowledge (mostly) remains untapped by the heritage field and local communities are generally left out of the institutional planning for disaster risk management

Statistics indicate that in most disasters, lives are first saved by relatives and neighbors, before professional rescue teams can get access to the affected areas. For example, in the aftermath of the Kobe (Japan) earthquake of 1995, 80 % of those rescued, were saved by their neighbors [38]. The same holds true for the rescue and salvage of cultural heritage e.g., in aftermath of the earthquake in Haiti, majority of the cultural collections were salvaged by the local people. Similarly, during the conflict in Mali, the private owners of the ancient manuscript collections managed to keep them safe with the help of their neighbors and community networks.

Therefore, engaging the communities for ensuring effective disaster risk management of cultural heritage should become the number one priority. This would entail developing both, formal and informal mechanisms for two-way communication, education and raising awareness and at the same time, adoption of a people centric approach to decision-making for protecting heritage against disasters.

While, the heritage field has developed some successful models for working with communities for heritage protection, the idea of community centered disaster risk management has come of age in the fields of humanitarian aid and development assistance. For example, the International Federation for Red Cross has been running a successful community based disaster risk reduction programme in Samoa, which is now integrating strategies for adaptation to climate change. This programme has exploited the long-established networks of church volunteers and community representatives for collecting people's perceptions and ideas on risk mitigation [39].

### **III Possible Areas of Action**

#### **Towards a Global Plan of Action**

Recent disasters such as the great east Japan Tohoku earthquake and tsunami and Thailand floods reversed development gains, worth several years, in the affected countries that also had repercussions on the global economy. Their effect on cultural heritage was equally devastating. Nonetheless, these events led to some positive developments within the heritage field as well e.g., UNESCO led guidelines for Post Disaster Needs Assessment (PDNA), IFLA Principles for engagement in post-disaster and post-conflict situations and the Venice declaration on the role of cultural heritage in building cities' resilience against disasters.

Despite these advances, the challenges confronted in the field, as discussed in section II, call for a more concerted action for effective disaster risk management of cultural heritage, which would involve all relevant organizations and institutions. Orientations for such an action are discussed below.

#### *Better integration with disaster risk management plans (at different levels)*

Cultural heritage needs to be integrated with regional, national and provincial plans for disaster risk management but, how this can be best achieved requires further investigation.

#### *Closer cooperation with UN relief and recovery system*

The culture sector should be explicitly involved in the relief and recovery systems established by the United Nations, World Bank, the European Commission and other regional bodies.

#### *Mechanisms for coordination and joint programming*

At all levels (international, regional and national) cultural heritage institutions and organizations with a mandate to promote disaster risk management should come together to evolve mechanisms for coordination and where possible undertake joint programmes for mitigation, preparedness, response and recovery.

#### *Collection of baseline information*

There is need for centralizing and sharing baseline information for heritage assets including: inventories for all types of cultural heritage, specific location maps, country profiles, socio-political data especially for conflict afflicted countries in order to undertake context analysis and prepare risk maps.

#### *A strong partnership with communities*

Community centered disaster risk management programmes are essential for effective protection of cultural heritage against disasters. These programmes should aim at developing sustainable partnerships between community based organizations and cultural heritage institutions. Activities should encourage greater exchange of information, knowledge and skills and at the same time strengthen local capacity for disaster risk reduction. Here relevant community based models set-up outside the sector could provide valuable insights on the 'Dos' and 'Don'ts' of working with communities.

#### *Building capacity for disaster risk management*

Training heritage professionals and those working with humanitarian and development assistance for all phases of DRM remains a priority. However, in order to optimize resources and create a critical mass of professionals specializing in disaster risk management, regional training initiatives and networks should be encouraged. Furthermore, as discussed in section II, protecting cultural heritage in areas of conflict requires special skills and knowledge. Therefore, systematic training of professionals working in conflict-afflicted countries should be treated as a priority. Yet effective means of providing training need to be identified.

#### *An Integrated framework for risk management within the field*

Although the specificities of mitigating or responding to various types of risks acting on different types of cultural heritage (movable, immovable and intangible) may necessitate different types of expertise and professionals, there is a need to evolve a more integrated and effective approach to risk management especially in terms of risk analysis and evaluation. This would optimize the use of available resources and at the same time minimize negative impacts on cultural heritage.

#### *Promotion of applied research*

Case studies, field projects and other field based studies should be undertaken in each phase of disaster risk management i.e., risk assessment, mitigation, preparedness (including legislation for protecting heritage), response and recovery. This could help in addressing gaps between policy and practice.

## APPENDIX A

### GLOSSARY

#### C

##### **Climate change**

**UNISDR:** (a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.

(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”

#### D

##### **Disaster**

**MW dictionary:** a sudden calamitous event bringing great damage, loss, or destruction.

**UNISDR:** A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

##### **Disaster Risk Management**

**UNISDR:** The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (*mitigation* and *preparedness*) *adverse effects of hazards*.

#### E

##### **Emergency preparedness plan**

A written, working document, which describes procedures for any given emergency, and provides any additional information required for carrying out these procedures.

#### H

##### **Hazard**

**AS/NZS 4360:2004:** a source of potential harm (ISO/IEC Guide 51, in part).

**MW dictionary:** 1. a source of danger,  
2. a. chance, risk  
2. b. a chance event: accident.

**UNISDR:** A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

## M

### Mitigation

**UNISDR:** The lessening or limitation of the adverse impacts of hazards and related disasters.

## P

### Preparedness

**UNISDR:** The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

**2011 ICCROM Reducing Risks to Cultural Heritage Course:** Activities and measures taken in advance to ensure effective response to the *impact of hazards*, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

## R

### Response

**UNISDR:** The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

### Risk

**AS/NZS 4360:2004:** The chance of something happening that will have an impact on objectives

**UNISDR :** The combination of the probability of an event and its negative consequences.

### Risk analysis

**AS/NZS 4360:2004:** Systematic process to understand the nature of and to deduce the level of risk.

**2011 Reducing Risks to Cultural Heritage Course:** In some terminologies, such as that adopted by the Society for Risk Analysis, [www.sra.org](http://www.sra.org), risk analysis “is broadly defined to include *risk*

*assessment*, risk characterization, risk communication, *risk management*, and policy relating to *risk*" (from their home page). We will adopt the more narrow sense of the phrase as defined in AS/NZ 4360:2004, where analysis is a subcomponent of assessment, not vice versa.

### **Risk management**

**AS/NZS 4360:2004:** The culture, processes and structures that are directed towards realizing potential opportunities whilst managing *adverse effects*.

**RW:** Application of available resources in such a way that overall *risk* is minimized.

**UNISDR:** The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

### **Resilience**

**UNISDR:** The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

## **V**

### **Vulnerability**

**UNISDR:** The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

**2011 Reducing Risks to Cultural Heritage Course:** The term vulnerability is often used in collection risk literature to refer to the susceptibility or sensitivity of objects. However, in a generalized form of the UNISDR definition, built on AS/NZS 4360:2004 terms, we can state: *The degree to which factors both external and internal to the organization (the museum or historic site) will increase the consequences of a hazard. Or, the degree to which risk treatments to reduce consequences of an event are missing.*

## **GLOSSARY SOURCES**

**Primary source:** 2011 Reducing Risks to Cultural Heritage Course Glossary

**AS/NZS 4360:2004 :** Definition of terms in *Risk Management, Australian/New Zealand Standard, AS/NZ 4360:2004*. Can be purchased online at [www.saiglobal.com/shop/Script/search.asp](http://www.saiglobal.com/shop/Script/search.asp) . The glossary in its 1999 form, as well as a full training program, at <http://www.riskmanagement.qld.gov.au>

**MW :** Definition from Merriam-Webster on-line dictionary at <http://www.m-w.com> Where multiple definitions are given the one matching the sense in which the word is used in this course is underlined.

**UNISDR** : United Nations, International Strategy for Disaster Reduction, terminology web page:  
<http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm>

**RW** : Glossary in Waller R., 2003, *Cultural Property Risk Analysis Model, Development and Application to Preventive Conservation at the Canadian Museum of Nature*, Goteborg Studies in Conservation 13, Goteborg Acta Universitatis Gothoburgensis. xvi + 189 pp.

## APPENDIX B

List of Meetings, workshops, seminars that have marked the key advances in the discourse on disaster risk management of cultural heritage (2006 onwards)

\* **Traditional Knowledge for Disaster Risk Reduction, 2006**

A special session at the International Disaster Risk Reduction Conference held in Davos, Switzerland, 2006, organized by the World Heritage Centre and ICCROM. The purposes of the special session were to promote the integration of the traditional knowledge systems (e.g., vernacular building techniques, indigenous early warning systems, traditional knowledge on land use and protection of eco-systems etc.) into risk management strategies and to include concerns for cultural heritage in the broader national and regional risk management plans.

\* **Culture is a basic need: Responding to Cultural Emergencies, Conference Report, Prince Claus Fund, The Hague, 2006**

This conference report uniquely positioned culture as a basic need in every humanitarian crisis. Moreover, it advocated for the need to expand the cultural heritage response to include protection of intangible aspects such as traditions, customs, indigenous knowledge systems etc., in order to provide hope and a sense of continuity to the affected communities. At the same time, the report highlighted the need to directly involve the local communities in cultural relief and recovery. The conference recommendations helped in consolidating Prince Claus Fund's CER-Cultural Emergency Response Programme, which is aimed at providing first aid to cultural heritage damaged or under imminent threat by natural disasters or conflicts. Recently, the Programme has expanded its areas of action to include support for professional training on providing first aid to cultural heritage. It has also supported ICCROM's training on First Aid to Cultural Heritage in Times of Conflict.

\* **Strategy for Risk Reduction at World Heritage Properties, 2007**

A policy document on risk reduction of World Heritage sites was presented and approved by the World Heritage Committee at its 31<sup>st</sup> session. It was aimed at strengthening the protection of World Heritage and promoting sustainable development by helping State Parties to include cultural heritage concerns in their national disaster reduction policies; and incorporate disaster risk reduction in the management of World Heritage properties. This document successfully highlighted the role that cultural heritage could play in mitigating the impact of disasters.

\* **International Conference on "Earth Wind Water Fire - Environmental Challenges to Urban World Heritage" Regensburg, Germany, 2008**

Organized by the World Heritage City Organization (WHCO), the conference gathered experts and site managers, who presented case studies on how natural hazards and environmental conditions compromise the cultural heritage values of historic cities and discussed newer protective measures and strategies.

\* **Founding Conference in the Hague ANCBS-An organization for protection of culture in Danger, December 7-9, 2008**

The Association of National Committees of the Blue Shield was founded in a conference at the Hague, with the purpose of coordinating and strengthening international efforts to protect cultural property at the risk of destruction during armed conflicts or natural disasters. ANCBS serves as the communication centre, archive and resource base for the ICBS and the Blue Shield national committees. Created in a bid to boost the Blue Shield movement, ANCBS has yet to realize its full potential.

\* **Second International Workshop on Disaster Risk Reduction to Cultural Heritage, Acre, Israel, 2009**

This meeting gathered experts and managers of World Heritage cultural properties from all regions, as well as representatives of ICOMOS, ICCROM and ICOM. A position paper on the links between cultural heritage and disaster risk reduction; more explicit inclusion of disaster risk reduction in the management systems for World Heritage sites; and the development of twinning arrangements among World Heritage properties where pilot projects could be implemented to develop disaster risk reduction strategies were among the recommendations that came out of the meeting.

\* **Preparatory meeting for the establishment of an International Coordination Committee (ICC) for Haitian culture, Paris, France, 16 February, 2010**

Following a devastating earthquake in Haiti, UNESCO took swift action and called a meeting at its Paris Headquarters for establishing an International Coordination Committee for Haitian Culture. Opened by Irina Bokova, Director-General of UNESCO, the meeting was chaired by Marie-Laurence Jocelyn Lassègue, Haiti's Minister of Culture and Communication, and Françoise Rivière, the Organization's Assistant Director-General for Culture at the time. According to the DG, UNESCO the purpose of the meeting was to set up a programme for inventorying and safeguarding Haitian heritage. The 150 participants of the meeting included representatives from UNESCO Member States and cultural heritage organizations. Although, UNESCO's programmes for cultural recovery in Haiti were delayed and remained low-key due to the lack of necessary funds, this meeting was instrumental in kick starting several cultural recovery projects in Haiti undertaken by institutions and organizations such as the Smithsonian Institution (USA), ICCROM, IFLA, ICA and ICOMOS.

\* **Post-Disaster Needs Assessment for Culture, 2010**

A government-led exercise, Post-Disaster Needs Assessment and Recovery Framework (PDNA/RF) is prepared with the joint support from the United Nations, the European Commission, the World Bank and other national and international actors.

A Post-Disaster Needs Assessment (PDNA) includes: (i) the valuation of physical damages and economic losses, undertaken through a Damage and Loss Assessment methodology (DaLa) and led by the World Bank; (ii) the identification of human recovery needs based on information obtained from the affected population, normally under the leadership of the UN system. A guidance package is being developed by key actors to address the above mentioned aspects. As part of this exercise, UNESCO has committed to lead the development of a PDNA specific guidance on the Culture Sector. UNESCO has been working on the draft for PDNA since 2010 after the experience of making one for Haiti (the guidelines are expected to be released in May 2013).

\* **International Conference on Disaster Management and Cultural Heritage, Thimphu, Bhutan, 2010**

The Ministry of Home and Cultural Affairs, Royal Government of Bhutan, convened an International Conference on Disaster Management and Cultural Heritage: Living in Harmony with the Four Elements from 12 to 14 December 2010 in Thimphu, Bhutan, with financial and technical support from the Global Facility for Disaster Reduction and Recovery, World Bank, Swedish International Development Cooperation Agency (SIDA), UNDP, UNESCO and United Nations Office of Disaster Risk Reduction (UNISDR).

A set of guiding principles and recommendations of the meeting were summarized in Thimphu Document which emphasizes that cultural heritage should be promoted, not only because of its intrinsic historic or artistic value, but because of the spiritual and psycho-social support and the sense of belonging it provides to communities during the disaster recovery phase. The document also calls for a greater integration of cultural heritage with Disaster risk reduction policies and programmes.

\* **Report by Dutch National Commission: *Culture, Education and Media Projects in Afghanistan: What lessons can be learned*, 2011**

Following a meeting on UNESCO's role in post-conflict and post-disaster situations, the Netherlands National Commission brought out a report on policy interventions of a single donor in a specific PCPD-situation: *the experiences and practices by Dutch organizations and institutions in Afghanistan between 2001 and 2010*. To analyze the report and to elaborate on UNESCO's role in post conflict and stabilization phases, the commission has held further meetings, outcomes of which are available on the Commission's website.

\* **Access to cultural heritage as a human right: consultation organized by the Independent Expert in the field of cultural rights, 10 February 2011<sup>4</sup>**

The Office of the United Nations High Commissioner for Human Rights invited United Nations Member States, international agencies, intergovernmental organizations, national human rights institutions and non-governmental organizations to attend a public consultation organized by the Independent Expert in the field of cultural rights, Ms. Farida Shaheed, on "Access to cultural heritage as a human right". The aim was to prepare a report for the Human Rights Council, presented in June 2011, devoted to the issue of "Access to cultural heritage as a human right". The consultation complemented the [questionnaire on access to cultural heritage](#) sent to all stakeholders. This was an important initiative. However, the report eventually submitted needs further reflection, and debate in order to develop practical and reasonable guidelines for adopting a rights-based approach for the protection of cultural heritage.

\* **IFLA Principles of Engagement in library-related activities in times of conflict, crisis or disaster, 2011**

In 2011, the IFLA Governing Board set up an Advisory Group to draft Principles of Engagement to be used by IFLA and its members in library-related activities of disaster risk reduction and in times of conflict, crisis or natural disaster. The Principles are part of IFLA's Key Initiatives 2011-2012 programme: Cultural Heritage Disaster Reconstruction Programme – Culture is a basic need, a community thrives through its cultural heritage; it dies without it. In the event of a disaster, the Principles of Engagement outline the conditions of an intervention by IFLA and will guide activities

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<sup>4</sup> For further details refer to :  
<http://www.ohchr.org/EN/Issues/CulturalRights/Pages/Consultation10Feb2011.aspx>

in recovery situations. These activities will be evaluated according to the DAC (Development Assistance Committee) criteria adopted by OECD (Organisation for Economic Co-operation and Development).

\* **International Conference on "Building cities' resilience to disasters: protecting cultural heritage and adapting to climate change", Venice Conference, Italy, 2012**

Held between 19-20 March 2012, the Venice meeting was attended by European Mayors, representatives of national and local governments working in the area of disaster risk reduction, UNESCO, the UN Human Settlements Programme (UNHABITAT) and the United Nations International Strategy for Disaster Reduction (UNISDR). The meeting sought to consider the key role played by disaster risk reduction measures and cultural heritage protection; explore climate change adaptation policies and plans at the local level; facilitate direct exchange of good examples and best practices; build partnerships at local level by involving new actors.

\* **An Action Plan for the Rehabilitation of Cultural Heritage of Mali, UNESCO, Paris, France, 2013**

An Action Plan for the Rehabilitation of Cultural Heritage and the Safeguarding of Ancient Manuscripts in Mali was adopted at an international experts' meeting organized by UNESCO and France at the Organization's Headquarters on Monday, 19 February 2013. The Action Plan for Mali has three priorities: rehabilitate cultural heritage damaged during the conflict with the active participation of local communities; take measures to protect the ancient manuscripts kept in the region; provide training activities so as to re-establish appropriate conditions for the conservation and management of cultural heritage, including manuscripts and intangible heritage. It is estimated to cost around US\$ 11 million. UNESCO has been involved in the Malian crisis since the very beginning and the recent meeting has underscored the organization's commitment to lead the coordination of cultural recovery in post-conflict and post disaster situations.

\* **ICCROM Initiatives**

A detailed list of courses, workshops and meetings organized on the theme, over the past eight years, is given below (in chronological order).

1. *Teamwork for Integrated Emergency Management in Asia*, A Museum Emergency Programme Education, a regional training of UNESCO, ICCROM, ICOM and the Getty Conservation Institute, 2005-2006 in Asia and 2007-2008 in Southeast Europe.
2. The UNESCO Chair International Training Course on *Disaster Risk Management of Cultural Heritage* organized by the Research Centre for Disaster Mitigation of Urban Cultural Heritage, Ritsumeikan University, Kyoto in cooperation with the World Heritage Centre and the Division of Cultural Heritage at UNESCO, ICCROM, ICOMOS, and Agency for Cultural Affairs as well as other relevant institutions of the government of Japan, every year from 2006 onwards.
3. International Courses on *Reducing Risks to Collections* organized by ICCROM in partnership with CCI (Canadian Conservation Institute) and RCE (Netherlands Cultural Heritage Agency), every year from 2005-2009.

4. International Workshop on *Disaster Risk Management at World Heritage Properties*, Olympia, Greece, 2008 jointly organized by the World Heritage Centre and the Hellenic Ministry of Culture, in collaboration with ICCROM.
5. Capacity Building Workshop on *Assessment of Vulnerability of Cultural and Natural World Heritage Properties to Disasters and Climate Change*, Beijing, China, 2009 organised jointly by the World Heritage Centre, ICCROM and the World Heritage Training and Research Institute for Asia and the Pacific (WHITR-AP).
6. *First Aid to Cultural Heritage Collections* in Haiti organized by ICCROM in partnerships with the Smithsonian Institution, the Canadian Conservation Institute (CCI) and the Central Conservation Institute (CIK), Serbia, Port-au-Prince, 2010.
7. *First Aid to Cultural Heritage in the Times of Conflict*, organized by ICCROM with the support of UNESCO, Blue Shield and specialized National and International Agencies from 2010 to 2012.
8. *Reducing Risks to Cultural Heritage Course*, organized by ICCROM, CCI (Canadian Conservation Institute) and RCE (Netherlands Cultural Heritage Agency) from May to November 2011 ( e-learning course followed by a workshop).
9. *Managing World Heritage Sites: Integrating Disaster Risk Reduction Strategies* (CONACULTA, INAH, Coordinación Nacional de Conservación de Patrimonio Cultural, UNESCO, World Heritage Centre, LATAM, ICCROM and the Regional World Heritage Institute in Zacatecas, December 2011.
10. Training Workshop on *Disaster Risk Preparedness and Management* in Albania, 19 - 24 November 2011.
11. The Sharjah Initiative - *Regional Symposium on the Protection of Cultural Heritage in Times of Crisis Sharjah, United Arab Emirates*, Organized within the framework of ICCROM's Regional Programme ATHAR, June 2012.
12. *Protection of Syria's Cultural Heritage in Times of Armed Conflict*: ICOMOS – ICCROM, an e-learning course for Syrian cultural heritage professionals, 7-8 January 2013.

## APPENDIX C

### Questionnaires were sent to the following experts

1. Giovanni BOCCARDI, focal points: sustainable development, disaster risk reduction, capacity building, UNESCO World Heritage Centre, Paris , France
2. Glenn DOLCEMASCOLO, Head of Office, UNISDR Office for Northeast Asia
3. Nevra ERTUK, Vice Chair of the department, Department of Conservation and Restoration of Art Works; Miman SINAR, Fine Arts University, Istanbul, Turkey
4. Rohit JIGYASU, Invited Professor at Ritsumeikan University Japan and President ICOMOS-ICORP
5. José LUIZ PEDERSOLI, Conservation Scientist, Belo Horizonte, Brazil
6. Cristina MENEGAZZI, Project Specialist, Special Programmes Unit, World Heritage Centre, Paris, France
7. Stefan MICHALSKI, Senior Conservation Scientist, Canadian Conservation Institute, Ottawa, Canada
8. Bijan ROUHANI, Architect and Consultant, the United Kingdom
9. Elke SELTER, Programme Officer, Culture, UNESCO office of South Sudan
10. Cori WEGENER, Cultural Heritage Preservation Officer, the Smithsonian Institution, Washington D.C., USA
11. Vesna ZIVKOVIC, Head of the Centre for Preventive conservation *Diana*, Central Institute for Conservation in Belgrade, Serbia

### ICCROM Staff

Catherine AN TOMARCHI, Unit Director, Collections Unit

Joseph KING, Unit Director, Sites Unit

Maria MATA CARAVACA, Archivist

Katriina SIMILA, Project Manager, Collections Unit

Gamini WIJESURIYA, Project Manager, Sites Unit

### Questionnaire for Risk Management: Methodology and Tools

1. In your opinion what are the main challenges in incorporating Risk Management in day-to-day preservation and management of cultural heritage resources?

2. Considering that UNISDR defines disaster as “a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources”, how can we link disaster risk management with the management of other types of risks posed to cultural heritage (both movable and immovable)?

3. In which ways risk management methodology and tools for movable and immovable heritage differ or are similar?

4. What are the main global challenges in protecting various types of cultural heritage from both natural and man-made disasters?

### **Questionnaire for Disaster Risk Management**

1. What are the main global challenges in protecting various types of cultural heritage from both natural and man-made disasters?

2. Considering that effective disaster risk management of cultural heritage encompasses disaster risk mitigation (reduction), preparedness, emergency response and recovery (all of these are now believed to be interlinked to each other), what are the key issues in each of the above mentioned areas that act as impediments in reducing the impact of disasters on cultural heritage?

3. What are the key similarities and differences in protecting cultural heritage from natural disasters and armed conflicts?

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