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The role of Cultural Heritage Risk Management methodology in the development of the Disaster Risk Management Plan

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Over the past decade a comprehensive methodology for risk management of cultural heritage was developed, providing the tools to address the issue of prioritization and decision-making in the field of preservation of cultural heritage. Meanwhile, the general strategy in conservation of immovable cultural heritage was development of methodology for disaster risk reduction. The Disaster Risk Reduction strategy was followed by introduction of concepts of Disaster Risk Management in which the need for structured and systematic approach for prioritization of risks was recognized.

Accordingly, the efforts have been made to integrate principles of cultural heritage risk management and disaster management, taking into account several common elements of the two approaches. This paper will introduce the concept of risk based decision making for cultural heritage and highlight the issues, as well as its possible application in Disaster Risk Management for cultural heritage. It will describe the basic approach for risk assessment and prioritization in order to develop risk treatment strategies and its use in the development of Disaster Risk Management Plan. It will demonstrate that a systematic method, aimed to reduce loss of value of cultural heritage, is a necessary aspect of the much broader disaster risk management system. The paper draws on the experience of several training programmes on disaster risk management and emergency management for both movable and immovable heritage and the case studies discussed during the training and explains what the role of risk management method is in planning for disaster risk reduction.

Introduction

Global trends such as climate change, urbanization, population growth and environmental degradation mean that the frequency and intensity, as well as impact of natural disasters has increased significantly over recent decades. Catastrophic damages due to series of conflicts and terrorism and due to floods, storms, earthquakes, not only in the regions which have been geographically prone to the natural hazards, such United States or Japan, but also in other regions, especially Europe, raised awareness on importance of prevention and planning to effectively reduce consequences of disasters. Furthermore, in the field of preservation of cultural heritage recent massive losses caused both by natural and manmade disasters indicated that there is a limited understanding of possible impact of disasters and the need to improve the approach of management of disasters for both movable and immovable heritage. Having in mind evident consequences and rising number of disasters there is a challenge of identifying the short-term and long-term effects of natural and manmade disasters and discovering mitigation measures. Assessment of the probability and intensity of impact of disaster is thus of key importance in different fields, including conservation of cultural heritage, for building resilience to disasters and fostering a culture of disaster risk reduction.

On the other hand, rising complexity and changeability of the context of preservation of the cultural heritage imposed the shift in the process of decision making and developing preservation strategies and put forward the risk based approach. It was recognized that sustainable cultural heritage preservation needs to understand and address the risks of different frequency and impact, both from cumulative processes, such as light or incorrect relative humidity, as well as from disaster events. This led to the development of several risk assessment methodologies for

museum collections and archival materials and development of comprehensive risk management approach for movable and immovable cultural heritage.

In the context of the increasing risks, to ensure the efficiency of disaster risk management systems for cultural heritage and in order to build a dependable disaster risk management plan it is critical to introduce a reliable system for decision making and common framework for prioritization of risks. Integration and adaptation of elements of Risk Management methodology for cultural heritage in the process of Disaster Risk Management will contribute to better understanding of disaster risk and their effects on the cultural heritage, in determining the risk magnitudes and identifying means for disaster risk reduction taking into account the socio-economic, environmental and cultural component of the context in which the Disaster Risk Management approach is applied.

The concept of risk and risk management in conservation of cultural heritage

The preservation of cultural heritage is a part of a dynamic system and it needs to change and develop constantly to respond to the rising complexity of interrelations of different actors and elements of the system with which is in constant interaction. Complexity of the system is reflected in uncertainty in achieving the goal of preservation, which is expressed through the notion of risk. The dealing with risks was always the part of the preservation, but the growing area of the risk management literature related to cultural heritage recognizes that the risk became the focus of the process at the end of 1980's, beginning of 1990's when the concept of risk management introduced more intensively in the field of conservation [1, 2]. The understanding of the risks to cultural heritage and the means to reduce them are seen as a key for the more systematic and effective process of preservation of cultural heritage and the need of coherent method for risk management is more evident. As risk management increases risk transparency and reduces uncertainty it provides support in strategic planning and in decision making.

Trend of embracing and applying the principles and methodology of management and consequently risk management in planning the conservation of cultural heritage in the last two decades is a response to a development of body of knowledge and experience in the field of conservation which enables the choice between different and numerous options for preservation, but in the context with limited resources. This also reflects the change in attitudes and perception of concept and preservation of cultural heritage. Heritage is considered becoming more complex, since for example intangible components of the heritage are taken into account, as well as the living heritage. As threats to cultural heritage are increasing in the field of conservation of cultural heritage the focus shifted on prevention of deterioration and damage. Furthermore, from approach based on preservation of material aspect of cultural property, conservation moved to preserving its values and significance [3, 4]. Finally, a holistic approach was adopted in the process of decision making on the strategies for preservation of cultural heritage and different disciplines are included in the process, knowledge and experience from different professions used [5]. Different activities on conservation of cultural heritage are integrated with different aspects of cultural heritage management such as research, presentation and sustainable development and efforts are made to achieve a balance between action of the

preservation and activities to provide access to cultural heritage.
As a result ICCROM, (International Centre for Preservation and Restoration of Cultural Property), CCI (Canadian Conservation Institute) and RCE (The Netherlands Cultural Heritage Agency) in the past ten years, worked on building Risk Management methodology for cultural heritage and organized joint training initiatives on risk management for cultural heritage, meant as a strategic effort in raising awareness on benefits of application of risk methodology in making conservation decision and developing preservation strategies [6]. Besides the training, the partnership resulted in production of learning and teaching resources, initiated research related to risk-based decision making and created a community of cultural heritage professionals understanding and accepting the importance of risk management approach in making preservation decisions and strategies.
CCI-ICCROM-RCE Risk Management Method (Figure 1) for cultural heritage focuses on preservation of cultural heritage significance. Besides rare and catastrophic risk it considers the impact of the deterioration processes with cumulative effects. The methodology is based on risk management model from Australian/New Zealand Risk Management Standard [7, 8]. The process of risk management starts with establishing context, which includes determination of aim and scope of risk management, acquisition of data, which are necessary for the following steps in the process : information on existing procedures, documentation, previous incidents leading to damages or deterioration of cultural heritage property, conservation conditions, significance and importance of cultural heritage. The Establish the Context step is followed by the step of risk identification, prerequisite for risk analysis and evaluation, the three steps that constitute together risk assessment. In the process it is necessary to take into account all the relevant risks which could endanger cultural heritage and cause loss of value. The data are systematized using a matrix of ten agents of deterioration (physical forces, thieves and vandals, dissociation, fire, water, pests, pollutants, light, ultraviolet and infrared, incorrect temperature, incorrect relative humidity) and risk occurrence (rare events, common events, cumulative processes) and expressed as specific risks stating clearly causes and consequences [9]. In the Risk Analysis step gathered information is processed to enable justified and argumented quantification of three risk parameters: Frequency or Rate, Future Loss to Each Affected Item, and Current Value of all Affected Items [10]. The result obtained by adding these three scores gives Magnitude of Risk. Comparing risk magnitudes in the process of risk evaluation provides a basis to determine the priorities for risk treatment, and to define options for risk reduction, taking into account their cost-effectiveness.

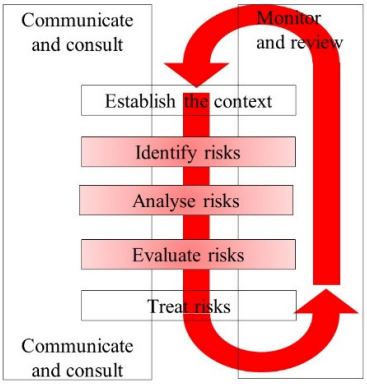

Figure 1. The Cultural Heritage Risk Management Cycle, based on Australian/New Zealand Standard, AS/NZ 4360: 2004 – Risk Management
The CCI-ICCROM-RCE methodology uses different tools and methods, theory of

probability, flux models, inductive reasoning, common-sense, scenario analysis, analysis of cause and effects, cost benefit analysis, brainstorming, interviewing, etc. It requires knowledge about the steps of the process of risk management, methods and techniques for risk management and risk assessment, analytical thinking, communication skills. The approach generates, structures and presents the available information on risk with an aim to support and facilitate decision making and enables better communication. In the process it integrates and asserts the value of the cultural heritage. The result is a clear argumentation on the needs, different issues and priorities in conservation of cultural heritage, based on logic and principles of technical analysis, enabling support for systematic and effective management of conservation of cultural heritage. The Cultural Heritage Risk Management also includes identification, analysis and selection of the measures and activities for reducing frequency and the consequence of the risks, i.e. for risk control and performance assessment. It takes into account importance of monitoring of all the steps in the process of risk management and their interrelations and monitors all the parameters which could change and based on the gathered data enables the update of the different elements of the process. The approach facilitates communications between stakeholders related to the nature of the risks and rational basis of decisions concerning management of those risks.

Specifically in the field of immovable cultural heritage, in the early 1990s, ICOMOS (International Council on Monuments and Sites) stressed the need for establishing a system for protection of cultural heritage from disasters [11]. The initiative emphasized a development of new tools for disaster preparedness which would integrate the concern for risk into cultural heritage management and provide a basis for risk sensitive management. It was followed by the publication of “Risk Preparedness: A Management Manual for World Cultural Heritage” in 1998 and development of training initiatives, tools for emergency planning and methodologies such as risk mapping [12].

In 2000 ICOMOS made another initiative: “Heritage without borders - International report on monuments and sites at Risk” which was a report based on data submitted by the membership of ICOMOS in order to facilitate the improvement of conservation cultural heritage, monuments and sites [13]. In the report risk analysis implies the degree of effectiveness of different measures that are applied in order to preserve cultural heritage significance and physical integrity. The report included the identification of different specific risks and their categorization (natural hazards, risks that result from development, and risks associated with social and collective behavior).

Furthermore, to facilitate the coordination of activities on risk preparedness and in collaboration with different cultural heritage organizations, International Committee of the Blue Shield (ICBS) and the International Committee on Risk Preparedness (ICORP) were established [14].

UNESCO also developed Operational Guidelines for the Implementation of the World Heritage Convention with the requirement to apply risk analysis within management assessment and The Committee recommended that States Parties include risk preparedness as an element in their World Heritage site management plans and training strategies [15].

The International Strategy for Disaster Reduction (ISDR), based disaster risk reduction and sustainable development concepts, was formulated at the World Conference on Disaster Reduction 2005 in Kobe, Hyogo, Japan [16]. The development of a risk reduction plan for World Heritage followed the guidelines of ISDR in 2006 and 2007 which was a further step in linking the planning for disaster risk management and cultural heritage.

UNESCO, ICCROM, ICOMOS and IUCN (International Union for Conservation of Nature) published in 2010 a resource manual "Managing Disaster Risks for World Heritage" which insist that disaster management needs to take into account "lives of visitors, staff and local communities living on the site or in neighbouring areas, and also to important collections and documents" [17]. The Manual proposed a framework for disaster risk management for different categories of cultural heritage listed as World Heritage Sites and integration and coordination of different management activities and plans at the level of cultural heritage and beyond. Besides the need to integrate the cultural heritage protection at the national and regional levels of disaster planning, the Manual summarized the recognized importance of cultural heritage in risk reduction and recovery, as well as the role of the different civil agencies, national and local institutions, emergency responders and international non-governmental organisations [18].

The notion of disaster risk as a complex phenomenon

Alongside the human loss and suffering, massive economic damage, the disasters result in significant destruction of cultural heritage, on one side due to impact damage during a disaster, and on the other side because of neglect, carelessness, demolition, vandalism, looting, due to lack of a preparedness for a disaster [19]. The trend of increasing number of disaster occurrence influenced the way of thinking about disaster management and the need for the allocation of human and technical resources to support disaster risk prevention and planning, taking into account socio-economic factors and community needs is recognized as a priority [20]. One has to have in mind that disaster risk management has several specific characteristics which differs it from risk management and that includes diversity and complexity of different tasks related to managing disasters at the levels of a society, organization, communication, and in terms of aims and criteria for risk management. Excluding the community from the disaster risk management process, one might end up with the situation that risk actually increases as a result of ignoring the local knowledge and traditions related to disaster management [21].

In the existing disaster risk management approach for cultural heritage, the disaster risk is expressed as a function of hazard and vulnerability. While a hazard is a phenomenon that presents external source of a disaster (such as an earthquake or a cyclone) which has the potential to cause disruption or damage to cultural property, vulnerability is the inherent weakness of the heritage which makes it susceptible and exposed to the hazard (due to its location or its specific characteristics) [22].

The nature of disaster risk is complex, chaotic and often global in character [23]. Natural and manmade disasters affect multiple regions and countries simultaneously so traditional networks and risk reduction mechanisms cannot cope. A disaster implies the risks with repetitive effects such as earthquakes or cumulative damage due to secondary

risks, such as fires or floods. Although disaster risks by their definition imply risks to catastrophic events, they are linked not only to the catastrophic events like earthquakes but also to the slow and progressive events/factors like lack of maintenance, inadequate prevention and mitigation techniques [24]. Furthermore, the emergency and after disaster phase, the recovery and reconstruction process also might generate new risks, affect the reestablishment of normal functioning of the elements and systems which functions were disrupted and cause the additional damage and destruction. Mechanics of different hazards occurring in the processes during a disaster makes it nonlinear and changes of economic, technological, political and social conditions would affect the risk structure, i.e increase the vulnerability of cultural heritage [25]. Additionally, due to lack of statistical data and/or imprecise data related to disaster risks, expected losses are difficult to be estimated.

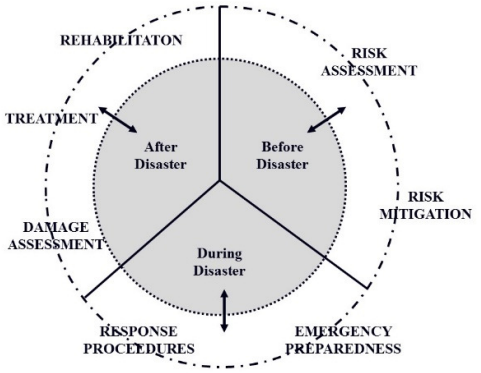

Figure 2. Disaster Risk Management Cycle. Source: Rohit Jigyasu

Having all that in mind the management systems need to be operational at different levels in the case of a disaster, to be adaptable (the possibility to change the structure in accordance with the risk) and flexible (the possibility to make a selection of measures different from developed strategies as immediate reaction to the disaster). It needs to be taken into consideration that information related to disasters change constantly, they are imprecise and insufficient for efficient decision making.

Moreover, the set aims for the disaster management need to be achieved with limited resources, but to reduce the consequences and loss it is necessary to use resources planned and integrated in a disaster risk management plan before the disaster. Recovery is slow process, and often the impacted regions remain in a dependent status which shows that establishing disaster prevention measures before disasters strike is a more viable route [26]. However, more resources are now spent on disaster relief, than on disaster prevention.

This makes planning for disaster risk management more difficult, demanding (need for different plans, e.g. emergency plan, evacuation plan and lack of resources) and dynamic (the need to adjust the existing plans and real context). Planning for the disaster risk management is a process of adaptation and implementation of procedures for identification of disasters using systematic analysis and preparation, testing and plan revision. However, the planning for disaster risk management enables to decrease the vulnerability and exposure to risk of cultural heritage, to increase risk reduction and protection from catastrophic losses. It represents a tool for preservation of cultural heritage in the case of disasters, and thus acts as a support to vulnerable communities [27]. It also contributes to the better understanding of disaster risks which is a necessity to be able to perceive the different outcomes of disaster events and to make argumented and informed decisions.

Disaster Risk Management Plan

DRM plan is a long-term plan, based on the values and significance of the cultural

heritage. It encompasses different activities and covers all three main stages of Disaster Risk Management (Figure 2: before, during and after disasters): research, emergency preparedness and response, prevention, training, acquiring resources, recovery, etc. and includes measures and deadlines for the appropriate actions for its implementation and periodic reviews. DRM plan includes identification of the current state, prognosis of the development of the main disaster risks, their dynamics, and estimation of the necessary resources for elimination of the consequences, i.e. it is based on the probable scenarios of the development of a disaster. It contains development of strategies for disaster control, planning and procedures for management of the activities and the necessary measures, priorities, responsibilities and resources. Disaster plan requests comprehensive identification of risks, development of scenarios of the events, which include analysis of cause and effect chain and results in the assessment of identified risks, analysis of vulnerability and aggravating factors, as well as capacity and mitigating factors, prevention measures for reducing or eliminating risks or measures of recovery. It imposes the need for cost and benefit analysis to enable the selection of the measures which are feasible and/or for which there are existing and sufficient resources.
The main characteristics of a DRM plan are clarity, flexibility and practicality, as well as comprehensiveness as it could include all the heritage properties in the exposed area [28]. It needs to be developed in the context of social, economic, historical, political and environmental conditions and to include stakeholders' (e.g. local community, religious groups, national agencies, international cultural heritage organisations, etc.) perception of uncertainties, risk causes, risk levels, prevention measures, the possible mitigation strategies of the risk and the related consequences. Finally, disaster plan needs to be seen as an inherent part of management systems of the cultural heritage, as well as local, national and regional disaster management systems [29].

The options for application of cultural heritage risk management methodology in the planning for Disaster Risk Management

The need to focus on developing efficient Disaster Risk Management plans is imposed by the constant increase of the number and magnitude of risks and of the number of potentially endangered people, fraction of the territory and resources, including cultural heritage which could be affected by natural and man induced hazards.
As a result, it is a necessity to develop systems for support of decision making in the process of disaster management, which would enable adequate, efficient planning and better communication, as well as to develop innovative technologies and instruments to support disaster management, including risk modeling. However, although risk assessment (including risk analysis and evaluation) has been recognized as key element of risk management, and risk assessment methodologies have been improved, in the field of Disaster Risk Management for cultural heritage the theoretical schemes are not yet applied in practice. One main reason for this shortcoming is that the available literature is mainly of universal and theoretical nature when discussing risk analysis and evaluation and cannot provide the necessary details to implement a comprehensive assessment of risks [30, 31]. Furthermore, it is uniquely focused on the specificities and

complexity of the management and disaster management of World Heritage Sites.

Hence, efforts have been made to integrate principles of Cultural Heritage Risk Management and Disaster Risk Management, through several training initiatives. The approach has been tested during the Museum Emergency Programme (MEP) - Teamwork for Integrated Emergency Management (TIEM), developed by ICCROM, ICOM (International Council of Museums) and the Getty Conservation Institute and realized in the region of South East Europe in 2008-2009, as well as during workshops La prévention des risques, organised by Ecole du Patrimoine Africain – EPA and African World Heritage Fund (AWHF) in Tunis, and Museum disaster preparedness and risk mitigation in the event of disaster or conflict Course organised by Egyptian Heritage Rescue Team, in Egypt, both in 2013 and with support of UNESCO.

It became evident that it is not a question of integrating Cultural Heritage Risk Management within Disaster Risk Management or vice versa, as separate approaches, it is a question of sharing, adoption and adaptation of concepts, tools and procedures which could contribute to the development of coherent methodology applicable at the different levels of preservation of cultural heritage, including Disaster Risk Management planning, and taking into account various contexts and different types of cultural heritage (Figure 3). Capturing different elements of CCI-ICCROM-RCE Risk Management methodology to make planning for disaster risk more effective offers not just the opportunity to combine the advantages of the systematic and comprehensive approach, but to further develop the Heritage Risk Management method using the experience of dealing with the risks of catastrophic scale.

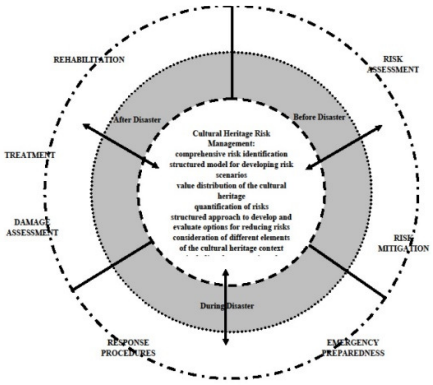

Figure 3. Relationship between Disaster Management and Risk Management for cultural heritage

The approach and tools developed in the context of Cultural Heritage Risk Management can serve as a basis for providing reliable information for assessment of disaster risks. The CCI-ICCROM-RCE method provides a set of frameworks and guidelines for comprehensive risk identification, which is in particular helpful to discern the primary and secondary hazards leading to a disaster, the slow, cumulative processes which contributes to a disaster, as well as to identify all the possible variables of disaster risks, including the subsequent and/or simultaneous risks [32]. The available tools and strategies for risk identification enable to structure gathered essential information and existing knowledge in terms of specific risks, defining the elements comprised in cause-and-effect chain, which can be analysed and quantified in the next step: external hazards or internal hazards, failures of resources and mitigation, agents of deterioration, adverse effect on the asset.

In the step of risk analysis both approaches, Disaster Risk Management and CCI-ICCROM-RCE methodology,

recognize usefulness of reflection in terms of risk scenarios, which incite strategical thinking about wide array of possibilities, recognition of possible solution and long term perception of disaster events. Making decision is facilitated because different possible outcomes are laid out and effects of uncertain events are taken into account. The Heritage Risk Management uses a structured model for developing risk scenarios and provides a series of examples for different types of risks [33, 34]. The approach helps in understanding how an event, such as disaster risk, will unfold, considering hazards with potentially catastrophic effect, such as earthquakes, floods, fires, hurricanes, and underlying physical, social, economic or institutional and attitudinal risk factors, which increase the vulnerability of the asset. The methodology suggests as well the possibility of disaggregation of the complex disaster risks, which during the process of risk analysis facilitate dealing with different risks often overlapping in the case of disaster events [35]. Specifically, when data related to the frequency of the event include both larger and more rare incidents that have caused major damage to the property (e.g. collapse and reburial of structures), and smaller, more frequent ones which effect on the property has been proportionally less significant (deposition of ash layers on surfaces, etc.), it is considered more useful to analyse them separately.
The approach also enables the quantification of risks, based on the argumentation provided in a risk scenario, which is a vague component of the process of risk assessment in the field of Disaster Risk Management [36]. Given that the risk can be defined as a combination of the probability of an event (rate in the case of cumulative processes) and its potential adverse consequences, the risk is quantified assessing these two fundamental components, where consequence is expressed in terms of loss of value to cultural heritage and subdivided into two parameters to facilitate the analysis of complex heritage properties consisting of different components [37]. Characterizing the value distribution of the cultural heritage, including its intangible aspects especially related with the context of living heritage, is thus a useful concept, developed for the purpose of Heritage Risk Management, to be able to determine and quantify loss of value to the heritage property, one of the key components in decision making in Disaster Risk Management, as well.
The obtained result enables to evaluate the risks taking into consideration the importance of risk comparability, interdependencies between the different types of risk phenomena, uncertainty, relative importance of different components of the heritage, as well as different elements of the cultural heritage context [38]. The evaluation of risks is a basis for planning the efficient risk reduction, which requests to identify all the measures of control and select the optimal actions and strategies for lowering the magnitude of risk, either by reducing their likelihood or their consequence. The CCI-ICCROM-RCE methodology provides a structured approach to develop and evaluate options for reducing risks, estimating the cost-effectiveness of the proposed measures.
In the Treatment of risks step, which coincides with mitigation phase of the Disaster Risk Management, Cultural Heritage Risk Management approach is again taking into consideration the elements of the context, and includes the perception of stakeholders and relative significance of the heritage… Hence, the Cultural Heritage Risk Management could contribute to improvement of the ability

to plan risk reduction measures for cultural heritage in a cost-effective way and in doing so, contribute to societies' resilience to disasters.

Additionally, the well-structured and systematic approach and refined tools and procedures also facilitate addressing the issue of risk occurrence during the emergency and in the post disaster phase, as it enables comprehensive assessment of all the risks to cultural heritage.

However, what is lacking in the field of Cultural Heritage Risk Management are the case studies related to the disaster risks which rise the risk for the named methodology to stay at the level of an approach with a strongly theoretical background which is rarely applied in practice. Moreover, to evade the risk of becoming specialized on technical aspects of cumulative processes, such as light fading and modeling of fluctuations of relative humidity the Cultural Heritage Risk Management method needs to build on the experience and knowledge from the point of view of Disaster Risk Management related to integration of social, economic and environmental perspective in the process of developing a Disaster Risk Management plan.

On the other side, the existing approach to disaster management planning, especially in developing countries, is more focused on emergency preparedness and response procedures to disasters, than on managing risks and the underlying factors that lead to disasters, which implies comprehensive risk assessment and effective risk reduction. Due to time pressure and costs, local heritage management practitioners are not receptive towards methodology which is heritage oriented, and are inclined towards requesting narrow specifications for mitigation measures when developing management plans, thus reducing application of a comprehensive approach to conceptual level[1].

Nevertheless, the case studies used and presented in the mentioned training programmes illustrate the possibilities for integration of cultural heritage risk management with disaster risk management. Risk assessment for diao-lous, watchtowers, built by Jiarong Tibetans in the period from 600AD to 1900AD in the west of Sichuan Province, submitted on China's Tentative List for World Heritage Sites in 2013, was done from 2011 [39]. Risk analysis included risks from natural hazards, earthquake, debris flow, land-slides and flooding, as well as underlying conditions expected to increase the effects of the analysed risks. Having in mind that risk assessment addressed around 500 diao-lous, at the surface of 1000 km^2, with different levels of damage, and exposed to diverse natural and manmade hazards, resulting in production of massive amount of data, it was found that the process of analysis was facilitated through the use of cultural heritage risk management methodology, leading towards "clear" decision making and focusing on dynamic risk reduction at the different levels of site management and introducing community involvement[2].

Conclusion

To eliminate, control or reduce the risks and their effects one applies a management system whose basic objective is planning, control and risk reduction. Integrated planning is a process, and crucial aspect of Cultural Heritage Risk Management and Disaster

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[2] Yi Qing Zou, Cultural Heritage Conservation Center, Tsinghua University, Beijing, China, personal communication, on 30th December 1013

Risk Management, which enables to evade unsuitable actions and to reduce the number of unused opportunities. Necessity for long term planning in the prevention and recovery of the consequences of a disaster is a task in the systems of cultural heritage management and a part of strategic planning for preservation of cultural heritage. Unpredictable and unexpected circumstances of a disaster and the challenge of understanding of disaster risks, which implies complexity, as well as the need to take into account interruption of society functions imposes the necessity for developing a plan which will enable interactivities, correction, control and review of the efficacy of planning and management of disasters. Furthermore, unique characteristics of cultural heritage and specificities of each socio-cultural context makes it more difficult to determine the appropriate measures for protection of cultural heritage, since the development of the strategies is dependent and the context and process of planning for Disaster Risk Management has to take into account these elements. To contribute to the understanding of disaster risks and to better inform Disaster Risk Management there is a need for adequate tools and approach. Integration of the tools and procedures developed in the framework of the Cultural Heritage Risk Management would enable facilitation of risk assessment, compiling risk reporting and communication, development and proposal of strategies for risk reduction. The advantages of using components of established systematic and comprehensive method would contribute to the better understanding of key disaster risks and their implications, focus on important questions and provide a structure for a more efficient Disaster Risk Management model for cultural heritage and thus for reliable and comprehensive Disaster Risk Management plan.

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[39] Zou, Yu Qing. Risk Assessment study of the 'Diao-lou' stone towers in Danba County, China. Reducing Risks to Heritage. International Meeting, 28-30 November 2012, Amersfoort, The Netherlands. Abstracts. 2012. p. 45

Coming soon

The Canterbury Disaster Salvage Team

(Disaster Preparedness, Education and Training for Heritage and Cultural Institutions)

Do your own disaster plan

- **If you don't have one start to create it!**
- **If you do have one test it out**

Venue: Air Force Museum
Cost: $150.00 per person
Limited to: 30 people
Date: August 2nd and 3rd (Thursday and Friday)
Instructor: Vesna Zivkovic

(Please note there will be 3 x free places – one per museum - for voluntary museums up to and including one paid member of staff). **Conditions apply**

Contact Lynn Campbell on 03 9804972 or lynnpamelac325@gmail.com to express interest

DEVELOPING AND WRITING AN EMERGENCY PLAN
CANTERBURY DISASTER TEAM WORKSHOP

Workshop description

This 2-day workshop course will introduce the basic concepts and tools relevant for developing and writing and emergency plan. It will provide a systematic approach to define objective, scope and content of the emergency plan of the participants institutions, as well as process of the plan, target audience and the agency(ies) responsible for its implementation.
A hands-on component is included to practise and consolidate the use of this approach. The workshop will also aim at stimulating and improving critical thinking, teamwork, and communication skills. Workshop activities will include lectures, discussions, group exercises, presentations by participants, and template and real emergency plans.

Learning outcomes

At the end of the workshop participants should be able to prepare and implement an emergency plan for their respective institutions or to improve the existing plans.

Workshop content

DAY 1
Session 1: Participants will be given sample plans to analyse and compare in group (table top exercise). Which plan do you like best and why?

Session 2: Following the exercise through discussion and brainstorming participants will understand the objective of an emergency plan, key elements of the plan, different types of plans integrated into an emergency plan, as well as role of different stakeholder in the plan development.

Session 3: Revisiting some elements of the plan, such as emergency teams, risk assessment, priority lists and documentation and providing tools for preparing specific elements of the plan (lecture and discussion)

Session 4: Developing documentation forms for the emergency plan (group work)

DAY 2
Session 1: Writing instructions (short lecture) and making a table content of an emergency plan according to each specific institution (individual work)

Session 2: Participants work individually on their plans and discuss in group of two the results

Session 3: Participants prepare individually and present the plan of action for putting in motion the plan development and writing (what to expect in the planning process)
Session 4: Discussion and conclusion of the workshop

Guest Speaker

Vesna ŽIVKOVIĆ, MA
Senior curator

Phone: +64 20 4141 26 27
E-mail: zivkovic.vesna@gmail.com
Address: 54H Southampton Street, 8023 Christchurch

Vesna graduated archaeology at University of Belgrade, Faculty of Philosophy, Department of Archaeology (2000) and obtained master's degree in preventive conservation at University Paris 1, Pantheon Sorbonne (2006). Currently she is a PhD candidate at the University of Belgrade, focusing her research on environmental management for museum collections.

From 2001 she worked at the National Museum, Belgrade, as curator for preventive conservation and has been instrumental in developing preventive conservation services and activities in Serbia. Vesna participated in the establishment of the Department for Preventive Conservation at the National Museum in Belgrade, and for the last eight years was responsible for the Centre for the Preventive Conservation in the Central Institute for Conservation in Belgrade.

Vesna had been working on planning the climate control for museum collections and generating preservation plans and terms of reference for the preventive conservation aspect of the museums' reconstruction projects and storage reorganization projects. She had been providing advice for the museum community on efficient collections preservation, based on an understanding of risks to collections. She is the author of the guidelines on museum environment, handling museum collections and organizing the storages for museum community in Serbia.

Vesna was also responsible for delivering courses in preventive conservation and risk management for the museum community in Serbia and the region of South East Europe. She had been coordinator for developing the first university programme dealing with preventive conservation in the region, in collaboration with Université Paris 1 – Panthéon Sorbonne and Belgrade University. Furthermore, Vesna had been an invited resource person and lecturer and acted as course leader and project assistant for international and regional educational projects dealing with preventive conservation, risk and emergency management for museum, archival collections and immovable cultural heritage, including world heritage sites (Teamwork for Integrated Emergency Management for Southeast Europe (2007-2008), Reducing risks to collections and cultural heritage (2005 – 2014), Prévention des risques course in Tunis (2013), Museum disaster preparedness and risk mitigation in the event of disaster or conflict Course in Egypt (2013)), as well as storage reorganization (RE-ORG South East Europe, 2014 -2015, RE ORG International: Rajasthan, 2015). She also has important experience in delivering courses in the distance learning format and developing web tools and resources. Vesna participated in numerous regional and international conferences and seminars presenting institutional experience in environmental management for collections, cultural heritage risk management and preventive conservation.