

Integrating traditional knowledge and cultural heritage with climate adaptation and disaster risk reduction: the role of training and tools

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Abstract

Purpose – This paper investigates potential solutions to the challenges governments and stakeholders face in applying climate change adaptation and disaster risk reduction actions in ways that will save lives and use funds efficiently. The paper examines how traditional knowledge and cultural heritage can improve resilience and assesses the potential impact of relevant tools and training. Successful examples of tools, and applications of traditional knowledge as an accelerator to enhanced resilience will be explored.

Design/methodology/approach – The paper studies the importance of integrating cultural heritage with climate and disaster risk reduction plans and examines why this has not been happening to the extent it should. While probing the barriers to such integration, the paper also explores examples of best practice drawn from experience gathered in ICCROM projects. Possible mechanisms to overcome common barriers through training are suggested, and the role that training and relevant tools could play in enabling and accelerating such integration are studied.

Findings – The conclusions demonstrate that training is a critical factor in facilitating the knowledge enhancement needed to understand how to integrate disaster and climate risks.

Originality/value – The research was conducted as part of a training program which the authors helped organize. The analysis is the original work of the authors.

Keywords Resilience, Disaster risk reduction, Climate change adaptation, Cultural heritage resilience, Traditional knowledge, Development plans

Paper type Research paper

Introduction

Research has demonstrated that there is a lack of awareness on how to reduce disaster risks, including climate risks, on heritage sites and insufficient access to the appropriate tools and methodologies which could address the issues (Durrant *et al.*, 2023). Cultural heritage offers an opportunity to bring people together through their shared principles and ideas, encouraging better community cohesion which in turn can help the community to tackle problems collectively, leading, overall, to greater community resilience.

The first step towards risk reduction is to carry out risk assessment (including both tangible and intangible heritage) and hazard mapping. Knowing the risk signifies an acknowledgment



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of the problem, thus allowing measures to be taken in mitigation. Despite many challenges, there are examples of good practices and successful integration of risk reduction with cultural heritage and ICCROM has promoted research on this relationship. These examples demonstrate the importance of linking the narrative on vulnerabilities, the successful strategies employed, international initiatives and community engagement, to create a stronger understanding of how to protect cultural heritage – “every place has a climate-culture story”.

Case studies

Ubatuba, Brazil: Being primarily dependent on agriculture for livelihoods, the community decided to combat climate change through adaptation of existing agriculture practices. They established mechanisms to engage in traditional seed exchange fairs, with the Quilombola community procuring native seeds from neighboring communities and sharing insights on sustainable agricultural practices. The farmers learn from each other’s experiences, adding inputs from traditional knowledge and using native species of plants, which appear to be more adapted and harder to a changing climate. Additionally, the community is identifying and mapping elevated areas to enhance existing response and evacuation plans. This work is coordinated with the local civil protection and disaster risk management department.

Rosetta, Egypt: The area is subject to increasing impacts of climate change, especially in the increase of salinity of the soil. The community tapped traditional knowledge to find a solution by planting native sycamore trees which are traditionally known to reduce salinity of agricultural lands. The community also developed an early warning system for the fishermen and farmers by using the information in the ancient Coptic calendar based on the water levels in the Nile.

Jodhpur, India: The traditional construction techniques and building materials used in Jodhpur’s distinctive blue houses were studied using laser scanning and 3D modeling to assess the thermal performance of these structures in extreme heat. It was found that traditional houses are much cooler than those built from modern materials. The blue color and whitewash help to reduce the temperature inside the house, proving to be an effective climate adaptation technique. Additionally, the community is establishing story circles to raise awareness about the importance of using old water infrastructure and developing a culturally sensitive climate action plan for the city.

Tuti Island, Sudan: The community on this island utilizes a traditional community-led flood management and early warning system known as Taya. To prevent the loss of traditional knowledge, the community is creating a network of “knowledge bearers” who will document and disseminate the methodology for managing the Taya system in order to ensure intergenerational transmission of knowledge to younger people.

Kasese, Uganda: Climate change is exacerbating the erosion of the riverbanks in this community, and it is impacting the entire river basin. The communities in the basin area have traditional knowledge on reading weather patterns, communicating early warnings, managing natural resources and conserving the forest. Utilizing traditional and indigenous knowledge, the community planted over 100 native species of plants identified by the indigenous leaders to maximize carbon sequestration, control riverbank erosion and improve biodiversity in the region. When cultural heritage is integrated into risk reduction plans, the results are significant.

Challenges and barriers to integration

Lack of awareness of the importance of cultural heritage in reducing risks and vulnerabilities and a lack of communication on the tools and methodologies available to mitigate are a great barrier to integration. As a result, easy to use tools can end up being left on the shelf. Another factor is securing adequate funding for preservation. Planners must understand that reduction of risks, in all sectors, including cultural heritage, is integral to the development process and cannot be siloed. A systems approach needs to be followed so that the funding

can be sourced from the development sectoral budgets. Again, enhanced training can help to address such a challenge.

Despite many challenges, there are examples of good practices and successful integration of risk reduction with cultural heritage and ICCROM has promoted research on this relationship. These examples demonstrate the importance of linking the narrative on vulnerabilities, the successful strategies employed, international initiatives and community engagement, to create a stronger understanding of how to protect cultural heritage – “every place has a climate-culture story”.

Tools to increase integration of cultural heritage and climate mitigation

Capacity building amongst the planners in government, civil society organizations and other stakeholders will also enhance community resilience. An effective means to develop capacity may be through training programs on the use of easily available tools and methodologies. A workshop-based approach builds consensus, enables results to be shared with all stakeholders and allows an action plan to be drafted. Scorecards can be used to identify the issues that need to be addressed and evaluate them with a numerical score so that the weakest ones can be addressed first. This should lead to an action plan covering the next 3–5 years which should then be endorsed by the mayor’s office or the city council, to ensure political buy-in and sustainability (UNISDR, 2024). The tools that can be used include:

- (1) *The Disaster Resilience Scorecard*. The action plan needs to address three questions – what, how and when? What are the problems and issues, what are their root causes? How should these actions be carried out and how should they be financed? When should these actions be carried out and which should be prioritized?
- (2) *The Climate Resilience Addendum*. Adaptation to climate and reduction of disaster risks are linked. Without integrating the two, governments cannot address the issues of gaps in resilience. While adaptation refers to threats of climatic origin with short, medium and long-term scenarios and projections, disaster risk reduction deals with all types of threats that can generate a risk and cause a disaster. There are many points in common between both and that is why all plans should integrate both. The Disaster Resilience Scorecard for Cities provides a set of indicators that allows governments to monitor and review progress and challenges in the implementation of the Sendai Framework for Disaster Risk Reduction and assess their disaster resilience. It is structured around the “Ten Essentials for Making Cities Resilient”.
- (3) *The Cultural Heritage Resilience Addendum* (UNDRR, 2024) was developed in 2021, as an extension to the Disaster Resilience Scorecard, it includes questions and indicators for the integration of cultural heritage issues, arranged around the Ten Essentials of the Making Cities Resilient initiative.

Outcomes from training with SAARC countries

Research was conducted to improve our understanding of how far training on the scorecards is adding to knowledge and helping planners and government officials. A sample training was conducted by the Secretariat of the South Asian Association for Regional Cooperation (SAARC) in collaboration with the United Nations Office for Disaster Risk Reduction (UNDRR) Global Education and Training Institute as a residential workshop on “Urban Resilience and Making Cities Resilient” from 5 to 8 December 2022 at SDMC, Gandhinagar, India. A total of 21 participants were surveyed on their knowledge of disaster risk reduction, the tools available and their knowledge of the methodology that can be applied to the tools to develop a strategy or action plan for disaster risk reduction and resilience. A total of 82%

reported greater knowledge after the workshop, a significant increase from the pre workshop measurement of 19%. The participants were surveyed as to whether training can address the gaps in knowledge, 95% of the participants agreed that training can address the gaps in their knowledge. Around 85% of the participants indicated a preference for training of a reasonably short duration in contrast to a full-term course. About 100% of the participants indicated a preference for training focusing on practical aspects of implementation rather than concepts.

The way forward

This research suggests that there are significant benefits for cities joining the global Make Cities Resilient initiative in terms of building capacity to integrate disaster and climate risk plans with cultural heritage. ICCROM is well positioned to provide training on the tools and the methodology, and act as a service provider, as well as a catalyst by orienting and activating its own network. ICCROM could organize capacity-building workshops, training programs and seminars for professionals and policymakers. These could include self-paced online courses, and an online knowledge platform to reach a broader audience.

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