

Heritage-Based Climate Action

Conference Report

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Cover Photo: Vernacular architecture in the blue city of Jodhpur, India, designed to naturally moderate indoor temperatures and adapt to the local climate.

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Foreword

The climate crisis is no longer an abstract concept; it has become the defining reality of our time. Every day, communities around the world are feeling its devastating effects. The sixth assessment report of the Intergovernmental Panel on Climate Change (IPCC) leaves no room for doubt: our planet is warming at an alarming rate, with consequences that threaten not only our natural environment but also our cultural heritage and ways of life.

For me, the role of cultural heritage in this crisis is both deeply personal and professionally urgent. While heritage faces undeniable risks from rising sea levels, wildfires, and droughts, it also holds within it solutions—centuries of human knowledge and experience that can guide us through this unprecedented time. I believe that our heritage, both tangible and intangible, offers unique insights that are critical to shaping more effective and sustainable responses to climate change.

This belief was the driving force behind the creation of the **Net Zero: Heritage for Climate Action** project, initiated by ICCROM with the invaluable support of the Swedish Postcode Foundation. The project, developed within the framework of our **First Aid and Resilience for Cultural Heritage in Times of Crisis** (FAR) programme, has been a remarkable journey. It has allowed us to bring together scientific research with indigenous and local knowledge, for developing practical tools to assess and manage the risks posed to heritage by climate change. I am particularly proud of how this project has demonstrated the power of combining tradition with modern science to create inclusive, community-based solutions.

The **Net Zero: Heritage for Climate Action** conference in 2023 was a pivotal moment, bringing together participants from over 120 countries. As I listened to the diverse voices in those discussions, I was reminded of the resilience and strength that cultural heritage provides in times of crisis. The outcomes of the conference, presented in this report, emphasize the need to scale up heritage-based approaches as part of global climate and disaster risk reduction strategies. I firmly believe that by integrating culture into these efforts, we can build a future that is not only resilient but also rooted in the wisdom of the past.

This report is not just a summary of discussions; it is a call to action. I hope the insights shared here will inspire all of us—scientists, policymakers, cultural practitioners, and communities—to collaborate in finding solutions that protect our heritage and, in doing so, protect our future.

Aruna Francesca Maria Gujaral
Director-General, ICCROM

Executive Summary

Climate change poses imminent risks to the world's cultural and natural heritage. Floods, fires and droughts not only endanger material and natural heritage but also pose substantial risks to intangible heritage, including knowledge and practices related to the conservation of biodiversity and sustainable use of natural resources, as well as ways of coping with climate extremes. Rising sea levels will exacerbate the loss and damage to several iconic historic sites and cities, disrupting the lives and livelihoods of millions.

Heritage sites and collections in coastal settlements and Small Island Developing States, as well as arid, and semiarid settlements, are at high-risk, facing an array of impacts including tropical cyclones, storm surges, droughts, changing precipitation patterns, coral bleaching and invasive species. These impacts combine to worsen damage and loss, intensifying food and water insecurity.

Culture and heritage significantly influence how we view and respond to the climate crisis. They shape our collective values, beliefs and behaviors, framing our relationship with the changing environment and the urgency of action.

Indigenous and traditional knowledges, deeply rooted in many cultures, often emphasize a harmonious relationship with nature, providing valuable insights for protecting the environment. By integrating cultural perspectives and heritage into climate strategies, we can develop inclusive, community-centered solutions that lead to lasting, effective responses to the climate challenge.

In January 2022, ICCROM initiated an innovative capacity development project, **Net Zero: Heritage for Climate Action**, with the support of the Swedish Postcode Foundation. Conceived within the framework of ICCROM's flagship programme **FAR – First Aid and Resilience for Cultural Heritage in Times of Crisis**, this project was aimed at developing widely applicable methods and tools to assess climate change-related risks to tangible and intangible heritage. Additionally, the project connected climate science with local and indigenous knowledge systems to design integrated strategies for climate action, disaster risk reduction, heritage safeguard and the enhancing of social inclusion at five climate hot spots.

The positive outcomes of the project were widely disseminated through a thought-provoking and insightful virtual conference, **Heritage Based Climate Action**. The conference aimed to use the successful results of the **Net Zero: Heritage-Based Climate Action** project to inform broader policies and practices in the fields of cultural heritage, disaster risk reduction and climate action.

The conference gathered thought leaders, policymakers, academics, community leaders, cultural bearers, and professionals from diverse sectors across 122 countries. This report summarizes the conference proceedings and key takeaways from the Net Zero: Heritage-Based Climate Action project, making a strong case for scaling up heritage-based climate action. Together, these insights highlight the critical role of culture in achieving the **Global Goal on Adaptation**.

How to navigate this report

The findings of Heritage-Based Climate Action are drawn from presentations across the conference and rich discussions during the thematic panels, ignite talks, story circle workshops and stakeholder roundtables.

Supporting evidence gathered from the discussions is referenced following the format (S-01-Surname). Please refer to Annex – Conference Playlist to view recordings of the relevant sessions.

The conference featured a series of panels, each guided by one of the following three central themes. These themes served as the foundational pillars for discussions, presentations and interactive sessions throughout the event. For a more in-depth explanation of these themes and their core ideas, please visit the [conference website](#).

Theme 1 | Tracking Loss and Damage to Cultural Heritage in the Face of Climate Change

Theme 2 | Indigenous Knowledge, Traditional Practices, and Worldviews: A Source for Transformative Climate Action

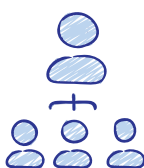
Theme 3 | An Integrated Approach Towards Disaster Risk Reduction, Peacebuilding, and Climate Action

Conference Featured

17 Presentations



3 Storycircles



6 Ignite Talks



1 Youth Forum





Collaborating with civil protection and the Quilombola community in Ubatuba, Brazil, to identify safe evacuation spots for flood emergencies. Source: João Paulo Soares Silva

1 Introduction

Introduction

Transcending disciplinary boundaries and forging vital connections between heritage safeguard, just climate action, disaster resilience and sustainable peace, **Heritage-Based Climate Action** was an international virtual conference, organized by ICCROM's **FAR - First Aid and Resilience for Cultural Heritage in Times of Crisis** programme and generously supported by the Swedish Postcode Foundation. Held between 25 – 27 March 2024, this three-day event was the culmination of ICCROM's pioneering capacity development project, **Net Zero: Heritage for Climate Action**.

The conference showcased transformative heritage-based climate action undertaken at five heritage places – Jodhpur, India; Kasese, Uganda; Rashid, Egypt; Ubatuba, Brazil; and Tuti Island, Sudan – affected by intersecting disasters and social tensions driven by environmental stresses, among other causes.

Supported by scientific research and enriched further with location-specific Indigenous and traditional knowledge, as well as the lived experiences of local communities, the conference's compelling discussions aimed to shed light on the intricate relationships between climate change, disasters, conflicts and heritage. Through this exploration, ICCROM sought to identify climate-related risks to heritage and people, and to understand how community-held traditional knowledge and practices can help mitigate these risks.

Discussions held during the conference extended to promoting equitable and inclusive approaches to reducing emissions, while addressing conflicts arising from the scarcity of natural resources.

Over 1,400 attendees from 122 countries, including 41 thought leaders, policymakers, Indigenous knowledge holders, and professionals from more than 20 fields, joined these crucial discussions. By blending scientific insights with Indigenous wisdom and community experiences, the conference highlighted the need for incorporating culture into climate action.

The conference featured insightful panel discussions, engaging story circle workshops, dynamic ignite talks and multimedia presentations, fostering vibrant cross-disciplinary exchange of knowledge and ideas.

Specific conference objectives included:

- **Highlighting key findings**

Showcase concrete evidence from the five innovation sites, demonstrating how cultural heritage can be leveraged for effective climate action.

- **Disseminating tools and strategies**

Gather and disseminate tools and innovative strategies for climate risk management, stimulating further research and collaboration in the field.

- **Sharing best practices**

Present exemplary approaches for assessing climate risks to heritage and associated communities.

- **Engaging stakeholders**

Integrate culture-based climate action into local, regional and national climate adaptation plans by involving policymakers, community leaders, and practitioners from diverse fields.

Background

An existential threat to life on Earth, the climate crisis is widespread and intensifying. There has been a significant rise in heatwaves, droughts, wildfires, floods and cyclones, indicating our increasing vulnerability and exposure to disaster risk. The unprecedented rise in sea levels is threatening most coastal settlements – cities like Alexandria and Venice could disappear forever. Environmental stresses caused by climate change contribute to food insecurity, displacement and unemployment, thereby feeding into the root causes of an existing conflict or giving rise to new tensions. Climate change, therefore, must be seen as a complex problem that has intertwined social, cultural, environmental and economic underpinnings. Climate change has become one of the primary threats to culture. Culture and heritage shape our perceptions of and responses to climate change and the environmental variability it brings. However, major global approaches have been slow to recognize the influence of culture and heritage on climate action.

In 2022, ICCROM's FAR programme conducted a systematic study to explore how culture and heritage could contribute to equitable climate action and disaster risk reduction through its [Climate.Culture.Peace](#) initiative. This first-of-its-kind cross-sectoral conference on the intersections between culture, climate change, peace and disaster resilience, highlighted several key findings. It demonstrated a lack of on-the-ground mechanisms, partnerships, training, and tools necessary to build capacities among heritage decision-makers and practitioners in developing community-led approaches for collecting place-specific knowledge and identifying climate-related vulnerabilities and capacities related to heritage recognition. To address existing gaps and build on the findings of the [Climate.Culture.Peace](#) initiative, ICCROM's FAR



Gojino women making handicrafts, Kerman, Iran. Soucre-Nina Aminzadeh

Building a Globally Applicable Foundation for Heritage-Based Climate Action

programme launched the **Net Zero: Heritage for Climate Action** project. This cascading capacity-building initiative, which spanned 30 months, engaged multidisciplinary teams of professionals and community leaders. The project aimed to deepen the understanding of how climate change affects both tangible and intangible heritage, while field-testing integrated strategies for climate action and disaster risk reduction.

Recognizing the potential of local and Indigenous knowledge for adapting to a changing climate, the Net Zero project teams actively engaged local communities and Indigenous groups at their respective project sites. These include the historic city dwellers and stonemasons in Jodhpur, India; the Bakonzo people in Kasese, Uganda; Quilombolas in Ubatuba, Brazil; fishermen and farmers in Rashid, Egypt; and Taya practitioners in Tuti Island, Sudan. This project aimed to strengthen the disaster resilience and coping capacities of local communities, and protect cultural heritage, reduce carbon emissions, uphold cultural rights and promote sustainable development.

Exciting outcomes have emerged from the Net Zero: Heritage for Climate Action project, which were analyzed and discussed across different panels of the Heritage-Based Climate Action conference. These outcomes include:

- **Jodhpur City Heat Action Plan | India**

Integration of traditional knowledge and practices to cope with extreme heat.

- **Kasese's Flood Mitigation | Uganda**

Planting of native species for flood mitigation and carbon sequestration.

- **Rashid's Soil Fertility Initiative | Egypt**

Enhancing soil fertility to combat food insecurity, combined with an early warning system for floods and storms, rooted in traditional knowledge.

- **Ubatuba's Emergency Preparedness | Brazil**

Development of a prototype for seed banks and enhancement of emergency preparedness for exposed populations.

- **Tuti Island's Flood Risk Management | Sudan**

Documentation of traditional knowledge and its intergenerational transfer for a sustainable community-led flood risk management and early warning system.

- **Capacity Development Model**

Establishing a model for capacity development, engaging traditional knowledge holders and local communities in implementing integrated action to safeguard heritage, enhance adaptive capacities, and reduce emissions while promoting social cohesion.

- **Climate Risk Assessment for Heritage**

Development of a field-tested method for assessing climate risks to all forms of heritage.

Using the positive outcomes of the Net Zero project, the Heritage-Based Climate Action conference aimed to shape broader policies and practices. It brought together a diverse group of partners, visionaries, policy influencers, hands-on practitioners, and the dynamic voices of community and youth leaders. The conference embarked on a transformative journey, navigating pivotal discussions that seamlessly blended scientific insights, Indigenous wisdom, and community experiences.

Conference Partners

The Heritage-Based Climate Action conference was a participatory initiative aimed at building and sharing knowledge. It showcased innovative strategies for heritage safeguarding, disaster risk reduction and peacebuilding, with the support of eight technical partners from the Net Zero project, spanning Brazil, India, Indonesia, Malaysia, Guatemala, and Kiribati:

- Casa K'ojom, Guatemala
- Leadership for Environment and Development (LEAD), India
- Confederation of Risk Reduction Professionals (CRRP), India
- The School of Architecture of Federal University of Minas Gerais (UFMG), Brazil
- Local Governments for Sustainability – South American Secretariat (ICLEI), Brazil
- U-INSPIRE Alliance

Active contributions were made by organizations from the project's five innovation sites, including:

- Green, Resilient, Risk-Informed Development (GRRID) Corps
- The State University of Campinas (UNICAMP)
- Sudan Urban Development Think Tank (SUDTT)
- The Cross-Cultural Foundation of Uganda (CCFU)
- The Egyptian Heritage Rescue Foundation (EHRF)

The conference engaged the existing network of **Climate.Culture.Peace**, which comprised 55 institutions representing six sectors from 31 countries. These partners facilitated cross-disciplinary exchanges, invited participation from their respective countries, and disseminated conference results to enhance the recognition of heritage preservation within climate action, disaster risk management, and peacebuilding policies and practices. The network of ICCROM-FAR's 2,000 cultural first aiders ensured diverse participation.

Additionally, ICCROM invited national and regional government representatives from the five sites of the **Net Zero** project, along with relevant international agencies, to establish avenues for collaborative efforts in upscaling culture-based climate action.





Tarir Square, Cairo, Egypt. Source: Alia Nassar

2 Findings and Summary of Discussions

Day 1

Conference Partners

Inaugural Session

Panel Discussion | Heritage Conservation Policy in the Context of Climate Crisis

Senator Dr. the Hon Shantal Munro-Knight, Minister of State in the Prime Minister's Office, Barbados

Jyoti Hosagrahar, Deputy Director for the World Heritage Centre at UNESCO

Alexandra Xanthaki, United Nations Special Rapporteur in the field of cultural rights, The Office of the High Commissioner for Human Rights (OHCHR)

Shatha Al Mulla, Acting Assistant Undersecretary of Arts and Heritage, Ministry of Culture, United Arab Emirates (UAE)

Lynn Meskell, Penn Integrates Knowledge (PIK) Professor in Anthropology Professor of Historic Preservation (Weitzman School of Design)

Panel 1 | Integrated Strategies for Heritage Safeguard, Climate Action, Disaster Risk Reduction and Peacebuilding

Introduction to the **Net Zero: Heritage for Climate Action** project

Soil Fertility and Emergency Preparedness Initiative, **Rashid**, Egypt

Culture-Based Adaptations and Heat Action Plan, **Jodhpur**, India

Q&A from the audience

Flood Risk Mitigation and Peacebuilding, **Kasese**, Uganda

Community-led Early Warning System and Flood Risk Management, **Tuti Island**, Sudan

Food Security and Emergency Preparedness, **Ubatuba**, Brazil

Q&A from the audience

Stakeholder roundtable Panel Facilitators

Panel 2 | Call to Action - Mainstreaming Cultural Heritage Safeguarding for Disaster Risk Reduction, Climate Action and Peacebuilding

Introduction to the panel Panel Facilitators

Ikal Angelei, Co-founder and Director of Friends of Lake Turkana

Emmanuel Raju, Director, Copenhagen Centre for Disaster Research- inter-institutional research center (COPE)

Alessia Strozzi, Expert in Heritage Emergency Management, Facilitator, Senior Conservator

Q&A from the audience

Johanna Leissner, Scientific Representative for Fraunhofer; Chair of EU OMC Group "Cultural Heritage Resilience for Climate Change"

Jim Perry, HT Morse Distinguished University Professor, University of Minnesota and Director, Wildlife Care and Handling (WCH)

Elke Selter, Programs Director, ALIPH Foundation

Q&A from the audience

Heritage Conservation Policy in the Context of Climate Crisis

“ It is crucial that we bring culture practitioners into the climate negotiations and policymaking processes to ensure comprehensive and effective solutions. ”

Senator Dr. the Hon Shantal Munro-Knight, Minister of State in the Prime Minister's Office, Barbados

The conference was inaugurated by an esteemed panel of leaders, scholars and policymakers who discussed the integration of heritage conservation into climate action policies. Notable speakers included:

- Senator Dr. the Hon Shantal Munro-Knight, Minister of State in the Prime Minister's Office, Barbados
- HE Ms. Shatha Al Mulla, Acting Assistant Undersecretary, Minister of Culture, United Arab Emirates
- Alexandra Xanthaki, United Nations Special Rapporteur in the field of cultural rights, OHCHR
- Dr. Jyoti Hosagrahar, Deputy Director for the World Heritage Centre at UNESCO
- Prof. Lynn Meskell, Penn Integrates Knowledge (PIK) Professor in Anthropology and Professor of Historic Preservation

This inaugural panel of the conference aimed to clarify the future direction of heritage conservation policies in response to the climate crisis. It focused on how these policies should be shaped to support climate change mitigation and adaptation efforts at both national and international levels, particularly for ICCROM member states directly affected by climate change.

The panel highlighted key actions required to integrate concerns for safeguarding cultural heritage within national climate adaptation and disaster risk management plans.

Discussion highlights are summarized below:

- Cultural heritage is increasingly vulnerable to climate change impacts such as extreme weather, rising sea levels and temperature fluctuations, underscoring the urgent need to integrate cultural heritage conservation with climate action, disaster resilience, and sustainable development plans and policies.
- Effective climate strategies must address these risks by incorporating specific measures for protecting historical and cultural assets, knowledge and practices, aligning conservation efforts with broader climate resilience initiatives.
- Engaging local communities and Indigenous groups is essential, as their traditional knowledge and practices offer valuable insights into sustainable resource management and adaptation.
- Adequate funding and innovative resource allocation, including public-private partnerships (PPP) and targeted international grants, are crucial for supporting these conservation measures.
- Cross-sector collaboration among cultural heritage organizations, climate action groups and governmental agencies will enhance the protection of both cultural and environmental resources, ensuring a comprehensive approach to addressing the dual challenges of climate change and heritage preservation.

- **Dr. the Hon Shantal Munro-Knight (S-01-Knight)** emphasized the urgent need to integrate heritage and cultural knowledge into climate-related decision-making. She demonstrated how, in Barbados, the collaboration between farming communities and the Ministry of Agriculture blends traditional knowledge with modern science, using cuscus (*Vetiveria zizanioides*) grass as a sustainable alternative to barrier walls and pavements for combating soil erosion. She called for a paradigm shift in the financing and management of cultural heritage, advocating for a more inclusive approach that incorporates culture practitioners into climate negotiations and policy development.
- **Dr. Jyoti Hosagrahar (S-01-Hosagrahar)** highlighted the crucial role of heritage sites in monitoring climate change impacts. She showcased how traditional water management systems and building techniques from World Heritage Sites, like Algeria's Tassili n'Ajjer, provide sustainable solutions for resource sharing, flood management and low-carbon construction. She emphasized the need to preserve these practices to reduce vulnerability and enhance community resilience. Dr. Hosagrahar also highlighted the importance of engaging local communities and cultural professionals in climate action, integrating heritage-based solutions into local contexts and ensuring that future generations benefit from preserved cultural knowledge. Additionally, she underscored the significant role of heritage in coping with and recovering from climate-induced shocks and disasters, underscoring its value in both immediate response and long-term resilience.
- **Prof. Alexandra Xanthaki (S-01-Xanthaki)** advocated for more inclusive heritage and climate action policies that identify and protect rights to cultural practices, consistent with states human rights obligations, and noted that many such practices that are under threat can meaningfully contribute to climate adaptation and mitigation efforts. She highlighted that, although significant attention has been given to tangible cultural heritage sites, it is equally important to address the rights to intangible cultural practices, which are vital for community identity and survival. Xanthaki noted that climate change disproportionately affects particular groups, such as those in Small Island Developing States (SIDS) and Indigenous communities. She underscored the necessity of collecting community-specific damage and loss data to effectively understand and respond to these impacts. It is essential, she emphasized, that a cultural rights approach is adopted in the protection of cultural heritage, tangible and intangible that prioritizes the free, prior and informed consent and the effective representation of local populations.
- Endorsing the themes and agenda of ICCROM's Heritage-Based Climate Action conference, **H.E. Shatha Al Mulla (S-01-Mulla)** explained how the United Arab Emirates (UAE) Ministry of Culture is tackling the unique challenges climate change presents to cultural heritage. She detailed the UAE's leadership in shaping climate action policies at the international level through COP 28, in collaboration with 35 countries and five international organizations. This initiative aimed to build international consensus on bridging the gap between culture and climate change, focusing on both mitigation and adaptation. She explained that the catalyst for their action was a clear recognition of the multifaceted challenges faced—not only environmental, financial and scientific, but also cultural. Despite previous calls to recognize the intersection of culture, heritage and climate change, it has largely been overlooked.
- **Prof. Lynn Meskell (S-01-Meskell)** discussed how AI and open-source data can be leveraged to identify and prioritize the needs of vulnerable populations and their heritage in conservation and climate change policies. She expressed concern about the exclusion of marginalized groups in climate adaptation and heritage conservation efforts, particularly those whose livelihoods depend on natural resources at heritage sites. Prof. Meskell highlighted the advantages of adopting a more inclusive approach to heritage management, drawing from her research on conflicts at World Heritage Sites and advocating for participatory methods that engage local communities.

Integrated Strategies for Heritage Safeguard, Climate Action, Disaster Risk Reduction and Peacebuilding

Despite their interconnectedness, disaster risk reduction, climate change adaptation and mitigation, and conflict transformation are frequently addressed in isolation. By showcasing the transformative action carried out at the five sites of the Net Zero project, this panel demonstrated how Indigenous and traditional knowledge and practices can be leveraged to develop integrated strategies for heritage safeguard, disaster risk reduction, climate action and sustainable peace. It further identified ways in which we can widely apply such integrated strategies.

Discussion highlights are summarized below:

- **Amira Sadik Aly (S-02-Sadik Aly)** represented the team from Egypt and presented findings from the soil fertility and emergency preparedness initiative in Rashid, a historically rich area where the Nile meets the Mediterranean Sea. Using methodologies from the Net Zero project, the initiative has uncovered Rashid's extensive heritage through historical maps, revealing past land use, community activities and climate change impacts. Rashid's traditional activities—fishing, agriculture and crafts—have long been sustained by the annual floods of the Nile. However, dam construction has disrupted these floods, negatively impacting soil fertility. Climate studies project rising temperatures and decreasing precipitation, leading to water scarcity and coastal erosion, threatening the local population and agriculture. Despite these challenges, Rashid's community has developed adaptive practices guided by the Coptic calendar and traditional knowledge. Participatory workshops with the community of fishermen and farmers, as well as representatives from the local government, have provided essential insights and strategies to address these challenges. Notably, efforts include replanting Sycamore trees and developing a mobile-based early warning system for fishermen, supported by stakeholder involvement and expert collaboration. While funding and sustainability remain challenging, income-generating projects like basketry and furniture-making offer hope for future resilience.
- **Dr. Repaul Kanji (S-02-Kanji)** from the India team showcased the Culture-Based Adaptations and Heat Action Plan initiative in Jodhpur. The initiative aimed to integrate traditional knowledge and Indigenous practices into policy, addressing heat waves, droughts and water stress in Jodhpur city. Engaging a transdisciplinary team and collaborating with stakeholders, including the municipal corporation and local organizations, the project documented oral histories, conducted workshops and studied traditional houses in order to understand their cooling effects and water conservation techniques, and to inform culturally sensitive policies. Dr. Kanji further emphasized the importance of inclusive participation, noting that workshops and participatory games were instrumental in engaging key community members, including women and children. These participants demonstrated a scientific understanding of climate change but needed avenues to translate their knowledge into broader actions.
- **Fredrick Nsibambi (S-02-Nsibambi)** presented the flood risk mitigation and peacebuilding efforts in Kasese, on behalf of the Uganda team. The project focused on a culturally significant waterfall site in Kasese that is important to the Bakonzo community for traditional justice and Indigenous medicine. Climate change-induced flooding from melting snow and increased precipitation poses severe risks to this site. The project leveraged Indigenous knowledge, traditional governance and the role of native trees to address climate impacts. They planted 2,000 tree seedlings along the riverbanks and worked with local authorities and stakeholders such as the Red Cross and Uganda Wildlife Authority to integrate community-based early warning systems. They also facilitated intergenerational dialogues to ensure knowledge transfer from elders to youth. Ongoing efforts include expanding these initiatives to other sites, sharing information through community museums and heritage education clubs, as well as engaging students in internships to investigate the role of culture in climate change mitigation.

- **Maysoon Mustafa Badi and Israa Elgadi (S-02-Badi and Elgadi)** from the Sudan team presented the Heart Project—Heritage Empowered Action for Risk in Tuti—which focuses on community-led early warning systems and flood risk management on Tuti Island in Sudan. Their work, conducted before and during the ongoing armed conflict, aimed to enhance community resilience to extreme weather and climate-related risks as well as the ongoing conflict. Tuti Island, with its rich cultural heritage and traditional flood mitigation practice, TAYA, provided a unique case study. The project documented the island's Indigenous flood management techniques, including lookout points and community engagement, and worked with local and academic stakeholders to integrate these practices into existing disaster risk reduction systems. Despite challenges such as funding and integrating with national systems, the project aims to preserve Tuti's heritage, transfer its knowledge to other communities and address the increasing risks posed by climate change and urban expansion. The team has developed guidelines for flood mitigation and is exploring ways to upscale and apply the TAYA system in other communities, with ongoing efforts to highlight the importance of traditional knowledge and secure additional support.
- **João Paulo Soares Silva (S-02-Silva)** represented the Brazil team and shared their project on food security and emergency preparedness in the Ubatuba Quilombo community, São Paulo, Brazil. The project focused on enhancing community resilience against climate change by leveraging the community's rich traditional knowledge and practices. The Ubatuba Quilombo, a culturally significant area with a diverse ecosystem, faces challenges from intense rainfall, flooding and landslides, exacerbated by urban expansion and conservation restrictions. The project team implemented initiatives such as decentralized seed banks and development of social cartography to map risks and demarcate safe areas in direct collaboration with the local civil defense. They also documented community practices and established a communication channel with municipal authorities. The project aims to sustain these efforts by integrating traditional knowledge into climate adaptation strategies and enhancing community preparedness through ongoing partnerships and infrastructure improvements in Brazil.
- **Alex Kent (S-07-Kent)** introduced the Coastal Connections project, a collaborative initiative between English Heritage and the World Monuments Fund (WMF). The project aims to build a global network that shares best practices in managing coastal heritage sites. The initiative began in response to the collapse of a part of Hurst Castle in England due to a severe storm, highlighting the vulnerability of coastal heritage sites. This event led to the creation of a network designed to address the unique challenges faced by these sites, such as coastal erosion, storm surges and rising sea levels. He also explained how, through monthly workshops, experts share real-world case studies and practical solutions to effectively manage and preserve coastal heritage in the face of climate change.

Stakeholders' roundtable to upscale efforts at five innovation sites of Net Zero

The panel showcasing case studies from the Net Zero: Heritage for Climate Action project was followed by a roundtable discussion with governmental representatives and stakeholders from the case study sites. The roundtable highlighted key challenges, including the lack of hyperlocal climate data, the complexity of scientific information that needs expert interpretation, and difficulties collaborating with communities and agencies to sustain efforts. Participants explored solutions and strategies for effectively addressing these issues. Refer to the summary below.

- **Dr. Hisham El Gahal (S-02-ElGahal)** from the People's Assembly in Burj Rashid highlighted his efforts in supporting the planting of over 45 sycamore trees to combat aridity and the salinization of agricultural lands, and to contribute to the reduction of the urban heat island effect while preserving the community's cultural heritage. He also tackled the critical issue of the lack of a sewage system, which was highlighted through a participatory Vulnerability and Capacity Assessment (VCA) conducted under ICCROM-FAR's Net Zero project in Rashid. By incorporating the community's risk perspectives, he is working on implementing environmentally friendly sewage systems, which have already brought benefits to local farmers and fishermen.
- **Dr. Faith Chivava (S-02-Chivava)** underscored the successful partnership between the meteorological department and the project team in Sudan in obtaining scientific data to assess climate-related risks to people and heritage in Tuti Island, Sudan. She stressed the crucial role of documenting Indigenous early warning systems and integrating them with scientific forecasts from the meteorological department. This approach enhances risk assessment and policy development, supporting the creation of impact-based forecasting that considers the potential effects of extreme weather events on communities.
- **Mr. Khaled Hamada (S-02-Hameda)**, a fisherman from Rashid, shared his perspective on how an early warning application currently in development could benefit fishermen in Rashid. He noted that accurate, localized climate information from the application could help prevent boat accidents in the Mediterranean Sea and reduce loss of lives and livelihoods.

Mainstreaming Cultural Heritage Safeguarding for Disaster Risk Reduction, Climate Action and Peacebuilding

“ Our approach must evolve to include criteria that address the interlinkages between conflict, culture, heritage, and climate change, to better support long-term resilience and sustainability. ”

Dr. Elke Selter, Programs Director, ALIPH Foundation

This theme-setting panel emphasized the diverse connections between heritage protection, climate action, disaster risk reduction, and peacebuilding. The panel identified concrete strategies to incorporate cultural heritage considerations into broader policies and programmes for climate change adaptation, disaster risk reduction, and peacebuilding, by engaging thought leaders, policy advisors, scientists, and experts from various sectors. **A summary of this discussion is detailed below:**

- **Dr. Johanna Leissner (S-03-Leissner)** provided an overview of the European Union's Open Method Coordination (OMC) group, which unites 25 European Member States and three associated countries to address climate change impacts on cultural heritage. She highlighted that the group's initiatives have raised awareness and spurred actions to safeguard cultural heritage. One such example is the integration of World Heritage Sites into Germany's national adaptation strategy. Dr. Leissner noted that while research is vital for scaling initiatives, economic factors and community involvement are also essential for success.
- **Dr. Emmanuel Raju (S-03-Raju)** emphasized the importance of cross-sectoral collaborations, research and initiatives to tackle the complex challenges climate change poses to cultural heritage. He pointed out that heritage is often viewed homogeneously, overlooking the disproportionate effects on marginalized communities. Dr. Raju also highlighted the importance of memory and memorialization, using the example of a clock in Sri Lanka marking a tsunami to show that heritage should be considered beyond just physical restoration. He called for global efforts to protect cultural heritage, pointing out the lack of practical examples and the need for sustainable approaches despite advocacy from influential organizations like UNESCO. He urged greater focus on integrating cultural heritage into climate change and disaster management plans, stressing the importance of addressing the needs of affected communities.
- **Alessia Strozzi (S-03-Strozzi)** introduced the concept of complex systems, drawing from Donella Meadows' Thinking in Systems to better understand the intricate issues related to climate change. She emphasized how complexity theory offers a deeper insight into the interconnections between disasters, conflicts and climate change. She emphasized that understanding complexity means recognizing the paradoxes and interconnections within systems.

- **Dr. Elke Selter (S-03-Selter)** highlighted the ALIPH Foundation's focus on projects in active conflict zones and regions recovering from recent conflicts such as Ukraine, Syria, and Iraq. She pointed out that despite the urgent nature of these projects, climate change has not been a major concern for their grantees. Immediate emergencies take precedence, leaving limited attention to long-term climate impacts. Traditionally, sustainability evaluations have concentrated on social aspects rather than environmental concerns. However, as the organization enters its sixth year, it is starting to integrate climate change, sustainability and risk reduction into its projects. Dr. Selter emphasized the need to enhance collaboration, facilitate knowledge exchange and adopt a multi-dimensional approach to effectively incorporate cultural heritage into climate action and disaster management.
- **Jim Perry (S-03-Perry)** advocated for updating the criteria used to designate heritage sites to reflect evolving landscapes. He underscored the importance of transparency and accountability in heritage management. To improve understanding of adaptive heritage, he proposed national and regional workshops for site managers, emphasizing the need for stakeholder involvement and adaptable action plans. Mr. Perry also highlighted the importance of collaborating with organizations such as ICCROM and UNESCO to acknowledge changing landscapes, leveraging social media for awareness and empowering managers to lead adaptive heritage initiatives.
- **Ana Gabriela Monroy (S-07-Monroy)** focused her presentation on climate change adaptation and disaster risk reduction in the Talamanca Range-La Amistad National Park, which spans Costa Rica and Panama. Her research explored how governance and stakeholder engagement impact climate adaptation in this diverse and ecologically sensitive region. Ms. Monroy highlighted the challenges posed by climate-induced disasters like floods and landslides, noting the lack of resources for early warning systems and the difficulty of managing these remote areas. She emphasized the importance of integrating local and Indigenous knowledge into decision-making processes and bridging the gap between global climate frameworks and local practices. Ms. Monroy also discussed the need for proactive strategies and inclusive governance to address both environmental and community needs effectively.

Day 2

Story Circle | Lifeways and Cultures around Nile – Rashid, Egypt and Tuti Island, Sudan

Panel 1 | Transcending Disciplinary Boundaries for Training and Education

Roxy Mathew Koll, Climate Scientist, Centre for Climate Change Research, Indian Institute of Tropical Meteorology

Sanjaya Bhatia, UNDRR, Incheon Office

Erminia Sciacchitano, Advisor for Multilateral Relations for the Ministry of Culture, Italy

Elly Harowell, Assistant Professor, Centre for Trust, Peace and Social Relations, Coventry University

Q&A from the audience

Mshai Mwangola, Performance Scholar and Peacebuilder, Kenya

Monika Kuffer, Associate Professor, Faculty of Geo-Information Science and Earth Observation - ITC, University of Twente

Jack Beard, Hydrologist, Consultant and Researcher, FutureWater

Coert J Geldenhuys, Forest Ecologist, FORESTWOOD

Q&A from the audience

Story Circle | Indigenous Knowledge on Climate Adaptation from Kasese, Uganda to Ubatuba, Brazil

Panel 2 | Ignite Talk

Topic 1 | Tracking loss and damage to tangible and intangible cultural heritage in the face of climate change

Topic 2 | Indigenous knowledge, traditional practices and worldviews – A source for transformative climate action

Topic 3 | An integrated approach towards disaster risk reduction, peacebuilding and climate action

Topic 4 | Eco-sensitive conservation and sustainable craft practices

Panel 3 | Tracking Loss and Damage to Cultural Heritage in the face of Climate Change

Interactive group discussion to identify gaps and challenges

Climate Risk Management for Cultural Heritage, Sanjay Srivastava, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

Climate Risk Assessment in Country Operations, Natasha Kuruppu, The Asian Development Bank

Paul Lankester, Climate Resilience Lead, English Heritage

Q&A from the audience

The Risk Mapping Tool for Cultural Heritage Protection, Alessandra Bonazza, National Research Council of Italy

Sustainable Future for Built Heritage on Nantucket, Rohit Jigyasu, Project Manager in Urban Heritage, Climate Change & Disaster Risk Management, ICCROM

Q&A from the audience

Presentation on ICCROM-FAR's upcoming tool on comprehensive climate risk assessment for heritage

Transcending Disciplinary Boundaries for Training and Education

“ **As professionals, we must abandon the notion that our knowledge is objective and evidence-based while the community's knowledge is not, and instead embrace the fact that communities are the first custodians and often the first victims of changes to their heritage.** ”

Mshai Mwangola, Performance Scholar and
Peacebuilder

The root causes of climate change extend beyond carbon emissions, involving resource extraction, deforestation and water pollution. It is a complex issue with scientific, economic, social, cultural and moral dimensions. To address the impacts of climate change on heritage, and to use heritage to promote climate action, changes in education and training are essential along with a transdisciplinary approach.

This panel brought together climate scientists, heritage professionals, ecologists and disaster risk management and peacebuilding specialists, along with policy advisors, to identify innovative pathways to transcend disciplinary boundaries and update existing education and training, especially for heritage professionals.

- **Jim Perry** (S-04-Perry) discussed the concept of adaptive heritage, advocating for managing heritage sites within their broader landscape context. He emphasized the importance of stakeholder engagement and dynamic management approaches to address evolving site conditions.
- **Dr. Roxy Matthew Koll** (S-04-Koll) highlighted the role of traditional knowledge in climate adaptation. He provided examples from India, where traditional practices are being modernized to address water scarcity and stressed the need to quantify and scale up these practices globally.
- **Prof. Coert J. Geldenhuys** (S-04-Geldenhuys) discussed how traditional knowledge and practices of sustainable resource use contribute to conserving forests and woodlands. He emphasized the need for collaboration and learning from local communities to ensure effective conservation efforts.
- **Dr. Monica Kuffer** (S-04-Kuffer) discussed urban deprivation in Asia, Africa, and Latin America, focusing on slums and informal settlements, which are often overlooked in official analyses. She highlighted how these areas, despite negative perceptions, are crucial for adapting to climate challenges, as evidenced by communities in Lagos. Dr. Kuffer emphasized the role of geospatial models in understanding vulnerabilities and crafting solutions, especially in data-scarce regions. She also stressed the importance of training young people in heritage preservation and climate resilience and highlighted the essential role of technology and scientific data in addressing climate challenges and mitigating risks.
- **Jack Beard** (S-04-Beard) underscored the importance of incorporating traditional knowledge and practices in freshwater conservation into water management projects and plans. He emphasized that water management must consider local contexts due to water's integral connection with nature, culture and society. Mr. Beard shared a case study from Norfolk, United Kingdom, where projects on restoring traditional water features like ponds significantly improved groundwater balance and water access, showcasing the value of traditional practices. He highlighted the need for advocacy to help communities recognize the importance of these water systems and adapt to changing conditions.

- **Mshai Mwangola** (S-04-Mwangola) emphasized prioritizing community-driven approaches in heritage and climate initiatives. She advocated for shifting from a top-down, professional-led model to one guided by the community's agenda and priorities. This shift involves recognizing the value of community histories, heritage and culture, and working collaboratively with local experts. Ms. Mwangola highlighted the importance of humility and understanding diversity within communities, advocating for fostering relationships based on negotiation and collaboration. She also discussed the dynamic nature of culture and heritage, as well as the necessity of adaptive practices to accommodate varied community interests and perspectives for successful outcomes.
- **Dr. Sanjaya Bhatia** (S-04-Bhatia) highlighted the need for comprehensive training and education for professionals, community leaders and policymakers to enhance cultural heritage preservation. He showcased the United Nations Office for Disaster Risk Reduction's knowledge management tools, including the Cultural Heritage Scorecard, which supports the development of culture-based and people-centered disaster risk reduction and resilience strategies, integrated with cultural heritage and development policies. Dr. Bhatia emphasized the integration of traditional knowledge into climate science education, highlighting place-based learning as a key approach. He noted that storytelling has emerged as a powerful tool for conveying complex ideas and engaging diverse audiences effectively. He advocated for broadening educational resources, integrating historical context and using storytelling to engage diverse audiences and bridge disciplinary gaps.
- **Dr. Elly Harrowell** (S-04-Harrowell) discussed the complex interplay between climate action, peacebuilding and cultural heritage safeguarding. She highlighted how climate change and conflict intersect, noting the significant carbon footprint of global militaries and the disproportionate impact on marginalized communities. Dr. Harrowell emphasized that cultural heritage can be a resource for addressing these issues by fostering local engagement and grounding responses in the affected communities' perspectives. She also cautioned that heritage can be misused to exclude or harm, underscoring the need for conflict sensitivity training for heritage professionals. Listening to communities and prioritizing deep listening in heritage practice were identified as crucial for addressing the climate crisis and promoting sustainable peace.
- **Dr. Erminia Sciacchitano** (S-04-Sciacchitano) discussed the European Heritage Skills Alliance's efforts to address skill gaps in the cultural heritage sector, focusing on the need for a circular value chain model and better integration of craft skills. She highlighted the work of a consortium of 47 partners developing a European strategy for cultural heritage professions, aligned with initiatives like the Green Deal and New European Bauhaus. A key finding was the identification of significant skills gaps and a shortage of trained professionals across Europe. Dr. Sciacchitano emphasized addressing these gaps by focusing on core competencies in six key areas: recognition, preservation, safeguarding, engagement, research, and policy-making. Additionally, she stressed the importance of closer collaboration between craft skills and academic heritage professionals, as well as enhancing partnerships with creative industries, archives, libraries and audiovisual sectors.

Tracking Loss and Damage to Cultural Heritage in the Face of Climate Change

This panel presented tools and methods for understanding the impacts of climate change, including assessing loss and damage to tangible and intangible heritage. Discussions in this session helped identify ways to unify existing methods and tools for improved climate risk management within the heritage sector.

Presentations that helped identify existing methods and tools for enhancing climate risk management within the heritage sector include the following:

- **Dr. Paul Lancaster** (S-06-Lancaster) from English Heritage presented their project, Climate Heritage Impact Pilot. This initiative was designed to assist heritage professionals in understanding and quantifying the impact of climate change on their sites and institutions. He outlined the practical steps involved in assessing climate impacts, including mapping climate drivers and conducting risk assessments for selected heritage sites. Dr. Lancaster highlighted the importance of analyzing site-specific data to gauge the exposure and vulnerability of both buildings and collections. He cited concerns such as mold growth and rising dampness as critical issues to address. Through detailed case studies of Walmer Castle and Deal Castle in Kent, England, Dr. Lancaster illustrated how various sites encounter risks even when exposed to similar climate threats. A lack of consideration for intangible cultural heritage was highlighted as a key limitation of the current methodology. He concluded by stating that addressing this gap will be essential for comprehensively evaluating all aspects of heritage impacted by climate change.
- **Dr. Alessandra Bonazza** (S-06-Bonazza) introduced a risk-mapping tool designed by the National Research Council of Italy to protect cultural heritage from climate change impacts. This tool integrates climate models with Earth observation data to identify risk areas and vulnerabilities across Europe and the Mediterranean. It focuses on extreme climate events to predict future risks, and supports local decision-making for disaster management. The tool, which is still under development, features a dynamic system that can be updated with new data and scenarios. Dr. Bonazza shared results from a case study in Austria's Vaka Valley, showcasing increased future precipitation events and the tool's role in shaping Italy's National Plan of Adaptation to Climate Change. Her work aims to bridge research and policy by providing actionable data for heritage protection.
- **Dr. Rohit Jigyasu** (S-06-Jigyasu) discussed climate risk assessment for historic buildings on the island of Nantucket, East Coast, USA. He described a methodology for evaluating climate risks, considering geographical, environmental and demographic factors. The project focuses on historic structures vulnerable to sea-level rise, flooding and erosion. Dr. Jigyasu emphasized the importance of integrating climate data with on-the-ground observations to develop sustainable preservation strategies. He advised against relying solely on technical solutions and advocated for nature-based approaches to mitigate risks to cultural heritage. To ensure the project's sustainability, he recommended integrating risk assessments with ongoing monitoring to adapt strategies and track changes over time.

- **Dr. Repaul Kanji** and **Mohona Chakraborty** (**S-04-Kanji** and **Chakraborty**) presented ICCROM's upcoming climate risk assessment tool, which aims to integrate open-source data with community-held knowledge and oral histories, building on insights from the Net Zero: Heritage for Climate Action project. This tool will help heritage professionals understand climate-related risks to people and heritage while leveraging their knowledge for integrated solutions. Developed through collaborative workshops with diverse professionals worldwide, the tool seeks to deconstruct and simplify climate science concepts, interpret relevant climate data and develop multi-hazard scenarios based on projections from the latest IPCC report. It will be field-tested, aiming to provide a comprehensive and adaptable methodology that capitalizes on existing tools.
- **Hajar al-Beltaji** (**S-05-AlBeltaji**) demonstrated how virtual reality (VR) can enhance the experience and memory of architectural heritage sites. She conducted a study comparing participants' episodic and spatial memory of a historic Islamic Cairo building, both in its physical form and through a VR simulation. Her research indicated that, while VR significantly improved immediate recall of details and spatial orientation, it was less effective for delayed recall of previously learned information. Ms. al-Beltaji emphasized that the interactive, multi-sensory nature of VR contributes to better memory retention, suggesting that VR could be a valuable tool for experiencing and preserving cultural heritage, especially for deteriorating or lost sites.
- **Maria Elisa Nobili** (**S-05-Nobili**) presented her master's thesis research on Brembana Valley in Lombardy, Italy, a region facing depopulation and climate change impacts. The valley's economy, rooted in agriculture, forestry and dairy production, and with traditional dry stone construction techniques, is threatened by erosion and landslides. Ms. Nobili highlighted a multi-year strategy developed by local institutions and cultural organizations to preserve these traditional techniques while addressing depopulation. To prevent further land degradation, the project combines training for young builders with the restoration of these abandoned sites, including agricultural terraces. This initiative highlights the intersection of economic development at a local level, cultural preservation, and climate resilience.
- **Shuangyang Qi** (**S-05-Qi**) outlined the challenges faced by the Dabu Stone Carvings in Chongqing, China, a significant example of Buddhist art from the Tang and Song dynasties and a World Cultural Heritage site since 1999. Located in a subtropical monsoon climate, these carvings have been significantly affected by recent climate changes. Mr. Qi highlighted the increasing risks from extreme temperatures and precipitation, which have led to accelerated weathering, including erosion, cracking and biological damage. The presentation detailed how the combined effects of climate change and the area's geographical conditions have exacerbated these issues. He further emphasized the urgent need for comprehensive management strategies to address water damage and other climate-related threats, and to preserve these invaluable cultural artifacts.
- **Nehir Arslan** (**S-05-Arslan**) showcased the impact of climate change on the intangible cultural heritage of Bonaire, a municipality of the Netherlands. Bonaire faces challenges such as rising temperatures, sea level rise and extreme weather events, which are affecting traditional practices and cultural celebrations on the island. For example, climate change is damaging coral reefs and putting traditional fishing techniques at risk. Similarly, the Simadan Harvest Festival, an important cultural event, may be hard to sustain and continue if farming conditions worsen. Ms. Arslan highlighted a recent effort by Bonaire's residents to address these issues through legal channels and expressed hope for a positive resolution to benefit the island's environment and its cultural traditions.

Day 3

Panel 1 | Climate Change, Culture and Peace in Small Island Developing States

Resilient Heritage, Kara Roopsingh, Senior Heritage Preservation and Research Officer
National Trust of Trinidad and Tobago

The establishment of a sustainable tourism management system for biodiversity
conservation and sustainable development, Cheyenne Chang-Yunn, Seychelles

Implications of Climate Change on Culture and Nature Conservation, Meio Dia Sepa
Maria Ié Có, Vallée de Mai, Bijagos, Guinea-Bissau

Q&A from the audience

Story Circle | Harnessing Traditional Wisdom for Climate Resilience in Jodhpur, India

Panel 2 | Under the Talking Tree - Intergenerational Dialogue on the Use of Indigenous and Traditional Knowledges for Innovation in Heritage Conservation, Climate Action and Disaster Risk Reduction

Panel 2 | Stream 1 – Indigenous and Traditional Wisdom on Sustainable Use of Natural Resources and Importance of Traditional Craft Practices for Climate Action and Livelihood Sustainability

Restoring ocean life, Paul Antion, Madagascar

Traditional water conservation through stone walling, Wilfredo Vidal Alangui, Philippines

Food preservation and traditional farming, João Paulo Soares Silva, Ubatuba, Brazil

Vernacular architecture for heat mitigation, Repaul Kanji, Jodhpur, India

Q&A from the audience

Panel 2 | Stream 2 – Indigenous and Traditional Wisdom for Disaster Preparedness and Response

Early warning systems of the Indigenous Kankanaey, Dr Marjorie Balay-As, Philippines

Community-led flood mitigation and early warning, Israa Elgadi, Tuti Island, Sudan

Flood and landslide mitigation by Bakonzo community, Aliguma Ahabyona, Kasese, Uganda

Early Warning Mobile App with Coptic Calendar Symbols, Amira Sadik Aly, Rashid, Egypt

Q&A from the audience

Climate Change, Culture and Peace in Small Island Developing States

“ The downtown Port of Spain in Trinidad and Tobago faces heavy rain and flooding every year. While there is extensive discussion about infrastructure and drainage in policy and national plans, I noticed a lack of focus on heritage and historic sites. These should be addressed differently, as they are distinct from other infrastructure. ”

– Dr. Kara Roopsingh, Senior Heritage Preservation and Research Officer, National Trust of Trinidad and Tobago

Small Island Developing States (SIDS) and coastal settlements are highly vulnerable to a range of climate-related challenges. Rising air and ocean temperatures are intensifying hurricanes and generating more powerful storms, which damage tangible cultural heritage, such as buildings, monuments and archaeological sites, as well as the vital ocean and marine resources that support local economies. This panel highlighted ongoing efforts in SIDS, identified both strengths and gaps, and emphasized the importance of integrating climate science with local and Indigenous knowledge to build resilience against climate impacts.

Discussions from Trinidad and Tobago, Seychelles, and Antigua and Barbuda highlighted best practices and pathways for adaptation and resilience. Their impactful talks are summarized below.

- **Dr. Kara Roopsingh (S-06-Roopsingh)** shared results from the Resilient Heritage project, which targets climate change impacts in Trinidad and Tobago. Funded by the US Ambassador's Fund for Cultural Preservation (AFCP), the initiative focuses on two pilot sites: Port of Spain and Nelson Island. The project aims to create a replicable methodology for preserving and adapting heritage sites in the face of climate change. It engages the public and stakeholders to raise awareness and utilizes digital documentation, risk assessments, photogrammetry, laser scanning, and GIS mapping for documenting and assessing the condition of heritage sites. Dr. Roopsingh highlighted that while climate adaptation efforts frequently overlook heritage sites, this project seeks to bridge that gap by ensuring that historic places are included in climate adaptation strategies.
- **Cheyenne Chang-Yunn (S-06-Chang-Yunn)** presented a project supported by UNESCO and the Netherlands in Vallée de Mai, Seychelles. The initiative aimed to integrate sustainable tourism with cultural and environmental preservation. The Vallée de Mai World Heritage Site is renowned for its rich biodiversity and vital ecological processes that support the island's biodiversity and water catchment system. However, in the past decade, it is increasingly affected by forest fires, droughts, and heavy rainfall. This has led to a diminished tourism experience, which is crucial to the island's economy. Ms. Chang-Yunn shared how the project is enhancing tourism through advanced data collection, digital monitoring and citizen science, while ensuring that more than 90 per cent of services are locally sourced. She emphasized the involvement of young students and researchers in data collection and monitoring efforts related to biodiversity and cultural heritage. Additionally, she outlined the visitor management plan, which includes measures for emergency preparedness, especially for forest fires. This was achieved through partnerships with environmental sectors and fire rescue services, and by developing prevention and response capabilities through targeted stakeholder training.
- **Christal Clashing (S-06-Clashing)** highlighted her ongoing efforts to advance cultural preservation and environmental storytelling in SIDS, with a particular focus on Indigenous populations. She leverages cutting-edge technologies like haptic sensors, augmented reality (AR), AI, and projection mapping to create engaging, audience-centric storytelling experiences. Ms. Clashing also introduced a new project involving interactive installations designed to enhance historical and museum sites. She expressed enthusiasm for this innovative approach, which aims to make historical narratives more engaging and accessible.

Indigenous Knowledge, Traditional Practices, and Worldviews – A source for transformative climate action, disaster risk reduction and peacebuilding

Indigenous worldviews provide profound insights and strategies for tackling urgent global challenges, including climate change. By creatively applying traditional crafts, vernacular architecture and Indigenous knowledge of natural resource management, we can forge a resilient future and support the goal of achieving net zero emissions. Additionally, Indigenous practices and community-based approaches are crucial for enhancing disaster preparedness and minimizing impacts on people and heritage.

Through an open interaction among emerging professionals and Indigenous leaders and/or knowledge bearers, this panel fostered cross-sectoral and intergenerational knowledge exchange on creatively leveraging traditional crafts, vernacular architecture practices, knowledge of natural resource management and community-centered approaches to emergency preparedness and response.

- **Paul Anton (S-07-Anton)** shared his work with the fishing community in Madagascar's northwest coast, whose lives and livelihoods are most impacted due to environmental changes. For the Vezo people of northwest Madagascar, the ocean is integral, but traditional practices are fading, leaving newer generations with a different understanding of past abundance. Increased competition and industrial fishing, compounded by climate events, further threaten their way of life. Despite these challenges, Mr. Anton highlighted the ocean's capacity for regeneration. Through Blue Ventures, he trains local fishers in data collection and analysis, enabling them to manage their fisheries in the face of rising sea levels. The success of these initiatives has sparked a coastal revolution, with more communities adopting conservation practices. He concluded by emphasizing the importance of sharing experiences and successes to foster hope and sustainable futures for fishers and oceans in Madagascar and similar contexts.
- **Wilfred Abela (S-07-Abela)** discussed the rice terraces and natural resource management practices of the Kankana-ey people in the Mt. Province of the Cordillera region, Philippines. This region, home to 110 diverse ethnolinguistic Indigenous groups, holds extensive knowledge of water bodies and land formation, coupled with spiritual beliefs that ensure effective management and sharing of these resources. The Kankana-ey's rice terracing techniques, including the use of stonewalling, demonstrate their adaptation to the upland landscape's sloping terrain and their longstanding harmony with the environment. Additionally, their Indigenous water management practices ensure equitable water sharing. During the dry summer season, water rotation is employed to prevent conflicts among farmers. Mr. Abela also highlighted how elders divide rice fields into clusters based on the number of paddies and allocate specific watering days for each cluster, ensuring fair distribution of water resources while fostering social cohesion and a sense of unity within the community.
- **Marjorie Balay-as (S-07-Balay-as)** discussed the Indigenous Kankana-ey people's early warning system for typhoons in Northern Philippines. She explained how the disaster risk reduction practices of the Kankana-ey people are rooted in the belief that humans are part of nature, fostering a symbiotic relationship that prompts human responses to natural hazards. They read changes in cloud movements as part of their traditional early warning system to plan preparedness and mitigation measures. However, recent erratic environmental changes have made accurate predictions challenging, increasing their vulnerability to hazards exacerbated by social and economic inequalities. Acknowledging these limitations, the Kankana-ey have begun integrating Indigenous and scientific technologies, including weather forecasts via radio broadcasting, rain gauges and educational campaigns involving younger generations, to enhance their early warning systems and protect sacred sites and agricultural livelihoods.

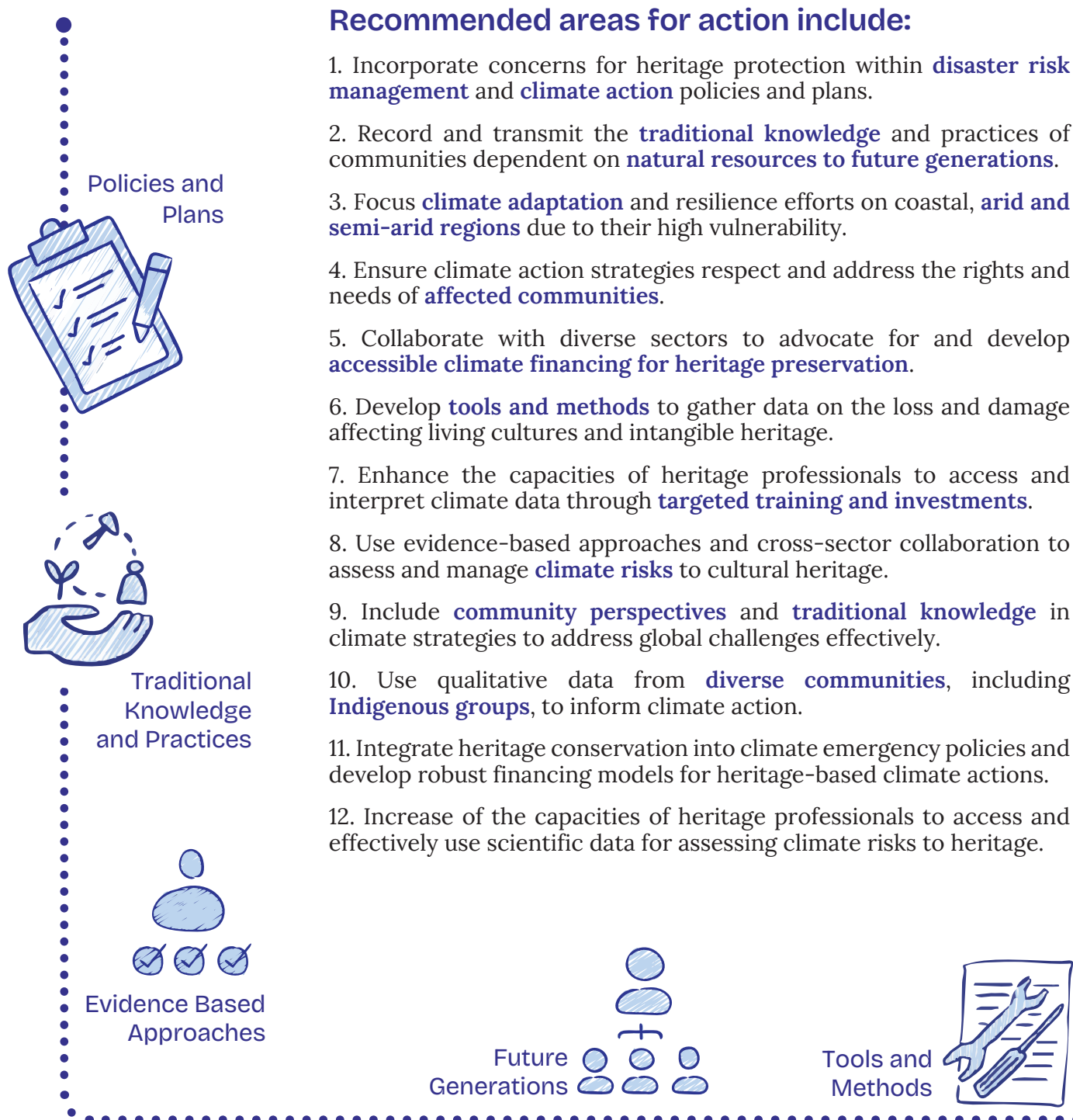


Abu Mandour Mosque, Rashid, Egypt. Source: Amira Sadik Aly, Egyptian Heritage Rescue Foundation (EHRF)

3 Key Recommendations

Conclusion and Recommendations

This section outlines a set of broad actions inspired by the discussions and experiences shared during the conference. It presents an action agenda aimed at integrating culture and heritage into climate action, disaster risk reduction, and peacebuilding efforts.



3. Focus on documenting and preserving Indigenous and traditional knowledge, especially in the face of displacement.

14. Study and **reintegrate traditional resource-sharing** systems disrupted by **colonialism** and modern changes.

15. Address challenges in engaging diverse professionals by aligning terminologies and approaches through expert workshops.

16. Avoid exclusionary heritage practices by incorporating **community values** and addressing inequality.

17. Adjust project timelines to account for community activities and seasonal cycles.

18. Integrate traditional and modern knowledge to address extreme and unpredictable climate conditions effectively.

19. Establish trust and consider social dynamics in community-based climate action and disaster management.

20. Create **accessible early-warning systems** for heritage sites to improve disaster preparedness.

21. Work with **governments** to integrate heritage needs into national climate plans and policies.

22. Advocate for **climate financing** that supports the preservation of cultural heritage and frontline communities impacted by climate change.

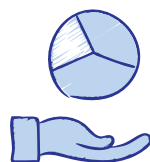


Traditional
Resource-Sharing



Accessible
Early-Warning
System

Targeted training
and Investment



Climate
Financing





Traditional boat building in Rahid, Egypt. Source: Amira Sadik Aly, Egyptian Heritage Rescue Foundation (EHRF)

4 Annexes

Annex 01 – Conference Playlist

Day 1

S-01 Inaugural Session | Heritage Conservation Policy in the Context of Climate Crisis

S-01-Gujral	00:03:31 – Opening remarks
S-01-Knight	00:27:40 – Addressing climate change and cultural heritage in Barbados
S-01-Hosagrahar	00:39:46 – Heritage and climate change: capacity building and resilience strategies
S-01-Mulla	00:48:20 – Integrating cultural heritage into global climate resilience strategies
S-01-Xanthaki	00:52:44 – How cultural rights can serve as a tool for addressing the impacts of climate change
S-01-Meskell	01:03:56 – Advice for governments and heritage authorities on conservation plans and nominations that consider marginalized groups reliant on natural resource extraction for their livelihoods

S-02 Integrated Strategies for Heritage Safeguard, Climate Action, Disaster Risk Reduction and Peacebuilding

S-02-Sadik Aly	00:18:34 – Enhancing soil fertility and emergency preparedness in Rashid, Egypt
S-02-Kanji	00:52:18 – Culture-based climate adaptation and heat action plan in Jodhpur, India
S-02-Nsibambi	01:20:52 – Leveraging Indigenous knowledge for flood risk mitigation and peacebuilding in Kasese, Uganda
S-02-Badi and Elgadi	01:39:31 – Community-led early warning system and flood risk management in Tuti Island, Sudan
S-02-Silva	02:16:27 – Community-based food security and emergency preparedness in Ubatuba, Brazil
S-02-ElGahal	02:44:59 – Empowering local communities in Rashid through participatory workshops to enhance decision-making in Egypt's parliament
S-02-Chivava	02:52:07 – Collaboration with the meteorological department to assess climate-related risks to heritage and incorporation of Indigenous knowledge in early warning systems in Sudan and beyond
S-02-Hamedia	02:57:39 – Use of early warning app based on the Coptic calendar symbols to tackle climate change challenges and support fishing activities in Rashid, Egypt

S-03 **Call to Action – Mainstreaming Cultural Heritage Safeguarding for Disaster Risk Reduction, Climate Action and Peacebuilding**

- S-03-Leissner **00:09:13** – Initiatives in the cultural heritage field to better understand the impacts of climate change on heritage assets
- S-03-Raju **00:15:58** – Interconnections between disaster, climate change and cultural heritage
- S-03-Strozzi **00:29:27** – Available tools on complexity theory for training heritage professionals to protect cultural heritage against climate change

Day 2

S-04 **Transcending Disciplinary Boundaries for Training and Education**

- S-04-Perry **00:09:51** – The concept of adaptive heritage and its potential to advance heritage-based climate action in training and education
- S-04-Koll **00:14:31** – The potential role of culture and heritage in addressing the climate crisis from a climate scientist's perspective
- S-04-Geldenhuys **00:22:39** – Contribution of culture and heritage in the sustainability of forests and woodlands
- S-04-Sciacchitano **00:26:39** – What role do capacity development projects play in strengthening national capacities and how to secure greater government support for these initiatives?
- S-04-Bhatia **00:41:46** – Intersection of disaster risk reduction and climate change, as well as the role of culture and heritage in disaster risk reduction and climate change adaptation
- S-04-Beard **00:49:54** – Managing water resources affected by climate change and the role of traditional knowledge and practices
- S-04-Mwangola **00:57:16** – Key elements for training heritage professionals to promote community-led initiatives that integrate heritage safeguarding with climate action
- S-04-Harrowell **01:06:32** – Interconnections between climate change, conflicts and cultural heritage
- S-04-Kuffer **01:13:29** – Understanding geospatial studies to assess local vulnerabilities and exposure, and how communities may be impacted by climate change-enhanced hazards

S-05

Ignite Talk

S-05-Beltaji	00:02:20 – The impact of virtual reality on individual memory in heritage projects
S-05-Nobili	00:14:53 – Local development policies through cultural heritage: the case of Brembana Valley in rural Lombardy, Italy
S-05-Monroy	00:26:24 – An integrated approach to disaster risk reduction, peacebuilding, and climate action: the case of La Amistad International Park between Costa Rica and Panama
S-05-Qi	00:49:20 – Cultural heritage in crisis due to climate change: a case study of the Dazu Stone Carvings in Chongqing, China
S-05-Arslan	00:59:11 – Impacts of climate change on the intangible cultural heritage of islanders in Bonaire, Netherlands
S-05-Kent	01:06:32 – Coastal connection project: building a network to share best practices for those managing coastal heritage sites

S-06

Tracking Loss and Damage to Cultural Heritage in the face of Climate Change

S-06-Lankester	00:03:39 – Practical steps to build climate resilience for heritage, English Heritage
S-06-Bonazza	00:18:19 – Risk mapping tool for cultural heritage protection, National Research Council of Italy
S-06-Jigyasu	00:31:10 – Towards a methodology for climate risk assessment for sustainable future of Nantucket's built heritage
S-06-Kanji and Chakraborty	01:10:06 – Climate Risk Assessment Tool, ICCROM-FAR

Day 3

S-07 Climate Change, Culture and Peace in Small Island Developing States

- S-07-Roopsingh **00:04:30** – Resilient heritage project on enhancing resilience and ensuring the long-term preservation of downtown Port of Spain and Nelson Island in Trinidad and Tobago
- S-07-Chang-Yunn **00:27:07** – Sustainable tourism management in the UNESCO World Heritage Site of Vallée de Mai
- S-07-Clashing **00:51:23** – Storytelling initiative using technology for cultural heritage in coastal and small island developing states in the Caribbean and beyond

S-08 Under the Talking Tree – Intergenerational Dialogue on the Use of Indigenous and Traditional Knowledges for Innovation in Heritage Conservation, Climate Action and Disaster Risk Reduction

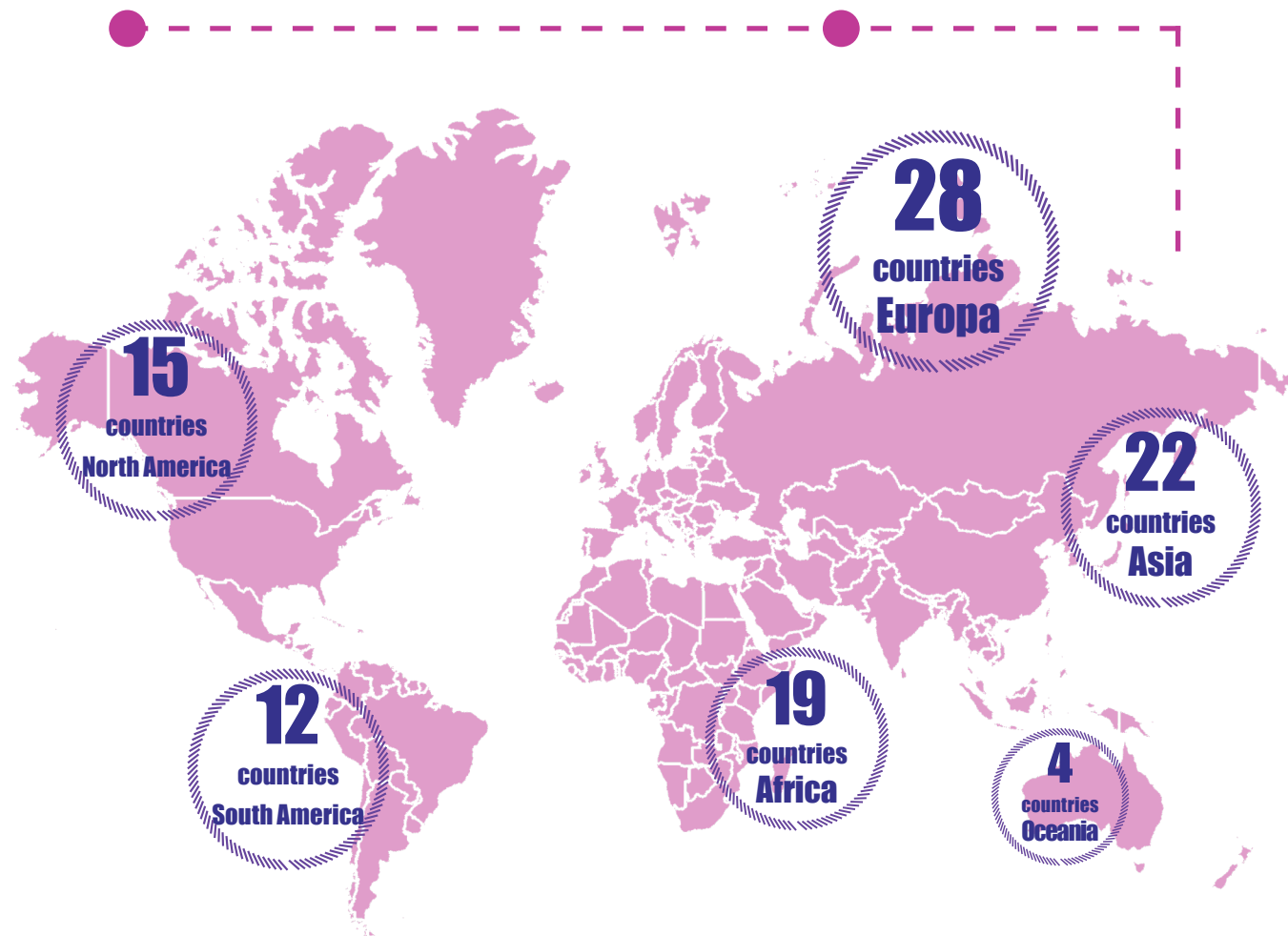
- S-08-Anton **00:05:46** – Building climate resilience in coastal fishing communities in Madagascar
- S-08-Alangui **00:22:27** – Rice terraces and natural resource management in the Philippines
- S-08-Silva **00:50:35** – Knowledge and practices of the Camburi Quilombola community for traditional food preservation and sustainable agriculture in Brazil
- S-08-Kanji **01:07:00** – Local knowledge on heat mitigation and water management in Jodhpur, India
- S-08-Ali **01:31:22** – TAYA flood mitigation and early warning practice in Tuti Island, Sudan
- S-08-Sadik Aly **01:49:13** – Knowledge of fishermen and farmers in Rashid for soil desalination and early warning systems
- S-08-Ahabyona **01:58:25** – Bakonzo Indigenous knowledge on mitigating flood risk and riverbed erosion
- S-08-Balas-As **02:04:05** – Typhoon early warning system of the Indigenous Kankana-ey in Northern Philippines

Annex 2 – Conference in Numbers

1417
Attendees



125
Countries



5 Climate Culture Stories from Brazil, Egypt, India, Sudan and Uganda

A panel on Small Island Developing States

cases studies on
community-based climate action

3



47
Speakers

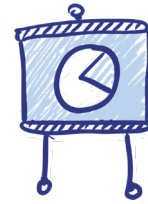


from **26**
countries

13

Sessions

Story Circles, Ignite Talks,
Youth Forum



over **3**
days



240

Universities and Academic
Institutions

165



Museum and Heritage Organizations



130

Government Ministries and
Departments

120



Non-Governmental Organizations



73

Research Institutes and ThinkTanks