



Climate Heritage

Peer Learning Exchange

San Antonio, Texas
August 4-6, 2019
After-Action Report

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Appendix I

Excerpt from *Futures of Our Pasts: Engaging cultural heritage in climate action*

Prepared by Climate Change and Heritage Working Group of ICOMOS

2 July 2019

Appendix II

Map of Downtown San Antonio

Schedule at a Glance

Sunday, August 4

4:30 pm to 6:00 pm	<p>Meet at Range (125 E Houston St) <i>0.7 miles from hotel via River Walk</i></p> <p>Reception (Introductions and ice-breaker exercises)</p> <ul style="list-style-type: none"> - Describe your job - How does heritage / sustainability interface with your work?
6:00 pm to 8:30 pm	<p>Dinner</p> <p>Module 1: Ambition & Capacity</p>

Monday, August 5

6:00 am to 8:30 am	Continental Breakfast (at your leisure)
8:30 am to 10:30 am	<p>Depart hotel for Hemisfair via shuttle</p> <p>Module 2: Closing the Gap between Heritage Conservation and Sustainable Waste Practices</p>
10:30 am to 11:00 am	Break
11:00 am to 12:30 pm	Group discussion
12:30 pm to 2:00 pm	<p>Lunch</p> <p>Tour of Kelso House via shuttle</p>
2:00 pm to 3:30 pm	Module 3: Incorporating Climate Action into Preservation Planning
3:30 pm to 3:45 pm	Break
3:45 pm to 5:00 pm	Group discussion
5:00 pm	Return to hotel via shuttle
7:00 pm	<p>Dinner at Tre (200 W Jones Ave @ San Antonio Museum of Art) <i>0.7 miles from hotel via River Walk</i></p>

Tuesday, August 6

6:00 am to 8:30 am	Continental Breakfast (at your leisure)
8:30 am to 10:30 am	<p>Depart hotel for Hemisfair via shuttle</p> <p>Module 4: Next Steps</p>
10:30 am to 11:00 am	Break
11:00 am to 12:30 pm	Group discussion
12:30 pm to 2:00 pm	Lunch and Concluding Thoughts
2:00 pm	Transportation to airport

Modules

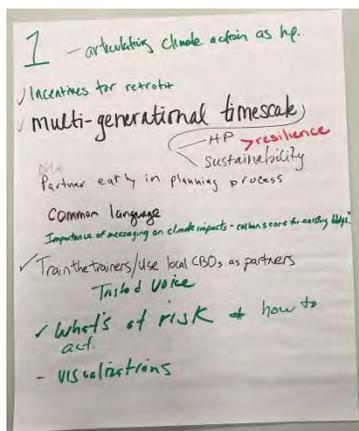
Module 1

Ambition & Capacity: the role of cultural heritage in communicating community climate action goals

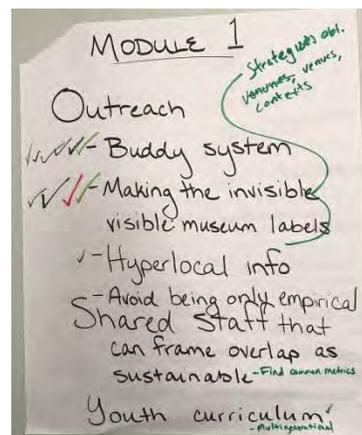
Heritage conservation professionals are uniquely situated to facilitate conversations regarding climate change and sustainability because of their engagement with local communities to promote and support neighborhood sustainability and the preservation of historic character. This broad topic will kickstart the conversation by highlighting areas of overlap in our fields, illustrating the spaces where the principles of climate action and adaptation and those of cultural heritage converge. Building upon the experiences of participants related to recently established/updated climate action plans, this module will identify opportunities to leverage the strengths of the heritage conservation field to strengthen the climate change and long-range sustainability planning process and share strategies for co-creating culturally-sensitive, inclusive, equitable, place-based mitigation and adaptation strategies.

- Overview and introduction of terms of reference
- City-specific briefings (5-10 minutes per city):
 - o What is your city's approach to increasing understanding, ambition, and capacity to act on climate change?
- Group discussion:
 - o How can the core competencies and considerations of cultural heritage, including local wisdom, be used to enhance ambition to mitigate GHG emissions, achieve global Climate Action targets, and increase effectiveness of Climate Action plans?
- Lessons learned / Concluding thoughts:
 - o At the end of each module, participants were asked to identify best practices for facilitating conversations between heritage conservation and sustainability professionals in their city.

IDEAS



OUTCOMES



Modules

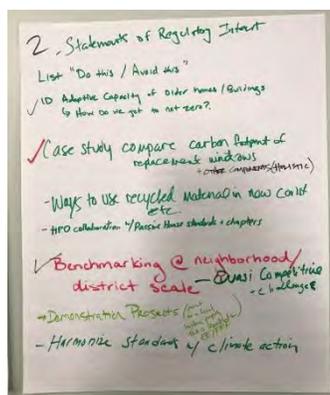
Module 2

Closing the Gap between Heritage Conservation and Sustainable Waste Practices and an Intro to GHG Mitigation and Heritage Conservation

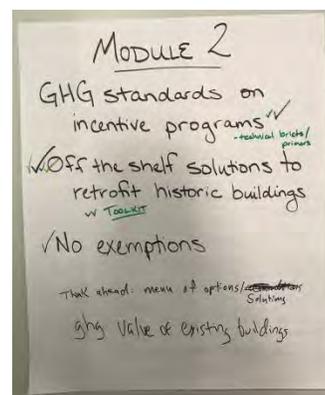
Carbon mitigation is a far-reaching topic, so this module purports to broadly introduce a variety of approaches, including circular economy and life cycle assessment, and their intersection with heritage conservation. The zero waste movement aims to design municipal solid waste systems to mitigate carbon emissions, following a hierarchy of preventing waste; reducing and reusing materials; followed by recycling and energy recovery. With regards to buildings, the preservation of structures mirrors the pinnacle of waste prevention, and reusing building materials by deconstructing and salvaging older structures instead of demolishing and landfilling helps achieve carbon mitigation goals through reuse and waste reduction. This module will pinpoint areas in the heritage conservation and sustainability fields where carbon reduction goals overlap and explore these intersections further. At the end of the module, participants will be asked to identify ways to communicate these overlaps to external stakeholders and list opportunities for carbon reduction partnerships in their own cities.

- Overview and introduction of terms of reference
- City-specific briefings (5-10 minutes per city):
 - o What are your community's climate action pledges?
 - o What does transformative change to a low-carbon economy look like in your community?
- Case study (10-15 minutes):
 - o San Antonio: Maker Centers (deconstruction, salvage, and trades education)
- Group discussion:
 - o Key strategies for connecting GHG Mitigation to Heritage Conservation (using Maker Centers as an initial example and then expanding to other ideas)
 - Circular Economy
 - Demand-Side Carbon Mitigation
 - Supply-Side Carbon Mitigation
- Lessons learned / Concluding thoughts:
 - o At the end of each module, participants were asked to identify best practices for facilitating conversations between heritage conservation and sustainability professionals in their city.

IDEAS



OUTCOMES



Modules

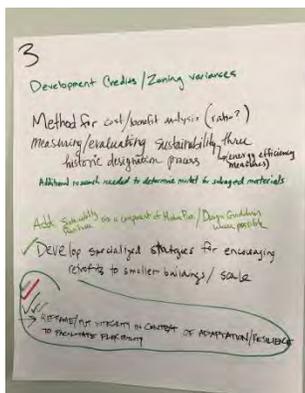
Module 3

Incorporating Climate Action (Ambition, Adaptation and GhG Mitigation) into Preservation Planning and Design Review Processes

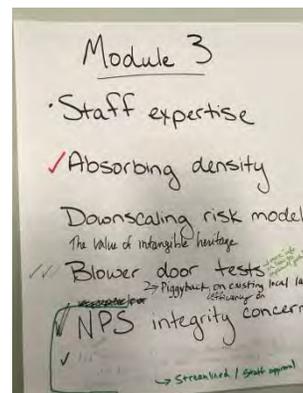
At the local level, design review processes offer one of the most direct strategies to affect change through encouragement of sustainable and climate sensitive building practices. Local commissions that review and approve these proposals often lack the knowledge and expertise necessary to understand the relationship between their recommendations and a project's carbon footprint, whether related to new construction or an existing building. Additionally, state and federal laws affect the interpretation and application of local development codes as they relate to issues including solar panels, xeriscaping, and materials. This topic aims to address the challenges inherent in design review, with a particular look at how mitigation and adaptation strategies affect and are affected by local policy. Each participating community has developed and adopted different strategies to tackle these issues. Learning from these experiences, this topic will contribute to the refinement of the available techniques and identify next steps for how to advocate for changes at the local, state, and national level.

- Overview and introduction of terms of reference
- City-specific briefings (5-10 minutes per city):
 - o Overview of climate impact profile of each city and plans for increasing resilience
- Case studies (10-15 minutes per city):
 - o Los Angeles: Retrofits in the design review process (state mandates re: solar panels and xeriscaping)
 - o Boston: Revising design guidelines to adapt to SLR
- Group discussion: Incorporating climate communication/ambition, GHG mitigation and climate adaptation considerations into Sustainable design review
 - o Energy efficient retrofits
 - o Embodied energy considerations
 - o Onsite renewables?
 - o Material reuse and circularity
 - o Climate adaptation including Sea level rise response
- Lessons learned / Concluding thoughts:
 - o At the end of each module, participants were asked to identify best practices for facilitating conversations between heritage conservation and sustainability professionals in their city.

IDEAS



OUTCOMES



Modules

Module 4

Next Steps: developing guidance toward encouraging ongoing coordination between Climate Action / Sustainability and Cultural Heritage at the municipal level

The broader outcome of this exchange is the creation of a basic framework to guide other cities in facilitating a localized interdepartmental or interagency exchange between their sustainability and heritage conservation leaders. This peer exchange will begin to develop a toolkit for communication that can be scaled and adapted by other cities to achieve similar successes in strengthening the cooperative relationship between preservation and sustainability professionals.

- Case studies emphasizing how historic preservation and sustainability offices did or can collaborate (10-15 minutes per city):
 - o Boston: Zoning district overlays addressing SLR
 - o New York City: Agency-specific climate action planning
 - o Los Angeles: Leveraging cultural heritage to increase resilience in Venice City / Telenovelas in the Park
 - o San Antonio: Climate Equity Screening Tool / Climate Heritage Strategic Plan

- Group discussion:
 - o Finalize Maker Center and Design Review Methodologies
 - o Review list of other best practices from modules 1-2
 - o Compile toolkit for strengthening the cooperative relationship between preservation and sustainability professionals



Proposed Next Steps

The following items were identified as potential next steps to accelerate the evolution of Climate Heritage Planning:

Develop and test GHG mitigation metrics and methodologies that value avoided and embodied carbon and take account of life-cycle costs in connection with the reuse of existing and historic buildings and materials.

Develop a calculator tool that quantifies GhG implications of common municipal historic preservation decisions/interventions including application of design standards to existing buildings, regulating interventions like on-site renewables and facilitating reuse of vacant and underutilized buildings. This tool will assist with decision-making and should be tailored to specific climate zones.

Organize an examination of the positive and negative impacts on GHG mitigation of common historic preservation principles, design standards and review/permitting processes, and developing model standards or treatment that support win-win strategies of conserving heritage values and achieving decarbonization.

Identify best practices and protocols to facilitate collaboration between Historic Preservation and Sustainability Offices.

Develop a Climate Heritage Toolkit that will provide resources such as calculators, decision matrix, and best practices.

Survey of scientific literature to establish an accessible collection of relevant research materials (for inclusion in the Toolkit) and identify gaps in knowledge related to the intersection of climate science and cultural heritage targeting to city historic preservation officers and commissions.

Identify heritage based strategies that support synergies between climate action and equity.

Foster the development of the North American regional branch of the new international Climate Heritage Networks.

Terms of Reference

Ambition

Heightening the ambition of communities to act on climate, includes utilising the power of heritage to promote a sense of urgency by telling climate stories, involving and listening to communities and building relationships. It is about promoting interdisciplinary heritage research as an important part of climate science, and building knowledge exchange through communication, skills development and education. It can require a fundamental shift in Policy and professional practice to acknowledge the immense power of cultural heritage in raising awareness, developing Adaptation and Mitigation strategies. Building Social cohesion, Inclusion, pride of place and community identity in support of climate action, including by encouraging participatory, community-based prioritization, documentation and recording of tangible and intangible cultural elements. Promoting the power of Place, past and narrative to enhance understanding of climate-society complexities and potentials; documenting and interpreting the heritage of the Anthropocene and the impacts of the Industrial Revolution. Using heritage sites as exemplars of climate mitigation and adaptation.

Key strategies include:

- Establishing and maintaining connections between heritage Place managers and researchers in Climate science, adaptation, mitigation and communications fields.
- With heritage as a base, building and maintaining means of listening to communities and providing open opportunities to inspire voluntary participation in advocacy, and collective climate action.

Terms of Reference

Supply Side GhG Mitigation / Renewables

In general, Supply-side Measures are policies and programmes for influencing how a certain demand for goods and/or services is met. In the energy sector, Supply-side Mitigation Measures aim at reducing the amount of Greenhouse Gas emissions released per unit of energy produced, generally through the transition to renewable energy sources. Transitioning to renewable energy is an important Decarbonisation strategy. Sustainable Development requires making 'green' energy available to rural, urban and Peri-urban communities.

Intersections between cultural heritage considerations and the aim to increase the production and transmission of renewable energy include:

- Fostering a willingness to accommodate renewable energy installations and projects, including by actively aiding in the mapping of rural and urban locations best suited to accommodating such projects while lessening the impact on heritage Values.
- Proactively developing guidelines, standards and best practices for accommodating renewable energy installations (e.g. solar panels, wind turbines) while avoiding or lessening material impacts to heritage Values.
- Prioritising the identification, documentation and preservation of learning from traditional knowledge about renewable energy production (for example, Local Knowledge about geothermal, water/hydroelectric and wind power), especially those relevant to contemporary energy needs; emphasizing in the interpretation and presentation of those technologies and techniques their relevance to Mitigation Pathways.
- Encouraging rapid electrification of older and historic buildings in tandem with decarbonisation of electricity grids. Because electricity is the key means of powering buildings with renewable energy, switching Demand-Side sources to electricity (or other renewable sources) is a key strategy to reduce Greenhouse Gas emissions and other sources of air pollution (provided that the electrical grid is itself decarbonizing)

Demand Side (GhG) Mitigation

The IPCC Special Report on 1.5 Warming makes clear that the built environment, including the entire building and construction supply chain, must decarbonise. Demand-side energy measures for the built environment aim to reduce demand for electricity and other forms of energy that are required to deliver energy services for buildings. Studies indicate that while global energy-related emissions from building operations are responsible for approximately 28% of global energy-related carbon emissions, a further 11% is incurred through the materials and construction process. Thus, while 'operational' carbon emissions (the carbon emissions through the operational or in-use phase of a building) are important, wider carbon lifecycle impacts must also be addressed if the sector is to reach Net Zero Emissions by 2050. This includes 'Embodied Carbon' which at the building-level takes account of the Greenhouse Gas emissions related to extraction, transport of materials, the construction process, maintenance and eventual demolition and waste management of the built environment. Cultural heritage considerations are involved in a wide range of Mitigation Measures applicable to a variety of built environment assets and processes.

Terms of Reference

Demand Side (GhG) Mitigation (continued)

These include:

- Using heritage expertise and perspectives to contribute to the development of accurate methodologies for monitoring and measuring the Greenhouse Gas implications of interventions in the built environment in order to gather the widest possible evidence to guide mitigation.
- Putting a focus on ‘embodied carbon’ and utilising the competencies of heritage to refine and promote Life Cycle Assessment methodologies.
- Promoting, in a manner that safeguards heritage values, the use and adaptive reuse of existing buildings in order to avoid the carbon cost of new construction and steering activity to vacant and underutilised buildings – including time shifting (i.e. addressing building use for only part of the day), in order to reduce Greenhouse Gas emissions while producing Co-Benefits associated with heritage Conservation.
- Decarbonising the supply chain for building renovation/rehabilitation including by addressing the Embodied Carbon associated with the production, transportation and disposal of building materials related to rehabilitation processes through Life Cycle Assessment and other methods, and discouraging unsuitable carbon-intensive approaches to rehabilitation; promoting research and development to bring more alternative and environmentally friendly products to the building rehabilitation and retrofit marketplace, noting that many products used in historic rehabilitation now use plastic in the fabrication and come wrapped in plastic, practices which should be reduced; improving monitoring and measuring of building materials’ waste generated through rehabilitation and minimising waste of material; emphasising reuse and repurposing of building materials (many of which in heritage buildings are now rare or no longer available) to achieve near zero waste. Promoting salvage and recycling of heritage materials which will no longer be used in situ.
- Reducing Operational Carbon of Older and Historic Buildings. Buildings. Reducing emissions from existing buildings typically has a more favourable and more immediate Greenhouse Gas mitigation impact than building new, high efficiency –buildings – even Near Zero Energy Buildings (Nzeb). This is because of the comparatively large upfront expenditure of Embodied Carbon associated with new construction. As a result, the operational carbon used by older and historic building must be addressed, including by retrofitting many buildings for energy efficiency. Win-win solutions that safeguard heritage values and reduce emissions typically exist, but where conflicts occur the broader Co- Benefits associated with conserving cultural heritage resources must be considered. Thermal massing and other features of some traditional building systems are inherently efficient, making wholesale energy retrofitting unnecessary and even wasteful. Interventions that fail to understand how older buildings ‘behave’ can degrade traditional climate-friendly features and waste precious materials and can lead to other forms of Maladaptation.
- Promoting the use of traditional, low-carbon, climate-adapted building technologies and other Endogenous Ways of Knowing, including in new construction, including those ‘inherently sustainable features’ (ISFs) of traditional buildings that maintained occupant comfort before mechanical hardware e.g. HVAC became commonplace.
- Linking heritage trades, skills and education to the demands of Decarbonisation to ensure that that there is a sufficient supply of skills in traditional building methods to support the roles which these methods can play in Mitigation. Addressing the availability of raw materials.

Terms of Reference

Circular Economy / Sustainable Consumption & Production

Circular economy is an economic system aimed at minimising waste and making the most of resources. In a circular system resource input and waste, emission and energy leakage are minimized by slowing, closing, and narrowing energy and material loops; this can be achieved through longlasting design, maintenance, repair, reuse, remanufacturing, refurbishing and recycling. This regenerative approach is in contrast to the traditional linear economy, which has a ‘take, make, dispose’ model of production.

Culture is embedded in the patterns of production, consumption, lifestyles and social organisation that give rise to Anthropogenic Greenhouse Gas emissions. To varying degrees across the globe, traditional patterns of social organisation, often developed over centuries if not millennia of slow co-evolution of human communities and their environment, are being supplanted by contemporary patterns which tend to be less place-adapted and more carbon-intensive. Approaches such as Circular Economy and Life Cycle Assessment seek to restore balance and extend the time horizon in which resource uses are considered.

Cultural heritage practice intersects very directly with these approaches. Integrating heritage Values can contribute to more sustainable models for living, both from a resource efficiency perspective and in terms of Social-Ecological Systems. This can be done by emphasising aspects of heritage practice that align with Circular Economy approaches including bringing to multiple policy processes a focus on multi-generational time scales and horizons; integrating an ethic of stewardship, reuse and conservation; and utilising people-centred approaches. These also align with Life Cycle Assessments, which centre on materials, energy and waste minimization.

Incorporating these tools to into heritage conservation can promote adaptive and systemic approaches better suited to managing change. Suitable approaches, both ethical and practical, are also needed to enable the heritage sector to play its part in mitigating climate change (i.e. reducing Greenhouse Gas emissions) without incurring an unacceptable loss of cultural significance. This requires processes to define what is unacceptable, both to stakeholders and within policy. New models should be developed to evaluate conservation and adaptation measures from the perspective of circular economy tools and methodologies.

Terms of Reference

Adaptation

Climate Change Adaptation in Human Systems aims to minimise the adverse consequences of actual or expected climate change and maximise the opportunities it presents. Both these aspects of adaptation correlate to the core competencies and considerations of cultural heritage. Adaptation actions can include Human Behavioural Change, Institutional change and technological adjustments. Cultural heritage will be Impacted by climate change and therefore adaptation strategies are needed to manage the Risks. The selection and implementation of adaptation measures will require the integration of Cultural Significance assessments (both relative Significance and impacts to Significance from adaptation actions) together with Risk/Vulnerability Assessments, and feasibility studies.

Adaptation activities are likely to require additional resourcing, however knowledge, understanding and the provision of sectoral leadership are possibly more crucial in the early stage of the process.

Cultural heritage also has immense potential to contribute to adaptation Pathways for Human Systems. The particular worth of cultural heritage is indicated within the Paris Agreement, which states that adaptation action should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems (Article 7.5, 2015).

Cultural heritage can support adaptation, especially when cultural Values are incorporated into adaptation Governance. Cultural Values can also guide adaptation Options and bolster the Enabling Conditions for adaptation Values-based Approaches to heritage should explore the notion of cultural and natural commons. It should be recognised that Cultural Significance reflected in different levels of designation does not necessarily provide an acceptable prioritisation for the management of heritage in the adaptation context. For example, by:

Using what people value about places as a guide to adaptation and Resiliency planning, by for example, leveraging heritage communities and methodologies for social/cultural/heritage Values and narrative mapping as an input into adaptation planning; and using heritage Values assessment methods (e.g. World Heritage and ICOMOS) and capacity building with community, practitioners and Policy makers to support climate adaptation. Recognizing also that what people value may change with environmental vulnerability.

Highlighting the role of heritage in social cohesion, Social integration and Equity; using cultural resources to conserve/re-establish sense of Place and inclusive community stewardship in support of Adaptation Pathways, is another key role of heritage, especially through participatory, inclusive and fully transparent inventorying and cultural mapping processes that can mobilize communities, articulate sense of Place, and provide a knowledge base to inform public decision-making and Climate Governance.

Utilizing heritage methodologies to support people-centred approaches for adaptation Governance. Adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, Local Knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate (Article 7 Paris Agreement 2015).

Terms of Reference

Adaptation, cont.

Climate change is an existential issue for all societies. Dramatic losses, including heritage losses, are inevitable. Although this Area focuses on adapting resources for the future, inevitably the profession itself will also have to adapt. Methods of organising and undertaking heritage Conservation will need to adapt, and in some cases a fundamental shift in approach may be needed. The adaptation of the heritage field in the face of climate change includes:

Aiding communities in preparing for Losses and Damages by accepting that preservation in situ may no longer be feasible for all sites. This is particularly problematic for buried archaeology and underwater heritage as changing 'in situ' conditions are not visible.

Supporting adaptation by addressing the fact that accepted treatments for increasingly frequent and/ or severe Impacts of climate may be inadequate.

Increasing need to be more flexible about building elevation, sheltering, relocation and reconstruction.

Creating innovative Policy tools such as rolling conservation protections that shift with Impacts like Sea Level Rise or planning requirements/building listings designed to protect heritage that allow for future adaptation.

Covering sites or introducing landscaping e.g. protective banks and other non-conventional methods will need to be explored and result widely disseminated.

Emphasising documentation as a management and Conservation tool of first and last resort.

Addressing the possibility that Conservation materials, including traditional constituents, may become unreliable/ineffective under new environmental conditions (e.g. increased temperatures affecting the working and long-term properties of polymers) by adapting existing Conservation practice alongside research and experimentation.

Reducing the environmental impact of both interventive and preventive Conservation measures will require modification in heritage methods and materials. Greater emphasis on preventive Maintenance and the increasing use of local materials are two likely solutions.

Moving towards a more integrated recognition of tangible heritage with intangible heritage practices in management as institutionalised and centralised heritage management systems can increase vulnerability to climate change and Disasters.

Building traditional skills as Climate Extremes means more frequent damage which requires fast and affordable repair. The current global trend in loss of traditional trades is problematic.

Recognising and addressing the institutional, financial, technical, social barriers and needs that will limit the sector's ability to adapt quickly and effectively. These include differences between stakeholders, lack of sectoral engagement, inadequate understanding, ineffective technical approaches, lack of resources, lack of political will, lack of public awareness etc. Communicating between different groups and decision makers is vital, as lack of communication can cause or increase these and other barriers. This includes addressing the ways in which the complexity of heritage Values and Cultural Significance, including differing stakeholders and Place attachment, may undermine the Enabling Conditions for adaptation, as well as entering into open dialogue about the fact that Policies and regulations, both those aimed at protecting heritage and those aimed at mitigation (including Energy Efficiency e.g. building codes, planning Policies and sustainability rating schemes), can create barriers to adaptation.

Participant Bios

Aaron Gross, Chief Resilience Officer City of Los Angeles

With over 20 years of service to the City of LA, Aaron became the City's 2nd Chief Resilience Officer in March, 2019. In that role, he is charged with helping to implement Resilient LA, the City's robust resilience plan by working with City departments, local, regional, national and international stakeholders, and with communities in Los Angeles. Aaron was most recently employed at the LA Department of Water and Power as its Deputy Chief Sustainability Officer and served in that role since 2015 aiming to making LA a more efficient and sustainable City. Prior to joining LADWP, he served as an International Trade Specialist and as Liaison to the Port of Los Angeles, in Mayor Eric Garcetti's Office of International Trade. Aaron has served in two LA Mayoral administrations (Garcetti and Villaraigosa), has worked for three City Councilmembers, the City Attorney, and for the Port of Los Angeles in various capacities from field work, to legislative affairs, to land use planning. Aaron studied Political Science at the University of California, Santa Barbara and earned Master degrees in Non-Profit Management and Social Work from the University of Southern California.

Alison Brizius, Director of Climate and Environmental Planning City of Boston

Alison Brizius is the Director of Climate and Environmental Planning for the Boston Environment Department. Her portfolio includes management of the Environment Department's work on climate adaptation and resilience, greenhouse-gas reduction, air and noise pollution, wetlands protection, and solid waste.

Prior to joining the Environment Department, Alison spent six years as the Executive Director of the Center for Robust Decision Making on Climate and Energy Policy (RDCEP) at the University of Chicago, a multi-institutional interdisciplinary center focused on improving the computational models needed to evaluate climate and energy policies and making robust decisions based on outcomes. Prior to RDCEP, she was the policy and special projects manager for the Chicago Council on Science and Technology (C2ST).

Alison received her Ph.D. and M.S. in Physics from the University of Chicago and her B.S. in Physics from Stanford University.

Participant Bios

Andrew Potts, Facilitator ICOMOS Climate Change and Heritage Working Group Coordinator

Andrew Potts is the coordinator of the International Council on Monuments and Sites' Climate Change and Heritage Working Group (CCHWG). In December 2017, the Triennial ICOMOS General Assembly meeting in New Delhi, India adopted Resolution 19GA 2017/30 entitled "*Mobilizing ICOMOS and the Cultural Heritage Community To Help Meet the Challenge of Climate Change.*" The CCHWG was formed to advance the Resolution's ambitious mandate. The Group is currently working on a variety of initiatives in line with ICOMOS's view that heritage sites as well as local communities' intangible heritage, knowledge and practices constitute an invaluable repository of information and strategies to address climate change, even while those resources are themselves at risk from climate impacts.

A lawyer by training, for 20 years Andrew practiced in the Tax Credit Finance & Syndication group of Nixon Peabody LLP, where he focused on the intersection of historic preservation and sustainable development finance. He also helped coordinate Nixon Peabody's pledge to provide \$2 million of pro bono legal services by 2020 to support sustainability solutions as part of the Lawyers for Sustainable Economy initiative.

In February 2015 Andrew took an 18-month sabbatical from his legal practice to serve as Executive Director of US/ICOMOS. His focus was implementing US/ICOMOS's Knowledge Exchange strategic plan, which aimed to increase the connectivity of US historic preservationists to international cultural heritage work in areas like climate change, disaster risk reduction, cultural landscapes, sustainable development and telling the stories of all communities.

Andrew holds a J.D. from Indiana University. He previously served as Associate General Counsel of the US National Trust for Historic Preservation and is the recipient of the National Trust's John H. Chafee Trustees Award for Outstanding Achievement in Public Policy. Andrew is a member of the ICOMOS international committee on heritage Law, Administration and Finance (ICLAFI) and previously served as ICOMOS Focal Point for the UN Sustainable Development Goals (SDG).

Cory Herrala, Director of Preservation New York City Landmarks Preservation Commission

Cory Herrala is the Director of Preservation at the NYC Landmarks Preservation Commission, where he has worked since 2007, overseeing a staff of 35+ preservationists and supervisors in the Preservation Department. He participates in interagency initiatives involving resiliency and sustainability, and has lead efforts to incorporate related work at historic buildings into the Commission's regulatory framework. Cory earned a Master of Historic Preservation degree from the University of Maryland and a professional Master of Architecture degree from the Savannah College of Art and Design.

Participant Bios

Doug Melnick, Chief Sustainability Officer City of San Antonio

Douglas Melnick was named the City of San Antonio's first Chief Sustainability Officer in March 2014. He oversaw the development of the SA Tomorrow Sustainability Plan and is leading the development of the SA Climate Ready Climate Action and Adaptation Plan, San Antonio's first plan designed to meet the objectives of the Paris Climate Agreement. He has fifteen years of local government experience and previously served as Director of Planning & Sustainability for the City of Albany, NY, the capitol of New York State. Mr. Melnick serves as a core member of the Urban Sustainability Director's Network (USDN), serves on the Board of the International Society of Sustainability Professionals (ISSP), the San Antonio 2030 District, and is Chairman of the Board for Build San Antonio Green. He is member of the American Institute of Certified Planners, a CNU-Accredited Professional, and an ISSP-Sustainability Associate.

Jenny Hay, ScoutSA Program Manager City of San Antonio

Jenny Hay is the ScoutSA Program Manager at the City of San Antonio Office of Historic Preservation. ScoutSA empowers people to explore the past by discovering and celebrating stories of San Antonio's historic places through the City's comprehensive survey and designation initiative as well as a robust community engagement and digital humanities portfolio. Prior to leading ScoutSA, Jenny held the position of Preservation Outreach Manager for the San Antonio Conservation Society, handling communication and development for one of the oldest preservation nonprofits in the US. She has experience in disaster response through her work implementing housing grants after Hurricane Rita and as part of the Department of the Interior's Strategic Sciences Working Group after the Deepwater Horizon oil spill. Jenny volunteered for several years with Historic Green in New Orleans and currently serves as event co-chair of the annual Promenade and Gala fundraiser for the Power of Preservation Foundation in San Antonio. Her published research includes topics of community resilience and heritage values, and she was co-author on the recent National Register nominations for the San Antonio Downtown and River Walk Historic District and the Main and Military Plazas Historic District. Jenny earned her BA in Geography from the University of Texas at Austin, her MS in Geography from Texas State University-San Marcos, and her PhD in Geography and Anthropology from Louisiana State University.

Participant Bios

Joe Cornish, Director of Design Review (Historic Preservation) City of Boston

Joe Cornish joined the Preservation Team of the City of Boston's Environment Department as the Director of Design Review in 2016. In this position he oversees proposed changes in three of the city's nine historic districts, and supervises staff responsible for the other districts. Prior to working for the city Joe worked for Historic New England from 1998 to 2016 where he administered and enforced the preservation easements that organization holds on more than 100 historic properties. He is the past president of the New England Chapter of the Society of Architectural Historians, and the former co-chair of the Belmont Historic District Commission in Belmont, Massachusetts. He received his M.A. degree in Preservation Studies from Boston University, and his B.A. degree in History and Art History from the College of the Holy Cross.

John Lee, Deputy Director for Green Buildings and Energy Efficiency New York City Mayor's Office of Sustainability

John Lee is the Deputy Director for Green Buildings and Energy Efficiency at the NYC Mayor's Office of Sustainability. In this capacity, he is leading the city's policy and legislative efforts driving the built environment to unprecedented energy efficiency standards. John's previous public sector service was with the NYC Department of Buildings as Senior Architect in the codes development division, and with the Department of City Planning where he served as an Urban Designer. During his early career, John was a design architect in private sector architecture and engineering firms working on institutional buildings, transit facilities, and master plans for universities. He is a licensed architect and a graduate of Rice University and Harvard University.

Participant Bios

Julia Murphy, Deputy Chief Sustainability Officer City of San Antonio

Julia Murphy is the City of San Antonio's Deputy Chief Sustainability Officer and is on the team working on the City's first climate action and adaptation plan, focusing on energy efficiency, modern transportation and air quality. Julia has worked on and published articles about natural resource conservation initiatives in the Texas Hill Country, and developed the award-winning San Antonio Bikes program. Signature projects include land conservation over the Edwards Aquifer Recharge Zone, implementing the first bike sharing system in Texas along the San Antonio River to connect the assets in the San Antonio Missions National Historical Park, establishing the Hardberger Park Conservancy and coordinating preservation and adaptive reuse of historic Herff Farm on the banks of Cibolo Creek. Previously, Julia worked with the Army Air Force Exchange Service in Italy, Germany and Spain. Julia serves on the board of the Cibolo Conservancy, and is a member of the American Institute of Certified Planners, Urban Sustainability Directors Network and Urban Land Institute. She earned her Bachelor of Business Administration and Master of Science in Community and Regional Planning degrees from the University of Texas at Austin.

Ken Bernstein, AICP, Principal City Planner City of Los Angeles

Ken Bernstein is a Principal City Planner for the Los Angeles Department of City Planning. In this capacity, he serves as Manager of the City's Office of Historic Resources, where he directs Los Angeles' historic preservation policies. He serves as lead staff member for the City's Cultural Heritage Commission, has overseen the completion of SurveyLA, a multi-year citywide survey of historic resources with significant support from the J. Paul Getty Trust, and has led the creation of a comprehensive historic preservation program for Los Angeles. He is also currently overseeing the Department's Urban Design Studio and has previously directed other policy planning initiatives, including work on Community Plan updates, housing policy, and transportation planning.

He previously served for eight years as Director of Preservation Issues for the Los Angeles Conservancy, the largest local non-profit historic preservation organization in the country, where he directed the Conservancy's public policy and advocacy activities. He also served as Planning and Transportation Deputy to Los Angeles City Councilmember Laura Chick and as Editor of [The Planning Report](#), a monthly publication on urban planning, housing, and transportation issues in Southern California.

Ken has been an adjunct professor in the Urban Studies and Planning Department of California State University, Northridge (CSUN), teaching a course on urban planning for the public sector. He currently serves as a Senior Fellow for UCLA's Luskin School of Public Affairs. He has a Master's Degree in Public Affairs and Urban and Regional Planning from Princeton University's Woodrow Wilson School of Public and International Affairs, and a B.A. in Political Science from Yale University.

Participant Bios

Lisa Kersavage, Executive Director New York City Landmarks Preservation Commission

Lisa Kersavage is the Executive Director of the City of New York's Landmarks Preservation Commission (LPC), the largest municipal preservation agency in the nation. She previously served as Director of Special Projects and Strategic Planning and coordinated the work of the Research, Archaeology and Environmental Review Departments, managed special research projects and executed planning exercises related to high-level agency and interagency projects. Prior to joining LPC she was the Project Manager of Changing Course, an ambitious design competition to reimagine a more sustainable Lower Mississippi River Delta, bringing teams together from around the world to create innovative visions for one of America's greatest natural resources. She was responsible for the planning, development and implementation of the project, in collaboration with staff from the Environmental Defense Fund (EDF) and Van Alen Institute, as well as the New Orleans-based Leadership Team, institutional and corporate partners, and consultants.

Prior to working with EDF she was the Senior Director of Preservation and Sustainability at the Municipal Art Society of New York. At MAS she directed Preservation and Climate Change Campaign, a high profile and multi-faceted project that promoted the environmental benefits of retaining and improving the energy efficiency of New York City's older buildings, and addressing the impacts of climate change on New York City's historic resources. She has held positions as a public policy consultant to the William Penn Foundation in Philadelphia, Executive Director of the James Marston Fitch Charitable Foundation and Executive Director of Friends of the Upper East Side Historic Districts. Lisa received her M.S. in historic preservation, with an urban planning focus, from Columbia University and her B.A. in art and architectural history from Penn State University.

Shanon Miller, Historic Preservation Officer City of San Antonio

Shanon Shea Miller, AICP, became the City of San Antonio's Historic Preservation Officer and Director of the Office of Historic Preservation (OHP) in November 2008. Under Shanon's leadership, OHP implements an award winning program that includes extensive education and outreach, technical training, a comprehensive designation initiative, design and development review, and the City's Vacant Building Program. Shanon worked with a volunteer committee in 2012 to form the Power of Preservation (PoP) Foundation. PoP hosts the annual PROM fundraising event which raises funds for hands on programs of OHP such as S.T.A.R. (Students Together Achieving Revitalization), window restoration workshops, Rehabarama, and a learning lab for trades education. Ms. Miller was previously the Historic Preservation Officer for the City of Franklin, Tennessee, where she was involved in the designation of many new historic districts, the purchase and planning for the largest battlefield reclamation in the US, the purchase and rehabilitation of a 200-acre, National Register horse farm to be opened as a City park, the design of a comprehensive heritage tourism way finding system, and the implementation of the Civil War Trails Program.



**Concrete blocks acting as
wave breakers are the only
protection against rising
sea-levels**

*13th century Qaitbey Castle, Alexandria, Egypt
(Photo © Siam Diab)*

Background

Climate Change was not on the agenda in 1966 when ICOMOS was founded with the mission to work for the conservation and protection of cultural heritage places. More traditionally understood threats to heritage, like conflict, rapid urban development and disasters loomed large then. Yet today, climate change has become one of the most significant and fastest growing threats to people and their cultural heritage worldwide (ICOMOS, 19GA 2017/30). Unequivocal scientific evidence shows that unprecedented concentrations of greenhouse gases (GHGs), driven by human activities such as burning of fossil fuels and deforestation, are contributing to climate changes including warming of the oceans and atmosphere, sea level rise and diminished snow and ice. The impacts of these changes are already damaging infrastructure, ecosystems, and social systems – including cultural heritage – that provide essential benefits and quality of life to communities.

The changing climate is creating new risks even while it exacerbates existing vulnerabilities and multiplies traditional threats. Rapid urbanization, wealth inequality, globalization and the attendant loss of cultural identity present grave threats to the well-being of communities. Excessive and insensitive development reflects the abandonment of sustainable patterns of land use, consumption and production, developed over centuries if not millennia of slow adaptation between communities and their environment. In tandem, the ecosystems that underpin human well-being are declining globally at rates unprecedented in human history. One million species are now threatened with extinction with grave impacts on people around the world, warned a landmark 2019 report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

The severity and urgency of the problem is underscored by the 2018 findings of the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Global Warming of 1.5°C. According to the IPCC, humankind has already made the climate 1 degree Celsius (C) warmer since pre-industrial times. Warming is likely to reach 1.5°C around 2040 and 2°C by 2065 if emissions continue unchecked. The report highlights multiple climate change impacts that could be avoided or made significantly less severe by limiting Global warming to 1.5°C compared to 2°C, or more. For instance, by 2100, with Global warming of 1.5°, global Sea level rise would be 10 cm lower than with Global warming of 2°C. The likelihood of an Arctic Ocean free of sea ice in summer would be once per century with global warming of 1.5°C, compared with at least once per decade with 2°C. Coral reefs would decline by 70-90 percent with Global warming of 1.5°C, whereas virtually all (> 99 percent) would be lost with a 2°C rise.

The 2015 Paris Agreement signed by 195 countries under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) seeks to keep global temperature rise well below 2°C this century, and to pursue efforts to limit it to 1.5°C. The IPCC report finds that limiting global warming to 1.5°C would require rapid and far-reaching transitions in the way we use land, energy, industry, buildings, transport, and cities. Global net anthropogenic emissions of carbon dioxide (CO₂) would need to fall by about 45 percent from 2010 levels by 2030, reaching net zero emissions around 2050. This means that any remaining emissions would need to be balanced by decarbonization initiatives – by removing carbon dioxide (CO₂) from the air.

This decarbonization imperative exists alongside the global aspiration for sustainable development

embodied in the 2030 Agenda for Sustainable Development also adopted by the countries of the world in 2015. With its 17 Sustainable Development Goals (SDGs) and attendant 169 targets, these 'Global Goals' (as the SDGs are sometimes known) are arguably the most ambitious and holistic development framework ever conceived. The Sustainable Development Goals together with companion documents like the Sendai Framework for Disaster Risk Reduction and the Habitat III New Urban Agenda contemplate a paradigm shift to a concept of development that views sustainability in more humanistic and ecological terms. This vision embraces the reality that we live in a world of complex, interdependent systems and acknowledges that changes to these systems can either enhance or degrade our resilience in the face of these changes. As with the Paris Agreement, they point to the need for profound and urgent transitions in humankind's patterns of living, production and consumption.

These global documents also give unprecedented, explicit recognition to the fundamental role that culture and heritage can play in these transitions. The SDGs and the Paris Agreement recognize that cultural heritage can guide choices that promote human action in ways that support resilience and sustainability and by extension climate-resilient development pathways. Cultural factors shape the Enabling condition for adaptation and mitigation including whether and how people respond to appeals for Climate Action. The recognition given at the highest levels of policy making to the role of heritage, together with the urgency of the challenges of climate change, creates both a profound opportunity and a challenging responsibility for all those connected to heritage.

Key to understanding this potential is an appreciation of the breadth of the concept of cultural heritage. Over time, the meaning of cultural heritage in professional practice has expanded from single monuments and sites identified as objects of art to cultural landscapes, historic cities, and serial properties. Contemporary practice further extends the concept of heritage beyond 'tangible heritage', to the intangible dimensions of heritage as well. This means the entirety of knowledge derived from the development and experience of human practices, representations, expressions, knowledge and skills; and associated objects and spaces that communities recognise as part of their cultural heritage.

The unique power of exceptional, iconic heritage sites – including the tangible and intangible values they carry – to stir people's souls, drive human responses and galvanize public opinion cannot be doubted. The World Heritage program presents a high profile, global reach, integrated nature-culture approach

and broad mix of heritage typologies. Adopted in 1972, the World Heritage Convention contemplates that the sites inscribed on the World Heritage List will act as laboratories of ideas with the potential to set international standards in heritage management. Developing responses to climate change is just such a case, where World Heritage Sites have an important role to demonstrate and share their climate action work with all communities. Indicative of this is the Policy Document for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention adopted by the General Assembly of States Parties to the World Heritage Convention in 2015, which recognized increasing disaster risks and the impact of climate change, and called on the member states to recognise that World Heritage represents both an asset to be protected and a resource to strengthen the ability of communities and their properties to resist, absorb, and recover from the effects of a hazard.

Cultural heritage is of course far more than World Heritage Sites. In order to understand the relationship between cultural heritage, climate action and resilience, the idea of heritage must be understood and acted upon in its broadest sense. Physical conservation of selected buildings and artefacts will not realize heritage's potential to catalyse climate action or promote social cohesion, inclusion or equity, but neither can the promotion of resilience and sustainability be removed from the conservation of these properties. Culture and place are often closely tied, and this remains so even as both have become increasingly trans-nationalized through globalization. Embracing in historic conservation practice the multiplicity of heritage values that support the attachment that people have to their places and community is one of the important predictors of how well our field responds to the responsibilities assigned to it in the Sustainable Development Goals (SDGs).

The cultural and social values carried by the planet's land and seascapes are closely interlinked with its natural values (and affiliated bio-cultural practices). Facing a changing climate puts a premium on bridging

the divide between nature and culture practitioners and policies. It demands from conservation communities integrated nature-culture approaches on a global scale to help address the challenge of climate change and the planet's other looming crises. This imperative is given recognition in the Preamble to the Sustainable Development Goals which reads: We acknowledge the natural and cultural diversity of the world. This emphasis is borne out across the SDGs. In so doing, the SDGs recognize that integrated nature-culture approaches can advance sustainability objectives by improving conservation outcomes, fostering bio- and cultural diversity, and supporting the well-being of contemporary societies and future generations in both urban and rural areas.

The document *Malama Honua – To care for our island Earth* is one roadmap to realizing the promise these approaches hold. An outcome of the Nature-Culture Journey at the 2016 IUCN World Conservation Congress, *Malama Honua* includes a sobering recognition that cultural and natural diversity and heritage are seriously threatened around the world by a number of challenges including climate change. It goes further, arriving at the conclusion that the very culture/nature divide that has characterized some aspects of conservation practice is itself a symptom of larger processes that have put the Earth on an unsustainable path.

Climate change multiplies not only threats but also the urgency of enhancing good conservation practice. *Malama Honua* similarly called for new working methods that bring together nature and culture to achieve Conservation outcomes on a landscape scale, while promoting the leadership, participation, resilience and well-being of associated communities. Other innovations, including Historic Urban Landscape and rights-based approaches, also seek to make heritage practice more holistic, interdisciplinary and grounded in a concern for resilience and sustainability. Together, they lay the foundation for a new approach to heritage that responds to the unprecedented, systemic threat to people and their cultural heritage that is climate change.

Introduction

Outlining the Intersection of Cultural Heritage and Climate Change: *An Urgent Need*

Resolution 19GA 2017/30 ENCOURAGES all ICOMOS Members to strengthen their efforts to aid in implementing the Paris Agreement, emphasizing cultural heritage and landscape-based solutions, noting the need for rapid and deep reductions in emissions to reverse the increase in the global average temperature to well below 2°C; that adaptation efforts should take into consideration vulnerable communities and ecosystems, and enhance understanding and action with respect to loss and damage from climate change; and the need for solidarity with those nations most impacted by, or least able to bear the cost of, climate change to enable them to safeguard their heritage.

*Boats on the Shoreline, Majuli, Assam, India.
Photo credit: W. Megarry, 2017*

This *Outline of Climate Change and Cultural Heritage* aspires to do no more – and no less – than its name would suggest: to describe the intersection of climate change and cultural heritage. If one were to draw a box labelled *Places where climate change and cultural heritage interact* – what would be in it? The Outline endeavours to list the contents of that box and organize them using new hierarchies that draw from both climate change and heritage conservation practice and methodologies.

The Outline was initially developed by the ICOMOS Climate Change and Heritage Working Group (CCHWG) to define the scope of its own work. In December 2017, the Triennial ICOMOS General Assembly meeting in New Delhi, India adopted Resolution 19GA 2017/30 entitled ‘Mobilizing ICOMOS and the cultural heritage community to help meet the challenge of climate change.’ The Resolution states in part that ICOMOS:

ENCOURAGES all ICOMOS Members to strengthen their efforts to aid in implementing the Paris Agreement, emphasizing cultural heritage and landscape-based solutions, noting the need for rapid and deep reductions in emissions to reverse the increase in the global average temperature to well below 2°C; that adaptation efforts should take into consideration vulnerable communities and ecosystems, and enhance understanding and action with respect to loss and damage from climate change; and the need for solidarity with those nations most impacted by, or least able to bear the cost of, climate change to enable them to safeguard their heritage.

The CCHWG was formed to advance the Resolution’s ambitious mandate. It soon became clear, however, that there was no ready map of this terrain.

To some, documenting the knowledge found in coastal archaeology sites threatened by sea level rise or conserving traditional wood, stone and earthen architecture facing changing temperature and precipitation patterns is paramount. Others are championing sensitively retrofitting historic buildings for energy efficiency to mitigate greenhouse gases (GHGs), or the role of culture in Disaster Risk Reduction to build adaptive capacity. Leveraging the attachment to place that heritage engenders to raise ambition and galvanize Climate Action is often mentioned. Valuing and promoting Indigenous Knowledge, Local Knowledge and the heritage of marginalised communities is also a core aim of heritage work. Indeed, culture touches every facet of human endeavour, and from these complex intersections flow a multiplicity of approaches.

As discussed in the Background section of this Outline, the ambitions of the Paris Agreement are similarly cross-cutting, giving voice to the imperative for society-wide transformation in order to address climate change. Transformational responses to environmental change are generally defined as change that, by its scale or reach, alters the interplay of a given system. Such significant levels of change are likely to involve multiple social processes. Assessing and understanding the capacity of various factors for driving transformative change is critical to designing effective climate action.

Theory and Practice: The Gap Between Heritage and Climate Change

ICOMOS believes that cultural heritage contributes both qualitatively and quantitatively to Transformative Change. This view is supported by analysis from a range of disciplines, including environmental history, anthropology, geography, human ecology, and sociology. Even so, the relationship of heritage to climate action is not well developed in climate literature. Various explanations have been advanced for this, including that the methods for studying culture tend to be narrative-based and qualitative, often including ethnography and participant observation, and *data from these methods do not sit comfortably with the quantitative approaches prevalent in other social and natural science on climate change.* (Adger et al 2013)

Climate action methodologies, policy frameworks, financing mechanisms and networks have similarly sometimes not engaged cultural heritage, or have done so indirectly through proxies. These methodologies often characterize the need for transformative action as a social and technological problem whose solutions lie in individual behavioural change and innovation. Such approaches tend to ignore cultural or political considerations and often omit culture and heritage entirely.

The general absence of cultural heritage from the climate discourse has a practical, correlative reality: while the culture and heritage sectors are important institutions in most communities, they often are not directly engaged in the work of climate action (although there are notable exceptions). Despite the profound connections between climate change and natural and cultural heritage, today there are thousands of archaeologists, architects, historians, and engineers; scientists, researchers, teachers and scholars; carriers of Indigenous Knowledge and Local Knowledge, and heritage advocates, whose talents have not yet been mobilized on climate change issues. Perversely, this lost opportunity is often greatest in cities and regions with ambitious climate action pledges.

Responding to the Gap

This Outline responds to that gap. In so doing, it attempts to take account of all types of cultural heritage and to account for variations in approaches to heritage across different cultures and belief systems. While any taxonomy of cultural heritage is bound to have shortcomings, this Outline categorizes heritage into the following six typologies: (1) moveable

heritage; (2) archaeological resources; (3) buildings and structures; (4) Cultural Landscapes; (5) associated and traditional communities, (6) intangible heritage.

The Outline is divided into two main parts. Part I is a 'sectoral' analysis that maps the core considerations and competencies of cultural heritage to the major sectors of climate action derived from the Paris Agreement. Part I aspires to be a heritage conversation in a climate change framework. Part II catalogues the ways that climate change drivers are impacting cultural heritage. It aspires to be a climate change conversation in a heritage framework. These two parts are preceded by a narrative discussion of various themes that cut across both these parts. A glossary of defined terms can be found in Appendix I. A short introduction explains how the glossary was developed.

Raising Ambition: Mobilizing for Climate Action

The Outline has two primary sets of audiences. It is addressed to heritage communities, including local, community, tribal and indigenous leaders; city, state, provincial and regional, and national heritage administrators and heritage organizations looking to understand the role of climate change in their heritage work; to heritage professionals and advocates exploring their relationship to climate change; and to heritage scholars. This Outline is equally addressed to climate scientists and Policy-makers; to climate change professionals and advocates exploring how collaboration with the heritage sector can deepen the impact of their work; and to public officials including Resilience and climate change officers looking to understand the role of heritage in their climate change work.

This Outline is not a scholarly research document or a professional guide. In the near term, ICOMOS intends to use this Outline to organize the inputs of ICOMOS constituencies into a proposed update of the World Heritage Committee's 2007 *Policy Document on the Impacts of Climate Change on World Heritage sites*, to develop a roadmap for heritage organizations to engage on climate change issues, to support the creation of new a doctrinal heritage text on climate change and cultural heritage, and to organize outreach to the scientific community on research gaps and opportunities. While the CCHWG has collected a vast quantity of both references and case studies, the publication of a bibliography and an atlas of good practice await a later phase of ICOMOS work.

Beyond these immediate programmatic uses, the members of the CCHWG hope the outline will feed the new interdisciplinary #ClimateHeritage movement

that has begun to blossom:

- While the Outline aims to be as broad as possible, it is not an exhaustive accounting. We hope others will accept the challenge of building on this work and take this analysis forward.
- Climate change necessitates new approaches to heritage, and it is hoped this Outline will support such shifts.
- Climate change must become a baseline competency of heritage management; this Outline provides a benchmark against which heritage communities may measure their engagement.
- Equally, climate change actors are encouraged to use this Outline to increase their

understanding of and engagement with cultural heritage.

The Outline is also addressed to policy-makers, scholars and scientists with the hope that it will stimulate attention to existing research gaps and promote opportunities for collaboration.

Cultural heritage is both impacted by climate change and a source of resilience for communities. This Outline endeavours to advance the understanding of those dynamics and in so doing to increase the ambition and effectiveness of diverse actors and constituencies in the urgent work of safeguarding our planet and its heritage amidst a changing climate.

Thematic Essays

Heritage, Climate Action and the Sustainable Development Goals

The United Nations 2030 Agenda for Sustainable Development, with its 17 Sustainable Development Goals (SDGs), is conceived as an evidence-based framework for promoting a systemic understanding of the synergies and dynamics between the economic, social and environmental dimensions of sustainable development. In this regard, nature and culture connect the various SDGs and aspects of sustainability to each other. Their integration often finds form in the rich biocultural diversity of the world's heritage, defining our spiritual and physical relationships with the planet in harmonious ways.

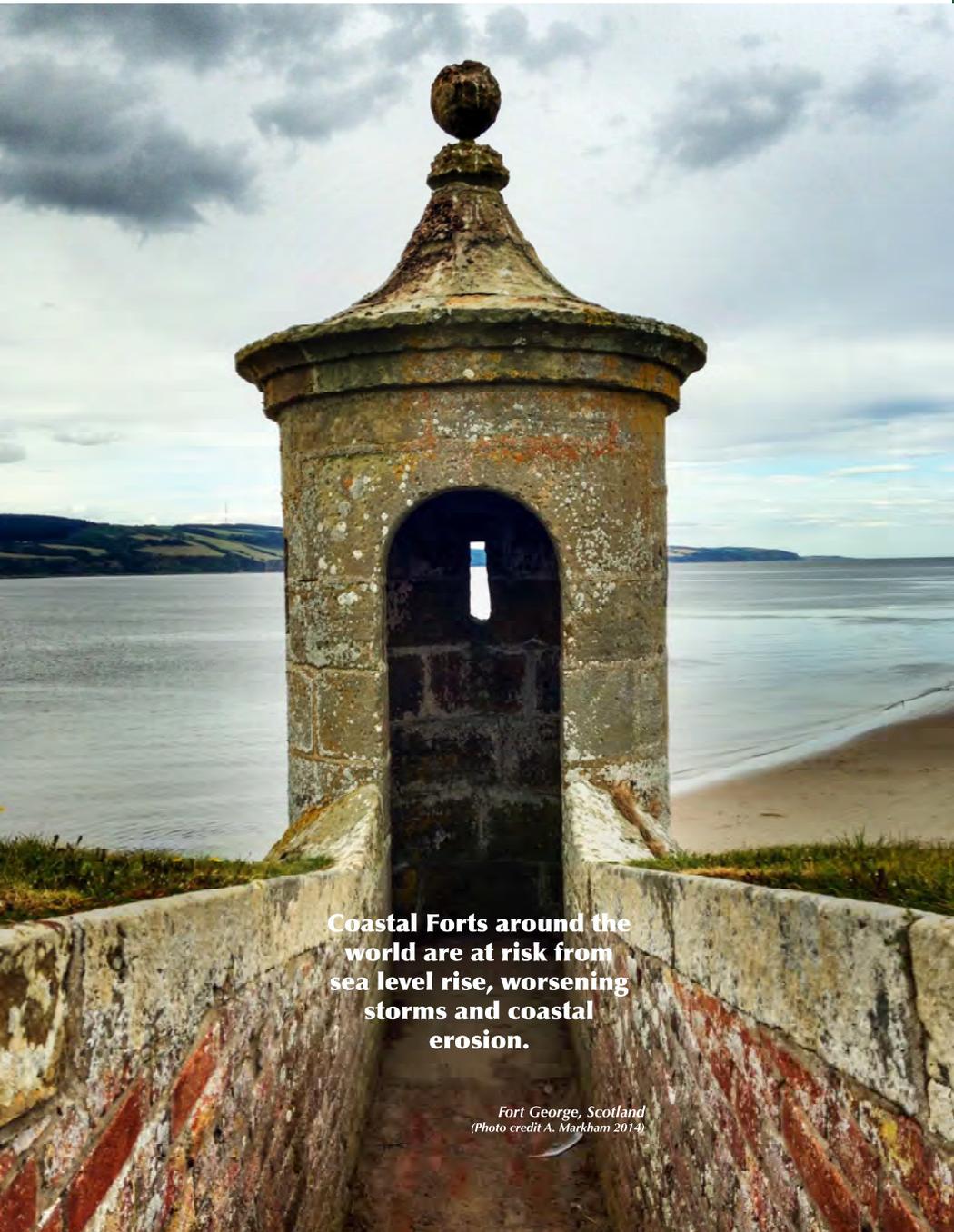
Goal 11 advocating for inclusive, safe, resilient and sustainable cities and human settlements and Goal 13 calling for urgent action on Climate Change are supported with their own global agreements and commitments. The New Urban Agenda, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction, in their strategic arenas each consider the urban context and recognize the importance of heritage conservation. These instruments provide an unusually explicit alignment between heritage and these key policy areas. Heritage, however, is as diverse as its settings and linked to broader systems than cities alone. Rural areas, the polar regions and life underwater, are just a few examples of the variety of cultural heritage contexts. The breadth of the heritage sector allows for meaningful connections with all 17 SDGs. For instance, SDG7 (Affordable and Clean Energy), SDG14 (Life Below Water), SDG12 (Sustainable Consumption and Production Patterns) in reference to sustainable tourism, and SDG15 (Life on Land) have straightforward intersections with heritage, although this is not explicitly mentioned in the wording of the targets. Moreover, the integrated

system expressed in the SDGs implies that the policies and resulting strategies are interdependent, thus discouraging their implementation within any single sector or discipline.

This important momentum in the shift of global development requires an expansion of current concepts in all disciplines and sectors impacting human life and the planet. In this regard, at a global level, heritage conservation practice is increasingly endorsing innovative tools that promote adaptive and systemic approaches to better manage change. Other sectors are advancing practices by widening their sustainability discourse to include heritage. For instance, good governance, impact assessment and the circular economy all emphasize the role of legal frameworks that ensure the conservation and regeneration of local resources, including heritage. As such approaches are increasingly localized across the globe, it should follow that the valuing and promoting of cultural heritage in sustainable development will also increase. Yet it remains challenging, particularly in those contexts where strong governance institutions, accountability and the rule of law and human rights are in early stages of development.

The urgency for Climate Action demands an assessment of the wider implications of heritage as a driver and/or constraint for development. This requires identifying, understanding and assessing those interactions between heritage and development sectors that contribute to positive or negative impacts on climate action.

Co-benefits arise from strategies that concurrently promote both mitigation or adaptation, and preservation of cultural significance. For example, mitigation can include the use of low-carbon,



Coastal Forts around the world are at risk from sea level rise, worsening storms and coastal erosion.

*Fort George, Scotland
(Photo credit A. Markham 2014)*

**Climate Heritage Peer Exchange
Points of Interest**

- 1) El Tropicano Hotel
- 2) Hemisfair
- 3) Range
- 4) San Antonio Museum of Art

SAN ANTONIO DOWNTOWN AREA



Legend

- Attraction
- Historic Site
- Information
- Medical Facility
- Meeting Facility
- Museum
- Park
- Public Building
- Shopping
- Theater
- Transportation
- Official Visitors Center
- One Way Street
- River Cruiser Tickets
- Seasonal River Cruiser Tkt's
- Via Streetcar Stop
- B-Cycle Location
- City Sightseeing Tour Stop

River Walk ADA Accessible