

FROM CLIMATE MITIGATION TO ADAPTATION AND JUSTICE: EXPANDED KNOWLEDGE AREAS FOR HERITAGE EDUCATION



A REPORT ON THE JUNE 3-4, 2022 ICOMOS UNIVERSITY FORUM

ORGANIZED BY JUST TRANSITIONS: HERITAGE EDUCATION FOR CLIMATE ADAPTATION

PARTNERS

Just Transitions: Heritage Education for Climate Adaptation (JTHECA) is an initiative led by three Canadian university academic members of the Climate Heritage Network: Carleton University, Athabasca University and Université de Montréal. Events being organized will be led by these universities in partnership with different organizations, including ICOMOS, ICOMOS Canada, the National Trust for Canada's National Roundtable for Heritage Education, ICCROM and other universities. Please contact us if you are interested in partnering in future events. For more information, email to Susan.Ross@carleton.ca



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ABBREVIATIONS

CHN	Climate Heritage Network
ICOMOS	International Council of Monuments and Sites
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
IPCC	International Panel on Climate Change
JTHECA	Just Transitions, Heritage Education for Climate Adaptation

THE ROLES OF HERITAGE CONSERVATION IN SUSTAINABLE DEVELOPMENT AND CLIMATE MITIGATION ARE INCREASINGLY RECOGNIZED IN TEACHING AND IN RESEARCH THAT BRIDGE THESE AREAS. CLIMATE IMPACTS AND THE NEED FOR ADAPTATION ARE ALREADY CHALLENGING THE ESTABLISHED FOCUS AREAS OF HERITAGE CONSERVATION EDUCATION. FURTHER, DECOLONIZATION AND ANTI-RACISM INCREASINGLY COMPEL US TO QUESTION WHAT HERITAGE WE CONSERVE AND FOR WHOM.

HOW CAN WE ADAPT AND TRANSITION EDUCATION IN HERITAGE AND CONSERVATION TO ADDRESS THE GROWING IMPACTS OF CLIMATE CHANGE AND THE NEED FOR MORE DIVERSE VOICES TO CONTRIBUTE IN SETTING PRIORITIES FOR ADAPTATION?

THIS DOCUMENT REPORTS ON AN EDUCATION INITIATIVE ENTITLED **JUST TRANSITIONS: HERITAGE EDUCATION FOR CLIMATE ADAPTATION** (JTHECA), WHICH RESPONDS TO THIS QUESTION.

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Climate change, like heritage, is a subject that both requires and generates interdisciplinary approaches. The **Climate Heritage Network** (CHN) is a sweeping network of arts, cultural and heritage organizations focused on tackling climate change. The CHN strives to influence decision-makers about threats from climate change to cultural heritage. The network further promotes the essential roles that can be played by culture, the arts and heritage in policies to address climate change impacts and adaptation strategies. The CHN includes academic departments from across the arts, humanities, sciences, and engineering. Started in 2021, **Just Transitions: Heritage Education for Climate Adaptation** (JTHECA) is an initiative of academic institutional members of the CHN working in Canada, notably at Carleton University in Ontario, Athabasca University in Alberta, and Université de Montréal in Quebec.¹ Our objectives are to bring together educators in heritage conservation, to better define the contributions the education sectors can bring to climate issues, including mitigation, adaptation, and transitions towards climate justice. A key concern is to be inclusive of all voices and perspectives. In the Canadian context, there is a growing recognition that Indigenous heritage, knowledge, and governance have an important place in these discussions. How can heritage education assist in making space for these voices and address these contributions?

JTHECA's initiatives build on existing disciplines and interdisciplinary approaches from archaeology, architecture, engineering, history, and heritage planning and studies, while looking to identify expertise from other areas—such as geography, environmental sciences and humanities, biodiversity sciences, and Indigenous relations with the land—that is needed to define, develop, and deliver new approaches to teaching and learning and integrating new knowledge areas and skills in courses and other learning activities. Parallel objectives include understanding how to effectively communicate the key messages about the role of heritage conservation in climate action to emerging scholars and practitioners and emphasizing the role of post-secondary institutions in identifying the methods, subjects, and partnerships that should be prioritized in teaching and research.

JTHECA's initial plan was to host events that would make a difference to academics – both faculty and students – who are grappling with how to keep heritage conservation relevant and effective in these times of change. We began planning a series of three events in June 2022. The first event – directed at educators themselves – was held as an ICOMOS University Forum on June 3 – 4, 2022. The organizers focussed on post-secondary level education, with consciousness of the many forms of heritage education beyond universities. It focussed on identifying and communicating the knowledge areas to be developed in education for climate change. Invited experts discussed topics that will alter what and how we should teach, including climate risk assessment, building resilience and adaptation planning, resource equity, materials reuse and trades, Indigenous heritage and governance, and climate justice.

The second event focused on the importance of the Conference of the Parties (COP) summits under the United Nations Framework Convention on Climate Change (UNFCCC) to the broader CHN. Held in February 2023, it responded to and reflected upon the inclusion of cultural heritage at COP 27. Invited speakers who had attended COP 27 on behalf of advocacy, Indigenous, and government organizations shared their perspectives.² It is planned that subsequent events will showcase new educational models and involve students in learning through case studies.

A wide range of scholarship and pedagogical models are now available to inform how we advance the efforts of heritage education as part of just transitions and climate adaptation. To support the event discussions, participants received a resource list of existing materials, and a website was created to share resources, including recordings of JTHECA events.

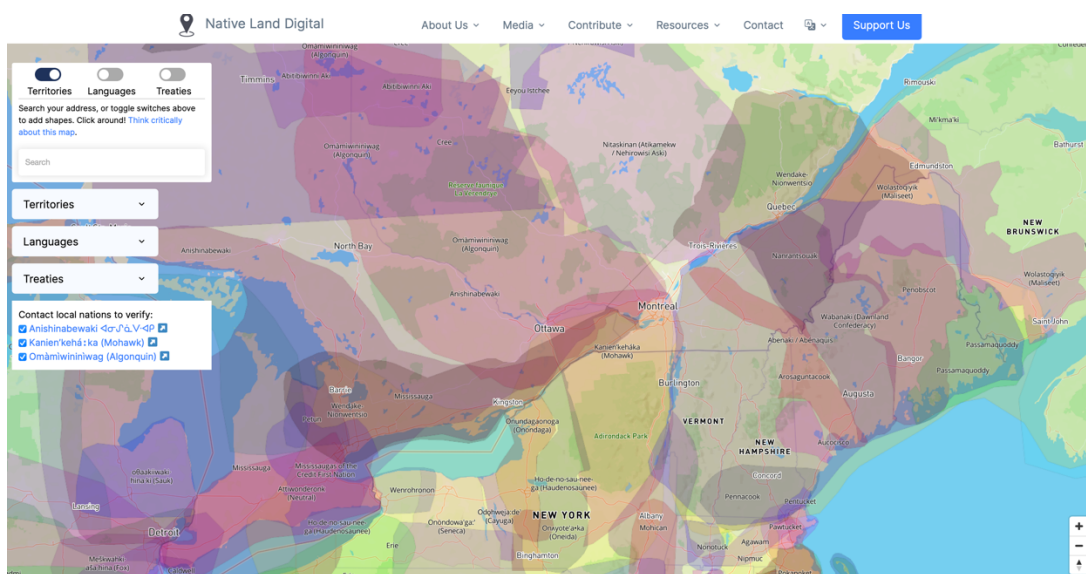
¹ The organizers are also all active members of Canada's National Roundtable on Heritage Education, an organization that gathers educators across all heritage sectors from public education to university degree programmes.

² [Cultural Voices from Arts and Heritage at COP 27](#)

LAND ACKNOWLEDGEMENT(S) AND HERITAGE EDUCATION

Just Transitions: Heritage Education for Climate Adaptation aspires to address much-needed capacity development for decolonizing education in heritage and climate adaptation. This will include ensuring that the knowledge we are seeking to define and develop is informed by Indigenous knowledge, including by helping to reframe Western science and its contributions to the causes of climate change. The land acknowledgement is an Indigenous protocol that positions the speaker in relation to the land, recognizes the Indigenous rights-holders of the land and names specific First Nations, Métis, and Inuit communities associated with the land. It has become an important element of Canadian university events. The land acknowledgement used at the JTHECA events and posted on the website provides a departure point for ongoing learning and exchange in the context of Indigenous knowledge.³

Specific land acknowledgements are made for each JTHECA event by lead institutions, and by individual presenters at their own initiative.⁴ The importance of acknowledging the land is amplified by our roles as educators in these territories, where we can help develop awareness of Indigenous cultures, to engage with Indigenous leaders and communities in how we teach, and to discuss how to bring Indigenous knowledge into teaching, including Indigenous ideas of governance. Through this we can learn how to provide critical alternatives to the exploitation of the lands, waters, and all life forms, which has so long profited settlers at the expense of the lives, health and culture of Indigenous peoples. We recognize that the project of decolonizing education is even more important following the *Truth and Reconciliation Commission of Canada's Calls to Action* (2015) which identified specific roles for educational institutions, and education in every aspect of society.

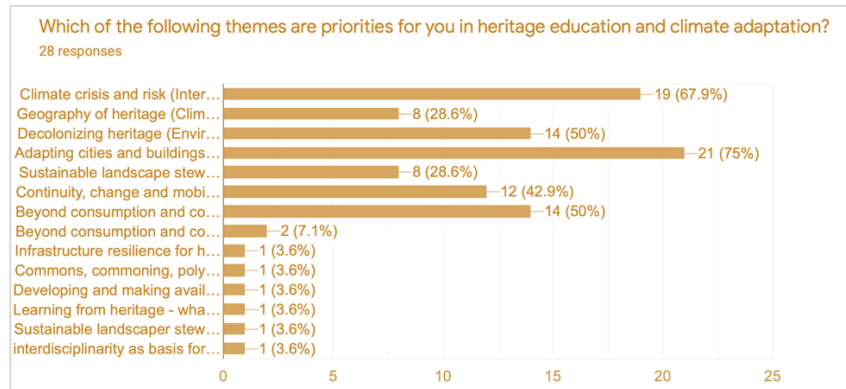


Territories around Ottawa, the location of Carleton University (screenshot from Native.Land.ca)

³ "Pijashig! Kwe kwe! Tunngahugit! She:kon! Aanii! Boozhoo! Tansi! Taanishel! Hello! Bienvenue!" Greetings in multiple languages of the First Nations, Métis and Inuit peoples on the JTHECA website honour the fact that these events are being organized by members of academic institutions located across Canada, with participants from other parts of Turtle Island (North America) and the world beyond. We wish to acknowledge the Indigenous peoples who are our hosts, and our ongoing responsibilities to all forms of life in these lands and waters.

⁴ To identify the Indigenous territory where you are located, see Native-Land.ca.

The goal of identifying and understanding the need for education in new or expanded knowledge areas was a driver of the first JTHECA events and the research that preceded them. In 2021 we surveyed the thirty-five academic members of the CHN, to identify those who were interested in the issues, and receive their feedback on possible themes. Twenty-one participants ranked the suggested themes and added seven additional topics.



For the first event, a draft thematic outline, based on the priorities identified through the survey, served as the structure to organize invited speakers into four groups:

- Climate science, cultural geography, crisis and risk, landscape, stewardship
- Cities, buildings, infrastructure, adaptation, resilience, evaluation, analysis, tools
- Materials, trades, customs, repair culture, skills, circular economy, tourism
- Indigenous heritage, environmental justice, reciprocity, governance, collaboration, interdisciplinarity and world views.

Each of these thematic groups formed the basis for one of the speaker panels. A short list of speakers was identified and invited for each topic. The final title for each panel – as reflected in the summaries of each panel further below in this report – was adapted to reflect the competencies of the speakers who accepted, taking into consideration how best to organize relatable knowledge areas into coherent groups, while respecting the priority areas identified through the survey.

The speaker panels of the first event were recorded.⁵ They can now already serve a useful role in teacher training by introducing or confirming the importance of these areas. The wide-ranging scope of the information shared at the first event challenges existing models of heritage education that focus more on discrete typologies (for example, buildings, or archaeology, or museums, or intangible heritage). It also helps to raise awareness across the heritage sector of the variety of stakeholders who are involved in heritage education and their diverse needs. The lessons to be drawn from knowledge areas and approaches to education are captured in the discussion of each panel below.

There is a strong tradition in Canada of focussing on built heritage and historic places. To be effective, approaches to the adaptation of buildings will need to take into consideration a broader context that includes archaeological sites, living heritage (both urban and traditional), and concerns for equity and social justice in the use and reuse of resources and the integration of community perspectives and roles. This broader approach is ambitious, linking the global challenge of climate change impacts with the need for diverse local actions that demands capacity building across sectors, stakeholders and rightsholders.

⁵ JTHECA website recording: <https://carleton.ca/jtheca/recordings/>

In parallel to developing the speaker panels, the lead author worked with two student research assistants to compile related literature on heritage, education, climate, adaptation.⁶ This draft compilation was published as a draft Resources list on the JTHECA website to be available at the time of the Forum in June 2022. The resources included relevant articles by speakers, some of which are discussed below.⁷

We compiled a total of 238 English-language publications, including: 152 articles, 25 reports, twelve books, eight proceedings (collection or articles), and one video. They were located through university search engines using the following keywords (and synonyms): heritage, education, climate, adaptation. The articles came from 110 different journals, with many from three main areas: education (e.g., *International Journal of Sustainability in Higher Education*, with four articles); heritage (e.g., *International Journal of Heritage Studies*, with three articles); and climate / environment / sustainability (e.g., *Climatic Change*, with four articles). The journals with the highest numbers of articles on climate and heritage all fall under heritage, but none of these articles are also about education. This includes *APT Bulletin* (six articles); *The Journal of Cultural Heritage Management and Sustainable Development* (eight articles); *The Historic Environment: Policy & Practice* (five articles); and *Change Over Time* (five articles). Additional journals of broader interest for science, culture or society, or more narrow value in specific professions or specializations have also published on climate-heritage related themes. Examples include *Museum Management and Curatorship* (two articles), *Natural Hazards* (three articles), and *Decolonization: Indigeneity, Education & Society* (one article).

While this work endeavoured to include available articles that address relevant research, it does not represent an exhaustive review of the existing literature. Thus, for the purposes of this article, it was decided to re-frame the findings from the JTHECA resource list by a discussion of relevant review articles. Review articles, which are more common in the sciences and engineering, are comprehensive or complete assessments of the academic literature in a specific area, with a view to summarizing and critically commenting on the 'state-of-the-art' in related published research. Several review articles have been published that systematically address the relationship between climate change and (cultural) heritage (conservation) have been published (Fatoric and Seekamp, 2017; Sesana et al, 2021; Orr, Richards and Fatoric, 2021).

These assessments of academic literature appear to be useful points of departure for focusing on a sub-category such as education, climate adaptation or social justice. However, heritage education and climate adaptation and/or social justice are relatively 'niche' focus areas and did not emerge as the focus of any of these reviews. Once these specific sub-themes were identified, this opened the need for a broader review. Sources on education more generally for heritage, or climate change / adaptation / justice can be more fruitful. Review articles from other areas were thus also included in the initial review of specific relatable themes such as environmental or climate change education (Burch and Harris, 2014; Monroe, 2019); multi-hazard impacts on cultural heritage (Bosher et al, 2020); community and landscape adaptation (Ford, 2016; Alizadeh, and Hitchmough, 2019) or disaster waste management (Brown, Milke and Seville, 2011).

The literature review subsections that follow will discuss our findings on the themes of heritage education, climate adaptation and social justice, expanding to include useful insights beyond heritage-specific contexts. These reviews conclude with a section that highlights the themes that emerged as areas of strength, such as vulnerability assessment for coastal and archaeological heritage, urban landscape adaptation, Indigenous climate knowledge, and the multiple roles of universities in climate adaptation. While we endeavoured to include all available articles that address relevant research, this work does not represent an exhaustive review of the existing literature. The final section will suggest some areas of importance for which surprisingly less scholarship was located, such as the impact of climate on heritage tourism and managed retreat planning in historic landscapes.

⁶ Acknowledgement of work of Abi Kang and Milan Roy, funded through Dr. Mario Santana's research funds..

⁷ Full list available here <https://carleton.ca/jtheca/resources/>

HERITAGE EDUCATION

There are surprisingly few articles written on the state-of-the-art of heritage education. It might be that related subjects would be identified within museum, architectural, archaeology or Indigenous education (As examples: Molina-Teras, 2021; Clarke, 2020; Llamas, 2017, Chitty, 2015; Lapensée, 2021). The dispersed contexts of heritage education – from public to university level – and the important roles of institutions, quasi government associations, and professional associations in delivering heritage education, also mean that related experiments and theoretical analysis may be less covered in scientific review articles, or related to academic scholarship, and instead be located as part of grey literature.⁸ An example of a literature review to cover climate change and cultural heritage which provides short commentary on 60+ policies, reports and graduate theses, is APT’s Climate Change and Cultural Heritage Conservation: A Literature Review (Horowitz et al, 2016). Review-type articles also exist that focus specifically on projects, programs or initiatives that are described in the grey literature (Hambrecht and Rockman, 2017).

One of the challenges in locating education related literature can come from the language. For example, in many policy contexts the term used for education or training might be ‘capacity building’.⁹ For example, the International Panel on Climate Change (IPCC) emphasizes the breadth of needed forms of knowledge deepening and sharing from all scales and levels of “capacity building” including “educational and information programmes, using the arts, participatory modelling and climate services, Indigenous knowledge and local knowledge and citizen science.” Such measures are expected to “facilitate awareness, heighten risk perception, and influence behaviours.” (IPCC, 2022, p.28)

As an ICOMOS University Forum, the focus in this review was largely on post-secondary education. Further, several publications explore the possible **roles for universities in climate adaptation** (or other educational institutions, at other levels) beyond and including teaching. The importance of addressing the risks and needed improvements to a university campus combined with research functions, means its projects can be framed as a possible living laboratory for education and testing new models (Pereira, Tavares, and Soares, 2021, Ferris, 2021a).

Over the years, ICOMOS has produced several reports that help identify specific competency areas to be developed in heritage practices. The 2019 ICOMOS report Future of Our Pasts: Engaging Cultural Heritage in Climate Action provides specific recommendations related to education and adaptation, including calling for:

- Training and education for the implementation and monitoring of adaptation actions, disaster planning, and recovery. Training and capacity building to ensure the correct skills, materials, and procedures (e.g., emergency evacuation of movable heritage) including inter-sectoral and inter-disciplinary cooperation. Training in recovery strategies could include heritage-based processes to foster social cohesion. (ICOMOS, 2019, article 7.6)
- Harnessing the power of heritage to create public engagement / education on climate change, creating dialogues within and between communities. (ICOMOS, 2019, 10.2.1)

Many of the speakers in the ICOMOS University Forum are involved in some form of education and training, and most had published about the knowledge areas of the panel. However, their publications do not necessarily address related needs in education. Speakers were asked to bring forward ideas on what to teach (knowledge areas), while the consideration of how to teach remained more implicit. Three exceptions from speaker publications are worth mentioning:

- Georgina Cundill’s work (with Harvey) on the potential for approaches based on social learning – learning from experience with others – for climate adaptation policy and practice (Cundill and Harvey, 2019);

⁸ It is perhaps surprising that many review articles exclude theses or dissertations as part of their review of the state of the art.

⁹ There are many alternates available for each – for instance for 'Education' Keywords used in NRHE biblio includes: *Academy, Awareness, Case Studies, Classroom, Community, Competencies, Course, Curriculum, Didactic, Education, Engagement, Experiences, Fieldwork, Knowledge-transfer, Learning, Literacy, Participation, Pedagogy, Postgraduate, School, Studies, Teacher, Training, Skills, Student, University, Youth*

- Rohit Jigyasu’s report (with Magar and King) on ICCROM’s evolving approach to training and capacity building, including addressing the capacity of institutions, networks, and individual professionals to address global challenges (Magar, King and Jigyasu, 2020); and
- Lori Ferris’s work on the unique role that educational institutions can take in climate action as stewards of campuses of existing buildings, through building reuse and retrofits (Ferris, 2021a).

Together, these publications help to highlight the challenge and potential value of considering both what we teach and how we teach in in specific contexts within heritage and climate adaptation. They also show how areas of climate action other than heritage are assessing and reviewing educational approaches. Observations on how the June 2022 discussions reinforced or added to these observations on heritage education from the literature are discussed following the summaries of each panel.

CLIMATE ADAPTATION

This area of focus, intended to draw out literature that considers climate adaptation issues, strategies, and impacts, is the area that seems most developed in relation to heritage conservation, if not education. We identified several areas of strength that are starting to be well-studied and for which there are multiple sources, including related educational projects (in the form of workshops, course work and field training). This includes climate change vulnerability assessment, and relatedly assessments of adaptive capacity, urban landscape resilience and adaptation, holistic analysis of the impacts of building reuse and retrofits, and Indigenous perspectives and rights in the context of climate adaptation:

- The **climate change vulnerability assessment** is a major strategy for understanding how to recognize climate impacts in every possible type of heritage context, from sites to collections to traditional practices and the economies based on historic and contemporary uses. One example title in the resource list is Daly, 2014. Adaptive capacity (Daly, 2014) is noted as a critical dimension to climate change vulnerability, and increasingly related education, gender, family status, and other intersectional factors.
- **Urban landscape resilience and adaptation**, requires that the built environment is considered in the broader scale of its geographic and ecological frameworks. This approach is also important for reasons of governance and to address political challenges. The scale of climate risks and impacts requires planning for adaptation at the larger scale. An example title in the resource list is Pintossi, Ikiz Kaya, Roders, 2021.
- As the impacts of **building reuse and retrofits** are better studied, especially regarding energy retrofits, thermal comfort, and materials lifecycle impacts, the need for more holistic strategies are better understood. An example title in the resource list is Ferris 2021 b.
- **Indigenous perspectives and rights** are crucial to recognize as a part of climate adaptation to address the climate injustices of ongoing colonial systems and also because of their knowledge of the land, water, and relationality with other life forms that help to better position critical community roles in adaptation. An example title in the resource list is Johnson, Parsons and Fisher, 2022.

JUST TRANSITIONS

Comprehensive review articles about climate and heritage suggest a predominance of European and North American publications, with some multi-author articles demonstrating occasional collaborations between different countries, but not as much as expected (Orr, Richards and Fatoric, 2021). Geographic distribution is necessarily biased by limiting the review to English-language sources. It is not possible to perform a gender-based or equity / diversity / inclusion / justice analysis of articles using only author names and institutional affiliations. It was generally not possible to identify if any authors were Indigenous authors. Still, emerging themes from recent social and academic discourse are evident, notably concerns about intersectionality in education, in particular intersections of gender, climate impacts, adaptation capacity and social justice.

The Just Transitions theme has become closely associated with policy initiatives to ensure that the move away from fossil fuels to more renewable and less polluting energy sources also leads to fairer labour options (Lee and Baumgartner, 2022). A review article

from American scholars on needed transitions in environmental education confirms this energy-related transitions position (Jorgenson, Stephens, and White, 2019). Transition-oriented education requires focusing less on energy conservation behaviour and more on “collective action, multi actor networks and sociotechnical innovation in shaping energy transitions” (p.168). Their recommendations include to move beyond pro-environmental behaviour as a conceptual basis, towards more collective political engagement that is more engaged with social movements, could find parallels in education too narrowly concerned with heritage. The article reconceptualizes youth as actors and innovators in a much broader social network, beyond their homes and families. It broadens the concept of energy literacy to include technical and social innovation at more encompassing scales, to help support constructive hope, and to create narratives that foster longer term engagement (Jorgenson, Stephens, and White, 2019).

It is important to consider how climate is addressed within articles focussed on energy transitions and vice versa. These are important distinctions, which also need to be conceptualized in climate / heritage / energy literature. While climate change vulnerability is defined first within an assessment of motivations for energy retrofits, it should also be more of a consideration of retrofit impacts (Webb, 2017). Energy retrofits can in some cases even diminish adaptive capacity, e.g., when adding insulation in some constructions might lead to overheating.

GAPS IN KNOWLEDGE AREAS AND EDUCATIONAL APPROACHES

One of the goals of this review is to identify possible gaps in teacher training to ensure instructors can address climate adaptation as part of heritage education as it exists or is being planned. This overlaps with many other questions about gaps in educating the educators, but also now confirms the importance of addressing multiple gaps in parallel – from sustainability to social justice. Several strategic recommendations can be made from the more general literature on climate education. These include the need to engage classroom activities in the regular school curriculum with hands on local problem solving and making links between sustainable development and local impacts (Anderson, 2012). Approaches based on social learning – learning from experience with others – is critical for climate adaptation policy and practice (Cundill and Harvey, 2019).

Ongoing gaps to integrating approaches to cultural heritage management across disciplines need to be addressed. Innovative collaborations, “interdisciplinary, multidisciplinary, and transdisciplinary approaches to cultural heritage management, preservation, and adaptation,” which are “needed due to the inherent complexity of the processes involved”, do not seem to be happening, or not being shared if they are (Orr, Richards, and Fatoric, 2021, p.449). This includes exchanges across broader geographic gaps. Without recognition of biases towards colder or temperate climates in North America and Europe much of the knowledge development and exchanges continues to favour those who are best equipped to adapt.

Gaps specific to heritage and climate adaptation can be related to increasing human mobility with perspectives from tourism to relocation. The theme of heritage tourism and climate change is surprisingly less developed in the literature. While the global pandemic has impacted travel and tourism, possibly sensitizing many more people to the impacts of mass tourism on heritage sites and the broader environment, this has not yet translated into lessons learned for mass tourism. Another theme also surprisingly less present in heritage and climate scholarship, is ‘managed retreat’ from sites considered to be at risk of irreversible loss. This includes planning for or by communities at risk from sea rise, coastal erosion, thawing permafrost, increased high-level flooding, repeated forest fires, or other major expected changes. It is increasingly understood that climate adaptation will necessitate relocation, and that these displacements often involve social injustice (Ajibade and Siders, 2021). The focus in heritage planning often remains on adaptation in place, by promoting resilience or the capacity to withstand the shocks of climate-related disasters, and by ensuring that diversity and flexibility are protected and enhanced (Leichenko, 2011). Developing timely resilience may be a challenge in the context of increasingly frequent extreme events; this suggests that vulnerability assessments must present a broader spectrum of planning options. Furthermore, community-based strategies are needed that consider women’s roles and networks are needed to counter large-scale planning (Williams, 2018).

The first event of JTHECA was organized in partnership with ICOMOS/ICOMOS Canada as the first online ICOMOS University Forum.¹⁰ This Forum focussed on identifying and defining knowledge areas for heritage education to support adaptation of places and communities to changing climates. According to the Adaptation Learning Network's Climate Adaptation Competency Framework.

Climate adaptation requires a foundation of knowledge or literacy in a number of scientific areas and from a number of different worldviews and perspectives. These include understanding and being able to consider, bridge, and apply knowledge drawn from Western climate change science and climate models and Indigenous knowledge systems. It requires understanding and being able to apply systems thinking and climate adaptation science to a range of issues and opportunities. (Cox, et al, 2020, p.17)

The event's focus and discussion naturally recognized the value of many of the recent ICOMOS reports on climate change as foundational resources, most notably, the *Future of Our Pasts* (2019) discussed in the literature review above. While many of the education-related recommendations in ICOMOS's *Future of Our Pasts* report suggest the importance of knowledge exchange across sectors and generations, as noted in the state-of-the-art above, there are specific opportunities in academic contexts to focus on critical pedagogical development, engage with communities, and demonstrate appropriate strategies for the associated campus properties of which they are stewards. Recognizing the specific challenges of university-level education, the overarching objectives of this ICOMOS University Forum included:

- to help develop a shared understanding of basic knowledge gaps or strengths, by offering an introduction and overview of the areas of study to be included in heritage education that will support increased competency in graduating students;
- to enable educators to hear from experienced peers about opportunities for and barriers to integration of these knowledge areas in existing heritage education in diverse disciplines, professional development, and training contexts; and
- to equip participants with an overview of available resources in these areas, ranging from academic literature to pedagogical tools and other resources.

PROGRAMME AND STRUCTURE

The programme included four themed discussion panels spread over two days: Climate Impacts and Heritage Vulnerability; Building/Urban Adaptation and Resilience; Materials/Resources, Reuse and Equity; and Climate Justice, Indigenous Knowledge, and Governance. As noted in the methodology section, the themes were identified by surveying academic members of the Climate Heritage Network and represented the priority areas of the organizers and the speakers.

We expected additional areas requiring competency development and capacity building to emerge during the discussions. We also recognized, as Canadian academics, the limitations of our knowledge areas and experiences in these emerging areas. The goal of each panel was to identify and discuss key concepts to support developing competencies in climate adaptation in heritage education. Subject area experts and experienced educators in identified sub-areas discussed the main concepts that are central to understanding these areas, as well as aspects of applicable educational approaches to be considered.

¹⁰ The ICOMOS University Forum JTHECA planning team consisted of Susan Ross, Mario Santana and Laurie Smith from Carleton University, Claudine Déom from Université de Montréal and Shabnam Inanloo Dailoo from Athabasca University.

KEY CONCEPTS: ADAPTATION AND CLIMATE JUSTICE

According to the Adaptation Learning Network's Climate Adaptation Competency Framework.

Climate adaptation requires a foundation of knowledge or literacy in a number of scientific areas and from a number of different worldviews and perspectives. These include understanding and being able to consider, bridge, and apply knowledge drawn from Western climate change science and climate models and Indigenous knowledge systems. It requires understanding and being able to apply systems thinking and climate adaptation science to a range of issues and opportunities. (Cox, et al, 2020, p.17)

To facilitate the entry into these discussions, each day began with a presentation on a major concept of JTHECA focus: Thea Dickinson spoke on climate adaptation on June 3; and Georgina Cundhill-Kemp spoke on climate justice on June 4. These speakers working outside heritage conservation were invited in to help situate the questions of JTHECA in the larger themes of climate adaptation and climate justice. ICOMOS's 2019 report *The Future of Our Pasts, Engaging cultural heritage in climate action* offers these two definitions:

Adaptation (in human systems): "The process of adjustment to actual expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects." (ICOMOS, 2019, p.92)

Climate justice: "Climate justice links Human Rights and development to achieve a human-centered approach to climate action, safeguarding the rights of the most vulnerable; taking into account the needs of those at the greatest risk, particularly the poorest and most vulnerable; and sharing the burdens and benefits of climate change and their resolutions in an equitable and just manner." (ICOMOS, 2019, p.100)

In her presentation on **CLIMATE ADAPTATION**, **Thea Dickinson** (University of Toronto / Environment Canada / IPCC) explained some of the principles of climate adaptation including the importance of considering adaptation and mitigation together, and introduced a number of strategies that do one or both. She introduced the concept of maladaptation, adaptations with unintended consequences, such as when adaptation is not sustainable, or leads to loss of heritage sites and culture or habitats – a helpful concept for understanding both heritage and climate justice. Thea Dickinson argued that climate adaptation that does not include cultural heritage is a form of maladaptation. But in her review of adaptation plans from around the world, she found very few addressed heritage. There is much work to do in ensuring the negative impacts of climate adaptation are considered alongside the positive objectives (Dickinson, 2019).

In her presentation on **CLIMATE JUSTICE**, **Georgina Cundill** (IDRC, Rhodes University) explained that our responses to climate change hold within themselves the capacity to be transformative in ways that address injustice. This must take into consideration how distinct types of justice or injustices operate. For example, while distributional justice (who is creating a problem vs who is impacted) epistemic injustice is critical to understanding the ongoing silencing of disadvantaged stakeholders and rights holders.

Each panel included four parts: the panelists each started by speaking briefly to their knowledge area and the potential educational context, format or needs to consider. This was followed by a facilitated discussion with the panelists, and then an open discussion using the chat function to take questions from participants. To conclude the educator-focused initial event, at the end of each day, a student and an emerging professional were invited to reflect on how these knowledge areas build upon and or challenge what they have been recently learning or experiencing in their practices. Questions of interest included: how did this event address their own concerns for heritage education on climate adaptation? What is still missing? We also invited the participants to identify the highlights or potential gaps in what they heard using an online feedback form available at the event.

KNOWLEDGE AREAS / PANEL THEME OVERVIEWS

This section provides brief summaries of each of the four panels from June 2022. Recordings of the panel are available [here](https://carleton.ca/jtheca/recordings/):

<https://carleton.ca/jtheca/recordings/>

WHAT ARE THE MAIN CONCEPTS AND OR METHODS YOU CONSIDER ESSENTIAL TO UNDERSTANDING AND BUILDING CAPACITY IN THIS AREA?

RISK & VULNERABILITY
Language & frameworks

Challenges and opportunities for current and future education programs.

Young people "...are being taught by people who have been able to accommodate themselves to a regime of thought laid down by their predecessors. It is a self-perpetuating system."

Doris Lessing (2008: xxii)

"Adults designing educational programs and working life rules seem to have already defined the goals and the rules that have predetermined young people's future(s)".

Bentz and O'Brien (2019)

Justice in a Changing Climate

IDRC · CRDI
Canada

Dr. Georgina Cundill Kemp
June 4 2022

(Photo credit: Fibonacci Blue / Flickr)

HERITAGE EDUCATION

Case studies

Past - Present - Future
Impact assessment
(physical - environmental - economic - social - cultural)

Stakeholder engagement
Design project
Future scenario planning

To begin to plan for adaptation, we need to start with understanding impacts, and how to assess them, to understand the relative vulnerability of heritage places and sites to critical changes which may come about slowly or increasingly through more drastic events. In this session, invited panelists were asked to share their expertise and experience with concepts that include climate impacts and vulnerability assessment, teaching climate change in communities, and teaching and planning disaster risk preparedness and reduction. This panel was moderated by Mario Santana (ICOMOS/Carleton University)

Cathy Daly (Lincoln University / CHN): spoke to the panel questions, where she explained the notion of “Knowledge landscape” in understanding and transmitting climate change adaptability to students, dealing with assessing impacts, evident complex interactions, and uncertainty. She pointed out the need to start with a contextual understanding of the heritage created and how it has survived over time. Moreover, she stated the need for solid climate change literacy to have a common language and framework that can be used with and by students, and the values-based approach, already widely used for cultural heritage assessments. In terms of curriculum, Cathy underlined that climate change and sustainability issues are currently integrated into all the degrees offered by Lincoln University to prevent isolated courses with no relation. She also mentioned preventing stakeholders’ fatigue and integrating the most affected communities in the dialogue because they are often excluded. She also talked about sustainability and climate justice, essential in adaptation. To wrap up, she talked about a new initiative for research students’ site-based, where communities, businesses and local government can request assistance in tackling sustainability issues affecting them. She concluded with contemplative teaching approaches for inner transformation and the availability of many educational resources and underlined the effectiveness of the “adapt Northern Heritage Toolkit.”

Will Megarry (Queens University / ICOMOS / CHN) speaks as an ICOMOS Climate Change professional and educator. Will teaches undergraduate and graduate students in various cultural heritage topics, and he finds the increasing need to combine both roles. He underlined the critical need for carbon literacy among all education sectors to provide a common language. He talked about a Carbon literacy elective course offered to all undergraduates entering his institution as a very positive step, but also identified the challenges of adapting these contents in courses crossed the university due to accreditation challenges. Furthermore, he underlined the need for capacity building in climate change that requires a firm foundation and that has taken everyone off guard with the escalating effects and underlined that cultural heritage had not escaped this fact. He also mentioned the need for inclusiveness and involvement, not getting cut up into details, but acknowledging the need for more plural values using the transformative power of education, avoiding the inequalities, imposition of western views on climate change without understanding the local situation, a more consensual and non-extractive learning approach, such as recognizing Indigenous knowledge about adaptation as a cultural aspect. He talked about trying to fix a complex problem without using all necessary tools, where a plurality of knowledge systems should be understood, and where exchange should be used rather than imposition. Will also offer practical examples to support heritage education in climate adaptation, such as using primary carbon literacy literature and not re-inventing the wheel, universities taking the lead in professional accreditation that considers aspects of climate change education under the development of ICOMOS toolkits. He concluded that education is about transforming information into knowledge.

Rohit Jigyasu (ICROM / CHN) mentioned that climate change is no longer a guessing game, given the increasing number of disasters that everyone can perceive—looking more at what will happen using future scenarios, going from deductions to predictions, also understanding vulnerability not only physical impacts but also combining them with social, economic, institutional, and attitudinal risks. Furthermore, he underlined the need to rediscover traditional knowledge on climate risk assessment, breaking silos between traditional and scientific knowledge and studying what it is and how it is applied. Rohit agreed with the other two panelists about the values-based approach but underlined that not only understanding the loss is enough, he said that understanding how these values are transformed over time or new ones are created is also very important. He also talked about cross-disciplinary and holistic approaches in the study. Moreover, he discussed the need for a territorial perspective to tackle climate change, mainstream this thinking beyond artificially constructed boundaries of nature and culture, and work with different levels (e.g. international, national, local) to avoid working in isolation. He

mentioned the multi-hazard approach and followed the approach of building back better to reduce vulnerability. Finally, he explained the need of place-based contextual approaches that go beyond assessing the heritage site in isolation.

BUILDING/URBAN ADAPTATION AND RESILIENCE

Much of the focus in heritage conservation for the built environment including for historic urban areas has been around climate mitigation. The relationship between mitigation and adaptation is important to examine, to help see the additional areas to understand in the context of adaptation. In this session, invited panelists were asked to share their expertise and experience with concepts that include building resilience and adaptation, planning adaptation for the Historic Urban Landscape, and teaching climate mitigation and adaptation in built heritage. This panel was moderated by Claudine Déom (Université de Montréal).

The presentations by speakers in this panel emphasized the importance of training practitioners capable of transforming the established frameworks of research and practice. To do this, for example, **Oriel Prizeman** articulated the importance for students to make the connection between planetary issues linked to the climate and the reality of heritage conservation that they encounter at the local scale (Prizeman, 2015). In her teaching of students enrolled in the M. Sc. Building Conversation at Cardiff University, Oriel encourages them to identify behaviour models and decision-making of different stakeholder in unique locally situated experiences to which they are exposed. Learning can only be iterative and over a longer time, according to the specifics and constraints of places being studied.

Paloma Guzman's comments echoed those of Oriel, for the researcher/scholar at the Norwegian Institute for Cultural Heritage Research, it is essential to convince students in heritage that all can contribute to climate action, and that each action, even if ordinary, can contribute to making a difference over time. By basing itself in humanist values, heritage has the capacity to open horizons, to change individual future mentalities and visions.

The architect **Mark Brandt**, third and final panelist, continued in the same direction: are future practitioners ready to leave behind the well-trodden paths of professional practice to invest in the new fields he considers urgent (Brandt and Rouillard, 2017). This includes building rehabilitation, decarbonizing existing buildings, and life cycle analysis. According to Mark, it is imperative for heritage practice to change, to transform itself to better respond the climate change issues he considers critical. Accepting to leave one's comfort zone, encouraging dialogue between actors with different views, being mindful not to reproduce unsustainable behaviour or thinking: these are common ideas to emerge from this panel's rich remarks.

MATERIALS / RESOURCES, REUSE AND EQUITY

Reuse of the existing materials and resources is at the heart of heritage practices, but strategies for both climate mitigation and adaptation draw attention to the wider built legacies of human cultures, including impacts of extractive industries embodied in the materials of the buildings reused by adaptation. Reuse in a context of social justice needs to address equitable access to resources. In this session, invited panelists were asked to share their expertise and experience with concepts that include the role of adaptive reuse and circularity within the Historic Urban Landscape approach, and methods for assessing embodied effects of existing buildings (and the roles of traditional and sustainable building materials). This panel was moderated by Susan Ross (APT/ Carleton University). A third speaker on traditional materials was unable to participate.

Deniz Ikiz Kaya (TU Eindhoven, CHN) spoke about the importance of teaching Adaptive Reuse, Circularity, and the Historic Urban Landscape approach as part of Heritage Education for Climate Adaptation. Adaptive reuse expands the values and impacts of building renovation to reposition reuse as a driver to reduce environmental impacts, recreating a broader spectrum of values, and enabling a human-centered circular city. This positions heritage broadly defined in relation to the four pillars of sustainability (social, cultural, economic, and environmental). The importance of heritage education and capacity building for climate action are highlighted in the Future of Our Pasts (ICOMOS, 2019).

Deniz presented examples from teaching in a built heritage context where architecture and engineering students worked together with students in the social sciences and engaged with communities. An educational format based in assessing case

studies allowed all students to see impacts and potential of real examples. Project sites highlighted the specific context of the Netherlands' significant water-based heritage, grounding adaptation planning and design in a culturally significant landscape. She also spoke of the e-Creha workshops (Education for Climate Resilient European Heritage Architecture, 2021) that brought together students from across Europe, which provided a rich exchange of local knowledge with new perspectives. For Deniz, it is important that students be taught to see the opportunities, as part of building the skills for new types of careers, which look for solutions and strategies.

Lori Ferris (Goody Clancy Architects, AIA, ZNCC, APT, CHN) spoke about the need to connect building and materials reuse to the retention of embodied values, carbon and labour – each of which can be seen both negatively and positively. Reuse should be taught in terms of avoided impacts, with heritage working to reduce carbon impacts, but also to support local skills and trades, and address inequities in human health impacts. Lifecycle assessment (LCA) is an important tool for measuring embodied impacts, connecting to circular models. However, the gaps in data for historic buildings is a challenge; LCA-based tools should continue to be tested on historic buildings.

Lori presented two university examples, a single building renovation at Boston University, and the retrofit of the entire Agnes Scott campus in Georgia. These cases help demonstrate how to apply the emerging tools and provide evidence of the significant environmental benefits of reuse, but also need to address social and cultural values. To prepare students for this kind of work, Lori explained that they will need literacy in carbon, understanding of supply chains, while learning to connect to environmental justice, engage with communities and participate in climate action. Possible gaps between university and student academic values or goals, and those of surrounding communities are important to address through relationship building.

SOCIAL JUSTICE, INDIGENOUS KNOWLEDGE, AND GOVERNANCE

Emerging concepts that bridge between social justice and climate adaptation include “Just transitions”, and “Building back better” (Lee and Baumgarten, 2022; UNISDR, 2017). Furthermore, Indigenous knowledge systems and governance models suggest alternate strategies on how to build healthy relationships between communities of human and non-humankinds and the planet (Maina-Okori, Koushik and Wilson, 2018). In this session, our invited panelists shared their expertise and experience with concepts that include the relation of social justice to cultural heritage, Indigenous heritage, and community planning, and teaching Indigenous environmental/land issues. This panel was moderated by Shabnam Inanloo Dailoo (Athabasca University).

Lorna Crowshoe (City of Calgary, National Trust for Canada), a Piikani First Nation member from Southern Alberta who maintains strong ties to her Blackfoot community, spoke about the relationship between Indigenous Peoples and the land and Indigenous communities with respect to declaration and constitution from a framework of governance structure. Most Indigenous communities across North America have a declaration established for them by the creator. From a Blackfoot worldview, she explained, people are born from place; creator put the Blackfoot people here with a unique culture and language and to occupy this specific territory of the land to fulfill the creator's purpose. Therefore, their foundation of structures starts with ‘who we are and what we are’ and ‘how we occupied the land, how we sustain ourselves, and how we carry our culture’. Blackfoot people have a purpose and connection to a higher power of the creator and are governed by customs given to them by the creator. Land is gifted for knowledge and resources to prosper from and comes with a responsibility and stewardship role towards the creator.

Learning from place and maintaining Indigenous worldview are important. Ceremonies, stories, songs, and protocols teach Indigenous Peoples about the land, plants, animals, people, and cosmos. They are held to highest standards of respect and lifelong commitment that carry fundamental responsibility and duty to reinforce identity in relation to place. Ceremony teaches Indigenous Peoples about their connection and responsibility to the land. Creation story is born from the land. Traditional knowledge keepers keep governance structures and Indigenous worldview intact to be transferred to the next generation. Indigenous values and principles that children, grandchildren, and future generations abide by are significant in addressing climate change. They choose this way of life as their commitment. Prioritizing, enhancing, and utilizing knowledge systems means thinking about seven generations ahead. Furthermore, language revitalization plays a critical

role in transferring traditional knowledge and continuing the relationship with ancestors as well as current structures and relationships.

Courtney Vaughan (Archipel Research and Consulting, Carleton University), a Métis woman from Bawating area (often known as Sault Ste. Marie) and a citizen of the Métis Nation of Ontario, spoke about land back movement to restore lands to rightsholders as a meaningful way of reconciliation and an approach towards decolonization. She started her talk with a land back story about a Métis burial ground in Sault Ste. Marie (Ontario) that was returned to Métis community, after the 2015 release of the Truth and Reconciliation Commission of Canada (TRC) Report. Métis people were excluded from Treaty negotiations and do not have a land base to share intergenerational knowledge. Indigenous knowledge systems derive from the land and with this return of the land, the Métis members now take care of and celebrate their ancestors with which comes responsibility. They finally have a place of their own to tell their stories (with physical presence in the city's downtown), a place for jigging and dancing and bringing together Indigenous and non-Indigenous community members. Climate justice and social justice (community wellness) issues are part of this land back process and the nation governance is handled through the work of a restorative justice committee.

Land back is a powerful tool to look after the land, help biodiversity to thrive, and support reconciliation and decolonization in the Canadian context. Indigenous Peoples comprise 5% of the world's population and are responsible for the protection of 80% of global biodiversity and environment systems. Incremental and transformative approaches in land back was suggested as a way forward. Co-management opportunities also help people to get back to their lands and be actively involved in their protection.¹¹

The significance of educating organizations and departments about Indigenous worldviews was also discussed given that raising awareness is a substantial process and journey that requires small steps. While the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) calls for protection of the inherent rights of Indigenous Peoples including sovereignty over traditional lands and cultures, the context of the TRC in Canada, provides specific examples related to museums, archives, and other contexts of education. Specifically, the TRC Call to Action 57 invites public servants at all levels to learn about the history of Indigenous Peoples.¹²

Within an urban context, two major challenges moving forward with projects were highlighted: setting boundaries in a place and preserving the landscape, ceremonial vegetation, natural areas, and biodiversity; and balancing preservation and land development. Indigenous traditions and ways of knowing, learning, and doing are connected to and inseparable from the land; however, Indigenous communities and cultural places are directly impacted by climate change. Foundational changes to address climate change requires inclusion of Indigenous leadership and knowledge. Within the context of climate justice and equitable future for all, Indigenous knowledge and worldviews play a critical role and should be included in heritage and climate adaptation education.

CONCLUDING THOUGHTS

Importantly, the four panels of the ICOMOS University Forum in June 2022 helped remind us of strengths in knowledge areas while identifying gaps. Suggested ideas range from a basic course on carbon literacy that should be taught across all university programmes to contemplative teaching approaches for inner transformation and the need to move to future possible scenarios for teaching.

In the heritage context, improving existing practices is valued, but we recognize increasingly that we are at cross-roads of shifting values. This can however increase the opportunities to transform critical relations that have been defined too distinctly. The wide-

¹¹ Two partnership examples mentioned were between the Dehcho First Nations, Nah?ą Dehé Dene Band and Parks Canada in Nahanni National Park Reserve through the Nah?ą Dehé Consensus Team and between Haida Nation and Parks Canada in the Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve and Haida Heritage Site through the Archipelago Management Board.

¹² <https://www.cspc-efpc.gc.ca/video/call-to-action57-eng.aspx>

ranging scope of the focus of the first event challenges existing models of heritage education for discrete typologies (for example, buildings, or archaeology, or museums, or intangible heritage). It helps to raise awareness of the variety of stakeholders who are involved in heritage education and their diverse needs. Within the context of climate justice and equitable future for all, Indigenous knowledge and worldviews play a critical role and should be included in heritage and climate adaptation education.

We have seen that young people represent a powerful force, and we need to use iterative, reflective, and reactive learning to support new roles. We will need to expand how we use our connections to communities to make essential links and support greater responsibility in our actions, while being humble about what we need to learn from those who have often been left out of our consideration of heritage and climate.

The heritage education sector has an important role to play in climate action. Long since expanded beyond the restoration of historic buildings, heritage education builds on international charters which recognize a diversity of values. For decades now, this education has grown into a multi- and interdisciplinary reality intended to influence a constantly evolving professional practice. This has constantly included an expansion of knowledge areas and related reassessment of the best means to learn and therefore to teach. Many of the concepts and tools needing understanding require additional expertise, but gaining this expertise must be balanced with understanding of approaches and contexts of action that call for broader skills development.

While assessing and developing specific adaptive capacities, collaboration, and therefore communication, skills are key. Support to local action requires the capacity to bridge expertise with deep listening, which will also help ensure research is defined that will be immediately helpful. The way knowledge or skills are taught is critical, requiring pedagogical formats that situate learners in their communities, while also developing awareness and respect for the broader impacts and politics that frame and ultimately limit such engaged learning. As new courses, programmes and training become available as models, they need to be studied and shared. The next stages of JTHECA activities hope to gather and address such models.

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