

MuseumsForward

Understanding museum development of public climate justice action

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Abstract

When it comes to climate change, museum practitioners and scholars agree that the potential to activate change is through public climate action. At the same time, the museum field is rethinking museums' role in the climate justice movement as both climate activists and museum workers urge museums to speak up on social issues. Climate justice is essential to the development of adaptation and mitigation, and thus museum's public climate action. This case study was carried out to understand museums' development of public climate justice action. Data were collected through interviews with 5 practitioners from 4 leading museum examples in the US. The results suggest that museums are excellent at supporting climate justice action because 1) they have the traditional skills needed in engaging audiences, 2) they are mindful of community input, and 3) they are experts in community-centered storytelling that move the public. Museums also work with grassroots climate activists to serve communities facing climate impacts. This research might help propel the field forward and across the bridge between museums and climate justice.

Keywords

Climate change; climate justice; climate activism; museum activism; community engagement; public programming

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Introduction

The main hurdle for museums engaging their audiences on climate change used to be the public skepticism around the verity of the phenomenon. This premise has changed in the museum field. For the February 2020 issue of the *Journal of Museum Education* (JME 45:1) on “Museums and Public Climate Action,” guest editors Sarah Sutton and Cynthia Robinson suggest that, as the majority of people now believe in climate change, “seeking to convince audiences that climate change is “real” is far less important than creating exhibitions and programs that activate people...to address and mitigate the effects” (Sutton & Robinson, 2020). While a large portion of the issue focuses on science museums, zoos, and art museums' role in building climate literacy and activating social change, it includes an article discussing the shift in museum education from an authoritarian, fact-based frame to a democratic, multi-perspective, and community-centered one (Jones et al., 2020). This transition signals the field's responsibility to engage with climate change not just as a natural occurrence attested by scientific research, but also as something that induces many social implications and affected people's lives in different ways.

A study by the United Nations called the impact of climate change “a vicious cycle, whereby initial inequality causes the disadvantaged groups to suffer disproportionately from the adverse effects of climate change, resulting in greater subsequent inequality” (Islam & Winkel, 2017). Environmental activists Heather McTeer Toney pointed to Hurricane Katrina which caused a devastating impact on the Southeast region where half of the African American population and communities of color live, among other examples of the kind (2020). The fact that some communities are more susceptible to experiencing natural disasters perpetuated by climate change must be considered in a conversation about solutions and climate action. As museums are looking for a way to get people involved and bring solutions to climate issues, they need to tackle the topic of climate justice head-on. This research is set to explore the practicality of this integration through leading museum examples.

Framing climate justice

Multiple studies provide evidence that Black, Indigenous, and people of color (BIPOC) in the U.S., if not in the world, are more likely to live in areas with increased frequencies of: high surface urban heat islands caused by temperature increase (Hsu et al., 2021); disastrous floods and storms resulted from sea level rise (Frank, 2020); exposure

to air pollution produced by extractive industries (Tessum et al., 2021). To make matters worse, big greenhouse gas emitting industries like fossil fuel are not held responsible for causing climate change and use their political power to “prevent technological transformation and maintain business as usual” (Kenny Bruno et al., 1999, p.2). Combating climate change calls for the awareness of other social inequality issues.

Schlosberg and Collins (2014) describe the development of the term “climate justice” as defined by three moments in history. The term first appeared in academic literature through Weiss’ 1989 work *In Fairness to Future Generations*, which applied an intergenerational justice frame of thinking to climate change. As the discourse grew, the global-scale non-governmental organizations categorized climate justice into five principles: development rights, a right to industrialize, a global north/south negotiation, human rights, and carbon transaction. At the same time, grassroots environmental justice organizations raised awareness to the connections between environmental injustices in their communities and climate change, thus transitioning to climate justice. Climate justice, therefore, has ethical, global, and local implications. In academic and public discourse, climate justice is used to frame the mitigation and adaptation action on climate change through an ethical question—how to ethically allocate the cost and benefit of climate change and its solution respectively?—and a political question—how does the impact of climate change intertwine with systemic political power? (Edwards, 2020).

Prior to examining climate justice work in museums, it is relevant to first discuss when and how museums have been engaging in climate change topics in general.

The evolution of museum and climate justice

Over the past decades, many museums engaged around the topics and actions on climate change and research on the same described the potential for museum-led climate action. Upon highlighting the many ways museums have engaged in climate action from energy-efficient collection management to exhibition and public programs about climate change, Sutton (2020) underscored that many museums recognize their greatest strength in public-facing projects. Museum of Science, Boston, has used a participatory design method

to develop a panel-based exhibit about climate change and found that it increased the relevance of the issue among individuals (Lundgren et al., 2019) while the Science Museum of Virginia demonstrated through their programming and evaluation that hyper-localization and community-based participation can lead to behavioral change (Hoffman, 2020). The Nurture Nature Center in Easton, PA, is dedicated to “engaging the public in learning about environmental risks” through community forums (Nature Nurture Center, n.d.). The Science Museum of Minnesota highlighted the potential of museums in a role of a convener for public discourses on climate change as it could connect together the research, the professional decision-makers, and the public (Hamilton & Ronning, 2020). These efforts show that museums are trusted, well-connected, and good at engaging audiences. They have the ability to build social capital that will be the impetus for actions.

The literature review also revealed limitations in the ways museums have engaged, or not engaged, with climate justice on top of other climate issues. In her master’s thesis, Danielle Sakowski (2020) explored how small and mid-sized museums in Washington State engaged their communities around climate change and found that one major concern for those museums was threading communication in their surrounding political climate. A survey in informal learning settings showed that climate change was the most addressed issue among societal challenges, yet most projects spotlighted climate literacy and individuals’ impact-mitigating behaviors but “few studies explored climate change in a societal as well as environmental context.” (Morrissey et al., 2020, p.15) These studies suggest hesitations that some museums experience with public climate action, let alone climate justice. To explain this, it might be helpful to examine the history of museums in engaging with controversial topics.

In his book, *Museum in a Troubled World*, (Janes, 2009), Janes proposed that the reason museums were resistant to engage in politically charged ideas was so-called “authoritative neutrality”. This idea of museums resisting change to preserve their neutrality as authoritative institutions only helps the politically powerful defend the status quo. *Museums Are Not Neutral* movement spearheaded by La Tanya S. Autry and Mike Murawski emerged to acknowledge that this neutrality was a product of White supremacist culture and urged museums to take counter actions (Murawski, 2017). Now, museums recognize the transformative power that the museums have as

democratic cultural institutions and strives for inclusivity and rebalancing social power dynamics (Carlsson, 2023).

However, the effect of authoritative neutrality, as in museum inertia to social movements, is still prevalent in media narratives about museums' relationship with the public. Many instances of fossil fuel activists using museums as a backdrop for their protest are evidence that museums are still perceived as gatekeepers of the elitist status quo. Museums' response to this action has been defensive and condemnatory to the protesters (Suliman, 2022). This reaction delegitimizes the protesters' real concerns about their future, while it can also be taken such that museums are sided with the powerful sectors benefiting from the absence of climate justice. This erodes the wealth of public trust that museums enjoy.

The precarious future of climate change has left people feeling despair (Weiss, 2019). When society is riddled with hopelessness, the museum's function to preserve its collection for future generations seems futile. Janes and Sandell (2019) write in their editorial work, "*Museum Activism*: "museum workers are fond of saying that they are taking care of their collections for posterity. We submit that posterity has arrived for the museum's mission, role, values, and responsibilities" (p.1). The quote urges the museum field to radically rethink the way museums operate to reflect changes in the 21st century before museums fall out of social relevance.

And so while there is a clear need to learn from efforts across all aspects of climate change, there is a gap in literature addressing climate justice works in the museum field. Resources are shared primarily through professional networks. At the time of this research, there was no museum network that focuses on climate justice in the United States. The Coalition of Museums for Climate Justice in Canada and the Museum for Climate Justice campaign as part of the UK Museums Association are among a few groups that are working to support museums in their area through their transformation to become more climate justice-minded (Coalition of Museums for Climate Justice, n.d.; Museums Association, n.d.). Both professional network groups share similar goals in raising public awareness for climate action, mobilizing museums to participate in activism, and empowering museums to lead climate action.

Public climate (justice) action: A task for the community

The term **public climate justice action** was used throughout this research study to describe museum projects that are public-facing climate action and include consideration of climate justice elements. Upon framing climate justice as a political question, Edwards (2020) remarked that “the heart of climate justice is the understanding that the urgent action needed to prevent climate change must be based on community-led solutions and the well-being of local communities” (p.155). Museums have been embracing community engagement as an essential part of their work in recent years. Elizabeth Crooke writes, “The idea of community and community engagement is drawn into the museum sector both through projects that assert local identities and others that foster a social and developmental role” (2006, p.183). As museums engage in public climate action with the hope to activate people to act, community engagement naturally is a powerful and important tool.

Community Engagement	Description
Inform	The museum climate justice action consisted of providing the community with relevant information
Consult	The museum climate justice action consisted of gathering input from the community
Involve	The museum climate justice action consisted of ensuring community needs and assets are integrated into process and inform planning
Collaborate	The museum climate justice action consisted of ensuring community capacity to play a leadership role in implementation of decision
Share authority	The museum climate justice action consisted of fostering democratic participation and equity through community-driven decision-making; bridge divide between community and governance

This research recognized that to study public climate action in museums through a justice lens, community engagement needs to be one of the elements, if not the main element, explored. Facilitating Power provides “A Spectrum of Community Engagement to Ownership” describing each community engagement type associated with its impact (Gonzalez, 2019). The spectrum consists of 5 strategies

ranging in incremental order of authority in decision-making shared with the community. Adapted to the context of public climate justice action, the description of each community engagement approach is shown in the table.

Including climate justice in museums requires more than just presenting contents about the intersection between climate change and social justice. Climate justice goes hand in hand with climate action that impacts those unjustly affected by climate change. Public climate action through the lens of climate justice is not a trend, but a moral obligation and a lifeline for museum relevance. However, there is not enough research that explores public climate justice action in museums. There are leading examples in the field and understanding the development of these examples will propel the field forward and cross another hurdle in museum climate justice engagement.

Purpose

The purpose of this case study is to understand museums' development of public climate justice action.

1. What factors motivated the museums to become active in climate justice?
2. How were public climate justice actions designed?
3. What were the perceived opportunities and challenges of climate justice engagement?

Methods

This research was designed as a case study with cross-case analysis to reveal themes that are transferable across settings (Pickard, 2013). Data was collected through interviews with museum practitioners and document analysis to achieve triangulation and yield holistic findings.

Sampling

Case study sites were selected using purposive sampling. Museums were identified through multiple cause-driven museum networks pertaining to climate change such as AAM's Environmental and Climate Network and Museums & Climate Change Network. To identify museums that participated in public climate justice action, the researcher established following criteria:

1. Public action refers to any program carried out by a museum that involves public audiences in any step of development with a goal to mobilize them to action. This includes exhibitions, public programming, and events.
2. Museums might not explicitly use the term “climate justice” to label their public climate justice action program. A program is a climate justice program if its content focuses on the unequal impact of climate change or action that benefits impacted communities.

An example of a museum program that did not fit the public climate justice action description is a museum partaking in green building initiatives. It might renovate the facility to be more sustainable and thus reduce its local energy intake, but it did not involve the public in the process. Another example might be an exhibit about climate change in which it presents the topic as purely scientific and not including social aspects in the narrative.

The researcher narrowed down the candidates using these propositions and six museums in the U.S. were approached by email. Four agreed to be the subjects of this case study. Out of the four participants, sixteen programs were identified as public climate justice action.

The Houston Climate Justice Museum and Cultural Center (HCJ) is a small, newly established in 2021, art-based museum operating in two locations: one is in the East End district in eastern Houston, Texas, where the museum hosts its permanent exhibit and special events; and the other is at Rice University’s Solar Studios, the site of their current exhibit. HCJ focuses “on thinking about two things: How can we tackle the climate and environmental justice crisis? And how can we rethink what a museum does?”

Seymour Marine Discovery Center (SMD) is a community-supported marine science education center operated under the University of California, Santa Cruz. It is located nearby the Long Marine Laboratory, a world-renowned marine science research facility. Its mission “is dedicated to educating people about the role scientific research plays in the understanding and conservation of the world’s oceans.”

Charles H. Wright Museum of African American History (CHW) is a large museum in Detroit, Michigan, with more than half a million visitors yearly. CHW has dedicated its long run “to exploring and

celebrating the rich cultural legacy of African Americans.” Since 2013, it has implemented many sustainability initiatives focusing on three core impacts: water, energy, and waste.

The Climate Museum (TCM) is the first museum in the U.S. dedicated to climate change, according to its website. TCM “mobilizes the power of arts and cultural programming to accelerate this crucial shift toward climate dialogue and action, connecting people and advancing just solutions.” During the time of this research study, its pop-up gallery in the SoHo neighborhood doubles as a space for all of its programs.

Data collection

The researcher asked to have an hour-long interview with the most knowledgeable practitioners from each site about its climate justice engagement work. The interviews were conducted via a virtual meeting platform. The meetings were recorded and transcribed for later analysis. Two people participated from one site while one person participated from each of the other three sites. The researcher used the sites’ website as primary source for documents. Some documents were also provided by the participants and news article when available. Through these documents, the researcher collected written data about each case study site’s publication and communication regarding climate justice and details on its public climate justice action projects.

Data analysis

Interview transcripts were analyzed for organizational contexts of climate justice engagement development. Web contents and news articles were analyzed for additional context and details on how the sites’ climate justice programs happened. Themes that emerged across and between sites were identified.

RQ1: What factors motivated the museums to become active in climate justice?

Museums are driven by their mission and origin that contextualize their goals for climate justice engagement

Cross-case analysis revealed the sites' motivation to become active in climate justice are their missions and origin stories. For the two museums, the missions and origins are specifically about climate change and climate justice. For the other two museums, the missions are related to community issues, such as climate change. Additionally, case study sites adapted the field definition of climate justice in the context of their own organizations and described their goals for climate justice engagement accordingly.

Museum missions are related to climate change and justice. The Climate Museum (TCM) and the Houston Climate Justice Museum (HCJ) both had their missions dedicated to climate change and justice. Upon interview and document analysis, both sites were shown to be driven by social causes of climate change.

Samira Siddique, the Mellon Foundation fellow in climate and inequality at TCM, stated that "The Climate Museum is very unique in its approach to climate justice because it's very much the first priority of the museum." Document analysis showed that the site set its mission to move the public culture "toward climate dialogue and action, building community and advancing just solutions," to accompany technological and political solutions (Climate Museum, n.d.).

TCM thought of climate justice in abstract academic concepts instead of giving specific local examples. "The way that we approach climate justice is through a deeply intersectional, intergenerational lens. [We think] of climate injustices as deeply rooted in history and embedded and systemic inequities," said Siddique.

Document analysis revealed that HCJ came to form "with the belief that museums—both those dedicated to art and science—too often ignored environmental justice issues and climate change" (*About*, n.d.-a). In the interview with Aaron Ambroso, co-director of the museum, he reflected: "If we only talk about climate change, we're going to leave a lot of important things off the table... [including] other forms of environmental destruction from model crop

plantations to the location of garbage incinerators in Black and Brown communities.”

HCJ defined climate justice abstractly and rooted in environmental justice. According to Ambroso, climate justice was “the introduction of social justice issues within the realm of climate change and environmental change.” He went on and expanded the definition to “challenging extractivist practices and replacing them with traditional ecological knowledge and more livable ways of doing things.”

Museum missions are linked to serving communities. The Seymour Marine Discovery Center (SMD) and the Charles H. Wright Museum (CHW)’s missions were not directly related to climate change or climate justice, but to the communities they served.

In the interview with Jonathan Hicken, executive director of SMD, he revealed that SMD was in a transformative phase. It shifted its operation so that “the entire purpose of Seymour Center—not just a program, not just an exhibit—[is] orienting to be a proactive player in the community’s response to the impacts of climate change.” The motivation for this shift was the conversations with the community members and the line of supervision in UC Santa Cruz, as Hicken put it: “The biggest spark was what I was hearing when I talked to dozens of people in my first couple of months on the job—everything came back to the impacts of climate change on Santa Cruz over and over and over again.”

To SMD, climate justice aligned with an effort to represent community voices. Hicken stated that, to SMD, climate justice meant “telling stories that represent all sorts of context that [the audiences] are coming from,” including the voice from “people whose opinions historically have not been sought out [to answer climate] questions.” SMD’s public climate justice action was driven by community assets. Hicken remarked, “there’s lots of science happening [in the area]...Meanwhile, there are a lot of boot-on-the-ground [adaptation] actions taking place.” SMD saw itself “being the hub for all of these conversations—bringing science to the table, bringing the nonprofits in the city to the table, and bringing the community into it.”

CHW has a close tie with the city of Detroit and its community. Document analysis revealed that one of the museum’s core values is “impacting our community” (*About*, n.d.-b). It also revealed that CHW talked about climate justice in two ways: Responsibility to its community by working with “local stakeholders and officials to achieve climate justice” (*About*, n.d.-b); and leadership in community

action by making “the invisible work of sustainability visible, so that everyone can see that they have a stake in—and can contribute to—environmental preservation” (*Sustainability*, n.d.). The interview with Leslie Tom, chief sustainability officer, and Yolanda Jack, manager of community engagement, reflected these sentiments. CHW saw itself as “a community member and an impactor of the environment,” Jack pointed out. Additionally, CHW’s sustainability practices were informed by the history of environmental justice in Detroit. Tom asserted:

Environmental justice has been happening in Detroit before that was even a word...there is a rich palette of [ways that can] uplift what's been here in Detroit—uplifting those histories, uplifting the people, uplifting the projects in Detroit that have been working on all this work way before [CHW] started in 2015.

CHW saw the climate justice effort as a responsibility to preserve local environments and recognized a long history of environmental justice activism in the Detroit community.

Museums describe the goals of climate justice in the context of their missions and origins. Each case study site described a unique overarching goal of their climate justice engagement as an extension of their mission and origin stories.

Local Climate Activism. Despite its thinking of climate justice through a lens of social justice, HCJ grounded many of its programs in the Houston community’s activist groups. Ambroso revealed in the interview that “Part of the impetus for starting the museum was to support [local environmental justice activist groups] work...And to support that work, there’s a lot of other histories that can be told.” For example, their exhibit “Creosote Stories” was based on an oral history project on predominantly Black neighborhoods in Houston that had been brought to the museum by a community partner.

Breaking American Climate Silence. Document analysis revealed that TCM operated with the establishment of the statistic that “While two-thirds of [bipartisan Americans] want to see sweeping changes and progress, we so dramatically misperceive climate sentiment that we believe two-thirds of us are opposed to these policies” (*Mission*, n.d.). The important task that TCM took on, thus, was “making people realize that they’re not alone, that they are part of the silent majority

of people who actually believe in climate change and are taking action on it," said Siddique.

Community-Engaged Science. As a marine science museum, SMD aimed to connect climate justice work with the science division at UC Santa Cruz to whom it was under. Hicken recounted:

We have a direct line of communication with UC Santa Cruz's Center for Coastal Climate Resilience. They have a real desire to do more community-engaged science, but we're better at community engagement than they are. So, what we can do is we can bring these findings to the scientists themselves and say, 'Here's what the community needs, you go figure out what you need to study to address their needs and their concerns.'

Regenerative Collective Action. As an African American museum, CHW valued regenerative collective action, in which it approached climate justice. Tom told the researcher, "We don't want to sustain the world. We want to regenerate the world and go up and work together." Jack added that this mindset comes from African American experience with environmental injustice:

There are individuals in our community who have been thinking about environmental conversations and initiative since it was brought up, especially during the late sixties into the seventies, when we began to see how chemicals would impact communities...It is a part of our community's day-to-day lives that we would talk about [environmental impact] and deal with it. Then, as decades have gone on, we realized that there are people who grow up with a mindset that we need to improve how humanity engages with the planet.

RQ2: How were public climate justice actions designed?

The researcher further analyzed the individual public climate justice action program at each case study site based on the interview data and document analysis. Themes and sub-themes emerged.

Audience is defined by geographic boundaries (most of the time)

Interviews revealed that location was emphasized across three out of four case study sites when asked to define their audiences and that

the audience was referred to as “the community” or “community members”. HCJ noted that, for the most recent Creosote Stories exhibit, the primary audience was the folks in the Houston neighborhoods whose stories were told in the exhibit. SMD stressed that its main audience was the local Santa Cruz community. CHW recognized the reach of technology to a global audience but was “very aware that [it has] a local audience [who was] more directly impacted, or directly connected to what [it does].”

TCM did not categorize its audience by any geographical bounds, but the attitude toward climate justice. Siddique mentioned that “the people I believe we want to target the most are the ones who feel like they're silenced—they do care about [climate change], but there isn't enough impetus to actually take action, or do something, or have a conversation about it.” However, document analysis revealed instances where TCM practiced public climate justice action that centered in New York City.

Museums use traditional approaches to engage audiences

The interview data showed that these museums also took traditional museum approaches to create the engagements.

Topics Are Locally Relevant. One sub-theme that emerged across four sites was museums choosing topics for climate justice action from local issues. During their respective interviews, SMD and CHW mentioned incidents of climate change-aggravated disasters that became increasingly frequent in their local areas. A coastal city like Santa Cruz where SMD is located faces challenges like coastal corrosion, sea level rise, and endangered marine biodiversity. Detroit, home to CHW, has been dealing with extreme water events and water justice crises that become more severe due to climate change. HCJ exemplified an environmental justice issue like the highway extension pollution as a climate justice topic that the museum could engage in. TCM had chosen climate policy legislation in New York as the topic for its programs.

Leveraging Their Spaces. Another sub-theme that emerged across four sites was the idea of providing a physical space designated for climate engagement.

SMD recognized space as a museum asset that their community can use. Hicken reflected, “We have a space that is beautiful, biodiverse,

surrounded by science. How can this space move people?" Document analysis revealed SMD's venue grant program that supported local climate groups to use museum space for organizing and building a sense of community among members (Hicken, 2022).

TCM and CHW talked about their museum spaces as where their messages about climate change and sustainability were heard and turned into action. Siddique remarked about TCM's pop-up exhibit program, "When you can bring people into a space, they can see something, and they are given the tools to do something about what they see." CHW's Tom stated that "there are opportunities to use the museum if you were to think of it as medium. We're using the museum as a message space to really change people's hearts and minds about the environment." Jack added to Tom's comment that there was the idea of potentially having a local environmental protest "start at the museum" being discussed.

HCJ mentioned a potential plan to create a space for engagement in the community. Ambroso disclosed:

There's a plot of land in [an environmentally impacted neighborhood] that's just an empty lot, and we submitted a proposal to the landlord to use that lot for...public art, public history, and also plant nursery remediation experiments. With that project, we are hoping to really involve the local community and students—it is right next to several schools in the area.

Moving Emotions. Another sub-theme that emerged as an approach to community engagement was using emotion as leverage for engagement.

TCM used art to provoke emotions. Siddique gave a reason in the interview, "through artistic engagement, people are able to feel things...art moves you in a way that nothing else can."

SMD emphasized hope and joy to combat the "eco-anxiety". Hicken argued that to get people to be "more involved locally in [climate] adaptation issues," the work SMD does should be "appealing to some of our basic human joys."

Museums are mindful when approaching climate justice

The interview data showed that these museums employed considerations for their audiences or “communities” when approaching climate justice issues.

Community Consultation. Listening to community input was a prevalent sub-theme across three case study sites.

SMD's Hicken articulated in the interview that:

If we're building events and exhibits for this community, then we need to be talking about stuff that's relevant to the people in this community. So, we need to know what they care about in order for us to really develop experiences that are going to resonate.

Two associate directors of community engagement were recently hired at SMD whose job description was to “go out into the community and talk to people who are impacted by these issues [and] listen to what's being said,” said Hicken.

CHW valued the importance of being in communication with the community as an African American museum. Jack told the researcher that when it came to community thoughts or concerns, CHW is “taking them by heart.” Jack continued that “maybe, [there] might be one person saying [one thing] to us, but because of the way that we've engaged before, we realize that [there] might be other people being impacted by this similar thing.”

Their green stormwater infrastructure project, Ripple of Impact, consisted of seven community listening sessions on how the infrastructure would be built. Tom recounted the decision to involve the community, “If we have the money to build the green stormwater infrastructure, let's not build something that's transactional, let's build something that's meaningful.” As a result, they have built an infrastructure that resembles the Sankofa bird, an important symbol in African culture.

In creating an exhibit about the neighborhood in Houston that has been struggling with the environmental impacts of the wood preservative called Creosote, HCJ invited an artist local to that neighborhood on board. Ambroso remarked that HCJ wanted to include the community in the process more, but convening people for an advisory committee had been a challenge.

Mindful Storytelling. A sub-theme arose as two of the sites considered their responsibility as a museum and as a teller of community stories.

HCJ acknowledged the context of museum history where museums were imbued with colonial power and authority over the community. Document analysis revealed that HCJ is rethinking the museum tradition:

We think critically about what it means to be a "museum" and its associated functions of collection, display, public, humanity. We think hard about borders—geographic, economic, and social—that divide our communities.

The interview data paralleled this point. Ambroso posted a question, "Who has the authority to manage a collection or an exhibit?" He went on that "in the negotiations and in the discussions [are where the] answers to that should come out."

In the interview with CHW, Jack raised a point about telling community stories, especially Black community stories:

The way that our storytelling has been honed and focused because we too often, from the beginning of Black history to today, have to correct omissions or put the record straight in a way that maybe was not in the original telling of that particular subject matter.

While HCJ spoke from a white institute's perspective that mindfully telling community stories required museum and community to be in an ongoing discussion, CHW recognized that systemic erasure has kept historical sources for marginalized communities hidden and that museums as storytellers have the responsibility to seek those truths.

Engagement practices emerge from public climate justice programs

Six engagement practices emerged across the engaging elements from case study sites' public climate justice action:

Expert-led Discussion. This practice was used in informative public programming where the community members participated as an audience to a panel of experts.

Encouraging Civic Dialogue. This practice was used in a project where a museum aimed to encourage civic dialogue among the audience.

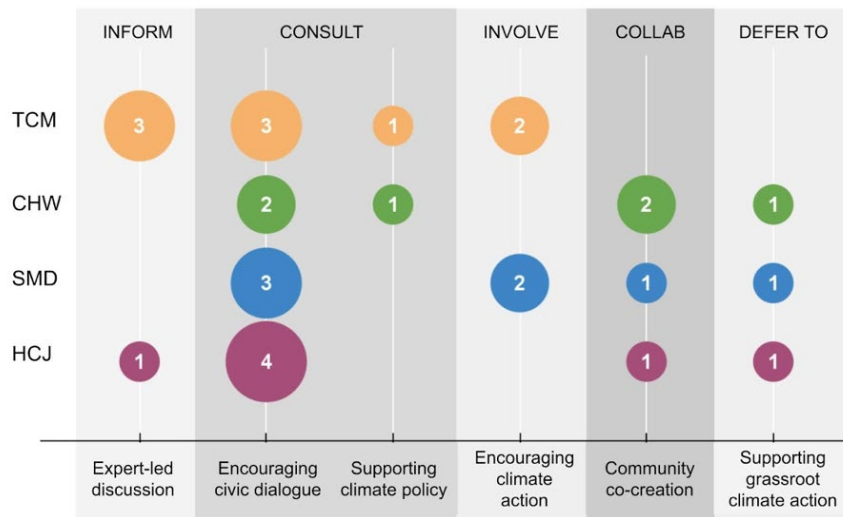
Supporting Climate Policy. This practice was used when a museum’s project directly complies with or contributed to the promotion of a climate policy. Community input might be gathered and accounted for by the museum. However, it would not affect the policy itself.

Encouraging Climate Action. This practice was used when a museum, through the project, encouraged the community members to take climate action. The action might be suggested by the museum and community members had an agency over whether they take the action or not.

Community co-creation. This practice was used in a project where the community input was integrated into the process of designing and creating public climate justice action.

Supporting Grassroot Climate Action. This practice was used in a project where the museum collaborated with outside actors to support their organized climate action, often in the form of a community forum or special events. Participating community members would be a part of the decision-making. However, the museum did not participate in sustaining or driving the action forward.

The graph represents the frequencies of engagement practices emerged from public climate justice action programs at each case study site



Mapping emerged engagement practices on the spectrum of community engagement to ownership

The researcher mapped emergent engagement practices of sixteen public climate justice action programs across all four case study sites

onto the Spectrum of Community Engagement to Ownership (Gonzalez, 2019).

RQ 3: What are the perceived opportunities and challenges of climate justice engagement?

Opportunities arise with growth

During the interview with CHW, Tom mentioned that the public feedback praised the museum for being intentional, “I keep meeting people who are saying, ‘Wow, the Wright Museum is being so intentional about all of this work’.” Tom went on to explain that this kind of feedback kept the climate justice at CHW going. The public appreciation for the sites’ works getting fed into the feedback loop and expanding the opportunity for the project to grow in different directions were shared across four case study sites.

As each site put out action about climate justice, the actors and supporters, both inside and outside the institution, that allowed for the development of such projects grew. Each site identified the direction in which they perceived to have contributed, or would contribute, to their growth.

Random Encounters. As a new museum, opportunities arose for HCJ through connections with like-minded strangers that came to visit the museum space. Ambroso recalled a story of a person who worked at the local organization called Earth Clinic Project, who randomly came to an event and got to connect with the staff. He said that random encounters had “spawned a whole kind of partnership and discussion.”

Regularity and Planning. CHW began initiatives to make sustainability a pillar of the museum's operations. Jack asserted that this structural change led to sustainability projects, which were special events in the past, becoming regular. This came with the ability to track the success of the projects and plan forward as Jack stated:

We have the ability now to move forward towards tracking. As we move, we can say we've taken these steps. We've done this. And now, how has this been impacted? We'll be able to look

back. We haven't done these types of studies for the preceding programs.

Public Connections. CHW and TCM mentioned that as they gained recognition as climate change museums, they had more opportunities to work with the government sectors.

Siddique reflected that TCM had worked with the Office of the Mayor of the City of New York to promote a new green policy. Through its programming, the museum also provided the partnered government sector with an evaluation that informed the community's opinion.

Following the green stormwater infrastructure project that CHW had partnered with the City of Detroit, Tom recounted that the museum was “starting to get invited to the table” and creating more impact that way. Tom pointed to more municipal and state policies like the “Sustainability Action Agenda from the city of Detroit and the state of Michigan My Healthy Climate Plan” as opportunities to come in the future.

Content Production. In the interview with TCM, Siddique revealed that the museum was also interested in turning its pop-up exhibit into a traveling exhibit that could be displayed at other museums and art institutions.

Each museum face unique challenges

No theme emerged from what the case study sites perceived as challenges to their public climate justice action development. However, each site advocated different challenges.

Emotional Burden. SMD sought the balance between presenting the seriousness of the climate crisis and the hope of climate action to the community. Even though Hicken had provided an example of programs at the museum that promoted joy and entertainment like the Climate Action Market, he still perceived this emotional weight of climate change as the challenge for SMD. Hicken said, “We're all feeling overwhelmed and depressed and scared about this climate change...I don't know if we or anybody else has totally figured out how to [tell] this kind of story yet.”

Financing. Based in New York City, TCM had struggled to fund its own permanent space. Siddique stated:

It takes a tremendous amount of resources to have space in New York City, full stop. It's a tremendous effort in terms of getting the right funding and also still creating the very high-quality of programs that we strive to create, given the limited time resources that we have as well.

The idea of “right funding” had been brought up in the interview. TCM implemented the funding policy that strictly excluded “any kind of fossil fuel supporting entity, and [they] are just really transparent about that.”

Discussion

Convening Time for Community Engagement. Time was also of the essence when it came to community engagement. Ambroso conveyed in the HCJ interview that they wanted the exhibition “Creosote Stories” to have the residents that contributed to the oral history the exhibit was based on “come to the Museum before we had designed the exhibit...but it was really hard to put together. People are busy, you know.”

This research study was established under the belief that: 1) museums have the capability to communicate climate information to the public and advocate for collective action, and 2) museums are obligated to actively react to social challenges like climate justice. The research aimed to understand how leading examples in the museum field develop public climate justice action to contextualize the mentioned potentials in practice. While the literature review revealed the field’s ideas and expectations about museum-community collaborations around the topic of climate change, this research study looked closely through the lens of public climate justice action where museums take the role of agents of change.

Understanding how public climate justice action was designed across sites, the case study affirmed that museums indeed play an important role in climate action and activism. In their work, Janes and Sandell (2019) suggest that the 21st-century museums’ role transcends “the malls and the walls” museums (p.16)—meaning their practice expands beyond being educational institutions with information displayed on four walls and the resources allocated to audience consumption and entertainment. The authors project a new paradigm of ‘activist museums’ that are proactive and challenging the inertia toward social changes. The case study showed that museums were excellent at supporting climate justice activism because 1) they had the traditional skills needed in engaging audiences, 2) they were

mindful of community input, and 3) they had expertise in community-centered storytelling that moves the general public.

Hamilton and Ronning (2020) suggest that museums can connect scientific knowledge, professional audiences who possess decision-making power, and public audiences who are drivers of social change in climate change dialogues. Adding to the list is grassroots environmentalist groups. The case study found that the museums engaging in climate justice relied on grassroots groups to know their communities' assets and needs. Community organizations provide community knowledge and history of the place that is crucial in public climate justice action. Some of the sites were shown to have deferred their authority to grassroots organizations to lead their public climate justice actions. Bringing in grassroots organizations is one way museums can build a democratic community engagement.

Museums always center their work on their mission. This leads to the diversity of climate justice action as more diverse museums join the movement. On top of that, the communities that these museums strive to serve also influence their climate justice efforts. One museum might focus on a specific racial/ethnic group. One might emphasize a specific neighborhood in the area. One might do the work for a pan-national population that shares the same environmentalist attitude. This study highlighted the potential of museums to respond to countless ways climate change has impacted the community, in the way that they know best.

Implications

There is room for growth as museums transition into 'activist museums'. This study implies that museums are assuming the supporting role of the local activists in climate action and not initiating climate activism themselves. At the same time, museums face external pressure to speak up and be the voice of the community. Is the future of activist museums leaning towards museum-led activism, or are museums settling into supporting the climate justice movement from the backseat? The next study can explore from practitioner perspectives with a lens focused on climate activism in the form of protest.

Funding can make or break a climate justice project. Museums have a complicated history with funding in cotangent to social justice issues. A further study could be conducted to look deeper into museum

finances in relation to climate justice action, and to understand how the polarizing nature of the issue influences funding, and vice versa.

The size of the museum can also inform funding practices. Large and well-established museums are often targets of climate activism. It can be beneficial to investigate large museums' climate justice practices.

Growing the reputation as a climate justice-minded museum is essential to the sustainment of public climate justice action. This study showed that, by being known for their climate justice work, museums received opportunities from multiple sectors (public and government) and in many forms (funding and collaboration) to expand and build upon their effort. However, funding can be complicated for climate justice-minded museums. One of the case study sites expressed that they imposed a highly restricted funding policy to make sure that their funders align with their mission. To be climate justice-minded, museums must do due diligence to research funders on the origin of the money and the condition of the funds.

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Appendix

Table. Case study public climate justice programs categorized by emergent engagement strategies.

No.	Site	Program Title	Engagement Strategies
1	TCM	Pop-up exhibit	Encouraging civic dialogue Encouraging climate action
2	TCM	Art workshop	Encouraging civic dialogue
3	TCM	Book launch	Expert-led discussion
4	TCM	Panel of experts	Expert-led discussion
5	TCM	Talking Climate	Expert-led discussion
6	TCM	Teach-in & reception	Encouraging climate action Encouraging civic dialogue Supporting climate policy
7	HCJ	Creosote Stories exhibit	Community co-creation Encouraging civic dialogue
8	HCJ	Summer program	Community co-creation Encouraging civic dialogue Supporting grassroots climate action
9	HCJ	Speakers series	Expert-led discussion Encouraging civic dialogue
10	HCJ	Stories event	Encouraging civic dialogue Community co-creation
11	CHW	Ripple of Impact	Encouraging civic dialogue Supporting climate policy Community co-creation
12	CHW	Green Museum Town Hall	Community co-creation Encouraging civic dialogue Supporting grassroots climate action
13	SMD	Climate action market/Blue innovation festival	Encouraging civic dialogue
14	SMD	Documentary film	Community co-creation Encouraging civic dialogue
15	SMD	Climate-smart actions	Encouraging climate action Encouraging civic dialogue
16	SMD	Venue grants	Encouraging climate action Supporting grassroots climate action