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**PATHWAYS FOR JUST INDIGENOUS FUTURES: EXPLORING INDIGENOUS-
BASED COLLABORATION FRAMEWORKS IN CLIMATE CHANGE ADAPTATION**

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ABSTRACT

Indigenous people are the highest at-risk group for climate change impacts such as extreme weather events and rising waters (Hutton & Allen, 2020; Leonard, 2021). The National Oceanic and Atmospheric Administration predicts that over the next 30 years, the sea level on the US coast will rise an average of 25.4 - 30.5 centimeters, an amount equal to the total sea level rise over the past 100 years (Sweet et al., 2022). Native American tribes are acutely vulnerable to climate change impacts due to a history of ongoing colonial disenfranchisement, displacement to high-risk locations, and a loss of traditional subsistence practices (Bronen, 2010; Hutton & Allen, 2020; Maldonado et al., 2013).

Indigenous scholars and planners are identifying justice-based strategies to combat climate change impacts and existing injustices (Leonard, 2021; Maldonado et al., 2013; Whyte, 2013). However, no known studies have examined how or whether these frameworks are being used in practice. This thesis investigates how non-Indigenous institutions are navigating climate change adaptation work with tribal communities in North America. Using a qualitative inductive analysis of interview data, themes emerge demonstrating current approaches used in tribal engagement by NGOs, government agencies, and academic institutions. The results suggest principles for a pathway forward for just collaboration, including actions such as relationship building, Indigenous representation on projects, respecting tribal leadership, and providing tangible community benefits.

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Chapter 1

Background

1.1: Penn State Land Acknowledgement

“The Pennsylvania State University campuses are located on the original homelands of the Erie, Haudenosaunee (Seneca, Cayuga, Onondaga, Oneida, Mohawk, and Tuscarora), Lenape (Delaware Nation, Delaware Tribe, Stockbridge-Munsee), Monongahela, Shawnee (Absentee, Eastern, and Oklahoma), Susquehannock, and Wahzhazhe (Osage) Nations. As a land grant institution, we acknowledge and honor the traditional caretakers of these lands and strive to understand and model their responsible stewardship. We also acknowledge the longer history of these lands and our place in that history.” (Indigenous Peoples Student Association & Indigenous Faculty and Staff Alliance, n.d.)

1.2: Background

According to the National Oceanic and Atmospheric Administration (NOAA) and the World Health Organization (WHO), if the anthropogenically caused global temperature increase is not curbed it will have catastrophic implications for humankind (Sweet et al., 2022; WHO, 2021). Disadvantaged communities will be the most affected by climate change impacts, such as extreme weather events and rising waters, because of a lack of access to resources to adapt (WHO, 2021). Indigenous people globally, including Native American tribes in North America,

are acutely vulnerable to impacts due to a history of ongoing colonial disenfranchisement, displacement to high-risk locations, and a loss of traditional subsistence practices (Bronen, 2010; Hutton & Allen, 2020; Maldonado et al., 2013).

Subsistence practices relied on for survival and cultural meaning, such as fishing, hunting, and gathering, are imperiled by the consequences of sea level rise (SLR), extreme weather events, erosion, and saltwater intrusion. Property and spiritual sites, many of which have already been lost to colonial land dispossession, are also at risk. The knowledge tied to these places and practices, which has been barred and penalized by colonial governments in the past, is also imperiled. These losses jeopardize Indigenous *collective capacity* of tribal communities, or the ability of a group to adapt holistically and survive and have serious mental and physical health ramifications (Cunsolo Willox et al., 2012; Whyte, 2013). In the face of losing their homes and culture, many tribal communities are adapting to climate change by drafting sea level rise plans and relocating their communities.

Tribal communities and governments often do not have the resources to relocate or adapt independent of the U.S. government and are met with barriers in accessing government aid. For example, the United States government does not have a single federal agency dedicated to climate change relocation or prevention (Bronen, 2010). In addition to seeking government support, tribal communities are collaborating with academic institutions, NGOs, and other tribal governments (Bronen, 2010; Hutton & Allen, 2020).

However, establishing and maintaining community and tribal government trust can prove challenging to outsiders who do not have the same lived experiences and values as tribal members, compounding mistrust of outside institutions after centuries of harmful colonial interventions. Despite good intentions, resulting methods of engagement can be harmful and extractive, perpetuating mistrust. For example, the Havasupai "Diabetes Project" in 1989 obtained consent to study the blood of tribal members for genetic indicators of diabetes, then

unethically continued to study their blood for indicators of schizophrenia. The results were published without the subject's consent (Pacheco et al., 2013). In the 1900's, experiments were routinely conducted on Native American and First Nation peoples without their consent or knowing, like malnutrition experiments conducted on children (Cote, 2015). Even when direct harm is not incurred, tribes dedicate time and effort to research and projects that do not produce benefits to participants.

Given these sensitive contexts, Indigenous scholars and planners are identifying justice-based strategies to combat climate change adversities and existing injustices (Bronen, 2010; Leonard, 2021; Maldonado et al., 2013; Whyte, 2013). Justice-based frameworks, which are strategies or principles to guide a process, help lead researchers, practitioners, and policy makers in the collaboration process with tribal members. For example, Bronen (2010) frames tribal climate change issues through the lens of human rights. Whyte (2013) extends this concept to cultural survival and collective capacity, while Maldonado expands human rights to include Indigenous cultural practices. Leonard (2021) introduces a regional-specific framework to guide adaptation with tribal communities, with specific actions items for outside institutions to adopt. The frameworks commonly include public participation, Indigenous worldviews and cosmology, recognition of tribal sovereignty, and protection of tribal members (Bronen, 2010; Leonard, 2021; Maldonado et al., 2013; Whyte, 2013). If elevated to become standards in the academic and planning community, these frameworks may ensure a more equitable and representative collaboration process.

No known studies have examined whether these frameworks are being used in practice. This thesis investigates how outside institutions are navigating climate change adaptation collaboration with tribal communities in North America. Using a qualitative inductive analysis of interviews, themes emerge demonstrating concepts used in tribal engagement by NGOs,

government agencies, and academic institutions. The results suggest a pathway forward for best practices in engagement.

Chapter 2

Literature Review

2.1: Climate Change Impacts on Indigenous People

The human-induced climate crisis is causing irreversible environmental damage and will significantly impact the health and well-being of billions of people. NOAA predicts that over the next 30 years, the sea level on the US coast will rise an average 25.4 - 30.5 centimeters, an amount equal to the total sea level rise over the past 100 years (Sweet et al., 2022). Flooding will also be more severe with damaging flooding occurring more than 10 times as often as it does today (Sweet et al., 2022). These significant figures will have small-scale, as well as far-reaching impacts. The World Health Organization warns that climate change is the single largest health threat to humanity (WHO, 2021). Additionally, according to the United Nation's Intergovernmental Panel on Climate Change (IPCC), the accelerated climate change hazards pose significant risk to the well-being of people residing in North America, especially in coastal Mexico, Hawaii, Atlantic Canada, and southeast USA (Adler et al., 2022).

These health impacts and hazards are exacerbated when combined with other social vulnerabilities. It is well documented in the literature that vulnerable populations are the most endangered by climate change (Bronen, 2010; Hutton & Allen, 2020; Maldonado et al., 2013; WHO, 2021). They suffer from “greater exposure to extreme weather events, lack the protective infrastructure to avoid harm, and when disaster occurs, lack the resources and networks that enable more affluent people to recover more quickly” (Dundon & Abkowitz, 2021, p.6-7). Out of the millions of vulnerable people affected, Indigenous people are at the highest risk for climate change impacts (Cunsolo Willox et al., 2012; Hutton & Allen, 2020; Leonard, 2021).

Indigenous groups are acutely vulnerable to climate change due to a history of ongoing colonial disenfranchisement, which has led to displacement to high-risk locations and a loss of traditional subsistence practices (Bronen, 2010; Hutton & Allen, 2020; Maldonado et al., 2013). In the United States, tribal communities were often relocated to environmentally vulnerable locations, like tidal areas and coasts, or forced to establish settlements instead of following ancestral, seasonal migration patterns (Cunsolo Willox et al., 2012; Grace-McCaskey et al., 2021). Forced settlement was mandated by North American governments to control Indigenous sovereignty. Now, those on reservations are restricted to federal boundaries, with no option to expand or transfer their tribal property, and little means to buy new land (Maldonado et al., 2013). Additionally, hunting, fishing, and gathering, are being impacted by changing weather patterns and impacting sense of place (Cunsolo Willox et al., 2012; Hamilton et al., 2016). These practices are critical to the cultural and physical survival of the 9.7 million American Indian and Alaska Native and 1.6 million Native Hawaiian and Other Pacific Islander people in the US (U.S. Census Bureau, 2020).

The injustice of this situation is worsened by the fact that Indigenous people are amongst the least responsible for anthropogenic climate change, and often subjected to the harms enforced by resource extraction industries, like oil (Maldonado et al., 2013). Inversely, Indigenous people stand to lose the most from these anthropogenic impacts. In Canada, Cunsolo Willox et al. (2012) surveyed 112 participants and interviewed 72 participants from an Inuit community regarding their feelings towards climate change impacts on their community.

“Participants reported that these changes and variability in climate, snow, ice, and travel conditions, as well as alterations to hunting and foraging, are also impacting health and well-being, physically, mentally, and emotionally. As one senior explained during her interview, going on the land enhances health: “It means for me that I can practice my traditional lifestyle, that I can live

healthy...that I can use the land to refresh me. ...We use the land to replenish our spirit...to go out there and get rid of all the stress.” As another middle-aged man shared in an interview, “I think going on the land...is the healthiest thing you’ll ever get. ...That's where your health is, out there.” With climate change altering the landscapes and disrupting livelihood and subsistence activities, many participants felt that their health and well-being were negatively affected.” (p. 543)

The relationships, health, and wellbeing of tribal communities are jeopardized by environmental change. Many tribes are mitigating these immediate and long-term effects through adaptation plans.

2.2: Climate Change Adaptation and Relocation

To maintain the collective capacity of their communities, many tribal communities are adapting to climate change through planning and policy strategies. Climate change adaptation is defined as such by Pham & Saner (2021):

“Climate change adaptation (CCA) designates the process of adjustment to actual or expected climate effects, intended to avoid harm or exploit beneficial opportunities. Successful adaptation requires an approach in which all stakeholders are involved, to ensure that all needs will be considered and all outcomes will be just.” (p. 1)

Adaptation is especially prevalent in tribal communities experiencing water infrastructure impacts, like land loss, saltwater intrusion, flooding, and wastewater treatment concerns (Bronen, 2010; Leonard, 2021; Maldonado et al., 2013). Plans engage structural (sea walls, flood gates) and natural (marsh expansion, living shorelines) solutions to restore ecosystem functions and

redistribute water (Hutton & Allen, 2020). In some cases, these adaptation strategies are no longer effective, forcing communities to relocate.

For example, in Arctic Alaska, the rapid rate of erosion due to ice melting is destroying roads and homes, and making Alaskan Native Villages unlivable (Bronen, 2010). Newtok, Alaska is the first community to be completely relocated due to climate change, with more Alaska Native Villages due to follow. Relocation is a novelty now, but by the year 2100, 88 million to 1.4 billion people will be forced to relocate due to climate change (Siders & Ajibade, 2021).

Extreme flooding and erosion are spurring adaptation and relocation in the continental U.S. The Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Indians is historically a fishing, trapping, and hunting community whose culture and settlements are threatened by climate change. The tribe was forcibly displaced from its original lands by European settlers, and the Isle became a refuge to escape relocation and death (Maldonado et al., 2013). Over the last 70 years, erosion and land subsidence have erased around 98% of the island and surrounding marsh. The Isle de Jean Charles Biloxi-Chitimacha-Choctaw Tribal leaders have been planning their tribe's resettlement since 2002, when the U.S. Army Corps of Engineers excluded the community from regional hurricane protection (Jessee, 2022). However, the process of relocation is complicated, and communities are met with numerous barriers in the process of seeking refuge from climate change.

2.3: Barriers to Tribal Adaptation

In the United States, the process of relocation is a logistical nightmare, taking decades and often prolonged by ineffective coordination between multiple U.S. government agencies and tribal governments (Bronen, 2010). The harms of relocation also extend beyond logistical challenges. Relocating 100-150 people from Newtok to Mertarvik was estimated to cost around

\$100 million USD (Anchorage, 2018). These costs are insurmountable without federal government aid, but tribal governments are met with barriers in obtaining aid.

Tribal communities are met with difficulties in accessing resources to adapt to climate change, especially from the US government. For example, the federal government does not have a singular agency dedicated to climate change preparedness, meaning prevention efforts are extended across multiple agencies (Bronen, 2010). The Office of the Special Presidential Envoy for Climate (SPEC) leads diplomacy in addressing the climate crisis but focuses on foreign resiliency issues (U.S. Department of State, 2022). The Federal Emergency Management Agency only provides post-disaster recovery aid, except for home buyouts in flood-prone areas, which often excludes marginalized communities who do not own their home (Dundon & Abkowitz, 2021). Tribal Nations must traverse multiple agencies with differing protocols and timelines. The village of Newtok, Alaska had to employ a state agency planner to coordinate relocation efforts of 25 different government agencies (Bronen, 2010).

Finding resources to adapt to climate change is even more complicated for non-recognized tribal communities. Tribes that are not recognized by the federal government cannot receive federal aid such as funds and grants for relocation and adaptation (Kumasaka et al., 2021). Furthermore, when tribes are formally recognized, they are acknowledged as a sovereign nation and legally granted the right to self-governance. Self-governance guarantees more agency over planning and decision-making, also known as self-determination. Self-determination ensures that communities can determine their own identity through traditions, customs, and decision-making about internal and local affairs (Maldonado, 2013). This agency is critical to tribal communities that have been historically barred from decisions regarding their own communities by the U.S. government, including where they could live and the languages they could speak (Coté, 2016). Seeking federal recognition can take decades, requiring historical and identity evidence, a difficult task after centuries of cultural genocide and historic erasure.

In addition to seeking government support, tribal communities are partnering with academic institutions, NGO's, and other tribal governments to address climate change adversities. The IPCC recognized the importance of including Indigenous knowledge to the success of adaptation in 2022. "Supporting Indigenous self-determination, recognizing Indigenous Peoples' rights, and supporting adaptation underpinned by Indigenous knowledge are critical to reducing climate change risks to achieve adaptation success" (Bezner Kerr, 2022, p. 53).

Additionally, researchers and professionals are increasingly engaging with Indigenous communities seeking to adapt and respond to climate change (Hutton & Allen, 2020). However, establishing and maintaining community and tribal government trust can prove challenging to outsiders who do not have the same values and experiences as tribal members. Indigenous scholar Charlotte Cote (2016) asserts how Indigenous and Western values are inherently contradictory.

"Indigenous cultures are shaped by deep and meaningful relationships to the land, water, plants, and animals that have sustained them which, as WGIF director Dawn Morrison asserts, is antithetical to the relationship that Western society has with the environment.... She writes, The Indigenous eco-philosophy that underlies the ability of Indigenous peoples to maintain dignified relationships to the land and food system is in sharp contrast to the Eurocentric belief, inherent in the worldview proposed by European philosopher Rene Descartes, that humans are to dominate and control nature, and therefore seek to "manage" the land that provides us with our food. Indigenous eco-philosophy reinforces belief that humans do not manage land, but instead can only manage our behaviours in relation to it." (p. 9)

Despite good intentions, resulting methods of engagement can be harmful and extractive. Tribes dedicate time and effort to research and projects that do not reflect community needs,

compounding generational trauma from detrimental outsider interventions and discouraging future collaboration.

2.4: Tribal Mistrust of Outside Institutions

Indigenous people in North America have been subjected to the stealing of their lands, forced relocation, disease, cultural genocide, and unethical testing (Cote, 2015; Maldonado, 2013; Pacheco et al., 2013). These histories deserve to be understood and acknowledged by those working intimately with tribal communities on their internal problems.

The 1830 Indian Removal Act forcibly relocated thousands of Native Americans from their homes. This history must be understood and acknowledged by outsiders collaborating with tribal communities on climate change adaptation and relocation, impactful processes that could cause further harm if not done properly. Maldonado et al. (2013) expand on the trauma associated with relocation.

“For indigenous communities, climate-induced relocation cannot be separated from the sensitive history of government-mandated tribal relocations that occurred throughout the United States from the late 1700s well into the 20th century. The 1830 Indian Removal Act forcibly relocated Native peoples living east of the Mississippi River to a designated place to the west. Along the “Trail of Tears”, tens of thousands of Natives lost their lives. Indian Removal went beyond physical loss of life; the US policies of dispossession, removal, and reservation boundaries led to loss of cultural identity.” (p. 603)

The Indian Removal Act has been widely accepted as a violent act of cultural genocide. The lesser-known subsequent policies enforced by the US government further oppressed Indigenous culture. Land dispossession continued following relocation. Between 1946 and 1964,

the U.S. government terminated the sovereign nation status of 109 tribes and 12,000 Native Americans, causing the loss of health and education programs, judicial and legislative authority, state tax exemption, and 2,500,000 acres of tribal land (Pacheco et al., 2013). Cultural genocide was another tool of oppression used by the U.S. government. In 1882, the Courts of Indian Offenses, was created to discourage “heathenish” cultural practices, including certain dances, rituals, and use of traditional healers. Over time, these regulations were expanded to incorporate other “offenses,” like unauthorized leaves of absence from the reservation (Pacheco et al., 2013). Boarding schools were used to “kill the Indian, and save the man,” a phrase originating from the Carlisle Indian Industrial School in Pennsylvania. Children were forcibly taken from their families and sent to schools dictated by the federal government’s Indian Education Program, constructed explicitly to eliminate Indigenous culture. Native foods, language, and other practices were strictly forbidden (Pacheco et al., 2013). The historical mistrust of outsiders looking to “study” tribal communities is based in a horrific history of studies conducted without consent on tribal communities, like the malnutrition experiments forced on Indigenous children in Canadian residential schools in the 1940’s and forced sterilization of Native American women through the 1970’s (Cote, 2015; Pacheco et al., 2013). Given this loaded and oppressive history, it is imperative that outside institutions are sensitive to issues regarding land, culture, and Indigenous sovereignty. By centering Indigenous experiences and knowledge, scholars and planners have an opportunity to address colonial injustices in tandem with climate change impacts.

2.5: Indigenous Knowledge

Marginalized groups and traditional knowledge systems are routinely excluded from climate change decision making processes (Hardy et al., 2017; Pham & Saner, 2021; Whyte, 2013). Exclusion from decision making processes denies marginalized groups from determining

changes in their own communities and bars outsiders from the wealth of generational, localized knowledge (Hardy et al., 2017).

Indigenous knowledge is critical to the continuance of Indigenous culture. This knowledge is jeopardized by settler colonialism and climate change. Settler colonialism is, “a structure of oppression that wrongfully interferes with Indigenous capacities to maintain an adaptive capacity in their homelands” (Whyte, 2017). Indigenous knowledge differs across Indigenous cultures in North America and globally. Tribal communities and nations carry their own unique values, traditions, and beliefs. This paper discusses commonly held principles across Indigenous cultures in North America, as written by Indigenous leaders and scholars. There is no one size fits all solution for individual communities, however the frameworks subsequently discussed, such as WAMPUM, may provide guidance for non-Indigenous researchers to center Indigenous perspectives.

Indigenous knowledge is also commonly referred to as Traditional Ecological Knowledge (TEK) and Indigenous Knowledge Systems (IKS). There are many definitions of Indigenous knowledge, but generally Johnson et al. (2016) define Indigenous knowledge as a, “‘high-context’ body of knowledge built up over generations by culturally distinct people living in close contact with a ‘place’, its plants, animals, waters, mountains, deserts, plains, etc.” (p. 5).

Given the importance of Indigenous knowledge to culture, it has historically been oppressed by colonizers as a means of cultural genocide and continues to face barriers to widespread use. Colonial methods of cultural genocide like cultural erasure in residential schools, policy banning cultural practices, and displacement from ancestral lands contributed to the loss of generational knowledge across North American Indigenous groups (Cote, 2016; Joseph & Turner, 2020). Even now, Indigenous knowledge is often delegitimized in academic institutions and publications and seen as a competing authority to Western science (Whyte, 2013). Researchers and practitioners looking to center Indigenous knowledge in their work are met with resistance

due to the knowledge not meeting Western institutional standards. Further, tribal governments operate independently of U.S. government processes and timelines, which can stymie collaboration with Western institutions with strict schedules and requirements for funding.

These obstacles demonstrate the gravity of advancing pathways for Indigenous knowledge to be brought to the forefront. Indigenous knowledge is critical to community health and is intrinsically tied to the land. As explained by Neufeld et al. (2017),

“The health of the land and the health of the community are thought to be synonymous; health is nurtured through relationships to the physical environment, which provides the basis for cultures, kinship systems, and traditional ways of living to thrive. This important relationship is sanctified by a deep spiritual relatedness between people and their local environments, that which has been sustained for generations through Indigenous knowledge (IK).”

(p. 94)

Land and the practices and stories tied to it are a large facet of Indigenous identity. Even in cases of extreme environmental degradation, communities choose to stay rather than lose cultural identity. In the 2012 study by Cunsolo Willox et al., they found that over 80% of the 112 Indigenous residents felt significant love, identity, peace, and connection to their land. Despite negative climate change impacts to subsistence practices and their landscape, less than 10% of residents would be willing to relocate (Cunsolo Willox et al., 2012). More recently, Huntington et al. (2018) found that 43 Alaskan Indigenous communities threatened by extreme permafrost melt and erosion, and predicted to migrate, exhibited no increase in outmigration. The study revealed that residents were partially hesitant to relocate because they felt committed to their place, and their land provided a sense of identity, a sociological phenomenon known as place attachment. When climate change damages place, it damages identity, and ultimately well-being.

2.6: Justice-Based Frameworks for Climate Change Adaptation

Given these sensitive contexts, Indigenous scholars and planners are identifying just strategies to combat climate change impacts and existing injustices (Leonard, 2021; Maldonado et al., 2013; Whyte, 2013). This movement to create just adaptation practices is gaining traction. The U.S government has proposed “Indigenous Knowledge Guidance for Federal Agencies” to foster mutually beneficial relationships with Indigenous peoples and appropriately include Indigenous knowledge. The guidance includes:

- Understanding Indigenous Knowledge
- Growing and maintaining the mutually beneficial relationships with Tribal Nations and Indigenous peoples needed to appropriately include Indigenous Knowledge
- Considering, including, and applying Indigenous Knowledge in Federal research, policies, management, and decision making

This guidance also identifies practices, based on agency experience and Tribal and Indigenous input, for collaborating with Tribal Nations and Indigenous peoples. The guidance also includes encouragement for considering and applying Indigenous Knowledge in implementing statutory and regulatory requirements, and respecting the decisions of Tribal Nations and Indigenous peoples on whether and how to engage in Federal processes. (The White House, 2022)

Other government agencies and academic institutions have publicized their own guides for collaborating with tribal communities, like NOAA Sea Grant’s “Traditional & Local Knowledge — A vision for the Sea Grant Network”, signifying a need to filter this fast-growing discipline (Sea Grant, 2018). This thesis highlights well-cited justice-based frameworks, as proposed by Indigenous scholars and allies. Justice-based frameworks may help guide

researchers, practitioners, and policy makers in the collaboration process with tribal members. The frameworks commonly include comprehensive public participation, Indigenous worldviews and cosmology, recognition of tribal sovereignty, and protection of tribal members (Leonard, 2021; Maldonado et al., 2013; Whyte, 2013). If elevated to become standards in the academic and planning community, these frameworks may ensure a more equitable and representative collaboration process.

The approaches of these frameworks amongst many others ranges drastically from policy to governance to values. Currently, there is a lack of discourse pushing for the development of best overall practices through the comparison of these frameworks in practice. The following section highlights frameworks that advocate for Indigenous sovereignty and self-determination in the climate change decision making process.

2.7: Summary of Justice-Based Frameworks

2.7.1: The Guiding Principles on Climigration

Robin Bronen (2010) provided the first, formal climigration justice-based framework from the Native American perspective, called the Guiding Principles on Climigration. The key principles of the framework, paraphrased, include:

- The right of self-determination, or to make decisions about local and internal affairs.
- Preservation of subsistence rights and customary communal rights to resources.
- The right to safe housing, water, and education.

Coming from a background in law, Bronen's framework draws on human rights doctrine, like the Universal Declaration of Human Rights, and the Universal Declaration on the Rights of

Indigenous people to lay a foundation for the burgeoning climigration crisis. However, these principles are a guidepost for equitable adaptation, being one of the first frameworks to directly address Indigenous-related climate change adaptation.

2.7.2: Justice forward: Tribes, climate adaptation and responsibility

Dr. Kyle Powys Whyte, member of Citizen Potawatomi Nation and environmental justice scholar, also offers a justice-forward framework for tribal climate change adaptation, based in government institutions. Whyte's framework addresses institutional capacity to address tribal collective capacity through Indigenous concepts of justice. He frames justice as "systems of responsibilities," which range from interspecies relationships to tribal government/US government relationships. These systems of responsibilities should guide the adaptation process between institutions (Whyte, 2013).

Whyte's framework expands upon the basic human rights that Bronen advocates for. As an Indigenous scholar, he suggests a "forward-looking framework of justice," that shows collaborators "what actions are morally essential for supporting the institutions that tribes must rely on to adapt," rather than focusing on formal wrongs, like human rights violations (p. 1-2).

2.7.3: The impact of climate change on tribal communities in the US: displacement, relocation, and human rights

A few days after the publication of Whyte's framework, Maldonado et al. build on Bronen's human rights-based framework as part on a Special Issue on "Climate Change and Indigenous Peoples in the United States: Impacts, Experiences, and Actions." The paper proposes the Guiding Principles as protocol for climate change adaptation to preserve the rights and well-being of tribal communities (Maldonado et al., 2013).

The work also advocates for self-determination, human rights, and cultural identity. “Negative consequences for the individuals, families, and communities affected by development-forced displacement and resettlement in the 20th century include community fragmentation, health risks, and loss of traditional skills” (Maldonado et al., 2013, p. 609-610). Dr. Maldonado’s perspective as a public anthropologist shows as she pushes for cultural survival, essentially advocating for collective capacity, similarly to Whyte.

2.7.4: WAMPUM

The WAMPUM framework proposes pioneering strategies for tribal water resilience adaptation collaboration. The WAMPUM framework proposes sea level rise adaptation measures guided by Indigenous knowledge systems (Leonard, 2021). Dr. Leonard (2021), citizen of Shinnecock Indian Nation, created the WAMPUM framework to promote decolonial Indigenous action for climate change. The sea level response strategies of WAMPUM include,

“Witness warnings from human and non-human relations and follow the patterns of the natural world; Acknowledge traditional teachings and restore cultural stewardship practices; Mend the shoreline and practice healing for coastal and environmental sovereignty; Protect future generations by protecting cultural sites and ancestors; Unite with other communities to build capacity, plan relocation; Move to new places with cultural connections and rebuild.” (Figure 2, p. 6)

In WAMPUM, Leonard addresses the importance of cultural connection to the natural world and community for tribal communities to build capacity to adapt, creating specific actions to build upon past theoretical frameworks. WAMPUM is also regionally specific, highlighting

actions and issues applicable for eastern coastal region tribes. This framework provides a pathway for researchers, government agencies, and practitioners to decolonize climate change action.

Overall, literature on justice-based relocation frameworks advocates for a lead government agency to facilitate and fund relocation, the incorporation of tribal leadership and knowledge into decisions, and addressing existing injustices. These frameworks are a critical first step in just, Indigenous climate change adaptation. They create pathways for researchers and practitioners to work with Indigenous communities, preserving self-determination, cultural lifeways, and human rights.

Chapter 3

Methods

3.1: Summary of Methods

This study utilizes a qualitative analysis of interviews with people who have worked with tribal communities on climate change adaptation issues. Qualitative methods allow for a deeper understanding of these relationship-based processes that may not be reflected in literature or project reports, as preceded in other qualitative studies that center vulnerable perspectives in climate change issues (Cunsolo Willox et al., 2012) (Grace-McCaskey et al., 2021) (Hardy et al., 2017) (Panikkar & Lemmond, 2020). Cunsolo Willox et al. note the importance of qualitative methods in this kind of research, “interviews added individual voices and lived experiences” (2012). Hardy et al. (2017) speak on how qualitative methods, especially informal ones like storytelling, can slow burnout in vulnerable communities:

“Informal engagement that elicits narration and storytelling and an interplay between two participants was a particularly effective approach with Sapelo Island participants due to “research fatigue” stemming from the extensive number of interviews by journalists, historians, and social science researchers documenting Geechee life and culture over the past century (e.g., Crook et al., 2003; Granger, 1940). All transcripts and field notes were analyzed for narratives on themes related to race, vulnerability, and sea-level rise, with particular attention to references to race relations and environmental knowledge.” (p. 63)

While the interviewees were not endangered populations, they worked in sensitive fields, and some of them were of Indigenous positionality, putting them at risk for research fatigue.

Qualitative methods allow for marginalized voices to speak on their experiences, which quantitative data may not reflect. Quantitative data, especially concerning Indigenous people, is compromised by a lack of representation in data sets. For example, the US Census historically undercounts minority populations, like Black, Latinx, and Indigenous people (Lujan, 1990). Furthermore, the qualitative methods allow for storytelling and personal reflections, which are expressive and revealing methods for relationship research.

3.2: Identifying Participants

Interview participants were identified using two methods. First, the literature review provided a scope of climate change adaptation projects sited in Native American tribal communities in the US, sourced from peer reviewed databases. Many of the challenges tribal communities face in climate change adaptation are related to federal policies. Restricting research to this area allows for continuity and clarity between interview discussions regarding governmental barriers. Potential interview candidates were identified via author information listed on the peer reviewed papers. Second, potential interview candidates were identified using a snowball technique where participants were asked to suggest additional potential participants at the end of each interview. Potential interview subjects were contacted by email to request their participation.

Selection criteria specified that interview participants were adults over the age of 18 who have conducted a climate change adaptation study, plan, or project that engaged with Native American tribal members in the United States or are experts closely familiar with such studies and agree to the informed consent. Consent was given verbally at the time of the interview. Interview questions and pre-interview consent information is attached in Appendix A.

The scope of this study was geographically limited to the United States for the sake of continuity when discussing governmental barriers and histories. For example, First Nation tribes are affected differently by policy because they are under Canadian law. The scope of interviewees was limited to professionals, and not community members, to prevent perpetuating harm and “research fatigue,” which will be further explained in Chapter 6: Conclusion.

This thesis study was approved by the Penn State Institutional Review Board (STUDY00021307).

3.3: Interviews

Qualified participants were interviewed to inform gaps in literature regarding if frameworks are being used to collaborate with tribal communities on climate change and how those processes, or unformalized processes, operate. Questions were formulated to reveal the processes employed in practice, and factors that impact practices. The interview was semi-structured or utilizing a set of predetermined questions with flexibility to allow interviewees to deviate and to introduce topics. Interviews were conducted one-on-one between the Principal Investigator and the interviewer on a Zoom video call. The video audio was transcribed using the Microsoft Word transcription tool and checked for accuracy by the PI.

3.4: Data Analysis

Following an initial read through, the transcribed data was color-coded by hand in five to seven common, underlying themes (Cresswell, 2009). Inductive thematic analysis is a process of coding data for themes without trying to fit it into one’s analytic preconceptions. This allows for a broader discovery of information (Braun & Clarke, 2006). The analysis focused on finding

themes related to relationships, systemic and social structures, and processes related to collaboration (Creswell, 2009). A codebook was developed that included six themes. The codes were cross-checked by a secondary coder (Creswell, 2009).

The PI met with the secondary coder to explain the process and codes, then the secondary coder coded a single interview that was most typical of the interviews selected. The PI and coder met again to discuss results and discrepancies. After clarifying questions related to themes, the PI and secondary coder coded the remaining interviews separately. The coding results were then compared by the PI. Discrepancies in codes were evaluated by the PI to add or delete differences in coding. The PI led this decision-making process due to their first-hand experience with interviewees, providing an understanding of context and tones that were not reflected in transcribed data.

Chapter 4

Results

4.1: Participants

Eight participants were interviewed over a period of three months. The interviews lasted between 40 to 75 minutes with an average interview time of 59 min. The data collected from the interviews reveals the interviewees' experiences collaborating with tribal communities, including how their personal values, interpersonal relationships, identities, and institutional structures influence their collaboration process and outcomes.

Of these eight participants, five identified as men and three identified as women. Five participants were actively involved in academic roles, two participants worked for a non-government organization, and two participants worked for a government agency at the time of the interviews. Two participants were actively enrolled members of Native American tribes.

Table 4-1: Demographic information of participants interviewed.

Interviewee ID	Gender	Tribal Status	Institution
I01	Woman	N/A	Government
I02	Woman	N/A	Academic
I03	Woman	N/A	Non-government
I04	Man	N/A	Academic
I05	Man	N/A	Academic
I06	Man	N/A	Academic, government
I07	Man	Enrolled Member	Non-government
I08	Man	Enrolled Member	Academic

4.2 Summary of Interviews

The results of the interviews reveal similar processes, complications, and goals across various disciplines collaborating with tribal communities on climate change adaptation. Six out of eight interviewees were from the same region of the continental United States and had working relationships or had previously encountered with one another. One interviewee was positioned in Alaska, while another had worked in California and Alaska. Table 4.1 displays the list of themes by frequency, or the number of times the concept was mentioned across all the interviews. Of the themes, frameworks were the most frequently mentioned, while personal values were the least mentioned.

Table 4-2: Coding themes, descriptions, and the frequency in which they appeared in interviews.

Theme	Description	Frequency
Personal Values	Data demonstrates how the interviewee's personal values inform their collaboration approach.	33
Relationship Building	Data shows how the interviewee builds or maintains ethical relationships with tribal communities.	45
Positionality	Data reveals how interviewee's cultural, ethnic, gender, and/or tribal identity affects collaboration.	40
Barriers	Data exhibits systemic or interpersonal issues that inhibit collaboration or adaptation.	58
Community Gains	Data shows resources were obtained by a tribal community, enhancing collective capacity.	44
Frameworks	Data demonstrates processes, guidelines, or frameworks utilized to collaborate with tribal communities.	71

4.2.1: Personal Values

Interviewees expressed how their own values and opinions informed their approach to collaboration. Personal values were significantly impacted by the interviewee's Indigenous positionality. Non-Indigenous interviewees discussed responsibility to correct systemic issues of race, poverty, and colonialism in their work and approach. They also commonly acknowledged their positionality as an outsider in a position of power, emphasizing actions like listening and "taking our cues."

They also expressed frustration with such systemic issues, which occasionally overlapped with the barriers theme. For example, a social scientist emphasized their dedication to not "publishing for the sake of publishing." Another community researcher expressed dissatisfaction with how academic institutions enforce grant and paper deadlines without regard for ethically building relationships in communities. They also describe the pressure to sacrifice ethics for academic success.

We're tasked to rapidly do papers, get grants and the timeline is often too fast for community relationship building and planning that needs to happen... It's hard to produce papers in the way that we would want to do research and feel like they're benefiting community and within ethical standards... But if I compromise my method... then I lose my identity and research.

Interviewees with Indigenous positionality discussed feeling responsible to give back to their community and lands due to their upbringing. For example, a head of an NGO described seeing the river they were raised on in an unusable state.

For me to see the river and the shape it's in now, it just breaks my heart when I go down there. I just have had this remorseful feeling for it like a brother that [I] can't do anything for because I'm tired.

The same interviewee expressed the importance of the river to their community as a place for recreation, spiritual connection, and subsistence. This gratitude towards the river, and desire to reconnect their community to the river, drove their work to clear out invasive beaver dams and hurricane debris.

An Indigenous natural scientist similarly expressed being raised with values of reciprocity and was told from an early age that their responsibility was “to get as much education as you can and to use it to help your people.” Their frame of reference for interacting with tribal communities comes from personal, lived experiences, as opposed to the “wait and listen” approach non-Indigenous people employed. Another driver of their work is the desire to help communities build capacity.

Particularly Indigenous communities know how to be resilient. And I just want to help people articulate what they already know in ways that help them get more resources, draw attention to their situation, or do whatever it is that they need to do to exercise their sovereignty and ensure that they survive as a culture into the future.

It can be inferred from the data that those with Indigenous positionality, and therefore personal values and experiences that relate to tribal communities, have more intrinsic guidance for collaborating with tribal communities than non-Indigenous people. Non-Indigenous interviewees, meanwhile, did not mention lived experiences and values so much as contributing to their collaboration approach, but more so in the context of addressing larger, system issues and advocating for tribes. The interviewees, regardless of reasons, all felt a personal responsibility to collaborate with tribal communities in a just and equitable way.

4.2.2: Relationship Building

The interviewees spoke about the importance of taking time to build and maintain relationships with tribal communities on adaptation projects. Multiple interviewees without Indigenous positionality discussed attending tribal cultural events like powwows and river paddles to foster understanding and collaboration. They also expressed how government and academic processes discourage taking time for relationship building, which ultimately harms the community. One interviewee was aware of how Indigenous people have been “tested on and experimented on as groups of people for generations.” Taking time to build trust in vulnerable communities is essential, especially amongst Indigenous communities in the United States. Interviewees discussed acknowledging harmful histories to foster genuine relationships. An NGO worker talked about being upfront with community members and recognizing wrongs, while an academic described the benefits of cultivating relationships and trust.

Being able to acknowledge the injustice and the travesty, the genocide, in so many cases is vitally important and that will help build more authentic relationships because it shows that you respect their culture. You acknowledge what's been done wrong. And I think that's why you just don't go there unless you're willing to say stuff like that.

To have a personal relationship with people and you know, sharing life experiences with your collaborators... The goal is having a long-term relationship, keep working together, like let's build on this work. It just keeps getting better and better.

Another interviewee also emphasized taking time to build connections in communities. Their lab emphasizes relationships as a critical part of their process. A graduate student leading a tribal project in their lab was granted honorary tribal membership due to their dedication to building relationships.

Being available to the communities was another recurring idea in these discussions. One environmental researcher, in addition to monthly trips back home to their tribal community, made themselves available to community members over multiple platforms, ranging from Facebook messenger to phone calls to email. The idea of being present and available, as well as in person, emerged in many discussions. One researcher noted,

Actually going to spend time in the community has been the most important thing because so much gets talked through. These are cultures with oral traditions and talking through it, so it's not a process of documenting and scoring and having rubrics. It's very much a conversation, and you could spend a couple hours at a restaurant over BBQ, coleslaw, mac and cheese, collard greens.

The interviewees have experience working with tribal communities ranging from 5 years to 25 years (as non-Indigenous people) and lifetimes for those with Indigenous positionality. Getting involved with communities is not a process to be taken lightly: interviewees discussed these collaborations as long-term, if not life-long, efforts they hope to continue for years to come.

Interviewees discussed key actions to relationship building: connecting at cultural events, building long-term relationships, acknowledging painful histories, and making oneself available, even if it means taking a detour from the schedule.

4.2.3: Positionality

Identity significantly impacted collaboration. Some interviewees especially recognized how their Indigenous or non-Indigenous positionality impacted their ability to collaborate with tribal communities. They identify how mistrust of outside institutions and them not having the lived experience of community members can limit their role.

Being white and working as an Indigenous ally, there's always limitations to my abilities in my perspective because I'm white and I haven't experienced settler colonialism... I'm an outsider to the group that I work with so there's limitations to that.

Those enrolled in a Native American tribe were able to connect to tribal members, build and maintain relationships, understand the history and associated challenges the tribe was facing without needing formalized processes to guide them. One Indigenous researcher felt it was their job as an educator to verbalize this process and eventually publicize processes on how outsiders should properly engage with tribes. An Indigenous NGO head noted how their community readily supported their river clearing efforts to repair damages incurred from 500-year storms.

I've [gotten] to know a lot of people and what I've learned... is when you go and you ask for permission, you know, can we use your property to go and take out some trees along the river bank? You know, any damages we'll fix or repair we can... the folks are tickled to death. [They say] "Just come over you ain't got to call us just go on and do it" ... to me, that speaks a lot. That speaks volumes for the work that we're doing.

Professional positionality played into collaboration processes, as well. Professional expertise could be a strength and point of connection. The Indigenous NGO leader had previous government experience that allowed them to navigate the complexities of seeking FEMA funding following hurricanes. A design researcher noted the importance of different strengths in building resilience.

Designers, you know, have very distinct capabilities... to visualize. A picture is so great to be able to show somebody and start a conversation.

Professional institutions also impacted how collaboration proceeded. Those in academia often felt stymied by the timelines and deliverables required by their institution to obtain funding. People within and outside of government noted the difficulty of obtaining funds and working between different agencies.

Those with Indigenous identities were at an advantage for connecting and forming relationships with community members. While being an outsider poses a weakness in the collaboration due to mistrust, interviewees noted the importance of their expertise which warranted their involvement in adaptation in the first place.

4.2.4: Barriers

Barriers included systemic or interpersonal issues that inhibited tribal collaboration or adaptation. Barriers were the second most frequently recorded theme, due to the many challenges that exist at the intersection of settler colonialism and climate change. These barriers existed across all intuitions, including within tribal governments and organizations.

The US federal government emerged repeatedly as a barrier in these conversations. A government agency employee noted the lack of Indigenous inclusion during adaptation planning processes, which caused her to reach out to tribal liaisons and begin a new tribal resilience initiative. In some cases, tribal leaders were invited to workshops or planning sessions, but without prior context or relationship building. In other cases, tribes were not invited at all to workshops or sessions. A former NGO employee corroborates this exclusion.

I know it's happened to tribes, you know where the white people would say, well, we invited them to the meeting, why can't they just approve? Sign off on what we decided and say that's good. Well, that's not serving the community. That's not serving the culture. That's not serving the people.

Interviewees were significantly challenged by the lack of access to government funds and help, as well. Furthermore, multiple interviews noted how working with different agencies can be arduous, slowing down an already belabored process. They note that government timelines do not

respect community timelines. An environmental scientist expanded on this, while an NGO worker discussed problems in finding funding.

There's a mismatch between state and federal agencies and many tribal communities and the mismatch occupies many different dimensions. It's a mismatch in speed and timing. It's a mismatch in terms of failure to acknowledge and reconcile past wrongdoings.

I don't have the money for the beaver management and all I'm asking for from our county managers and from the state and federal is a management program, not an eradication plan for the beavers, but just a management plan [so] that we can get the beaver population in an order to where the river will flow again and... where people can go down and commune by the river.

As previously mentioned, interviewees felt the timelines and deliverables required by government and academic funders were harmful to equitable collaboration. Some interviewees asserted that these were methods of perpetuating structural racism and settler colonialism. Another facet of government barriers includes tribal recognition. Interviewees noted how difficult it is for unrecognized tribes to obtain government support.

Outside of government-based issues, interviewees mentioned the lack of capacity for resilience. Interviewees stated that in tribal and federal resilience roles there is a high turnover rate due to burnout. Multiple people acknowledged how tribes that often collaborate with researchers experience research fatigue fulfilling overdemanding roles. In other cases, tribal communities do not have members with the experience necessary to fulfill adaptation roles, resulting in a complete lack of adaptation. An Indigenous researcher gave insight on what they would like to see from government agencies moving forward.

I think government agencies need to slow their roll. That that's something that I would like to see change, and it's even well-intentioned agencies that are working to build capacity in communities are often working on timelines that simply aren't feasible given the resources and the operational level of tribal communities here in this region and part of it is because the long

legacy of racism, segregation, and oppression has left generations of leaders and community members in a position where they couldn't actively engage or they didn't feel empowered to actively engage... you can't approach a marginalized community without addressing that baggage and you can't just walk in and say, let's go, let's go, it's time to address climate change. There's a lot of work that has to precede that, and this is the really complicated part.

One scientist noted the shortage of resilience experts to address these issues, calling it “an exhaustion within tribes... there’s burnout... people stay a few years and they’re gone.” Another scientist struggled with capacity and had to prioritize environmental justice issues before tackling more forward-looking climate resilience problems.

Climate resilience work has sort of been a slow burn, where the environmental justice work is like one house fire to the next.

Even when the US government support is there, tribal governments come with their own politics to navigate. One researcher acknowledged the complexities of navigating social hierarchies, both within and external to the tribe. They describe the challenges of including all community members as “a real effort to move beyond [working with leaders] and work with people that are not as visible,” like those not in positions of power or government.

The barriers interviewees faced in collaborating with tribal communities were heavily contributed to by the US government. People cited the exclusion of tribes from decision-making, difficulty accessing funding, hasty deadlines, and slowdowns from navigating between different agencies. Outside of the US government, interviewees faced barriers such as addressing large systemic issues in tandem with climate resilience, navigating hierarchies within tribal communities, and being mindful of one’s own position of power as an outsider.

4.2.5: Community Gains

The people interviewed identified community gains, or resources that were obtained by a tribal community, enhancing collective capacity, during their collaboration. Interviewees described wins, such as helping tribal communities obtain funds and lands, which requires expertise and networking. One interviewee helped the return of 28,000 acres of ancestral lands to a tribe for conservation. An NGO employee noted how another NGO provided them with funding to purchase a cultural gathering space by their river. They were able to get \$30,000 within two weeks to purchase the land before it went on public sale. They talked about bringing elders to the space for the first time.

We started that morning about 10:00 o'clock after it warmed up a little bit. It was over in the afternoon about two and I was thinking to myself, now I know these old folks, they're cold. ... I said to them hey, we have got to go but they didn't want to leave it because they got back something in them that they hadn't felt in years.

These funds provided the tribe with the means to seize an opportunity the NGO employee identified. Despite the challenges associated with obtaining government funding, the US government is making aid more accessible to tribes. The same scientist that identified mismatches in government agencies, also gave a nod to progress.

So even though I criticize agencies for the mismatch, that they are not only making efforts, but they're putting funds behind a lot of the words that they're putting out there so they're not, they're not. They're not just simply platitudes, right? That they are ready to put real resources towards solving these problems.

Collaborators also celebrated more intangible gains. Interviewees in earlier stages of collaboration identified engagement, networking, and building relationships as a measure of success for them. Additionally, providing tribes with research data on culturally significant issues

that they requested, interviewees said, is critical to building sovereignty and agency. Furthermore, ensuring that the data is owned by tribes and not academic institutions ensures agency.

The NGO focused on river cleanup was able to rally their community around clearing the river and cleared out over 130 miles since 2013. They expanded the initiative to include an emergency preparedness center and community garden, which builds on community capacity. The leader recounted a particularly impactful day early in the process, where another community member said they felt the river “wake up.”

Interviewees identified a large part of building capacity is connecting communities to outside parties and facilitating those relationships, and ultimately access to resources. The scientist shared what they felt to be the success of his work thus far:

I think one thing that I really like the feedback that I really value is when I am listening in on conversations that are happening in the community and people are talking about climate change or environmental justice or rights of indigenous peoples and they're using empowered language... And to me that's really affirming... And I'm really excited about that because it means that for what it's worth, like people are really engaged with this on a bigger scale.

Interviewees were enthusiastic when sharing the wins in their collaboration processes. Material gains, like funding, land, and data ownership, were immediately useful. But, intangibles, like tribal members gaining knowledge and connections to build capacity and relationships, were also notable.

4.2.6: Frameworks

Interviewees used a variety of approaches to processes, guidelines, or frameworks utilized to collaborate with tribal communities. People interviewed emphasized that their process was flexible and constantly changing in response to the needs of the community. They described

“reading the room” and “listening” to let the tribal community guide the collaboration process. Since existing frameworks often do not cater to specific tribal communities’ needs, individualizing existing processes was accessible for interviewees. A government agency employee working with tribal liaisons described iterating existing government and state frameworks with the hope of developing a framework tailored to their region.

We said, OK, we're going to follow these established frameworks that practitioners use and then figure out... are these appropriate for working with tribes in our area? Are there tribal communities already doing any of this... are they using these frameworks? And if not, can we develop a regional framework throughout the Southeast for working with coastal plain tribes in [their region] and if not, is there something else that works better?

A former NGO employee had no experience with formal frameworks but identified the importance of “creating a culture” around honesty and accessibility to connect communities with resources. Multiple interviewees spoke about connecting tribal communities with resources and know-how for finding funding, with the goal of the tribe being able to communicate independently with outside institutions in the future. One interviewee who runs climate resilience workshops said they were a “link” to resources. Another interviewee who identified as Indigenous also identified as a connector.

So I see myself as an educator and as a connector of dots... I just want to, I want to help people articulate what they already know in ways that help them get more resources, draw attention to their situation or do whatever it is that they need to do to exercise their sovereignty and ensure that they survive as a culture into the future.

Respect and patience were consistently mentioned as guiding principles. A researcher described respecting tribal agency and authority.

I think patience is the number one thing is don't force it, don't push it because these are groups that have had outside force and push on a lot of bad things in the past. Show you're

listening... And then always we always follow a protocol that we don't make any decision, we don't talk to anybody without approval like anybody, anybody around that project... So always giving that position of power to the tribe is the way we work and so we don't share documents, we don't share anything without prior approval.

Only one interviewee utilized a tribe-specific framework, which was still adapted as challenges and community requests arose. A community researcher participated in a collaborative between a university and tribal community. The project utilized an adaptive collaboration framework designed for and with the community to guide communication, informed consent, and expectations. The collaborative was framed around a “co-production of knowledge,” with tribal community members as paid lead members of the team. Team members from the university also lived and worked in the community, fostering relationship building and more representation of the community’s needs.

Another interviewee used general climate change adaptation frameworks to guide their resiliency workshops with tribal communities. These guidelines were not tribal-specific, but in establishing a steering committee of community members prior to the workshop, they were able to get an honest list of the community’s needs.

I'll go through a workshop process and say OK day one. We're going to work on your infrastructure. So we'll talk about housing, where the water lines are, and stuff like that. And then on day two it's usually subsistence resources. We'll talk about changes in the environments... So you know we'll go through that process and then I kind of leave them with that information, and then they use the funding from the BBIA to write their grants. They'll hire somebody either locally or not locally, you know to do the grant, to do the actual adaptation process.

A surprising finding of the interviews was how impactful small community interventions were for building climate resilience. By building tribal paddles into their river cleanup work, one

NGO brought over 900 people to their river, raising revenue to continue bolstering community climate resilience in the wake of 500-year hurricanes and floods.

While interviewees had a variety of approaches guiding their work with tribal communities on issues of climate change adaptation, they all at least had an intention to steer their work in a just way. One tribal member recounted his guiding principle for their research engaging with tribal communities:

I think it's important to emphasize that the formal principle that guides my engagement is accountability. You know tribal communities are... not anonymous organizations, right? They are real people, real families. In some cases, you know they're distant relatives, right? And we know how we're connected to one another. And so, when I say that I treat people like kin, it is literal. And I know that many of the tribes in the region have very similar lived experiences as my family and I know that people are going to hold me accountable for the work that I do and so that's kind of the formal principle is like I'm accountable not just to [my] people, but to other tribal communities in the area.

Regardless of positionality or job role, all the interviewees had principles or frameworks to guide the way they collaborated with tribal communities. Some interviewees followed climate change adaptation frameworks and iterated them per the needs of the community. Only one researcher utilized a tribe-specific framework for adaptation, which was still iterated throughout the project to better cater to the community's needs and values as they built relationships and understanding. Indigenous interviewees had a more intrinsic approach, using words like “accountability” and “availability” to describe interactions with community members. Non-Indigenous interviewees used words like “respect” and “reciprocity” to describe their approach.

Chapter 5

Discussion

5.1: Overview

This study sought to explore the current use of justice-based frameworks in collaboration with tribal communities on climate change adaptation. Overall, interviews with eight collaborators revealed that justice-based frameworks are circulating in the discourse of collaborators but are not being used strictly in practice. Climate change adaptation frameworks were used in some cases and adapted to the communities' needs. There were commonalities between principles utilized in collaboration and principles discussed in frameworks, even if the frameworks were not cited in the interview. Furthermore, key words directly link these principles used in practice to those in the literature. This discussion concludes in synthesizing the themes produced from the qualitative analysis with key principles and terms to suggest a pathway forward for tribal adaptation collaboration.

5.2: Connecting the Study to Literature

First, it is critical to connect the qualitative information from this study to existing literature. Interviewees acknowledged the displacement of tribal communities to vulnerable locations, which worsened existing social vulnerabilities. This is supported in literature, especially by Cunsolo Willox et al. (2012); Hutton & Allen (2020); and Leonard (2021). For example, Cunsolo Willox et al. interviewed community members on the importance of land to their identity and happiness. The well-being of community members was severely impacted by

the decline in subsistence practices due to climate change (2012). Similarly, one interviewee had noted the decrease in access to their river's resources because of invasive species and hurricanes, which he described as, "[seeing the river] just breaks my heart when I go down there... I've had this remorseful feeling for it like a brother that you can't do anything for because I'm tired."

Another notable topic discussed in the interviews was the need for funding for communities to adapt. They also emphasized the barriers to accessing funding, particularly through the government. Bronen's work particularly focuses on this issue, calling for specialized government agencies to aid in climate change preparedness and relocation since 2010. Interviewees often discussed the difficulty in navigating government agencies, which discouraged and slowed communities in the adaptation process. Interviewees also significantly called for greater and immediate government action to provide resources to vulnerable communities. Another governmental barrier that interviewees lamented was the lack of access to aid for unrecognized tribal communities, which Kumasaka et al. asserted in 2021. Recognition grants self-determination (at least in terms of internal affairs), which protects a cultural group's way of life (Maldonado, 2013). This was acknowledged by most interviewees. One interviewee repeatedly noted respecting the internal decision-making process by not making any project decisions without tribal government approval.

Another significantly discussed topic was the difference between government/academic timelines and community timelines. Interviewees called for longer project timelines to allow for relationship building and to respect community priorities. One interviewee called it a "mismatch" between timelines. Interestingly, known literature does not widely discuss this, most likely because this is a behind-the-scenes, funding-related issue, which could jeopardize author access to institutional funding. However, literature does reflect differences in Western and tribal worldviews. Cote (2016) asserts that Indigenous and Western values are inherently contradictory, which also plays into respecting and including Indigenous Knowledge in the decision-making

process. Interviewees discussed Indigenous Knowledge as a natural part of the collaboration process. They acknowledged TK as a strength that communities could provide to improve collective capacity, which is supported by the literature of Whyte (2013).

Finally, interviewees discussed the importance of building trust in vulnerable communities. “Studied to death” and “research fatigue” were phrases used to describe the hesitance of communities to become involved with research projects. Pacheco et al. (2013) laid out the history of malpractice in research involving Native American communities. There also exists the obvious trauma associated with relocation (Maldonado et al., 2013), which interviewees avoided even proposing as a solution to their communities due to the sensitive context.

The parallels between topics in literature and in interview discussions points to a key finding: researchers are talking about the problems happening in practice. However, the way they navigate these issues digresses from the paths laid out in literature.

5.3: Connecting the Study to Justice-Based Frameworks

Concepts discussed by interviewees can be directly linked to the justice-based frameworks described in the literature review. Key words frequently used in the interviews revealed principles utilized in collaboration work. Contrary to the frameworks adapted by the participants, many of these principles were not climate change specific, but tribal specific. These principles of justice reflect concepts discussed in justice-based climate change adaptation literature. Interviewees talked about principles such as “relationship building,” “listening,” “reciprocity,” “capacity,” “Traditional Knowledge,” and “agency”.

“The Guiding Principles on Climigration” emphasize the right to self-determination, along with basic human rights like clean water. Interviewees talked about “agency” and the importance of self-determination in the adaptation process.

Whyte's "Justice forward" framework pushes for "forward-looking justice" by calling for governmental agencies to recognize Indigenous systems of responsibilities, or reciprocal relationships, building collective capacity. Interviewees frequently discuss the significance of "relationships" and "reciprocity" to sustain collaboration. One interviewee specifically referenced Whyte's work and multiple referenced building "capacity," although not as frameworks used to guide the collaboration process.

In Maldonado et al.'s "The impact of climate change on tribal communities in the US: displacement, relocation, and human rights," they advocate for expanding the Guiding Principles on Climigration to include well-being and cultural identity, as well as human rights and self-determination. In interviews, the collaborators emphasized building community "agency" and "listening" to community needs and knowledge, making decisions with the community instead of for them.

Leonard's WAMPUM proposes sea level rise adaptation measures guided by Indigenous knowledge systems to promote decolonial Indigenous action for climate change. WAMPUM was cited by two interviewees as a reference for their work, although not as a guiding framework. One interviewee noted their team wanted to build a regional-specific tribal adaptation framework like WAMPUM. Other interviewees talked about building "capacity," and respecting "Traditional Knowledge," which Leonard discusses, "Acknowledge traditional teachings and restore cultural stewardship practices; Mend the shoreline and practice healing for coastal and environmental sovereignty; Protect future generations by protecting cultural sites and ancestors; Unite with other communities to build capacity" (Figure 2, p. 6).

These links between the dialogue of interviewees and justice-based collaboration frameworks suggest that while frameworks may not be used to guide collaboration currently, their principles are valuable and could provide a starting place for just adaptation.

5.4: Frequency of Study Themes

The frequency of themes in interviews provides a quick overview of what issues interviewees found critical in their work. The three most frequent themes outline potential focuses for future frameworks.

Relationship building was the third most frequently cited, showing the importance of relationship building to collaboration. Barriers were the second most frequently mentioned, demonstrating how barriers to collaboration are a focus and a major obstacle for interviewees. They were frustrated and called for significant change in governmental and academic institutions. Frameworks were mentioned the most. When framed in the context of how little they are being used, this demonstrates that frameworks are a continuing question for this field, and there is a need to further develop flexible frameworks that focus on building relationships and navigating barriers in the system.

5.5: A Pathway Forward

The themes pulled from the qualitative analysis of this study can be synthesized with the principles of justice discussed by participants and literature. The following guidelines aim to move the discourse forward regarding tribal adaptation collaboration.

A Pathway Forward for Just Adaptation Collaboration

- Build relationships with tribal communities, by sharing food, culture, and time.
- Represent the lived experiences and knowledge of tribes by representing tribal members on the project.

- Respect agency and self-determination by listening to tribal leadership and only making decisions approved by the community.
- Link community members to networks of resources to establish independent connections and cultivate collective capacity.
- Provide tangible benefits for the community to build energy and excitement: even small wins matter.

These guidelines are built off the work of tribal members, scholars, activists, government employees, and NGO employees. These steps are a suggestion and a starting point for future collaborators. Once the process begins, it is entirely up to the community how adaptation and collaboration proceeds. These guidelines give a general background on cultivating a just culture of respect.

Chapter 6

Conclusion

The guidelines developed for just adaptation collaboration suggest actions such as relationship building, Indigenous representation, respecting tribal agency, linking communities to resources, and providing tangible benefits to communities. These actions were gathered from the synthesis of qualitative data from this study and existing literature. The qualitative inductive analysis of interview data revealed outside institutions are not using justice-based frameworks in collaboration, but are unconsciously employing principles promoted in the frameworks. The frameworks are also circulating in discussions in the field. This study aimed to answer a gap in climate change justice literature; are justice-based frameworks being used practiced? While answering this question, the study opens doors for further questioning. The limitations of this study also reveal gaps in the discourse.

One of the most limiting factors of this study was time. Tribal members without an outside organization affiliation were not interviewed to prevent potential harmful and extractive practices. The timeline of this thesis was not conducive to building new relationships with vulnerable communities. Expedited relationship building and the inability of sustaining these relationships past this project would contradict the ethics of the author and this study. Furthermore, the number of interviewees was restricted by time, which limited the amount of data gathered. There is a gap in representation in this study on tribal issues: most of the participants self-identified as not having Indigenous positionality. This, however, reflects larger disparities in climate change related disciplines, where the majority of professionals are white. Also, Indigenous experts tend to burn out quicker due to the high demand of being a minority in a

majority-white profession. The snowballing technique, although useful for learning about a specific area, may have limited the diversity of thoughts and opinions in interviewees, since many of the participants were colleagues at some point. These methods were also limited by interviewees being less transparent about their experiences than in an anonymous setting. Surveys, for example, are known to elicit more honest responses because of anonymity. These limitations show areas for improvement and opportunities for future studies to focus on.

Given these limitations and the conclusions, next steps for this research emerges. The big question this thesis begs is: how can we design flexible frameworks that facilitate collaboration with tribal communities and outside institutions, whilst building tribal collective capacity?

Additional questions that address gaps in this study and the field are also revealed. How are tribal members impacted by climate change adaptation collaboration? Are tribal communities utilizing frameworks? Are they useful tools? How can government and academic funders be held responsible to expand project timelines and provide more access to aid?

As a student of landscape architecture, I cannot help but reflect on how these questions could be answered by landscape architects, urban planners, architects, and all the designers in between. Collaboration is a common process in these fields, with the added gravity of literally changing the landscape people interact with every day. Mindful collaboration is key to connecting with community members to create projects that are equitable, useful, and resilient. These principles and conversations will guide my future work as a designer, serving as a reminder to slow down, listen, and celebrate small wins.

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Appendix: Key Informant Interview Guide

Key Informant Interview Guide

Name of Interviewee: _____ Start time: _____

Date of Interview: _____ Stop time: _____

Thank you for agreeing to be a part of this research study.

The research study focuses on how professionals and researchers are collaborating with Native American tribal communities on climate change adaptation projects. I am interested in exploring if project collaborators are using justice-based frameworks to guide the collaboration process and how this impacts the success of the project in their viewpoint.

This interview is an important part of my thesis research in partial fulfillment of a M.S. in Landscape Architecture from the Pennsylvania State University. Your time and effort are greatly appreciated.

Your participation in this interview is completely voluntary; we can stop at any time and you may feel free to skip any questions you would prefer not to answer. Your participation in the interview implies your consent to be part of this research study.

Your responses and your personal identity will remain confidential in the thesis. All information, data, and notes acquired from this interview will be securely stored, per Internal Review Board for human subjects requirements.

I would be happy to share my notes from this interview with you, if you would like to clarify your responses or offer additional comments and/or guidance.

Do you have any questions? Are you ready to begin?

1. Before we begin, is there phrasing you prefer to use in reference to Native American tribes?
2. What is your role in working with Native American tribes in climate change adaptation?
3. Do you identify as a member of a Native American tribe or community?
4. How did you become involved in this work?
5. How many years of experience do you have working with Native American tribes?
 - a. How much contact did you have with tribal members over that time?
6. What, if any, formal frameworks have you used in your work (for example, the WAMPUM adaptation framework)?
 - a. Can you share an example?
 - b. Can you tell me more about that process?
 - c. Did you feel it was successful?
7. Do you feel the processes you have been using with tribal members have been successful?

(If successful ask part a first, if unsuccessful ask part b)

 - a. What worked well in the collaboration process?
 - b. What could be improved upon?
 - c. Did you receive feedback from tribal members?
 - d. If so, what was it?
8. Are there plans for future work with Native American tribes following any of your projects?
9. Are there others you think I should speak with?