

RESEARCH ARTICLE

The whole community? Assessing FEMA's inclusion of Tribal governments in hazard mitigation efforts

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Abstract

The Federal Emergency Management Agency (FEMA) has long advocated for what it calls a “Whole Community approach” to disaster resilience and recovery. This philosophy holds that the priorities of all governmental, commercial, and interest groups should be considered, and their capabilities leveraged, in preparing for and responding to disasters. According to FEMA, federally recognized Tribal governments are part of the “Whole Community.” In this paper we use systematic content analysis techniques to examine policy documents derived from the Hazard Mitigation Assistance grant program to assess whether and how FEMA has taken the concrete policy steps necessary to include Tribal governments in the “Whole Community.” We find that while FEMA has expressed interest in a more equitable and accessible program that serves the needs of Tribal governments, it has taken few practical steps toward this goal.

Introduction

Federal disaster policy in the United States is intended to support disaster preparedness, response, and recovery across diverse communities and levels of government, inclusive of federally recognized Tribes [1]. Yet recent studies suggest federal disaster policies do not support all communities equally, and disproportionately fail to support more vulnerable communities [2]. In this study we begin to identify and characterize how federal disaster policy supports or detracts from Tribal hazard and disaster preparedness, response, and recovery by systematically analyzing related Federal Emergency Management Agency (FEMA) grant policies through the lens of the Tribal Climate Change Principles [3]. This analysis is supplemented by the perspectives of environmental professionals experienced in working with Tribes.

Management Agency. A complete list of these documents is provided in Supplement S2.

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Tribal hazard mitigation needs and efforts

American Indian and Alaska Native communities are simultaneously more vulnerable to natural hazards—especially those exacerbated by climate change—and less able to access the resources necessary to mitigate the harm such hazards cause [4, 5]. There are at least two reasons for this phenomenon. First, the subsistence lifestyles Indigenous communities have led since time immemorial depend culturally, socially, and economically on the continued health and abundance of local species, habitats, and ecosystems, which climate change threatens in innumerable ways [4, 6]. In this context, “subsistence” means more than basic nutrition—it also encompasses mental health and spiritual wellbeing that depend on the ability to follow traditional cultural practices [7]. Second, Indigenous communities are vulnerable because of the ongoing impacts of colonialism, institutional racism, and forced relocation [4, 6]. In addition to killing tens of millions of Indigenous people throughout the Americas [8], these forces have situated Native reservations in the United States on lands that are more vulnerable to climate hazards [9], resulted in persistent underdevelopment of infrastructure on those lands [10, 11], and disproportionately subjected these communities to poverty and poor health outcomes [11].

While the specific impacts of climate change vary in character and severity by region and based on the unique histories and characteristics of individual communities, this pattern of vulnerability broadly persists among American Indian and Alaska Native communities throughout the United States. Common impacts on Tribal lands include the destruction of traditional sources of food and medicine; loss of traditional practices and access to sacred sites; exacerbation of infectious disease; contamination of food, water, and air; heat-related illnesses; storms, floods, and fires; mental health harms; damage to infrastructure and agricultural lands; chronic water shortages; and displacement echoing the forced relocations of the 18th and 19th centuries [4].

Against this backdrop of heightened risk, Tribal governments have demonstrated remarkable innovation in responding to natural hazards and ensuing disasters. Tribal adaptation strategies are necessarily tailored to local conditions, but are frequently rooted in traditional Indigenous Knowledges and tend to rely on managing and enhancing natural structures and systems instead of or in addition to conventional strategies such as hardening the built environment to weather disaster events [4, 6]. For example, Indigenous communities have long used ecologically sophisticated controlled burning strategies to mitigate the risks associated with wildfires [12]. These types of practices have in recent history been disfavored in mainstream thinking [6], but a variety of interested parties are beginning to recognize their value [13–16].

The hazard mitigation assistance grant program and other available grants

FEMA is an agency of the Department of Homeland Security (DHS) and currently administers four hazard mitigation assistance (HMA) grant programs: the Hazard Mitigation Grant Program (HMGP), Hazard Mitigation Grant Program Post Fire (HMGP Post Fire), Building Resilient Infrastructure and Communities (BRIC), and Flood Management Assistance (FMA) [17]. These grants provide funding to states, Tribes, territories, and local communities to implement hazard mitigation measures designed to reduce the risk of future damage, loss, or hardship caused by natural and other disasters. BRIC is the largest and most recently implemented of these programs [18].

While these programs are broadly similar in structure, they differ in many ways, including type of disaster, timing of aid, triggering event, competition for funding, and eligibility. Most importantly, BRIC and FMA are prospective, providing funding for projects intended to

prevent or mitigate the harm caused by future disaster events; funding from HMGP and HMGP Post-Fire is available only after a major disaster is declared pursuant to the Stafford Act [19].

Federally recognized Tribes may apply for funding under these programs directly as applicants or indirectly as sub-applicants under the auspices of an application filed by a state. Applying independently affords Tribes control over the entire grant application and administration process, including the ability to set development priorities and access to additional funding for administrative costs related to grant management and project implementation. However, lead applicants bear heavier administrative burdens than sub-applicants [20]. In addition, applicants are responsible for footing a portion of the bill through cost-sharing—typically 25 percent of the total project cost [20]. Tribes lacking the capacity to administer grants as lead applicants are thus compelled to seek funding with the assistance of the states within which they are geographically situated.

FEMA is far from the only agency with which Tribal governments engage for funding. In the hazard management field alone, agencies and other federal entities aside from FEMA that provide technical assistance, funding opportunities, and other resources to Tribes include the Department of Housing and Urban Development, the Bureau of Indian Affairs, the Indian Health Service, the Army Corps of Engineers, the Administration for Children and Families, the National Oceanic and Atmospheric Administration, the National Fish and Wildlife Foundation, the Environmental Protection Agency, the Department of Agriculture, the Forest Service, the Natural Resources Conservation Service, the National Park Service, and the Bureau of Land Management (Table 1).

Tribal sovereignty and the trust relationship in hazard mitigation

Like all federal agencies, FEMA engages with federally recognized Tribal governments against the backdrop of the trust doctrine. Under established law, federally recognized Tribes are sovereign nations with the inherent authority to self-govern and to protect Tribal citizens within Tribal territory. Recognition is intended to acknowledge the character of an Indigenous group as a distinct long-term cultural, ethnic, and political entity. Federal law classifies recognized Tribes as “domestic dependent nations” [21] with their own political authority and autonomy in self-governance as to internal matters that predate and are independent of the Constitution but are subject to the plenary power of Congress [22]. The relationships between the federal government on the one hand and recognized Tribes on the other are therefore political relationships between sovereigns with the federal government holding ultimate authority over policy.

The trust doctrine is a corollary of these principles. Federal law and (less consistently) practice have long recognized a unique relationship of trust between Tribes and the federal government premised on the superordinate power of the federal government over Tribes. This self-imposed obligation of the United States is in the nature of a fiduciary relationship whereby the federal government must protect the interests of recognized Tribes and particularly their right to self-govern [23]. While a long line of federal policy decisions and court rulings have narrowed the scope of the trust obligation and Tribal sovereignty alike [7, 22, 24], this principle remains the central pillar upholding the firmament of federal Indian policy.

FEMA’s “Tribal Policy” [25] and “Tribal Consultation Policy” [26] explain how these principles apply in the hazard management context. The agency accepts three limited obligations under these policies. First, it undertakes to consult with Tribal governments “when an agency action has tribal implications” [25]. This principle does not require FEMA to take or avoid any particular policy action—the agency only commits to conferring with Tribes before acting.

Table 1. Non-FEMA awards available to tribal governments.

Grant Program	Award Amount	Purpose	Requirements
2023 Coastal Program Department of the Interior Fish and Wildlife Service ^a	Up to \$200,000 per award \$6,000,000 total	To design and implement coastal habitat protection and restoration strategies that anticipate and ameliorate the impacts of climate change and other environmental stressors	- Federally recognized Tribal governments - Submit SF-424, Application for Federal Assistance - Provide budget narrative - No cost sharing
BIA: Tribal Climate Resilience Program ^b	up to \$300K per award Total of \$45 million	To support climate adaptation planning and implementation projects, including those related to natural disasters and extreme weather events.	- Federally recognized Tribe or Tribal organizations - Any plan that addresses or incorporates climate change - USGS Ecosystems Research Funding Opportunities (ECO Opps) account - PDF grant application and excel budget file
BIA: National Tribal Broadband Grant (NTBG) ^c	Up to \$50K	To explore the possibility of developing or extending broadband services in Tribal communities	- Federally recognized Tribe or Tribal organizations Grants.gov application - Online intake form
EPA: The Environmental Justice Government-To-Government Program ^d	Total: \$30,000,000 ~\$1 million per award	To support government activities that provide positive environmental or public health impacts in communities disproportionately burdened by environmental harms	- A Tribe (includes federal and state recognized Tribes) in partnership with a community-based nonprofit organization \$20 million Tribal set-aside - Application: SF-424, Project and budget narrative
EPA: Indian Environmental General Assistance Program ^e	Total grant funding Varies by FY • Minimum of 75,000 for initial awards	To build Tribal capacity for developing and administering environmental protection programs	- Federally recognized Tribes or intertribal consortium - No cost sharing - Electronic submission through Grants.gov - Requires work plan, budget narrative, and application for federal assistance
HUD: Indian Community Development Block Grant Program ^f	Total: \$92,309,280 Grant Ceiling: 2,000,000	To fund community development projects, including disaster recovery and resilience.	- Federally recognized Tribal governments - No cost sharing - Apply through electronic submission or fillable PDF

This table summarizes sources of funding available to Tribal governments from federal agencies other than FEMA. It is not a complete listing of all such opportunities. Additional information concerning these programs is referenced in footnotes below.

^a <https://www.federalgrants.com/F23AS00032-2023-Coastal-Program-92513.html#:~:text=F23AS00032%20%2D%202023%20Coastal%20Program%3A%20The,and%20protect%20fish%20and%20wildlife>

^b <https://www.bia.gov/service/tcr-annual-awards-program/categories>

^c <https://www.bia.gov/news/indian-affairs-seeking-applications-2022-national-tribal-broadband-grant-program>

^d [https://www.epa.gov/environmentaljustice/environmental-justice-government-governmentprogram#The%20Environmental%20Justice%20Government%2Dto%2DGovernment%20\(EJG2G\)%20program,disproportionately%20burdened%20by%20environmental%20harms](https://www.epa.gov/environmentaljustice/environmental-justice-government-governmentprogram#The%20Environmental%20Justice%20Government%2Dto%2DGovernment%20(EJG2G)%20program,disproportionately%20burdened%20by%20environmental%20harms)

^e <https://www.epa.gov/system/files/documents/2022-11/FY-23-GAP-NOFA-Final.pdf>

^f <https://www.hud.gov/sites/dfiles/PIH/documents/PIH2021-22.pdf>

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Second, FEMA commits to taking “reasonable, appropriate steps to eliminate or diminish procedural impediments to working directly and effectively with” Tribes [25]. It is left unstated what level of effort is reasonable and appropriate. Third, FEMA promises to facilitate Tribal participation “in educational and technical assistance programs to develop, support, and enhance” Tribal hazard management capacity while accounting for “unique circumstances [such as] variation in size, financial circumstances, [and] cultural considerations” [25]. Importantly, the responsibility actually to develop Tribal capacity remains with the Tribes themselves—FEMA is responsible only for providing contextually appropriate education and training.

The trust doctrine notwithstanding, the federal government in general and FEMA in particular have consistently struggled to engage with Tribal governments as sovereign entities on their own terms [27]. The passage of the Sandy Recovery Improvement Act in 2013 improved the disaster management system by integrating recognized Tribes as enumerated grantees [28]. However, significant barriers remain. Survey data from the 562 Tribes that were federally recognized in March 2002 showed that the majority of intergovernmental relationships between Tribes and states and between Tribes and the federal government do not display the characteristics of an acceptable or effective working relationship [27]. Tribal survey participants identified key barriers to progress including a lack of understanding on the part of US government officials of the unique cultural, legal, and political position of Tribes and a lack of communication, responsiveness, and provision of technical assistance [27].

Tribes with lands that cross state boundaries, such as the Navajo Nation encompassing portions of Arizona, New Mexico, and Utah, must account for cross-jurisdictional considerations when seeking resources, financial aid, and technical assistance from federal agencies. Unclear federal disaster management policy or the delegation of federal disaster management authority to states may also cause tension between Tribal and state governments. In these situations where the federal government has deferred to state agencies, the lines of accountability become blurred during intergovernmental conflict between states and Tribes and limit opportunities for coordination. Survey data support this point of conflict, showing that "on average, Tribes reported having more contentious relationships with states than with the federal government" [27].

Research goals

In this paper we evaluate the extent to which FEMA's hazard mitigation assistance (HMA) grant program is accessible to Tribal grant applicants. Applying systematic content analysis techniques to a selection of general-purpose and Tribe-specific policy documents, supplemented by semi-structured interviews with Tribal hazard management professionals, we evaluate the agency's efforts to operationalize the principles set forth in the FEMA Tribal Policy and other relevant policy instruments. Our findings on the gaps between the acknowledged obligation to include Tribes in hazard mitigation efforts and the practices that would accomplish this lead directly to a series of recommended changes to FEMA policy to address these shortcomings, including suggested strategies for Tribes seeking to navigate the system as it currently exists. We conclude with a brief examination of recent and forthcoming changes to existing policy.

Materials and methods

This piece relies primarily on a systematic content analysis of 47 FEMA policy documents relevant to the HMA grant program and agency-Tribal relations. Our codebook derives largely from the Tribal Climate Change Principles, which articulate a vision of Tribes actively shaping the climate policy agenda through robust exercise of their inherent sovereign powers and in collaboration with other political authorities [3].

Document selection

We pursued a combination of purposive and snowball sampling strategies to select documents for review, beginning with high-level strategic doctrine and proceeding to more specific program-level materials identified therein. Initial review of FEMA's core strategic doctrine to analyze the guiding principles of the disaster management system at the federal level identified a relevant set of program and policy guides mentioned therein. Review of FEMA grants and funding opportunities identified program manuals and ancillary documents related to grants

and funding opportunities. The program manuals in turn identified program requirements, which referenced documents specific to technical assistance, hazard mitigation, and benefit-cost analysis.

We excluded documents focused primarily on terrorism; although FEMA classifies terrorist attacks as disasters, such events fall outside the focus of our research on disasters related to natural hazards.

Conceptual framework and codebook development

We established a coding system *a priori* based largely on the Tribal Climate Change Principles (TCCPs) [3]. The TCCPs were developed in 2015 by researchers associated with the Tribal Climate Change Project at the University of Oregon based on recommendations issued by the 2014 President's State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience. The purpose of the TCCPs is to establish a set of guiding principles for policy-makers to engage equitably with Tribal governments on climate-related adaptation and mitigation efforts. They have since been incorporated into the policy platforms of organizations such as the Affiliated Tribes of Northwest Indians [29].

To ensure reliability and reproducibility, we conducted a crosswalk of the TCCPs to align the concepts therein with identifiable FEMA practices, procedures, and terminology (Table 2) and memorialized context-specific definitions in a codebook (Table 3). To test the codebook, two coders independently applied it to a sample of nine FEMA documents. Based on this testing we revised the codebook, refining code definitions to further improve reliability and adding an administrative code to capture points of communication breakdown such as inaccurate points of contact, invalid URLs, and other outdated information.

The final codebook comprises five categories and 13 subcategories intended to capture FEMA's Tribal relations policies and practices with respect to HMA grants within the TCCP framework (Table 3).

We first established a thematic group of codes to identify “when,” “where,” and to “whom” the FEMA documents applied. Here we coded the disaster management cycle, which allowed us to identify which documents referenced preparedness for and mitigation of natural-hazard-related disaster events. We also coded Tribal lands to investigate the geographic bounds of support and funding—or lack thereof—provided to Tribes. Finally, we coded Tribal recognition to understand “who” was included in (and excluded from) policies and programs, and what resources were available to various groups. These codes served to bound all research questions in time, space, and Tribal inclusion.

Our second thematic group of codes is tied explicitly to the TCCPs, which have been proposed as a guide for the federal government to develop and implement administrative and legislative action to address climate impacts and ensure Tribal access to climate resources [3]. These codes capture “what” FEMA provides to eligible Tribal stakeholders, including funding eligibility and institutional supports such as capacity building and technical assistance for projects on Tribal lands, initiatives to engage directly with Tribal authorities or increase Tribal participation, and opportunities to pursue nature-based solutions or projects that incorporate Indigenous Knowledges.

Coding process

Each document was coded by at least two different members of the research team using the final codebook (Table 3). After coding was complete, the full research team met to discuss any discrepancies between coders, all of which were resolved by team consensus upon discussion.

Table 2. Tribal climate change principles crosswalk.

	Principle Definition	Concept developed for Codebook
Principle 1	Federally recognized tribes and other Indigenous Peoples and Indigenous communities must be partners with full and effective participation in assessing and addressing the problems of climate change at the local, regional, national, and international levels and must be accorded at least the status and rights recognized in the U.N. Declaration on the Rights of Indigenous Peoples and other international standards relevant to Indigenous Peoples.	Document describes a requirement or approach that includes equitable partnership for tribes in the program/process.
Principle 2	Tribes must have fair and equitable representation on all federal climate committees, working groups, and initiatives in which states, local governments, and other stakeholders are represented.	Document describes a committee, workgroup or public participation requirement that is equitable for tribes.
Principle 3	The federal government should establish a high-level interagency Tribal government task force to examine and propose solutions to close gaps across the federal agencies' relationships and programs with tribes, and to develop, recommend, and implement Tribal-specific solutions that enable the agencies to support and foster Tribal climate-resilient planning and investment.	Document describes a federal Tribal government task force in the program or process. Document describes processes to improve relationships with tribes and implementation of tribe-specific solutions.
Principle 4	Indigenous Peoples must have direct, open access to funding, capacity-building, and other technical assistance, with their free, prior and informed consent, to address the immediate and long-term threats from climate change.	Document describes resources other than funding (e.g. capacity-building, technical assistance) accessible to Indigenous Peoples to address climate change threats. *To reduce redundancy, funding is included in Principle 6.
Principle 5	Tribes must have fair and equitable access to federal climate change programs.	Document describes a requirement or approach that ensures tribes have equitable access to programs and processes
Principle 6	Tribes must be made eligible for existing and future federal natural resource funding programs for which states are eligible for, but from which tribes are currently, or might be, excluded.	Document describes funding that states are eligible for, but tribes are excluded from.
Principle 7	A fair and equitable set-aside of direct monies or allowances must be made available for distribution to tribes through legislation, administrative actions, and existing and future federal natural resource funding programs.	*Rolled into Principle 4 due to the scope of FEMA funding
Principle 8	Indigenous traditional knowledges, with the free, prior, and informed consent of Indigenous Peoples must be acknowledged, respected, and promoted in federal policies and programs related to climate change.	Document describes Indigenous traditional knowledges as part of the policy, program, or solution to climate change.

Derived from Gruenig et al., 2015 [3].

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Supplemental interviews

Recognizing the limitations of content analysis alone as a tool to draw inferences, we cross-validated our content analysis with semi-structured interviews of three professionals who work with Indigenous communities on hazard mitigation projects, including projects funded by FEMA HMA grants. Because of the small number of individuals engaged in this work, we used purposive sampling to identify interviewees who possessed the requisite experience and expertise. Supplementing with this contrasting research technique enabled us to add context to any

Table 3. Summary codebook.

Theme	Subtheme	Coding Instructions
Disaster management Cycle	Mitigation	Code 0 if the document refers to the mitigation phase
	Preparedness	Code 1 if document refers to the preparedness phase
	Response	Code 2 if document refers to the response phase
	Recovery	Code 3 if document refers to the recovery phase Code 4 if all phases are described Code 5 if no phases are described * Code all phases described
Tribal Recognition	Federally recognized Tribes	Code 0 if federal Tribal recognition is mentioned and is a condition for participation or access to funding, resources, and/or participation
	State recognized Tribes	Code 1 if state Tribal recognition is mentioned and is a condition for participation or access to funding, resources, and/or participation
	Tribes seeking recognition	Code 2 if Tribes seeking recognition are eligible for participation or access to funding, resources, and/or participation Code 3 if Tribes are explicitly excluded Code 4 if no mention of Tribes and cannot discern if they are excluded
Tribal Lands	Traditional Lands	Code 0 if document describes traditional lands
	Federally recognized lands	Code 1 if document describes federally recognized Indigenous Peoples' lands Code 2 if there is no mention of either traditional or federally recognized Indigenous Peoples' lands
TCCPs	Derived from Principle 1	Code 0 if partnership is not mentioned Code 1 if the document states that Tribes do not have equitable partnership or describes a process that results in inequitable participation Code 2 if participation is mentioned, but not specific enough to determine equity Code 3 if document describes equitable participation for Tribes
	Derived from Principle 2	Code 0 if committees, working groups and initiatives are not mentioned Code 1 if the document states that Tribes do not have equitable representation on committees, working groups and initiatives Code 2 if document describes Tribal participation, but not specific enough to determine equity Code 3 if the document describes Tribes having equitable representation on committees, working groups and initiatives
	Derived from Principle 3	Code 0 if a federal Tribal task force is not mentioned Code 1 if there is mention of federal Tribal task force
		Code 0 if Tribal relationships are not mentioned or described Code 1 if document states that there will not be efforts make to improving relationships with Tribes Code 2 if there is mention of improving Tribal relationships with Tribes
		Code 0 if implementing Tribe-specific solutions are not mentioned Code 1 if document states that implementation of Tribe-specific solutions are ineligible for resources Code 2 if Tribe-specific solutions are eligible for resources
	Derived from Principle 4/7	Code 0 if capacity-building, and technical assistance are not mentioned Code 1 if Tribes are explicitly denied/ineligible for capacity-building, and technical assistance Code 2 if capacity-building, and technical assistance are available for Tribes, but not specific enough to determine equity Code 3 if capacity-building, and technical assistance and includes equitable access to Tribes
	Derived from Principle 5	Code 0 if access to programs, processes, or participation is not mentioned Code 1 if Tribes are explicitly denied access to program, process, or participation Code 2 if Tribes have access to programs, process, or participation, but not specific enough to determine equity Code 3 if Tribes have equitable access to program, process, or participation
	Derived from Principle 6	Code 0 if federal funding is not mentioned Code 1 if federal funding is available for States, but not for Tribes Code 2 if federal funding is mentioned and includes Tribes
	Derived from Principle 8	Code 0 if Indigenous knowledges is not mentioned or described Code 1 if document describes the rejection of Indigenous knowledges Code 2 if there is acceptance of indigenous knowledge in aspects or a program, but not throughout the entire policy/program Code 3 if there is the explicit acceptance of Indigenous knowledge in the policy, program, or solution

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conclusions drawn from the documents alone and strengthened the validity of the inferences drawn from the content analysis [30]. We present excerpts from the transcripts of these interviews to highlight ways in which the broader dynamics the content analysis identified have manifested in particular cases familiar to these professionals.

On March 27, 2023, the University of Washington Human Subjects Division determined the interview portion of this study to be human subjects research that qualifies for exempt status (STUDY00017661). As a matter of policy, the University of Washington Human Subjects Division does not review consent plans or materials in relation to exempt studies.

Interviews were conducted between March 29 and April 17, 2023. At least two interviewers were present for each session: one to pose questions to the subject, and one to take notes. Participants received background information on the goals and purpose of the project and had the opportunity to ask questions in advance. We then obtained verbal consent from each participant to begin the interviews and record the sessions; this consent was recorded in contemporaneous notes prepared by researchers during the interview process. Further details regarding the interview process, protocols, and our thematic analysis of the transcripts are available in the Supporting Information ([S1 Text](#)). This information includes the precise language used to 1) inform participants of the nature of this project and the interviews, and 2) seek their consent to participate and be recorded.

Inclusivity in global research

Additional information regarding the ethical, cultural, and scientific considerations specific to inclusivity in global research is included in the Supporting Information ([S2 Text](#)).

Results

The document selection process yielded a total of 47 FEMA documents: nine strategic documents, eight documents specific to Tribal nations and Tribal requirements, 25 fiscally focused documents, and five documents specific to technical assistance ([Table 4](#)). A complete list of the documents we reviewed is available in the Supporting Information ([S1 Table](#)). Full content analysis results are in [Table 4](#).

Disaster management cycle: For what is funding available?

As noted above, the disaster management cycle includes four phases: mitigation, preparedness, response, and recovery [2]. All four are well represented in our sample. Of the 47 documents we analyzed, all but one (97.9%) referenced one or more phases of the cycle. Sixteen documents (34%), distributed across strategic, Tribe-specific, and fiscal categories, mentioned all four phases.

Tribal recognition: Who is eligible for funding?

The concept of Tribal recognition—one of the foundational principles of federal-Tribal relations—appears in 41 (87.2%) of 47 documents in the sample. However, the concept generally arises only as a prerequisite to apply directly to FEMA for funding. If a Tribe is recognized, it “has the option to apply for HMA grants through the State as a sub-applicant (when permitted) or directly to FEMA as an applicant” [31]. Recognized Tribes may also take advantage of various support offerings, such as technical assistance, intended to make the application easier to complete.

Tribes lacking federal recognition are mentioned only twice (4.3%) in the 47 documents we analyzed and are generally not eligible to apply directly for funding—instead, they must apply as sub-applicants under a State or recognized Tribal application, classified as local governments or communities [31].

Table 4. Content analysis results.

	Code	Brief Description	Strategic	Tribe-specific	Fiscal focus	All
Disaster Management Cycle	0	Mitigation	1	4	18	23
	1	Preparedness	-	-	8	8
	2	Response	-	1	5	6
	3	Recovery	2	1	5	8
	4	All Phases	7	3	6	16
	5	No Phases	-	1	-	1
Tribal Recognition	0	Federal Tribal recognition	8	8	22	39
	1	State Tribal recognition	-	1	2	4
	2	Tribes seeking recognition	1	1	3	4
	3	Tribes explicitly excluded	-	-	1	1
	4	No mention of Tribes	-	-	6	6
Tribal Lands	0	Traditional lands	1	1	1	3
	1	Federally recognized Tribal lands	2	3	4	9
	2	No mention of Tribal lands	7	5	25	37
Partnership	0	Not Mentioned	2	1	23	26
	1	Explicitly inequitable partnership	1	-	-	1
	2	Undetermined equitable Tribal partnership	6	7	7	20
Committee or Workgroup Participation	0	Not Mentioned	5	5	29	38
	2	Undetermined equitable Tribal participation	4	1	1	7
	3	Equitable participation	-	2	-	2
Tribal Task Force	0	Not mentioned	9	8	30	47
Tribal Relations	0	Not Mentioned	6	5	29	40
	1	Explicitly excludes improving Tribal relations	-	-	-	0
	2	Improve Tribal relationships	3	3	1	7
Tribe-Specific Solutions	0	Not mentioned	9	5	24	38
	1	Explicitly Ineligible for resources	-	1	3	4
	2	Explicitly eligible for resources	-	2	3	5
Capacity-building and Technical Assistance	0	Not mentioned	2	1	10	13
	1	Tribes ineligible	-	-	2	2
	2	Undetermined Equitable access	7	7	18	31
	3	Equitable access described	-	-	1	1
Access	0	Not Mentioned	1	-	6	7
	1	Denied Access	-	-	2	2
	2	Undetermined Equitable access	7	8	19	34
	3	Equitable access described	1	-	3	4
Funding	0	Not Mentioned	4	2	6	12
	1	Denied Access	-	-	5	5
	2	Available to Tribes	5	6	22	30
Indigenous / Traditional Knowledges	0	Not Mentioned	8	5	29	42
	1	Rejects ITK	-	-	1	1
	2	Some acceptance	1	3	-	4

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Tribal lands: Where is funding available?

FEMA gives almost no attention to the unique legal status or jurisdictional complexity of Tribal lands [32]. Tribal lands are mentioned in only 10 (21.3%) of the 47 documents we analyzed—some strategic, some Tribe-specific, and some fiscal.

Even in documents that do mention Tribal lands, FEMA mostly does not meaningfully differentiate between reservation lands, trust lands, allotted lands, traditional lands, and others, nor does it account for the differing governance and management structures that exist on such lands. The most specific statement we found comes from the Mitigation Plan Review Guide [33]:

The tribal planning area includes the lands upon which the tribal government is authorized to govern, develop, or regulate. These lands may include, but are not limited to, lands within the Reservation and off-Reservation lands owned by, managed by, or held in trust for the tribal government, allotted trust land, and fee land.

We found only three documents (6.4%) that mention traditional lands—those over which a Tribe frequently does not exercise formal legal jurisdiction but to which the Tribe remains connected due to its history on the land and often the presence of sacred sites—across all document categories. None of these laid out specific understanding of the unique issues surrounding such lands or established any framework for hazard mitigation projects to preserve such connections or sacred sites.

TCCPs: Equitable partnership, committee/workgroup participation, and task force formation

Our interviews highlighted the importance of establishing relationships between the federal government and Tribes prior to the impacts of natural hazards. To quote one participant, “I think especially for smaller groups, some of those trusted partnerships are really critical. . . A lot of this is what is put in place before the disaster occurs. . . because you can’t start after it’s upon you. It’s not the moment to start talking.”

FEMA’s policy positions on collaboration with Tribes and Tribal participation in policy design appear underdeveloped. The agency references working in partnership with Tribes (and other applicants) in 21 (44.7%) of 47 documents using language that suggests equity, but provides little specificity about how it does or will do so. For example, the 2022–2026 Strategic Plan commits to “working directly and consistently with underserved communities to learn about their priorities, needs, and barriers” [1], while in the Tribal Consultation Policy, “FEMA is committed to strengthening its nation-to-nation relationship and consultation efforts with tribal governments.” Beyond this consultation process, which FEMA pursues when making policy that impacts Tribes, there is little evidence here that FEMA has taken many tangible steps toward equitable collaboration with Tribal governments on hazard mitigation policy.

FEMA touches on Tribal participation in committees and workgroups in only nine (19.1%) of 47 documents, seven of which display characteristics of equity but most of which remain vague as to implementation. For example, the National Disaster Recovery Framework provides for a Mitigation Framework Leadership Group, which coordinates efforts to assess mitigation capabilities nationwide and “includes representatives from local, state, tribal, and Federal Government” [34]. It provides little detail, however, on the role of Tribal representatives on this body.

Finally, no documents mention the formation or operations of an interagency Tribal task force. One of the enduring challenges Tribal governments face when engaging with the federal government is simply figuring out with whom they should communicate to solve a given problem. Engaging with all these agencies simultaneously requires staffing levels and expertise beyond what some Tribes can bring to bear. The complexity of this support system and the administrative burden it currently imposes also emerged in our interviews:

There are other federal entities, right? So it’s not necessarily that FEMA is the only game in town. That can also, of course, then further add administrative burden when you are now trying to piecemeal all of these aspects together.

TCCPs: Technical assistance, equitable access, and funding

Capacity-building and technical assistance are prominent in the sample, appearing in 34 (72.3%) of the 47 documents we analyzed. FEMA also acknowledges the principle that Tribal governments should have equitable access to its grant programs—40 (85.1%) of the 47 documents we analyzed discuss Tribal access to hazard mitigation funding, and 34 (72.3%) of those emphasize that access should be equitable. The 2022–2026 Strategic Plan, in particular, sets a goal to “instill equity as a foundation of emergency management” [1]. Finally, Tribal eligibility for funding is well represented here: 35 (74.5%) of 47 mention Tribal funding eligibility, generally by making clear that federally recognized Tribes are eligible to apply on the same terms as other eligible applicants.

However, our interviews identified the technology requirements of applications to FEMA grant programs as a barrier. Unreliable access to high-speed internet, low numbers of available personnel such as grant writers and dedicated emergency response and management staff, and even limited English ability in some parts of Alaska may impede Tribes that are forced to apply for FEMA funding online through a complicated web portal:

[T]hat's a really important point about access to broadband. And reliable, steady broadband. We definitely hear about Tribes, they may fill out an application and then the broadband goes out, and they have to start all over from the beginning because of the way the portals work.

While in theory technical assistance might mitigate some of these difficulties, FEMA Regional Tribal Liaison staffing shortages may also be an issue, as well. This point was emphasized by interview participants:

Often, those tribal liaisons. . . sometimes I feel it is just a pretty word, a pretty title. . . they are kind of stretched thin, as well, these Tribal Liaisons that can offer that technical assistance. Or, that they're non-Indigenous, which sometimes is a barrier if you got someone who is so new and doesn't know or have that adequate background to go and work with an Indigenous community.

Benefit-cost analysis poses another significant technical barrier. The Stafford Act authorizes FEMA to fund only those projects that are demonstrably cost-effective [35]. FEMA requires benefit-cost analysis for all hazard mitigation grant applications, irrespective of size [36]. This rule prioritizes property value and infrastructure over social, cultural, and environmental benefits, which are key value centers in many Indigenous communities; is costly and technically demanding to complete; and is not supported by adequate assistance for applicants. All these factors operate to make benefit-cost analysis an onerous burden for Tribal applicants, as one interviewee explained:

I think they are really centered around the western way of living. . .these applications don't take our [cultural dwellings and resources] into consideration, and like how do you put a price on a sacred site? Those kinds of things can be challenging as well.

Finally, in 12 (25.5%) of the 47 documents we reviewed, there were incorrect links or inaccurate points of contact linked to obtaining information or accessing resources. This is an added administrative burden for already short-staffed Tribal emergency managers. As a result of inadequate technical assistance, technical requirements such as access to broadband and the

complicated FEMA web portal itself, and flatly erroneous information presented in the documents, access that is equitable in form becomes inequitable in practice.

TCCPs: Tribe-specific solutions and Indigenous knowledges

Tribe-specific solutions are not well represented in the FEMA documents we reviewed. Instead, FEMA's focus is largely on preventing damage to the built environment, such as by hardening infrastructure.

Overall, nine (19.1%) of the 47 documents we reviewed mentioned nature-based projects and other characteristically Tribal approaches to hazard mitigation. The concept does not appear at the strategic level—instead, these documents refer to goals such as mitigating “adverse effects from climate change on the built environment, structures and infrastructure” [32]. Five Tribe-specific and fiscal/procedural documents touch generally on the possibility that Tribal applicants might pursue strategies that “recognize [their] cultural beliefs” [33] and “work within their governance and tradition” [37], which appears generally inclusive of alternative approaches. However, others stress the importance of adhering to “accepted engineering practices, established building and design codes and standards, modeling techniques, and/or best practices” [38], which does not appear similarly inclusive of such alternatives.

We found only one specific and unambiguous example of FEMA guidance on nature-based solutions. In June 2021, FEMA published “Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities” [39]. This document describes the benefits of nature-based solutions and offers guidance for planning and implementing such projects. It also indicates that nature-based projects are eligible for HMA grant funding from FEMA and characterizes BRIC as prioritizing nature-based projects—an assertion that is not supported by the balance of our review.

The agency is similarly silent on the possibility that Tribal hazard management strategies may differ from those of other communities because they are derived from a different base of knowledge and different philosophical principles. No document explicitly acknowledges the existence or potential value of Indigenous ways of knowing that may differ from mainstream approaches.

Discussion

Our findings suggest that while FEMA acknowledges its obligation to include Tribal governments in its hazard mitigation efforts in a way that preserves and enhances their sovereign right to self-governance, it has so far failed to robustly undertake the practical steps necessary to accomplish this in a meaningful and equitable way. Among the problems identified are: limiting eligibility of funding to federally recognized Tribes; failing to account for jurisdictional complexities or the technological limitations Tribes face; and, stalling on meaningful partnerships with Tribes. Each presents opportunities for progress.

Only federally recognized Tribes are eligible for funding

As expected, our findings confirm that federally recognized Tribes are in theory eligible for most sources of funding that FEMA administers under the HMA Program. This is unsurprising—such Tribes have been legally entitled to apply for funding directly under the HMA grant programs since the Sandy Recovery Improvement Act of 2013 [28], have the right to apply under certain grant programs for funds set aside specifically for Tribes to access [40], are eligible for capacity-building and technical assistance intended to make grant applications easier to complete [25], and are eligible for more generous cost-sharing than most other applicants if they qualify as disadvantaged rural communities [41]. The statutes that govern FEMA's HMA

work state unequivocally that Tribal governments are eligible for funding, and FEMA's policies are consistent with this legal requirement.

A corollary to this principle is that Tribal groups that have not been recognized by the federal government are not eligible to apply directly for HMA funding. This, too, is unsurprising—such groups are largely ignored by federal policy in most areas [3], and FEMA is no exception. To the extent non-recognized Tribes are mentioned at all, it is to make clear that these groups are able to seek funding only as sub-applicants under the auspices of an authorized applicant, such as a state or recognized Tribal government.

It is difficult to assess how many people and how much territory are impacted by this gap in eligibility because of disagreement over how such groups should be defined and counted. As an example, however, in 2012 the U.S. Government Accountability Office estimated that approximately 400 such groups were operating in the United States [42]. Many of these were Tribes recognized by the governments of the states within whose boundaries they were located and/or whose federal recognition had been revoked during the “termination era” of the mid-20th century [22].

FEMA does not account for the complexity of Tribal land jurisdiction

Jurisdiction over Tribal lands is one of the more complex topics in federal Indian law owing to the convoluted history of colonization in the United States and the ensuing centuries of efforts to “solve” the “Indian problem” [22]. The most widely recognized Tribal land designation is that of the reservation—an area reserved by treaty, statute, or regulation for use by one or more Tribes. However, the term “reservation” does not necessarily denote ownership or control. Land both inside and beyond reservation boundaries may be held by the federal government in trust for the benefit of a Tribe or individual member(s); owned by a Tribe or individual member(s) with some legal restriction on alienation that requires the federal government's approval for transfers and certain uses; or owned outright by a Tribe or its members through a process known as allotment [22, 43]. Previously allotted lands may also have been sold, devised, or otherwise transferred to individuals or entities who are not affiliated with any Tribe [22, 43]. Finally, Tribes may have strong interests in sacred sites and other places of traditional importance over which they no longer exercise significant legal or political control because colonization divested them of that control [22, 43].

As a result, Tribal lands are subject to a patchwork of overlapping jurisdictional claims, ownership, and control by Tribes themselves, their individual members, the federal government, private parties who are not Tribal affiliates, and others. Further complicating matters, while each Tribe in the United States has experienced some combination of land loss and relocation, the specific history of each Tribe with respect to these issues is unique. Some Tribes continue to operate on diminished portions of their ancestral lands [22, 43]. Others were forcibly relocated to new lands [22, 43]. Still others were divested of their lands entirely—sometimes while being promised new lands that they never received [43]. This means that each Tribe faces idiosyncratic challenges related to territory when undertaking hazard mitigation efforts.

We find little evidence that FEMA has accounted for these complicated issues. While the documents we analyzed often mention Tribal lands, they generally do so only in the sense of assuming that Tribal governments will be interested in pursuing mitigation projects situated on Tribal lands. Most FEMA documents do not address the overlapping patchwork nature of jurisdiction and ownership on these lands or the governance challenges that accompany it, nor do they offer any clear guidance for Tribes seeking to navigate these issues. An exception is FEMA's Tribal Mitigation Planning Handbook, which provides the following instructions with respect to project planning:

[D]escribe the planning area, including all Tribal lands that may be reservation lands, non-contiguous land, and State and local jurisdictional boundaries. . . You should describe Tribal lands that your Tribe maintains or has jurisdiction over that are beyond the reservation boundaries. [It is] helpful to identify the structures on the reservation that provide essential community functions. . . you should consider what sacred and cultural sites, including important landscape features, may be vulnerable to hazards and are important to protect [37].

This exception proves the rule: FEMA generally does not accept responsibility for helping Tribes to determine how their ability to mitigate hazards is impacted by complex issues of land ownership, jurisdiction, and sovereignty.

Access is equitable in concept, but not in practice

In a letter prefacing the 2022–2026 FEMA Strategic Plan, Administrator Deanne Criswell outlines three goals for the agency: 1) to “instill equity as a foundation of emergency management”; 2) to “lead the whole of community in climate resilience”; and 3) to “promote and sustain a ready and prepared nation” [1]. The related 2022–2026 FEMA National Tribal Strategy, which is the first document of its kind, parallels the goals of the FEMA Strategic Plan “to address its responsibilities to federally recognized Tribal Nations” [44]. While this type of language is well intentioned, many of our findings suggest that this commitment has to date been superficial.

All of the strategic and Tribal specific documents that we analyzed other than the 2016 National Mitigation Framework indicate that federally recognized Tribes have access to FEMA programs. However, Tribal access appears mostly as statements that federally recognized Tribes are eligible for a program if they can meet the same requirements that states must meet. In practice, requirements to gain access to these programs, the technical requirements for applying to them, and poor communication from FEMA may result in inequitable access.

Further, it may be difficult for Tribal emergency managers seeking technical assistance and application help to know who to contact. The programs in question and the documents explaining them are complex and difficult to navigate, and we were surprised to find outdated or otherwise incorrect links and points of contact in 12 of the 47 documents we reviewed. Errors like these increase the administrative burden on Tribes while potentially denying them access to the support they are entitled to under the HMA program.

While FEMA recognizes the importance of access in theory, and while the requirements to access funding and assistance are theoretically the same for state and Tribal governments, contextual factors cause barriers to arise in ways the agency appears not to have anticipated. In particular, Tribes often have fewer staff and resources, less access to broadband internet, and do not share in or benefit from the Western/colonial assumptions on which FEMA’s priorities, procedures, and systems are based [45–47].

FEMA should do more to include Tribes in discussions of policy

The TCCPs call for Indigenous peoples to have greater influence over policy decisions—particularly those that impact them directly—through equitable partnerships with the federal government and other governments, equitable representation on committees, workgroups, and other initiatives, and the creation of an interagency federal Tribal task force [3]. This perspective and the importance of establishing relationships between the federal government and Tribes before natural hazard events were reinforced by the professionals we interviewed.

These ideas are also represented in the documents we analyzed, and we therefore find that FEMA recognizes the importance of these ideas at least in principle. In particular, 21 (44.7%) of the 47 documents we analyzed describe an approach that includes partnerships between Tribes and the federal government and nine (19.1%) of 47 describe Tribal participation on committees or workgroups. However, mentions of these concepts are largely nonspecific and aspirational—FEMA does not yet appear to have worked with Tribes to determine how to ensure equitable participation in a durable way. Future work should explore this gap by speaking directly with Tribes about their own experiences engaging with FEMA and seeking hazard mitigation funding.

The National Tribal Strategy does outline some methods for achieving closer partnership with Tribal governments [44]. In support of the first goal to “instill equity as a foundation of emergency management,” the document describes an intent to “develop Tribal-specific technical assistance resources,” to organize a “routine meeting of Regional Tribal Liaisons,” and to “connect Tribal and FEMA leaderships” [44]. However, no timelines to implement these strategies, or measures of success, are described in the documents we analyzed. Similarly, the National Mitigation Framework—which outlines a strategy for integrating mitigation work across federal agencies—describes the inclusion of representatives from “local, state, tribal, and Federal government” in the Mitigation Framework Leadership Group, but it does not specify the composition of the group [48]. Finally, the 2022–2026 FEMA Strategic Plan describes partnering to reverse historic inequity [1] but does not describe the means to do so or set forth any measurable outcomes by which to judge success. It is the only document we analyzed which specifically acknowledged that FEMA practices have resulted in inequitable partnership and participation.

Notably, we found no mention of any interagency task force that would help to coordinate federal engagement with Tribal governments across agencies. It may also be challenging for each of these agencies to know what the others are doing and how their own efforts fit into the broader landscape of Tribal support. The creation of a task force could help these agencies streamline and integrate their own programs while dispelling some of the bureaucratic sludge that Tribal governments must wade through to access needed services.

FEMA offers only limited support for projects based on Indigenous ways of knowing and nature-based techniques

Among the most striking gaps in FEMA's programs and policies from the perspective afforded by the TCCPs is the lack of recognition for the value of Indigenous knowledge systems and the types of hazard mitigation strategies that they imply. The umbrella term “Indigenous knowledge” encompasses an array of approaches to information gathering, analysis, and interpretation too diverse for any one piece to explore fully [49]. However, these systems do tend to share some key characteristics. One important theme is “complex connectivity”: the insight that humans exist as part of the ecological systems they occupy and not in opposition to those systems [49]. Hazard mitigation strategies premised on this idea emphasize the relationships between humans, animals, plants, and their habitats, attempting to harmonize human systems and experiences with these environments to adapt to hazards and achieve collective thriving [49–51]. This is related to the idea of cultural ecosystem services, which considers the benefits that operating ecosystems generate for human wellbeing—benefits that, while often difficult or impossible to quantify, are real and demonstrable [52].

FEMA's traditional approach to hazard mitigation rests on a different intellectual foundation. As we have discussed, FEMA is interested in strategies that harden and protect the built environment using “accepted engineering practices, established building and design codes and standards, modeling techniques, and/or best practices” [38]. Further, as a consequence of its

statutory obligation under the Stafford Act to fund only projects that are cost-effective, it is interested only in strategies that can pass an economic cost-benefit test by generating monetizable benefits in excess of their costs over a strictly defined timeframe [35, 36]. This approach is rooted in the overtly colonial intellectual tradition exemplified by European thinkers like Francis Bacon, who viewed the human project as an effort to improve living conditions by exerting dominion over nature—and “educating” the “backward” peoples of the New World [53].

From this perspective it is clear why FEMA struggles to support Indigenous hazard mitigation strategies. Efforts to mitigate hazards by strengthening the connections between human and non-human occupants of an ecosystem do not necessarily require or benefit from the kind of large-scale construction projects that accepted engineering practices and established building codes tend to yield, nor do they generate benefits that fit neatly into the boxes prescribed by conventional benefit-cost analysis. As a result, Indigenous knowledge and the hazard mitigation strategies it produces tend to be marginalized or discounted entirely [54].

Recommended policy changes

If FEMA is interested in adopting a more inclusive definition of the “whole community,” we recommend the following changes as high-leverage ways to improve Tribal representation and outcomes in the HMA grant program. As we discuss in Section 5, there is some evidence that FEMA is beginning to pay more attention to this issue.

First, FEMA should work with other federal agencies to establish an interagency Tribal task force composed of representatives of the many federal agencies responsible for emergency management and land management. Communication between federal agencies and Tribal governments has suffered in part because of the sheer number of agencies with which Tribes may engage and changing Presidential administrations and political appointees. A regular forum of career professionals with direct lines of communication to Tribal leaders and staff would provide stability and promote continuity of expertise as the demands of natural hazards continue to increase while ensuring that agencies are aware of and coordinating with each other's efforts in this area.

Second, DHS should facilitate a comprehensive review of the Department of Homeland Security Lexicon. The Lexicon is a controlled vocabulary that standardizes terminology and is used by the agencies within the Department of Homeland Security when communicating and sharing information. The purpose of this document is to reduce the possibility of misunderstanding and to help develop and manage shared knowledge and information. Indigenous perspectives and Tribal-inclusive language are severely lacking in the Lexicon and therefore in policies and processes throughout FEMA. In the absence of language and terminology to describe Indigenous concerns and solutions about climate change and its impacts, these concerns are missing from the agency's policies, processes, and acceptable solutions.

Third, we recommend fundamental changes to the benefit-cost analysis requirement for Tribal grant applications. Other agencies that are subject to similar requirements have found ways to render this process less exclusionary, such as by broadening the definition of “benefit,” implementing more flexible discount rates, or relegating BCA results to the status of a factor in the application rather than dispositive of grant eligibility [18]. As discussed in the conclusion below, FEMA has begun taking steps to address these concerns; it remains to be seen what effect these changes will have in practice and whether more is needed.

Recommended workarounds

There are also a number of workarounds that may help Tribal applicants succeed in securing funding and technical assistance under the current system.

First, Tribal applicants should focus their efforts on the BRIC program. BRIC is flawed, but remains the most accessible of FEMA's hazard mitigation grants—in particular due to more expansive technical assistance available to Tribal applicants and the existence of a set-aside so that Tribal applicants do not need to compete with other applicants for funds.

Second, Tribal applicants should consider applying for funding to agencies other than FEMA. Many other agencies offer funding for activities related to hazard mitigation that may be less procedurally onerous than any FEMA program. While the analysis presented in this piece is limited to FEMA and the HMA program, future work should explore the full breadth of programs intended to support the efforts of Tribal nations to exercise their sovereignty through hazard mitigation work. An incomplete list of such opportunities is set forth in [Table 4](#).

Third, while Indigenous groups without federal recognition are not addressed directly by FEMA policies, they have the option of applying for aid as sub-applicants under the auspices of a state application. The landscape surrounding unrecognized groups is complex, in part because the reasons for such lack of recognition vary and each group's history is unique. As a result, this is also a subject that deserves further investigation.

Methodological strengths and limitations

A strength of this project is the grounding of our coding scheme on the TCCP, principles established by Tribes for climate change and developed to guide policymakers to engage equitably with Tribal governments on climate-related adaptation and mitigation efforts. Another strength is that we assessed the validity of our content analysis results by cross-referencing with results from semi-structured interviews of three experienced environmental professionals with significant experience working with Tribes on these matters. Among the research design choices that could have limited or biased our results are our interpretations of the TCCP principles, our snowball sampling strategy of FEMA documents to code, and both our interview protocol design and interview sample. To mitigate such concerns, we assessed coding reliability and summarized results in scorecards reflecting how we assessed policies, with direct references to sources. As noted in our discussion, national attention to the issues highlighted in our findings suggest that these policies are currently dynamic, potentially limiting the future relevance of some of our results.

Conclusion

In the abstract, Tribal governments are eligible to seek hazard mitigation funding on similar footing as other government bodies and are even eligible in some cases for specific resources that are not available to other applicants. However, context is everything. While Tribes are eligible in theory, the way these programs are implemented in practice puts them at a distinct disadvantage. Our findings suggest a variety of systematic complexities, inefficiencies, and inequities in FEMA's support of Tribal disaster management in the United States. Our content analysis of the FEMA strategic doctrine describes a system which often neglects the diverse needs, capabilities, and structures of Tribal governments.

An optimistic reading is that FEMA is an agency in transition. Many of the concepts for which we coded were acknowledged in a broad and/or aspirational way, but without specific plans as to structure or implementation. FEMA has also taken a few concrete steps to improve the utility of its programs for Tribal governments: with BRIC, FEMA has at least attempted to make hazard mitigation grants easier to secure through mechanisms such as the tribal set-aside. The 2022–2026 Strategic Plan sets goals to work more closely with Tribal governments as members of the “whole community,” with an explicit focus on equity in federally funded hazard mitigation work.

Other developments are also encouraging. Most notably, on April 6, 2023, the Biden Administration issued Executive Order 14094, “Modernizing Regulatory Review” [55]. This order instructed the White House Office of Management and Budget to revise the benefit-cost analysis guidelines applicable to FEMA (and other agencies) for the first time in decades. OMB issued a revised version of Circular A-94 in November 2023 [56]. This new system mandates consideration of the distributional impact of regulatory decisions; requires agencies to account for the existence of benefits, such as cultural ecosystem benefits, that cannot be quantified; and ratifies “indigenous and other local knowledge” as a source of information in benefit-cost review [57]. FEMA responded to this action in April 2024 with a revised benefit-cost analysis policy adopting a reduced discount rate of 3.1 percent and introducing streamlined methods to establish cost-effectiveness; for example, sub-applicants will be permitted to submit narrative statements on cost-effectiveness on projects costing less than \$1 million [57]. These changes have the potential to lower the barrier to entry for Tribes interested in applying Indigenous knowledges and nature-based techniques to hazard mitigation problems.

FEMA is just beginning the hard work of operationalizing such commitments, but it appears as though the agency recognizes that there is a problem, would like to solve it, and is being encouraged to do so by other federal authorities. Taking the next step will require authentic partnerships with Tribal leaders to set a new, more inclusive policy agenda.

Future work should evaluate the implementation of these policy innovations and their implications for future efforts to improve Indigenous hazard preparedness and disaster resilience in the United States and abroad. Internationally, the success or failure of FEMA's efforts in this area may yield valuable insights to policymakers who are interested in improving Indigenous participation in hazard mitigation by facilitating the specific priorities of these communities. Analytical methods such as those applied here may be helpful for researchers in the U.S. and globally to better understand and integrate more tailored approaches to Indigenous engagement in hazard and disaster policy.

Supporting information

S1 Text. Interview procedures and analysis. This supplement details the interview process, sets out the interview protocols, and includes a thematic analysis of interview content. (DOCX)

S2 Text. Inclusivity questionnaire. The authors completed this questionnaire concerning inclusivity in global research at the request of PLOS Climate. (DOCX)

S1 Table. FEMA documents analyzed. This table is a complete list of the 47 documents we analyzed as part of this project. The documents are divided into three categories: strategic, Tribe-specific, and fiscal-focused. (DOCX)

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