TRIBAL CLIMATE CHANGE PRINCIPLES: RESPONDING TO FEDERAL POLICIES AND ACTIONS TO ADDRESS CLIMATE CHANGE[1]

September 2015

EXECUTIVE SUMMARY

Indigenous Peoples in the U.S., including 567 federally-recognized Tribes, are facing immediate and significant impacts from climate change (Bennett et al. 2014). A growing body of literature illustrates the unique issues facing Tribes from climate change, including the recently developed Primer on Climate Change and Indigenous Peoples,[2] Guidelines for Considering Traditional Knowledges (TKs) in Climate Change Initiatives,[3] and the special issue of the peer-reviewed journal *Climatic Change*, "Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions."[4] Furthermore, the federal government is beginning to acknowledge the disproportionate threats of climate change to Indigenous Peoples through administrative and congressional reports such as the Third National Climate Assessment[5] and the 2014 President's State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience (Task Force). To respond to the impacts of climate change, Indigenous Peoples must have access to the financial and technical resources that are required to assess the impacts of climate change on their cultures, air, land and water, economies, community health, and ways of life, and address those impacts through adaptation and mitigation. In turn, federal action must be taken to support the efforts of Indigenous Peoples to adapt to climate change impacts and to reduce their carbon footprints through a range of mitigation approaches, including renewable energy development and energy efficiency.

Adequate response to the threat of climate change requires action by Tribes, federal, state and local governments. As recognized by the U. S. Supreme Court the United States has the highest moral obligation to act in the best interests of federally recognized Tribes.[6] Moreover, the U.S. federal government's legally enforceable trust responsibility to federally-recognized Tribes may include the protection of Indian country and Tribal rights to access those lands, as well as those lands in which treaty and reserved rights are held (Kronk Warner 2015).[7] The Department of Interior, which has a primary trust responsibility to Indian Tribes, recognizes that its trust responsibility includes the duty to protect lands from the impacts of climate change (Salazar 2009). Moreover, both President Clinton and President Obama issued executive orders and memorandums requiring federal agencies to consult and coordinate and work with Tribes.[8] Federal resources to address climate change must be allocated to Tribes equitably and in sufficient quantity so that Tribes can engage effectively in adaptation and mitigation strategies that will help ensure the integrity of their cultures, homelands, infrastructures, and services; and enforce Tribal treaty and reserved rights to both on- and off-reservation resources. These resources specifically include those necessary to enable Tribes to use their

---

[1] The authors of this white paper include: Bob Gruenig, Tribal Environmental Policy Center, bgruenig@tribalepc.org; Kathy Lynn, University of Oregon, kathy@uoregon.edu; Garrit Voggesser, National Wildlife Federation, voggesser@nwf.org; and Kyle Powys Whyte, Michigan State University, kwhyte@msu.edu.

[2] Primer on Climate Change and Indigenous Peoples: https://climatetkw.wordpress.com/primer/.

[3] Guidelines for Considering TKs in Climate Change Initiatives: https://climatetkw.wordpress.com/.

[4] Maldonado, J. K., R.E. Pandya, and B.J. Colombi. 2013. Climate Change and Indigenous Peoples in the United States: Impacts, Experiences, and Actions. *Climatic Change*, 120, 509-682: http://link.springer.com/journal/10584/120/3/page/1.

[5] Bennett, T.M. Bull, Nancy G. Maynard, Patricia Cochran, Robert Gough, Kathy Lynn, Julie Maldonado, Garrit Voggesser, Susan Wotkyns, and Karen Cozzetto. 2014. Indigenous Peoples, Lands, and Resources. In *Climate Change Impacts in the United States: The Third National Climate Assessment*, edited by J. M. Melillo, Terese (T.C.) Richmond and G. W. Yohe. Washington, DC, USA: U.S. Global Change Research Program. http://nca2014.globalchange.gov/report/sectors/indigenous-peoples.

[6] *Seminole Nation v. United States*, 316 U.S. 286, 296-297 (1942).

[7] The term "Indian lands" and "Indian Country" is described at http://www.bia.gov/FAQs and http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_024362.pdf.

[8] E.O, 13175 (2000) and *Presidential Memorandum on Tribal Consultation* (2009).

systems of traditional knowledges in safe and culturally appropriate ways, and to ensure that such knowledges are given proper weight, as well as protection, in assessing and addressing climate change impacts on Tribes.

The Task Force led an effort to reach out to Indigenous leaders across the country to solicit their recommendations on how the federal government can better support their nations and communities in preparing for the impacts of climate change. Actions proposed by the Task Force include consulting and cooperating with Indigenous Peoples on all aspects of federal climate preparedness and resilience efforts, and encouraging states and local communities to do the same. The Task Force recommendations focus on inclusion and participation of Indigenous Peoples in federal climate change programs, including access to data, programs and federal funds; education; and long-term planning for natural resources and ecosystem health; water safety and security; housing infrastructure; and food and energy security.

This document sets forth eight principles to guide the federal government in the development and implementation of administrative and legislative actions related to Indigenous Peoples and climate change. The principles address many of the recommendations made by the Task Force. These principles pertain directly to federally-recognized Tribes but may also apply indirectly to state-recognized Tribes and unrecognized Tribes as they are also in need of support to address immediate and projected climate impacts and to ensure access to climate resources.

Strengthen Tribal Sovereignty in the Climate Change Era

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.
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.
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.

Support Tribes Facing Immediate Threats from Climate Change

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.

Ensure Tribal Access to Climate Change Resources

5. Tribes must have fair and equitable access to federal climate change programs.
6. Tribes must be made eligible for existing and future federal natural resource funding programs for which states are eligible, but from which Tribes are currently, or might be, excluded.
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.

Traditional Knowledges and Climate Change

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.

SUMMARIES OF EACH PRINCIPLE: TRIBAL PRINCIPLES RELATED TO FEDERAL ACTIONS TO ADDRESS CLIMATE CHANGE

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.

Background

Tribal sovereignty must be accorded appropriate respect in federal, state, and local climate change initiatives. This is supported by federal law acknowledging Tribal sovereignty and by Articles 3, 4, 5, 18, 19, 24, 25, 29, 31, and others, in the U. N. Declaration on the Rights of Indigenous Peoples (UNDRIP), which sets forth important dimensions of self-determination. The U.S. endorsed the UNDRIP in 2010 and possesses a duty not to undermine the principles espoused in the UNDRIP.

Article 3: Indigenous peoples have the right to self-determination. By virtue of that right, they freely determine their political status and freely pursue their economic, social and cultural development.

Article 4: Indigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to their internal and local affairs, as well as the ways and means for financing their autonomous functions.

Article 5: Indigenous peoples have the right to maintain and strengthen their distinct political, legal, economic, social and cultural institutions, while retaining their right to participate fully, if they so choose, in the political, economic, social and cultural life of the State.

Article 18: Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions.

Article 19: States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

*Article 24***:** 1. Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.

*Article 25***:** Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

*Article 29***:** 1. Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination.

*Article 31***:** 1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their

> sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.

Furthermore, the United Nations, in the Outcome Document of the World Conference on Indigenous Peoples, reached agreement "that indigenous peoples' knowledge and strategies to sustain their environment should be respected and taken into account when we develop national and international approaches to climate change mitigation and adaptation" (United Nations, 2014).

The federal government relates to Tribes as sovereigns through treaties, policies such as Executive Order 13175 and Secretarial Order 3289, and federal statutes. As sovereigns preexisting federal and state governments, Tribes have government authority that they exercise over reservations, trust lands, and Tribal members who live within service-area jurisdictions that are not designated as trust lands. Many Tribes continue time-tested forms of governance that originated prior to the formation of the U.S. as a nation. These forms of governance are rooted in Indigenous cosmologies, experiences, and concepts of organization and justice.

Climate change is an important concern for Tribal self-determination and sovereignty. Tribes have rights to manage air, lands, waters, and other resources on reservations and within other jurisdictional boundaries (such as usual and accustomed places) for the well-being of Tribal members, which includes the continuance of Tribal cultures and the health of Tribal members. Many Tribes have treaty-guaranteed rights to harvest and gather animals, fish, and plants in ceded territories. The health of these species is contingent on the ecological conditions. Each Tribe has a different portfolio of land ownership, ranging from trust land to land the Tribe and Tribal members hold in fee, or by way of aboriginal title. As governments, Tribes develop their own agencies to administer important services to Tribal members, such as Natural Resources and Environmental Quality Departments. These agencies manage a variety of programs tied to climate change, from climate mitigation to reducing greenhouse gas emissions such as by retrofitting buildings to being more energy efficient and to monitoring and adapting to environmental change. These agencies use their own knowledge-base for supporting policies and decisions, such as Tribal-specific Indigenous and traditional knowledges, and scientific research designed and performed "in-house" (that is, internal to the Tribe).

Challenges

Climate change poses a number of challenges for Tribal self-determination and sovereignty. Treaty rights are often supported through allocation agreements for harvesting certain species, such as the 2000 and 2007 Consent Decrees between five federally-recognized Tribes and the State of Michigan. Yet these allocations often assume stable ecological conditions, which can no longer be assumed with respect to climate change (McNutt 2010; Treaty Tribes in Western Washington 2011; Whyte 2014). Reservation, treaty, and other Tribal jurisdictions are often based on fixed boundaries that may be rendered ineffective by climate change if a Tribally-valued species moves off-reservation (Moore 2013). Trust lands on the coast or in other vulnerable areas may be lost due to sea level rise or flooding.

The federal government's various consultation policies with Tribes are not resulting in adequate levels of communication with Tribes on climate change issues, even though there is a need for greater coordination among federal agencies and Tribal governments. The federal government funds a number of climate science efforts, such as the Landscape Conservation Cooperatives (LCCs), Climate Science Centers (CSCs), Regional Climate Hubs, and Regional Integrative Sciences and Assessments (RISA) Centers. Tribes are often unable to build relationships with these entities because of the burden of responding to overwhelming quantities of federal consultation notices and the absence of an understanding of how all these entities fit together. All Tribal departments are likely to be affected by climate change in some way—even departments that are not ostensibly "environmental" in function (for example, a Tribal Health Department or Language Program). Yet funding for climate change adaptation is often only for environmental agencies and does not

address risks to infrastructure, economy, and community assets that Tribal governments manage (Mears 2012). Moreover, dedicated funding for Tribal agencies for climate change adaptation has, in some cases, been shown to be minimal and extremely inadequate (Pardilla 2011).

Solutions

1. Enforce the U. N. Declaration on the Rights of Indigenous Peoples.
2. Honor Tribal intentions in treaties by allowing Tribes to have perpetual access to certain species even when climate change may threaten to push certain species outside of treaty boundaries or typical areas of harvest. When these changes occur on federal land, the federal government should ensure that federal-Tribal interactions occur in the manner required by Treaties, statutes, executive orders, and other policies, including UNDRIP. When these species exist on state lands and state engagement is needed, the federal government should seek to hold these non-federal partners to the same standards of respect of Tribal sovereignty under UNDRIP, Treaties, statutes, executive orders, and other policies.
3. Extend the government-to-government relationship between Tribes and the federal government beyond formal consultation to include greater coordination and organization between Tribal agencies and federal agencies. Formal consultation often does not meet the levels of communication and coordination needed for adaptation or mitigation.
4. For all climate change issues where coordination across multiple levels of government is needed, encourage non-federal partners (such as states, municipalities, counties, and other local governments) to uphold the same standards of respect for Tribal sovereignty according to UNDRIP, Treaties, statutes, executive orders, and other policies. Federal initiatives should support and not impede the formation of connections among Tribes and non-federal partners.
5. Create flexibility and options in statutes and other policies so that Tribes can address the limits of reservation boundaries for managing habitat, wildlife, and plants that have shifted off-reservation, and the loss of trust lands due to climate change impacts such as flooding.
6. Establish programs within federal scientific organizations working on climate change, such as LCCs, CSCs, and RISAs, whereby Tribes determine how to use climate research to support self-determination and sovereignty in the face of climate change impacts. This includes recognition by the federal government of Tribal sovereign authority over how traditional knowledges are used in climate change initiatives.
7. Include Tribal climate change support and funding in federal initiatives and policies in areas that affect the assets and infrastructures managed by many Tribal governments, such as natural resources, tourism businesses, utilities, and wastewater treatment.

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.

Background

Over the last several years, more than fifteen climate change committees and working groups have been formed within and among federal agencies. Many of these did not or do not include Tribal representation. Simultaneously, many of the committees that did or do include Tribal representatives only had or have nominal representation. For example, in an assessment of stakeholder-defined climate change research needs in Alaska, only 5% of documents generated during the study included representation by local and Tribal governments (Knapp and Trainor 2015).

In the absence of Tribes and their representatives, federal climate committees, working groups, and initiatives are either not addressing the perspectives and needs of Tribes or only partly attending to Tribal views and requirements. The lack of Tribal inclusion is a shortsighted approach to solving the challenges of climate change. Moreover, federal policies are often developed in ways that do not consider in advance the

impacts on resources to which Tribes have treaty and reserved rights, or that are on reservation lands, treaty areas, ancestral territories, usual and accustomed areas, and other areas with Tribal jurisdiction or interest.[9] Finally, the inclusion of Indigenous Peoples on federal climate change committees would add the knowledge and expertise of Tribes that have been adaptive and resilient since time immemorial, to federal efforts to address climate change. The exclusion of Tribes is detrimental to the federal government for several reasons. First, tribes are established experts in resiliency and adaptation given their long record of adapting to various historical stressors – genocide, removal, climatic events, etc. Next, as separate sovereigns, tribes possess the capacity to enact their own tribal laws. As a result, multiple tribes across the country are already using their tribal laws to innovate in the field of climate change adaptation. There are valuable lessons that the federal government can learn from these innovative tribal "laboratories."

A review of federal natural resource policies and federal funding programs demonstrates that while there are a number of funding options for Tribes, there are programmatic areas where funding amounts are severely insufficient or do not exist at all (see Principle 6). There are also cases where funding is available to Tribes, but not all of them may be eligible because they lack the requisite capacity to meet federal standards for receiving funds, such as the standards required to be met by a Tribe in order for it to obtain Treatment in the Same Manner as a State status (Suagee 2005).[10]

A key solution for these issues involves having Tribal representatives on federal climate committees, working groups, and initiatives in which states, local governments, and other stakeholders are represented. Tribal representation at the initiation of federal policy development and programmatic planning would ensure that Tribes are able to inform others about Tribal perspectives and needs, and about appropriate funding allocations for Tribes and Tribally-relevant policies. Having Tribes involved in such committees, working groups, and initiatives can help improve federal actions because Tribal members can provide key feedback that other members would not normally consider. While Tribes are sovereigns—and not stakeholders—they are often impacted by the actions of local governments and stakeholder groups. Secretarial Order 3289 states that, "As the Department [of Interior] has the primary trust responsibility for the federal government for American Indians, Alaska Natives, and Tribal lands and resources, the Department will ensure consistent and in-depth government-to-government consultation with Tribes and Alaska Natives on the Department's climate change initiatives. Tribal values are critical to determining what is to be protected, why, and how to protect the interests of their communities." It is imperative that the Department of Interior and other federal agencies with jurisdiction over federal climate activities fulfill this commitment.

Challenges

Climate change adaptation is a cross-boundary issue in which multiple jurisdictions and land use practices intersect with one another. For Tribes, cross-boundary impacts from climate change relate to the ecosystems they inhabit, infrastructure, Tribal enrollment on and off-reservation, and the complexity of their jurisdictional areas. For this reason, Tribes, as sovereigns, must have full and effective participation at all levels of federal law and policy processes regarding climate change adaptation and mitigation. Yet challenges may arise given that there are 567 federally-recognized Tribes, dozens of intertribal organizations, and numerous state-recognized or unrecognized Tribes, which have overlapping values but also differing

[9] In the experiences of the authors, it is not uncommon for a federal employee to describe a plan of action or propose a policy relating to conservation or climate change adaptation at the landscape-scale without having done the requisite background research on the potential implications for reservation lands, treaty areas, ancestral territories, usual and accustomed areas, and other areas with Tribal jurisdiction or interest. The experiences pertain to situations where a federal employee makes a presentation in front of a federally organized meeting of local, regional or national Tribal leaders or professionals, or federally organized meetings in which one or more Tribal representatives are in attendance.

[10] In many U.S. statutes, such as the 1987 amendments to the Clean Water Act, Tribes meeting qualifications established by U.S. federal agencies are permitted to exercise powers over environmental regulations such as regulations overseen by the Environmental Protection Agency.

perspectives and needs related to climate change. Questions will arise on how to equitably represent the interests of all, or at least a majority, of the Tribes and intertribal organizations, particularly when a given committee may have a couple of dozen members that have to speak for the interests of many different entities. It may be logistically impossible to include, for example, all of the roughly 40 Tribes in the Upper Midwest/Great Lakes region on a steering committee designed for only 30 members. Or, working groups, committees, and initiatives based in Washington D.C. or large urban areas may be difficult for Tribal leaders to attend regularly or at all.

Solutions

The involvement of Tribal leaders on regional and national committees, working groups, and initiatives would help ensure that policy and funding programs adequately address Tribal perspectives and needs related to climate adaptation and mitigation. Tribal participation would also be valuable in determining the amount of federal funds that Tribes would require to meet the challenges of climate change and how those funds could be best used by Tribes. Tribal leaders can also contribute to ensuring that laws, policies, and initiatives, both at conception and in implementation, consider in advance how they may impact Tribes in ways that participants with less experience in Tribal contexts would consider.

1. Involve, from the outset, Tribal leaders in the formation and implementation of any committees, working groups, and initiatives on climate change. That is, they must have full and effective participation at the very beginning so they have a full and equitable seat at the table.

2. Include Tribal leaders on all committees, working groups, and initiatives (and/or develop parallel Tribal committees, working groups, or initiatives that involve a larger number of Tribal representatives) that impact Tribes.

3. Ensure that committees, working groups, and initiatives are committed to holding and funding some of the meetings in Tribal locations, as well as ensuring appropriate travel support and remote conference support to enable Tribal participation. Tribal leaders should have the same options and resources made available to other committee, working group, or initiative members so that Tribal leaders can fully participate in meetings.

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.

Background

There are 567 federally-recognized Tribes and more than 300 reservations in the U.S. Tribes and Alaska Native Corporations own or manage 97 million acres, which is 13 million acres more than the National Park Service. Some Tribes also co-manage off-reservation fisheries with other Tribes and public agencies. Known as 'Ceded Territories' and 'Usual and Accustomed Areas', these co-managed lands comprise more than 38 million acres. Altogether, Tribal lands compose a natural resource base of nearly 140 million acres.

Tribal lands contain more than 730,000 acres of lakes and impoundments, over 10,000 miles of streams and rivers, and over 18 million acres of forested lands. Tribal lands provide vital habitat for more than 525 federally listed plants and animals, many of which are both ecologically and culturally significant to Tribes. Natural resources are essential to the vitality of Tribal economic, social, cultural, and spiritual health. Despite having some of the most pristine and undisturbed habitat in the U.S., Tribes have been historically underfunded for wildlife and natural resource conservation as well as underrepresented or ignored in federal

natural resource management processes even when those processes impact Tribal lands and resources (Curry et al. 2011; Gautam et al. 2013).

Federally-recognized Indian Tribes—sovereign nations with inherent rights ensured by the U.S. Constitution, treaties and legal precedent—face the immediate, adverse impacts of climate change. Tribes are disproportionately impacted by climate change based on such factors as their location and their high dependence upon natural resources to sustain their cultural and economic practices. Action must be taken now to support Tribal efforts to adapt to the physical effects of climate change on Tribal cultural and natural resources and to assist Tribes in deploying mitigation measures. The federal government has a trust responsibility to federally-recognized Tribes, and this extends to addressing the impacts of climate change. There is an obligation to ensure that Tribal participation and/or Tribal needs and perspectives are represented in federal committees, workgroups, and task forces charged with developing and implementing climate adaptation and mitigation strategies.

Challenges

Over the last several years, more than fifteen climate change committees, workgroups, and task forces (or other planning structures under different names) have been formed within and among the federal agencies with management obligations for natural resources, infrastructure, energy, and other sectors.[11] Many of these did not contain any Tribal representation, and for those that did have such representation, it was due to the concerted efforts of Tribes, Tribal organizations, and environmental organizations. At the same time, many of the committees, workgroups, and task forces that included Tribal representatives only had nominal representation. For example, the State, Local, and Tribal Leaders Task Force on Climate Preparedness formed under *The President's Climate Action Plan* had only two Tribal representatives, while it included 24 state and local leaders. It is impossible for two Tribal leaders, no matter how talented and knowledgeable, to represent the perspectives and needs of 567 sovereign Tribes. A further challenge is the fact that no effective structures exist for coordination and communication among many of these climate change committees, workgroups, and task forces. As a result, Tribes are faced with the daunting task of learning about each of them, gaining an understanding of their divergent processes and goals, and trying to secure Tribal representation and engagement.

Solutions

The lack of, or minimal, Tribal inclusion in federal committees, workgroups, and task forces charged with addressing climate change adaptation and mitigation disregards the federal government's trust responsibility to Tribes, Tribal sovereignty, and Tribal self-determination. To begin rectifying this problem, we recommend:

1. Form an interagency Tribal task force, comprised of Tribal representatives from each of the Bureau of Indian Affairs' regions and lead federal agencies, to facilitate information sharing and dialogue with the following primary charges:

    a) Provide recommendations for improving communication with Tribes regarding federal climate-related programs and initiatives—such as Climate Science Centers, Landscape Conservation Cooperatives, U.S. Department of Agriculture Climate Hubs, and National Oceanic and Atmospheric Administration's Regional Integrated Sciences and Assessments—that will inform Tribes of opportunities for substantive participation and important developments.

[11] Examples include the following: the National Fish, Wildlife, and Plant Climate Adaptation Strategy steering committee and technical teams; National Ocean Council; Department of Interior Advisory Committee on Climate Change and Natural Resource Science; National Climate Assessment; Interagency Climate Change Adaptation Task Force; and the State, Local, and Tribal Leaders Task Force on Climate Preparedness.

b) Examine the extent to which federal agencies are meeting their trust responsibility to Tribes in federal climate initiatives and propose solutions to close the gaps between reality and the true trust obligation of such agencies to Tribes. Within this, ensure that federal agencies are coordinating to the greatest extent possible to minimize the burden on Tribes in terms of duplicative programs or request for consultation.

c) Develop, recommend, and implement Tribal specific solutions that enable federal agencies to support and foster Tribal climate-resilient planning and investment.

d) Provide recommendations for establishing a consistent and adequate funding stream to build and sustain Tribal capacity for climate-related activities.

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.

Background

The impacts of climate change are imminent and already occurring for some communities. Among these communities are Alaska Native villages, American Indian Tribes, and other Indigenous Peoples in the U.S. that are experiencing the impacts of climate change resulting from sea level rise, permafrost melt, storm surges, drought, wildfires, and other extreme weather events. In particular, coastal Tribes are facing imminent threats to life and safety and have significant needs related to evacuation and relocation of their communities. The Intergovernmental Panel on Climate Change (2014) reports with high confidence that a key risk from climate change includes injuries, fatalities, and disrupted livelihoods to low-lying coastal communities. The 2014 National Climate Assessment (Bennett et al. 2014) illustrates the threats facing Alaska Native communities from declining sea ice and permafrost thaw, and the impacts that other coastal Indigenous Peoples in Alaska, the Northwest, Louisiana, and other parts of the U.S. are facing from accelerated sea level rise, erosion, and increased intensity of weather events. These impacts of climate change are already forcing the relocation of Indigenous Peoples, and will continue to impact the economies, culture, and traditional ways of life among Indigenous Peoples in the U.S.

According to the Third National Climate Assessment (Bennett et al. 2014), over thirty Alaska Native villages are facing relocation due to sea-level rise, increased storm severity, and loss of sea-ice (Bronen 2011; Cochran et al. 2013; Maldonado et al. 2013a; McLean 2010; Souza and Tanimoto 2012). In Hawaii and other U.S. associated Pacific islands, communities are also being forced to consider relocation and other extreme changes to their lifestyle as a result of sea level rise (Marra et al. 2012; Souza and Tanimoto 2012). Along the Pacific Northwest coast, sea level rise has led the Quileute Tribe to relocate parts of its community, with the neighboring Hoh Tribe also being forced to consider relocation (Papiez 2009; Quileute Newsletter 2011; Walker 2012). On the Gulf Coast, at least three Tribal communities in Louisiana are experiencing immediate loss of their livelihood as fisher-people and loss of their homelands due to sea level rise (Bennett et al. 2014; Coastal Louisiana Tribal Communities 2012; Maldonado et al. 2013a).

Climate impacts are also stressing the infrastructure in many Tribal communities. In areas affected by sea level rise, contamination of freshwater supplies is an immediate threat to Tribal communities' water sources (Bennett et al. 2014; Cochran et al. 2012; Cozzetto 2013; Overland et al. 2012; McClintock 2009; Nania et al. 2014; Parkinson and Evengard 2009). In March 2014, the Quinault Indian Nation declared a state of emergency after a sea wall breach occurred because of flooding, an event the Quinault Indian Nation President attributed to an "increasingly dangerous situation with sea level rise and intensified storms" (Walker 2012).[12]

[12] http://indiancountrytodaymedianetwork.com/2014/03/26/quinault-nation-declares-state-emergency-wind-and-waves-breach-taholah-seawall-154182.

In Alaska, many coastal villages lack the infrastructure required to evacuate villagers in case of a disaster. The Native Village of Shaktoolik, for example, faces regular flooding, yet has no evacuation road and no shelter in the event of a severe flood (Johnson and Gray 2014).

Other immediate climate-related impacts that Tribes in the U.S. are experiencing include drought and wildfire. The Navajo Nation, for example, is experiencing a decades-long drought that is exacerbating already limited water supply infrastructure; approximately 30% of people on the Navajo Reservation haul water to fill their daily needs. The Confederated Salish and Kootenai Tribal Climate Change Adaptation Plan notes that wildfire risk is projected to increase because of rising temperatures and the infestation of the mountain pine beetle and other insects (CSKT 2012).

Challenges

Limited resources, land ownership, and infrastructure among many coastal U.S. Tribes are compounding the current and projected impacts of climate change (Maldonado et al. 2013b). Relocation is a prohibitively expensive process for Alaska Native villages whose average village populations number in the hundreds (U.S. Government Accountability Office). The General Accountability Office has estimated relocation costs for several villages between $80-200 million per village. Adding to these costs are the considerable community investments required to plan and execute a relocation, and the reduced quality of life that communities under the process of relocation endure (Chapin et al 2014; USACE 2006).

Tribes are also experiencing immediate threats from climate change from the loss and displacement of habitat and culturally important species. This threatens the continuation of Indigenous cultural heritage and identity, and the transfer of traditional knowledges between generations and Tribal treaty and reserved rights.

Solutions

Regional, national, and international efforts to assess the impacts of climate change and costs to communities and governments must provide for full and effective participation by Indigenous Peoples in every aspect of climate vulnerability assessments, impact analyses, and adaptation strategies. Specific policy opportunities to do so include:

1. Ensure that federal government and academic research in the U.S. recognizes and addresses Indigenous issues, primarily by directly involving Tribes in the design and implementation of that research. Further, the federal government should continue to include a dedicated chapter in the U.S. National Climate Assessment on the impacts of climate change to Tribal and Indigenous lands and resources.
2. Allocate funding to assist Tribes that must relocate because of current or projected impacts from climate change.
3. Involve Tribal leadership by obtaining their free, prior and informed consent in making decisions about relocation.
4. Create a federal interagency coalition to coordinate efforts dedicated to making existing resources and funding available to Tribal communities immediately impacted by climate change.
5. Dedicate funding for disaster preparedness, mitigation, and emergency management and evacuation planning for Tribes facing climate-related flooding, erosion, subsidence, wildfires, and other extreme weather events. Efforts should be made to use new and existing funding mechanisms to support Tribal efforts to address climate change across a wide range of sectors. For example, Federal Emergency Management Agency hazard mitigation program funds should be authorized for Tribal communities to use in implementing adaptation strategies when such strategies are a part of Tribal hazard mitigation plans.
6. Include Tribes and Tribal concerns in national and regional climate research, assessments, and plans, and endeavor to disseminate relevant data and information from assessments to Tribes with the intent of assisting Tribes in addressing immediate climate impacts.

Principle 5: Tribes must have fair and equitable access to federal climate change programs.

Background

Over 70 federally-funded organizations in the U.S. share the broad goal of improving the climate change preparedness of decision-makers including those of Tribes. These organizations include those agencies and institutions involved with the Climate Science Centers and Landscape Conservation Cooperatives, established through Secretarial Order 3289; the U.S. Department of Agriculture Climate Hubs; and the Northern Institute for Applied Climate Science. The U.S. spends hundreds of millions of dollars annually to fund these organizations (FCCE 2013, Pardilla 2011). The U.S. President's Local, State and Tribal Leaders Taskforce on Climate Preparedness and Resilience recommended that the federal government "provide actionable data and information on climate change impacts and related tools and assistance to support decision-making at all levels." In 2014, President Obama released a climate change plan that addresses a wide-range of impacts and strategies for adaptation, as well as a strategy to decrease carbon pollution by reducing carbon in power plants and through renewable energy and energy efficiency programs.

Challenges

Federal climate change initiatives often refer to the impacts facing Tribes in the U.S. without direct engagement of Tribes in the development of those initiatives. For example, one such organization did not include a single Tribal member or Tribal government representative on its steering committee and did not consider including a member until the committee had already decided on its basic strategy. Furthermore, agencies and organizations leading these initiatives may have only limited knowledge of federal-Tribal relations and the cultural competency necessary for working with Tribes. One study published in *Climatic Change* discusses how climate scientists may be unaware of the risks to Tribal cultural integrity in research interactions with Tribes that aim to inform Tribal decision-makers (Williams and Hardison 2013). Organizations funded by the federal government (such as the Climate Science Centers and Landscape Conservation Cooperatives) that are charged with providing climate-based planning and decision-support tools and data often believe they have no obligation under the federal trust responsibility to conduct formal consultation with Tribes or are unclear of how to carry out appropriate consultation without overburdening Tribal councils with generic letters. These are critical oversights in terms of developing policies and programs that effectively address the needs Tribes have in identifying vulnerabilities and developing strategies for climate change.

Moreover, Tribes do not have equitable access to the financial, technical, and other resources necessary to adapt to and mitigate climate impacts. For example, Tribes are not eligible for the federal production tax credit that is available to other entities to develop renewable energy. (MacCourt 2010). Furthermore, Tribes have little access to technical and financial resources to support their efforts to develop renewable energy and energy efficiency, which also offset carbon emitted elsewhere, much like reforestation and soil management do, and green job programs. In the past, concerns have been expressed by Tribes that they have limited access to resources to enable them to mitigate and adapt to climate impacts to their infrastructure, water supplies, and community health.

Solutions

1. Ensure Tribes have direct open access to the financial, technical, and other resources necessary to engage effectively in climate change adaptation by improving their transportation, health, housing, water, and other infrastructures.
2. Ensure Tribes have direct, open access to the financial, technical, and other resources necessary to actively engage in renewable energy development, enact and implement energy efficiency building codes, and provide green job transition assistance for Tribal members.
3. Revise the federal tax code so Tribes can take advantage of opportunities available to other entities as the code relates to climate change and clean energy.
4. Ensure Tribes have direct, open access to the financial, technical, and other resources provided to other sovereigns and entities under any offsets program.

5. Provide education about Tribes for federal employees tasked with climate change decision-support and mitigation programs so they can successfully understand the legal requirements (related to Tribal sovereignty and the federal trust responsibility) and protocols involved when working with Tribes. Resources for education include the *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*, the *Primer on Climate Change and Indigenous Peoples*; the proceedings of regular conferences such as the Rising Voices of Indigenous Peoples Workshop sponsored by the National Center for Atmospheric Research and the Shifting Seasons Summit: Building Tribal Capacity for Climate Change Adaptation sponsored by the Bureau of Indian Affairs; Great Lakes Integrated Sciences and Assessments Center; and the Northeast Climate Science Center (Maldonado et al. 2014, Lazrus and Gough 2013, Caldwell et al. 2015).

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.

Background

There are 567 federally-recognized Indian Tribes and more than 300 reservations in the U.S. Tribes and Alaska Native Corporations own or manage 97 million acres, which is 13 million acres more than the National Park Service. Some Tribes also co-manage fisheries and wildlife outside their reservations with other Tribes and states based on treaties, federal court decisions, and voluntary cooperative agreements. Known as Ceded and Usual and Accustomed Areas, these co-managed lands comprise more than 38 million acres of land. Altogether, Tribal lands compose a natural resource base of nearly 140 million acres.

Tribal lands contain more than 730,000 acres of lakes and impoundments, over 10,000 miles of streams and rivers, and over 18 million acres of forested lands. Tribes operate approximately 114 fish hatcheries, with many producing threatened or endangered fish species. Tribal lands provide vital habitat for more than 525 federally-listed plants and animals, many of which are both ecologically and culturally significant to Tribes. Despite having some of the most pristine and undisturbed habitat in the U.S., Tribes have been historically underfunded for wildlife and natural resource conservation.

Despite the conservation opportunities and restoration efforts on Tribal lands, funding for Tribal wildlife and habitat conservation is woefully inadequate. Unfortunately, Tribes are not eligible for funding under federal wildlife and fishery restoration programs such as the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson) that fund activities through an excise tax on hunting and fishing equipment—even though Tribal members pay this tax like all other citizens. Tribes are also ineligible for Section 6 funding under the 1973 Endangered Species Act, as amended. These federal funding mechanisms have been in place for decades and have allowed states to offer long-term job security, program continuity, institutional commitment, research insight, and capacity to their wildlife programs. Although Tribal members pay taxes that support these funding streams, Tribes remain excluded from receiving the benefits from such streams with only states being allowed to access them.

Since 2002, Congress has allowed Tribes to access some new funds for wildlife conservation by authorizing the U.S. Fish and Wildlife Service to provide funding under the Tribal Wildlife Grant program and the Tribal Landowner Incentive Program. Tribal proposals for support under these programs frequently total more than $30 million annually. Yet these programs combined have only provided an average of $7 million dollars annually to Tribes. With 567 federally recognized Tribes, competition is severe. Individual Tribes rarely receive sufficient funds to fully support important conservation efforts.

Over the decades, Congressional legislation promoting energy and natural resources interests of state and local governments did not properly account for the mere existence, much less the growing capabilities, of Tribal governments and their natural resource managers, and therefore excluded them.

Challenges

There are over 40 federal natural resource funding programs that omit or exclude Tribes. Examples include the Coastal Zone Management Act, Land and Water Conservation Fund, and Cooperative Endangered Species Conservation Fund, among others. These exclusions operate by statutory omission, express prohibition, or exclusion in program implementation. Recognizing the increasingly successful exercise of sovereign responsibility by Tribal governments over their natural resources, the decades of inequitable federal funding to Tribes compared to states and other entities, and the great potential and need to protect natural resources for the benefit of Tribal peoples, surrounding communities, and the nation, the fundamental question regarding Tribal inclusion in federal natural resource programs designed for states is not "why," but "when."

Natural resources are essential to the vitality of Tribal economic, social, cultural, and spiritual health. Tribal natural resources managers are among the finest in the nation. They carry on the Indigenous values of ecological sustainability and intergenerational continuity, interwoven with scientifically rigorous techniques. As ecosystems are increasingly challenged by climate disruption, these time-tested, pragmatic, and sustainable practices of Tribes are increasingly respected, sought after by other resource managers, and implemented.

This recognition of Tribal natural resource expertise and effectiveness is all the more impressive given the decades of inadequate and ever-widening funding gaps compared to state and federal natural resource interests. The Bureau of Indian Affairs' (BIA's) budget, which supports many Tribal natural resource programs, has experienced the greatest decreases and smallest increases compared to other Department of Interior agencies in annual federal appropriations. The federal government's trust responsibility for Tribal natural resources should not be presumed to rest primarily upon the BIA. Such a presumption not only disadvantages Tribes in nearly every budget cycle, but also has resulted, and continues to result, in Tribal exclusion from dozens of federal natural resources programs, widening the funding inequities between states and Tribes even further. The bottom-line is that the federal government has a binding obligation to financially support Tribal conservation efforts at a much higher level.

Solutions

To ensure meaningful application of the federal government's trust responsibility to Tribes, Tribal eligibility across all federal natural resources programs should be ensured. Achieving this involves the following activities:

1. Engage in research examining the extent of Tribal eligibility for and actual support within all federal natural resource programs providing funding to states and local governments, resulting in a report recommending solutions for equitable Tribal inclusion.
2. Introduce legislation proposing equitable Tribal inclusion in the federal programs identified in the research document.
3. Convene a Senate and/or House hearing on the state of natural resources and natural resource funding across Indian Country and lands under the Alaska Native Corporations, which can form the foundation for developing a national Tribal strategy for the sustainability of these natural resources.

To make these solutions a reality, it is critical to have Congressional champions, and the most logical starting point is to enlist the support of the Senate Committee on Indian Affairs.

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.

Background

Federally-recognized Tribes—sovereign nations with inherent rights ensured by the U.S. Constitution, treaties, and legal precedent—face the immediate, adverse impacts of climate change. Tribes are disproportionately impacted by climate change because of factors such as the locations where Tribal members live, work, and play; the high dependence of many Tribal members upon natural resources to sustain their cultural and economic practices; and the ways in which economic poverty in some Tribes presents hurdles for adapting to costly environmental changes. Some of the areas in which Tribes are located and being affected by climate change include:

1. Coastal and river flood plains and other areas prone to extreme weather events including storm surges, erosion, and flooding;
2. Arid locations which are experiencing prolonged droughts and devastating fire seasons; and
3. Plains lands where the number of pests and weeds has increased significantly due to the lack of cold winters, which would have normally killed off such pests and weeds and prevented their spread.

In light of these impacts, some Tribes are considering seriously the need to relocate their communities for mere survival, thereby giving up natural resources important to their cultures and economies. Other Tribes are considering major upgrades in their infrastructures that represent costly investments for economically distressed Tribal governments and communities. A number of Tribal members depend on climate-sensitive natural resources such as fish, wildlife, and native plants for cultural purposes (Carothers et al. 2014; Lynn et al. 2013; Nania et al. 2014). Further, these same resources along with agricultural and forest products can be major drivers of Tribal economies (Gautam et al. 2013). This dependence can be a recipe for disaster in a time where the effects of climate change are growing at an alarming rate. The Intergovernmental Panel on Climate Change finds that Indigenous Peoples of North America dependent on one or a few natural resources are disproportionally vulnerable to climate change (IPCC 2007).

The Nation's 567 federally recognized Tribes occupy approximately 52 million acres and Alaska Native Corporations have jurisdiction over another 45 million acres, which are 2.3% and 1.8% of the U.S. land base respectively. Some Tribes also co-manage fisheries and wildlife management and use outside their reservations with other Tribes and states based on treaties, federal court decisions, and voluntary cooperative agreements. Known as Ceded and Usual and Accustomed Areas, these co-managed lands comprise more than 38 million acres of land. Altogether, Tribal lands compose a natural resource base of nearly 140 million acres, which contain more than 730,000 acres of lakes and impoundment and 10,000 miles of streams and rivers. Combined, this land would constitute the fifth largest state within the U.S. Tribes need funding resource to help protect these important lands!

Challenges

There has been a historical lack of federal funding support for Tribal conservation efforts. This lack of support has become more conspicuous as the effects of climate change increasingly manifest themselves on Tribal lands and Ceded and Usual and Accustomed Areas. Financial resources such as the Land and Water Conservation Fund (LWCF) are unavailable to Tribes, which were excluded from legislation establishing the LWCF. Further, Tribes are forced to compete against each other for those few funding sources made available to them such as the Tribal Wildlife Grants program. Climate change compounds the problem for Tribes that are already underfunded and will need even more federal funding support to adapt to and mitigate against the effects of climate change. However, such support will unlikely be forthcoming unless the status

quo changes regarding how the federal government helps Tribes with their efforts related to conservation and climate change (Whyte 2013a).

Solutions
A fair and equitable set-aside of direct monies or allowances for climate change adaptation and mitigation, generated through administrative and legislative actions, must be made available for Tribes to fulfill the federal government's trust responsibility to Tribes and to:

1. Represent the disproportionate impact of climate change on Tribes;
2. Acknowledge the difficult economic situation of many Tribes and that their survival as peoples depends on safeguarding their natural resources on and off Tribal lands;
3. Reflect accurately the land base and population of Tribes, and the significant amount of natural resources on lands occupied or co-managed by Tribes; and
4. Account for the historical lack of federal financial support for Tribal conservation, and the significant need for Tribes to build capacity for climate change adaptation and mitigation.

The Tribal set-aside should be **no less than five percent** of all direct monies or allowances generated by the federal government for addressing climate change, and large enough to provide Tribes with consistent year-to-year funding to allow them to effectively address the impacts of climate change, through adaptation and mitigation, over an extended period of time.

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.

Background
There is increasing recognition of how traditional knowledges (TKs) can inform our understanding of the impacts of climate change and strategies for adaptation and mitigation. The United Nations General Assembly in the Outcome Document of the World Conference on Indigenous Peoples agreed "that indigenous peoples' knowledge and strategies to sustain their environment should be respected and taken into account when we develop national and international approaches to climate change mitigation and adaptation" (United Nations, 2014).

Many Tribes rely on TKs, both as a source of usable knowledges and as a set of values and methods for structuring scientific research. For this reason, Tribal-federal collaborations will be stronger the more that each party understands how each organizes and structures "usable" knowledge. For example, in 2013, the Confederated Salish and Kootenai Tribal (CSKT) Council passed a resolution to develop a climate change strategic plan. Adaptation strategies are guided by local assessments of vulnerability to climate impacts, and are tied to traditional strategies for forest and resource management. The St. Regis Mohawk Tribe in 2013 drafted a Climate Plan for Akwesasne that structures vulnerability assessment and adaptation strategies based on traditional frameworks for understanding human relations to plants, animals, and the environment.

TKs inform Tribal understanding of climate change impacts as well as pathways for adaptation. TKs can also provide critical support for improving the usability of climate knowledge and hence, improve the implementation of adaptation strategies and policies. For example, scientists studying changes in wind persistence were finding their data to be inaccurate because they were only sampling in one stationary area; yet Indigenous hunters in the same region were making and recording observations from a wide range of sources and locations (Weatherhead, 2010). The knowledge exchange between the scientists and Indigenous hunters resulted in improving the quality of scientific work that has, in turn, improved the climate knowledge that the particular Tribe can use for adaptation. Despite these possibilities, there are potential risks to

Indigenous Peoples in sharing TKs in federal and other non-Indigenous climate change initiatives. Therefore it is imperative that Tribes are aware that they have the authority to adopt their own laws and codes to protect their Tribal knowledge.

In recognition of the risks and pathways for adaptation, an informal group of Tribal scholars, Tribal leaders, and others working in the field developed, in 2014, the *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*. These *Guidelines* examine the significance of TKs in relation to climate change and the potential risks to Indigenous Peoples in the U.S. for sharing TKs with federal and other non-Indigenous climate change initiatives.

Challenges

Federal agencies and national and international climate change initiatives are recognizing the significance of TKs, and are proposing and funding collaborative efforts between Indigenous communities and federal and non-Indigenous climate change entities in ways that involve TKs. The United Nations General Assembly in the Outcome Document of the World Conference on Indigenous Peoples states, "We commit ourselves to respecting the contributions of indigenous peoples to ecosystem management and sustainable development, including knowledge acquired through experience in hunting, gathering, fishing, pastoralism and agriculture, as well as their sciences, technologies and cultures" (United Nations, 2014). The interaction between Indigenous communities and federal and non-Indigenous climate change entities requires an understanding of how individual Tribes and knowledge holders choose to share or not to share TKs.

TKs often involve information about the location, timing of availability, values and uses of culturally-significant species, hunting and gathering locations, and sacred places. TKs often do not differentiate among ecological, social, religious, and familial knowledges, and can have deep spiritual or cultural significance to the knowledge holders, their community, and their Indigenous nation (Whyte 2013b).

Consider some examples of ethical issues. Sharing TKs about water levels may disclose locations where some Indigenous Peoples engage in subsistence activities associated with water, such as to satisfy thirst during times of scarcity; fishing; gathering of plants for household or medicinal use; or spiritual bathing and cleansing sites. If this information becomes public, it will disclose the resources and harvest locations used by Indigenous Peoples to groups of people that may also want to use such scarce and valuable resources. Furthermore, in some cases, individuals have used such information to deface and desecrate spiritual sites.

Sharing TKs may also disclose that Indigenous peoples have plants, animals, and sacred places in locations that are part of their ancestral territory. As such, sharing TKs could disclose the location and importance of these areas, which could encourage other people to ignore the priority of Indigenous practices and to infringe on Indigenous use by overconsuming or misusing plants and animals in these areas. For many Indigenous Peoples, even when they have treaty and reserved rights, they lack the jurisdictional authority to enforce regulations against overconsumption by others of a plant or animal.

Furthermore, stories often include valuable ecological information along with descriptions of sacred information, cultural practices, or places. These aspects of knowledges are carefully placed together in order to create a story that is useful and enduring. Extracting data from these stories destroys an intricate construct for imparting important cultural and ecological information and may publicize secret or sacred knowledge (Williams and Hardison, 2013).

Requests to share TKs also place burdens on Indigenous Peoples because decisions about whether to share are complex, and people of other nations and heritages often do not understand who may be the TKs holders. Consider some examples of what we mean. In deciding whether they will share TKs, many Indigenous Peoples use processes that are based on Indigenous concepts, beliefs, and traditional governance structures. These processes involve holders of TKs and traditional governance systems. Holders of TKs are not simply those who have a basic acquaintance with, or academic or academic-like awareness or education of, the

knowledge systems by which Indigenous Peoples have been guided for millennia. Holders of TKs identify themselves by using their own concepts. Traditional governance systems, some of which existed before present-day Indigenous governments, control the exercise of sovereignty over knowledge—that is, how and under what conditions TKs are shared, and the rights and interests of TK holders and their communities. Given that their origins preexist and are separate from Western governance systems, traditional governance systems often rely on different decision-making structures and conceptions of timeliness, such as processes that seek to achieve consensus before issuing decisions. Communities may also include the involvement of clan, family, and spiritual authorities that people of other heritages and nations are unaccustomed to seeing as part of governance. Finally, Indigenous Peoples may speak in terms of "knowledges" in the plural to emphasize that there are culturally distinct and diverse forms of TK systems for holding and sharing TKs.

There are important initiatives among Indigenous communities in the United States aimed at bridging TKs within climate change efforts. Tribally-led initiatives, such as those facilitated by the Alaska Native Tribal Health Consortium, are ensuring protections for Indigenous knowledge holders and Tribes through protocols such as the National Science Foundation's "*Principles for Conduct of Research in the Arctic*" or the Alaska Native Tribal Health Consortium Alaska Area Institutional Review Board. And yet, there are federal grants and federal programs supporting projects that involve TKs in ways that do not provide protections or assurances for Tribes and knowledge holders.

Solutions

Federal agencies should adopt the *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives* to acknowledge the role of TKs in confronting climate change and the protections needed for TK holders and Indigenous communities when engaging in federal-tribal collaborations involving TKs. Furthermore, Tribes can enact their own laws to protect against the exploitation of traditional knowledge (Brewer and Kronk Warner 2015). Agencies can adopt these *Guidelines* through consultation policies developed pursuant to Executive Order 13175, within federal climate change adaptation plans, or through direct Memorandums of Agreement or Understanding with individual Tribal governments.

The Guidelines for Considering Traditional Knowledges in Climate Change Initiatives focus on two principles, "Cause No Harm" and "Free, Prior and Informed Consent," which should be used to inform the development of specific protocols in direct and close consultation with Indigenous Peoples. Indigenous Peoples in the U.S. include federally-recognized Tribes, with which the United States has a trust responsibility, state-recognized Indigenous Peoples (such as state-recognized Tribes and Native Hawaiian Organizations), and unrecognized Indigenous Peoples and Indigenous communities in the U.S. Additionally, federal agencies have government-to-government consultation obligations towards federally-recognized Tribes based on Executive Order 13175. Each group of Indigenous Peoples can interact and participate with federal and non-Indigenous climate change initiatives in ways that involve TKs. Furthermore, Tribes can enact their own laws to protect against the exploitation of their traditional knowledge. The Guidelines are intended to be provisional. The Guidelines call for:

1. Understanding key concepts and definitions related to TKs;
2. Recognizing that Indigenous Peoples and holders of TKs have a right NOT to participate in federal interactions around TKs;
3. Understanding and communicating risks for Indigenous Peoples and holders of TKs;
4. Establishing an institutional interface between Indigenous Peoples, TK holders, and Indigenous governments for clear, transparent, and culturally appropriate terms-of-reference, particularly through the development of formal research agreements;
5. Providing training for federal staff working with Indigenous Peoples on initiatives involving TKs;
6. Providing specific directions to all agency staff, researchers, and non-indigenous entities to ensure that protections for TKs requested by Tribes and knowledge holders are upheld;
7. Recognizing the role of multiple knowledge systems; and
8. Developing guidelines for review of grant proposals that recognize the value of TKs, while ensuring protections for TKs, Indigenous Peoples, and holders of TKs.

References

Alaska Native Tribal Health Consortium, Alaska Area Institutional Review Board.

Bennett, B., and N. Maynard, editors. 2014. Impacts of Climate Change on Tribal, Indigenous and Native Lands and Resources. US Global Research and Change Program: National Climate Assessment.

Bronen, R. 2011. Climate-induced community relocations: Creating an adaptive governance framework based in human rights doctrine. *NYU Review Law & Social Change*, 35, 357-408.

Brewer, J. and Kronk Warner, EA. 2015. Guarding Against Exploitation: Protecting Indigenous Knowledge in the Age of Climate Change (February 20, 2015). http://dx.doi.org/10.2139/ssrn.2567995

Caldwell, C. Madden, L., Whyte, K. Schaefer, M. Wotkyns, S. 2015. Proceedings of the Shifting Seasons Summit, College of Menominee Nation Sustainable Development Institute.

Carothers, C., C. Brown, K. J. Moerlein, J. López, D. B. Andersen, and B. Retherford. 2014. Measuring perceptions of climate change in northern Alaska: pairing ethnography with cultural consensus analysis. Ecology and Society 19(4): 27.

Chapin, F. S., III, S. F. Trainor, P. Cochran, H. Huntington, C. Markon, M. McCammon, A. D. McGuire, and M. Serreze, 2014. Alaska. US Global Research and Change Program: National Climate Assessment.

Coastal Louisiana Tribal Communities. 2012: Stories of Change: Coastal Louisiana Tribal Communities' Experiences of a Transforming Environment (Grand Bayou, Grand Caillou/Dulac, Isle de Jean Charles, Pointe-au-Chien). Workshop Report Input into the National Climate Assessment.

Cochran, P., O. H. Huntington, C. Pungowiyi, S. Tom, F.S. Chapin III, H.P. Huntington, N.G. Maynard, and S.F. Trainor. 2013. Indigenous frameworks for observing and responding to climate change in Alaska. *Climatic Change*, 120, 557-567.

Cozzetto, K., K. Chief, K. Dittmer, M. Brubaker, R. Gough, K. Souza, F. Ettawageshik, S. Wotkyns, S. Opitz-Stapleton, S. Duren, and P. Chavan. 2013. Climate change impacts on the water resources of American Indians and Alaska Natives in the US. *Climatic Change*, 120, 569-584.

Climate and Traditional Knowledges Workgroup (CTKW). 2015. Guidelines for Considering Traditional Knowledges (TKs) in Climate Change Initiatives.

Curry, R., C. Eichman, A. Staudt, G. Voggesser, and M. Wilensky. 2011. Facing the Storm: Indian tribes, climate-induced weather extremes, and the future for Indian country, National Wildlife Federation.

Douglas, A.M. 2010. Renewable Energy Development in Indian Country: A Handbook for Tribes. Golden, CO, USA: National Renewable Energy Laboratory.

Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," November 9, 2000.

Federal Climate Change Expenditures Report to Congress (FCCE). 2013.

Galloway McLean, K. 2010. *Advance Guard: Climate Change Impacts, Adaptation, Mitigation and Indigenous Peoples - A Compendium of Case Studies.* United Nations University - Traditional Knowledge Initiative.

Gautam, M. R., K. Chief, and W. J. Smith, Jr. 2013. Climate change in arid lands and Native American socioeconomic vulnerability: The case of the Pyramid Lake Paiute Tribe. *Climatic Change*, 120, 585-599.

Intergovernmental Panel on Climate Change. 2014. Working Group II AR5 Summary for Policymakers.

Johnson, T., and G. Gray. 2014. Shaktoolik, Alaska: Climate Change Adaptation for an At-Risk Community.

Knapp, C. N., & Trainor, S. F. (2015). Alaskan stakeholder-defined research needs in the context of climate change. *Polar Geography*, (ahead-of-print), 1-28.

Kronk Warner E. 2015. Everything Old is New Again: Enforcing Tribal Treaty Provisions to Protect Climate Change Threatened Resources. University of Kansas School of Law. *Available at SSRN 2652954* (2015).

Lazrus H., and R. Gough. 2013. We're all in the same canoe: The rising voices of indigenous peoples in weather and climate science and policy. Rising Voices I Workshop Report National Center for Atmospheric Research Boulder, CO, USA.

Lynn, K., J. Daigle, J. Hoffman, F. Lake, N. Michelle, D. Ranco, C. Viles, G. Voggesser, and P. Williams. 2013: The impacts of climate change on tribal traditional foods. Climatic Change, 120, 545-556.

Maldonado, J. K., C. Shearer, R. Bronen, K. Peterson, and H. Lazrus. 2013a: The impact of climate change on tribal communities in the US: Displacement, relocation, and human rights. *Climatic Change*, 120, 601-614.

Maldonado, J. K., R.E. Pandya, and B.J. Colombi. 2013b. Climate Change and Indigenous Peoples in the United States: Impacts, Experiences, and Actions. *Climatic Change*, 120, 509-682.

Maldonado J, Lazrus H, Gough R (2014) Adaptation to Climate Change and Variability: Bringing Together Science and Indigenous Ways of Knowing to Create Positive Solutions: Rising Voices II Workshop Report National Center for Atmospheric Research Boulder, CO, USA.

Marra, J.J., V.W. Keener, M.L. Finucane, D. Spooner, and M.H. Smith, editors. (2012). Climate Change and Pacific

Islands: Indicators and Impacts. Report for The 2012 Pacific Islands Regional Climate Assessment (PIRCA). Honolulu, Hawai'i, USA.

McNutt, D. 2010. Northwest Tribes: Meeting the Challenge of Climate Change. Olympia, WA, USA: Northwest Indian Applied Research Institute.

Mears, J. 2012. A Climate Change Focused Organization. Presented at First Stewards Symposium: Coastal Peoples Address Climate Change. Washington D.C., USA.

Moore, S. 2013. Address to the National Adaptation Forum on Climate Change. In National Adaptation Forum: Action Today for a Better Tomorrow. Denver, CO, USA.

Nania J., and K. Cozzetto, editors. 2014. *Considerations for climate change and variability adaptation on the Navajo Nation*. Boulder, CO, USA: University of Colorado.

National Science Foundation, "Principles for Conduct of Research in the Arctic."

Overland, J. E., J. A. Francis, E. Hanna, and M. Wang. 2012: The recent shift in early summer Arctic atmospheric circulation. *Geophysical Research Letters*, 39.

Papiez, C., 2009: Climate Change Implications for the Quileute and Hoh Tribes of Washington: A Multidisciplinary Approach to Assessing Climatic Disruptions to Coastal Indigenous Communities. Master's Thesis, Environmental Studies, The Evergreen State College, 119.

Pardilla, J. 2011. House Appropriations Subcommittee on Interior, Environment & Resources. Testimony on FY 2012 Appropriations.

Parkinson, A. J., and B. Evengård, 2009: Climate change, its impact on human health in the Arctic and the public health response to threats of emerging infectious diseases. *Global Health Action*, 2.

Presidential Memorandum on Tribal Consultation, November 5, 2009.

Quileute Newsletter, 2011: Key committee approves Cantwell bill to move Quileute Tribe out of tsunami zone. *The Talking Raven: A Quileute Newsletter*, 5, 16.

Report of Intergovernmental Panel on Climate Change (IPCC), Working Group 2: Climate Change Impacts, Adaptation and Vulnerability, 2007.

Salazar, K. 2009. Interior Secretarial Order 3289. Addressing the Impacts of Climate Change on America's Water, Land, and other Natural and Cultural Resources.

Souza, K., and J. Tanimoto, 2012: PRiMO IKE Hui Technical Input for the National Climate Assessment—Tribal Chapter. PRiMO IKE Hui Meeting—January 2012, Hawai'i, 5 pp., U.S. Global Change Research Program, Washington, D.C., USA.

Suagee, D. 2005. Tribes and the Clean Water Act. *Trends*, 36.

The Confederated Salish and Kootenai Tribes of the Flathead Reservation. 2012. Climate Change Strategic Plan.

Treaty Tribes in Western Washington. 2011. Treaty Rights at Risk: Ongoing Habitat Loss, the Decline of the Salmon Resource, and Recommendations for Change.

United Nations. 2008. Declaration of Rights of Indigenous Peoples. Published by the United Nations. 07-58681—March 2008—4,000.

United Nations, 2014. "Outcome Document of the High-Level Plenary Meeting of the General Assembly Known as the World Conference on Indigenous Peoples." United Nations, General Assembly, 69th Session, Agenda Item 65.

U.S. Army Corps of Engineers (USACE). 2006. Alaska village erosion technical assistance program: an examination of erosion issues in the communities of Bethel, Dillingham, Kaktovik, Kivalina, Newtok, Shishmaref, and Unalakleet. *Army Corps of Engineers Report*.

U.S. Government Accountability Office (GAO). 2009. Alaska Native Villages: Limited Progress Has Been Made Relocating Villages Threatened by Flooding and Erosion. Report to Congressional Requestors.

Walker, R., 2012. Haida Gwaii Quake brings home the importance of Quileute relocation legislation. *Indian Country Today Media Network.com*, November 6, 2012.

Weatherhead, E, S Gearheard, and RG Barry. 2010. Changes in weather persistence: Insight from Inuit knowledge. *Global Environmental Change*, 20, 523-528.

Whyte, K. P., 2013a. Justice forward: Tribes, climate adaptation and responsibility. *Climatic Change*, 120, 517-530.

Whyte, K. P., 2013b. "What Do Indigenous Knowledges Do for Indigenous Peoples?"

Whyte, K. P. 2014. A Concern About Shifting Interactions between Indigenous and NonIndigenous Parties in U.S. Climate Adaptation Contexts. *Interdisciplinary Environmental Review*, 15, 114-133.

Williams, T, and P. Hardison. 2013. Culture, law, risk and governance: contexts of traditional knowledge in climate change adaptation. *Climatic Change*, 120, 531-544.