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Traditional Ecological Knowledge in Environmental Decisionmaking

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Traditional Ecological Knowledge in Environmental Decisionmaking

Summary

Traditional ecological knowledge (TEK) is defined as a deep understanding of the environment developed by local communities and indigenous peoples over generations. In the United States, Canada, and around the world, indigenous peoples are increasingly advocating for incorporation of TEK into a range of environmental decisionmaking contexts, including natural resource and wildlife management, pollution standards, environmental and social planning, environmental impact assessment, and adaptation to climate change. On October 31, 2018, ELI hosted an expert panel on TEK, co-sponsored by the National Native American Bar Association and the American Bar Association Section of Environment, Energy, and Resources. The panel discussed the challenges that indigenous peoples face in defending the legitimacy of, and intellectual property in, TEK; how policymakers can modify existing laws and regulations to better incorporate TEK; and the potential for TEK to meet today's most pressing environmental challenges. Below, we present a transcript of the discussion, which has been edited for style, clarity, and space considerations.

Greta Swanson (moderator) is a Visiting Attorney at the Environmental Law Institute.

Minnie Degawan is Director of the Indigenous and Traditional Peoples Program at Conservation International.

Kathy Hodgson-Smith is an Attorney and TEK Member of the Commission for Environmental Cooperation.

Anthony Moffa is a Visiting Associate Professor at the University of Maine School of Law and former Staff Attorney with the Office of General Counsel of the U.S. Environmental Protection Agency.

Greta Swanson: A warm welcome to our panel of experts on the use of traditional ecological knowledge, or TEK, in the context of both national and international legal frameworks.

Our first speaker will be Anthony Moffa, assistant professor at the University of Maine School of Law, who will be addressing TEK in the context of U.S. law and regulation. He has written extensively on TEK and environmental law.

Next, Kathy Hodgson-Smith, a Canadian attorney who is Métis and an expert in aboriginal rights law and traditional knowledge, and a member of the Commission for Environmental Cooperation, will be discussing TEK in Canadian and indigenous law. She will also discuss its use in the context of the Commission, which supports cooperation among North American Free Trade Agreement (NAFTA) partners to address a multitude of environmental matters.

Finally, Minnie Degawan, the Director of the Indigenous and Tribal Peoples Program at Conservation International, will be considering TEK and climate adaptation internationally. She has been an international leader in indigenous rights and is an indigenous Kankanaey Igorot from the Philippines.

Today, we will explore how TEK can contribute to environmental policy and rulemaking. Before we dive in, what is TEK? According to the renowned expert Dr. Fikret Berkes, it is a holistic understanding of the environment and ecosystems that encompasses knowledge, practice, and belief acquired by people who have a close relationship with their ecosystem and have passed it down through generations.¹

Why is there a growing interest in TEK by the “Western world”? Through accumulated long-term detailed observations of ecosystems, TEK can provide essential informa-

1. Fikret Berkes et al., *Rediscovery of Traditional Ecological Knowledge as Adaptive Management*, 10(5) *ECOLOGICAL APPLICATIONS* 1251-62 (2000), available at <https://esajournals.onlinelibrary.wiley.com/doi/10.1890/1051-0761%282000%29010%5B1251%3AROTEKA%5D2.0.CO%3B2>.

tion for environmental assessments and understanding ecological relationships. In addition, many indigenous people have developed sustainable socio-ecological systems over long periods of time. TEK provides insights into ecosystem-based management and adaptation to environmental change. Finally, it is significant to recognize that protecting the TEK of indigenous people is part of respecting their right to self-determination.

Let's take a brief look at a few of the legal frameworks that call for the use of specified guidelines for treatment of TEK. In the United States, an underlying requirement to consider TEK is based on the trust relationship that tribes have with the federal government. When agencies make decisions that affect tribal resources, they must ensure that tribes are involved in their decisions through consultation.

Here are some international examples. The United Nations (U.N.) Convention on Biological Diversity calls on countries to respect, preserve, and maintain the knowledge and practices of indigenous people relevant to conserving biodiversity, and to protect their customary use of biodiversity. Under the U.N. Framework Convention on Climate Change (UNFCCC), the Paris Agreement calls on countries to use traditional knowledge as one source of adaptive strategies. The U.N. Declaration on the Rights of Indigenous Peoples recognizes the rights of indigenous people to maintain, control, protect, and develop their traditional knowledge.

Let's consider this pertinent question: how can TEK contribute to environmental law, regulation, and policy? We should also ask how tribes and indigenous people want and choose to incorporate TEK into decisions that affect them. How can TEK be useful in environmental assessments by providing information about ecological and environmental baselines that is essential to evaluating environmental impacts?

One example has been the use of TEK to understand the ecology that existed in Prince William Sound before the *Exxon Valdez* oil spill. This information contributed to impact assessment and understanding of restoration needs. Another important example is the use of TEK for documenting changes in ecosystems due to climate change. In the U.S. Arctic, for example, monitoring projects that rely in large part on Alaskan Natives' TEK, including current observations, provide significant detail for understanding the local changes taking place. In the area of conservation and sustainable management of wildlife and resources, TEK is used in marine mammal co-management agreements that the U.S. federal government has with Alaskan Natives.

In one example, TEK was shown to prove Western science wrong. In 1977, the International Whaling Commission limited Alaskan Native harvest of the bowhead whale based on its analysis of the population. The Alaska Eskimo Whaling Commission objected to the limit based on their traditional knowledge of whale behavior. After several years of additional research, the International Whaling Commission (IWC) agreed with the Alaskan Natives'

TEK numbers. Now, under the co-management agreement, Alaskan Natives manage their own harvest of bowhead whales under harvest limits that the IWC determines, and conduct research cooperatively with wildlife scientists.

Another use of TEK relates to the protection of forests. The TEK-based sustainable management of forests practiced by indigenous peoples has been increasingly recognized as a superior method of conservation. This recognition supports calls to recognize tenure rights of indigenous peoples. These are just a few of the numerous examples of potential contributions of TEK in environmental decisionmaking.

With that brief introduction, I would like to turn the discussion over to our first speaker, Anthony.

Anthony Moffa: I want to start by introducing myself. I'm currently a Visiting Associate Professor of Law at the University of Maine School of Law. Before that, I served the Office of the General Counsel at the U.S. Environmental Protection Agency (EPA), where I was on the tribal law team. I did a lot of work with our approach to TEK under Administrator Gina McCarthy's leadership. I left EPA to teach and I have written about the subject.

Let's look at Bears Ears National Monument. The reason I chose Bears Ears is because TEK is particularly relevant to the presidential proclamation establishing the monument, which includes a commission that was charged with the responsibility of using TEK to develop the management plan for Bears Ears.² This is obviously before the change in administration, but some of the things in the original proclamation still persist.

I also wanted to begin here to remind us first and foremost that we have to respect the sovereignty of tribal nations and acknowledge that land and the resources that we seek to protect, like Bears Ears, were largely taken from them many years ago and still are to this day. TEK, if nothing else, represents an intellectual parallel to those lands and resources. It's a hallowed ground over which tribes have the ultimate and final say. They have jurisdiction over TEK.

So, when considering issues surrounding TEK—and we have these conversations about how we can use TEK to help improve our environmental protection at the state, local, and federal levels—we can't forget that history and make the same mistake that colonizing Europeans made in taking the land from indigenous peoples. We can't co-opt tribal property of TEK for our own benefit. Instead, any work that we do with TEK can only be done with the express permission and cooperation of the tribes and the tribal members who created that TEK and who continue to foster it.

We've already had a definition of TEK offered for us. It's similar to the one that I like to use. You also sometimes see TEK referenced as "traditional knowledge." That can be defined in a very similar way as the keen observation carried or passed down over hundreds and thousands of years

2. Proclamation No. 9558, 82 Fed. Reg. 1139 (Jan. 1, 2017).

and representing another way of knowing the social and ecological landscape.

Recent work on this subject has even suggested that the moniker “traditional knowledge” is a Western academic construction in which I probably am complicit, having written about it. That’s perhaps not even the best way to speak about it but, regardless, for our purposes, I think starting from the Berkes definition that was offered at the outset is a good place to begin the conversation.

I want to shed some light on what specifically we’re talking about when we’re talking about TEK. The Alaska Native Knowledge Network is an organization that’s a resource for compiling and exchanging information from Alaskan Native knowledge systems. It helps not only other native people, but also the Alaskan and U.S. governments and educators. The general public has access to the knowledge base that Alaskan Natives have acquired through pooling of experience over many years. It is a very good resource when we’re talking about TEK.

One even more concrete instance is a map that shows the contrast in travel, the migration patterns, between northern fur seals in 2005 and 2015. These differences in migration patterns were overlaid on an 1895 chart that displayed the traditional understanding at the time about where the northern fur seals traveled during their migration. That traditional understanding was handed to or translated to the U.S. Treasury secretary via the native peoples in the land where this was happening. One of the interesting things about this is modern science confirming the traditional knowledge that was held by the native people of Alaska who knew this hundreds of years ago.

There are other examples of TEK in current practice. A lot of the work is being done by the U.S. Fish and Wildlife Service (FWS) and the National Park Service (NPS). It’s being done to supplement so-called Western science with respect to management habitat areas and migration patterns and numbers of endangered species or species that are targeted for conservation by the Park Service. In Alaska, the Department of Fish and Game is similarly collecting and utilizing TEK for research in monitoring programs of the salmon population under the Federal Subsistence Management Program for the benefit of Alaskan Natives. The polar bear listing determination listed polar bears as threatened species. TEK was specifically mentioned as one of the bases for that listing.

This is not explicitly TEK, but some of you may be aware that there’s an ongoing dispute between the state of Maine and EPA with regard to water quality standards. There are water quality standards being disapproved by EPA with respect to tribal waters or waters that are used for subsistence fishing. Some of the reasoning for EPA’s disapproval was based on a study of the Wabanaki peoples of Maine on the historical patterns of fish consumption of those peoples.

Back to Bears Ears again for a minute. As I mentioned, the Bears Ears Commission was established by the Bears Ears proclamation. It was established to guide and recom-

mend the development and implementation of management plans for the monument. The commission consisted of elected officers from tribal nations. Similarly, in Alaska, there’s been a lot of work with tribes on the North Slope with respect to forming an advisory council for target species and also with the land on the North Slope as well. So, we have the establishment of these commissions to help the federal government manage resources using TEK. That’s probably the most prominent ongoing example that we have right now.

We also have increasing recognition of TEK as a valid input to environmental decisionmaking. The Council for Environmental Cooperation has a panel of TEK experts. That council is a tri-part council with representatives from the United States, Mexico, and Canada. The Intergovernmental Panel on Climate Change (IPCC) recognizes TEK as a valid input. The Bears Ears proclamation explicitly recognized TEK with its formation of the commission that I mentioned earlier.

So the question that I sought to answer when I first started looking into this was whether increasing recognition of this was a valid input. It seems like something that could help protect the environment and better our relationship with native peoples to protect the lands for their benefit. But would reliance on TEK stand up in a court of law if challenged? If an administrative action based on TEK were challenged by someone who was not disposed to that action, would the court overturn that determination?

First I looked at some of the discretion that’s afforded to administrative agencies based at the federal level and specifically at *Chevron* deference.³ We look at *Chevron* deference first because *Chevron* is where we can decide whether or not an administrative agency has the authority to act at all. With respect to TEK, what I mean by that is whether statutory language is broad enough when it speaks about the inputs that an agency can consider to allow for TEK to be included.

We have a number of recent cases on *Chevron* that should give us some insight into how the U.S. Supreme Court has started to chip away at *Chevron* deference. EPA had the ability to take an expansive view of statutory empowerment, but I do think that there’s still some room for Agency discretion at least where the language is broader and ambiguous enough in directing the methods. As I mentioned, we’ve also seen some of that broad language interpreted to allow for the use of TEK in certain contexts of the management plans in the NPS and FWS listing determinations.

There are some national pollutant discharge elimination system permits under the Clean Water Act⁴ in Region 10 that made specific reference to TEK. So, we are seeing at least that agencies have an increasing amount of comfort with exercising their discretion to allow for TEK. But even if we read the statutory language broadly and say,

3. *Chevron v. Natural Resources Defense Council*, 467 U.S. 837, 14 ELR 20507 (1984).

4. 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

well, TEK is included per se as input, there still remains the question whether, under the Administrative Procedure Act,⁵ that action is arbitrary?

I like to start this discussion with the *Baltimore Gas & Electric Co. v. Natural Resources Defense Council* case.⁶ That case allowed for an expansive amount of deference to agencies that are making scientific determinations. Specifically the Court said, when examining this kind of scientific determination, that a reviewing court must generally be at its most deferential. So in that case specifically, the Court was considering whether what's called "zero-release," the assumption that the agency relied on, was a policy judgment within the bounds of its decisionmaking.

Basically, the agency in that case made an assumption about the release of chemicals from a particular container. They said none are going to be released—a zero-release assumption. Well, obviously they knew that was not true. Eventually, some would be released. But they used the zero-release assumption as sort of a policy stopgap. While they used that as a conservative estimate, the Court allowed them to do so even though they knew that that wasn't a precise calculation about the amount of chemicals that will be released.

Then, there's *Upper Blackstone Water Pollution Abatement District v. Environmental Protection Agency*.⁷ EPA in that case was facing scientific uncertainty. They were relying on "old and unreliable" data, according to the court, but the court still allowed EPA to do that.

From my reading of these cases, I see room for TEK to be an input at least where there's a gap in Western science or Western science can be supplemented. So in those particular cases where we need to know more before we could formulate a management plan, where we don't understand entirely the migration patterns or the numbers of the species, reliance on TEK would be on fairly firm ground. Where TEK butts up against Western science, I think we're going to have a much more difficult road ahead. That's my initial conclusion from the reading of the cases in this area.

There are some other challenges beyond the legal challenges going forward. Those are related more to the politics of TEK. The stigma in the Western science community with respect to TEK, and the emphasis of administrative law in the United States on quantitative decision analysis, are in some ways incompatible with what is often narrative or normative knowledge that comes from TEK. What I think of as probably the most significant challenge in terms of relations with possessors of TEK, those that have the ultimate jurisdiction, is the pervasiveness of the Freedom of Information Act (FOIA).⁸

FOIA makes it such that when the U.S. government goes to a tribal government and asks it to share traditional knowledge so the government can better improve the situation in an area, the U.S. government can't credibly claim

that once that TEK is shared it won't be publicly available information. It's not just shared with that agency because of the pervasiveness of FOIA. There's no exemption under FOIA for communication between tribes and the federal government. There's no way to protect that information from widespread dissemination. So that presents a problem or a potential difficulty in terms of that communication in the tribe and with that cooperative agreement just because there is going to be some reluctance that TEK will be used by others, not the agency that's asking for it, for the wrong reason.

Returning to Bears Ears here to finish things up. We have reached the situation where the monument has been, or at least attempted to be, reduced as a result of President Donald Trump's Executive Order from last winter.⁹ I focused on Bears Ears because to me it's a live issue that implicates TEK quite clearly because of the presence of the mission that I mentioned earlier of tribes that are in the area that consider Bears Ears sacred ground. It's historical land and they have a vested interest in the management of this land.

The proclamation that President Barack Obama signed gave to a commission the power to help shape the management of that land and in July 2015, the leaders from the five tribes that make up that Bears Ears Inter-Tribal Coalition met for the first time. A total of 30 tribes expressed support in recent months for protecting the Bears Ears region for future generations of Americans. Many tribal governments have joined in the petition and the lawsuit challenging President Trump's reduction of the size of Bears Ears National Monument.¹⁰

To me, if we're going to look to TEK, what TEK can do for the protection of land and resources in the United States going forward, these are the types of arrangements that are the best model. I would hope, in following the Bears Ears example, that the story works out well. I think it's one to watch closely especially for those of us who are interested in the continued use of TEK to protect lands and resources in the United States. With that, I'll turn it over to the next panelist.

Kathy Hodgson-Smith: The contribution I want to make on traditional knowledge is premised on the idea that a specific definition of traditional knowledge, to which we all ascribe, is still being worked on. There's no international agreement on what exactly falls within that. From the perspective of indigenous peoples, I think they're looking for a broadening of that term in many ways. But what we do agree on is that the governance of traditional knowledge, however defined, remains a challenge both in terms of capacity and in terms of the development of appropriate protections over that knowledge. It's my personal view that until we find a way and a path to protections, indigenous peoples are going to continuously be

5. 5 U.S.C. §§500-559.

6. 462 U.S. 87, 13 ELR 20544 (1983).

7. No. 11-1474, 42 ELR 20161 (1st Cir. 2012).

8. 5 U.S.C. §552.

9. Proclamation No. 9681, 82 Fed. Reg. 58081 (Dec. 4, 2017).

10. NRDC v. Trump, No. 1:17-cv-02606 (D.C.C. filed Dec. 7, 2017).

subject to piracy and other thefts of intellectual property and be kept out of the global and domestic economic systems that are driven by innovation.

I want to talk about the steps that Canada has taken for the inclusion of TEK. In my view, Canada has come to value inclusion of traditional knowledge as bringing in of unique perspectives; perspectives perhaps beyond just economy and recreation, which are two common values that influence policy and environmental management. We look beyond economy and look at other values like sustainability, conservation, and the development of different kinds of relationships with the land. I think the public, beyond the indigenous public, yearns for those kinds of relationships and I think the inclusion of traditional knowledge has been recognized as providing some direction in that regard.

In Canada, we have a constitutional framework that has two heads of state: we have federal authority under §91 of our Constitution and we have provincial government authority under §92. They have within that some exclusive areas of jurisdiction. The environment has been determined by the Supreme Court of Canada as a shared area of jurisdiction. So, we have an interesting set of relationships around federal, provincial, territorial, and indigenous governments that is unfolding.

But the federal framework for indigenous peoples begins with §91(24), which makes the federal government responsible for Indians and lands reserved for Indians. The term “Indian” includes the three indigenous peoples. I mix the terms “aboriginal” and “indigenous.” “Aboriginal” is our legal term, and so I prefer to use it when we’re talking about the legal constructs. “Indigenous peoples” is becoming the more appropriate generally accepted term. But how those two interact legally is I think an open question. The term “Indian” in our Constitution includes the three aboriginal peoples: the First Nations, the Inuit, and the Métis.

We have some dispute about who falls into those three categories, but generally speaking, indigenous peoples are represented. Our Supreme Court has also defined a very distinct mechanism and obligation, a positive duty, to consult and accommodate indigenous claimants whenever the Crown has knowledge of real or constructive potential adverse effects on aboriginal rights protected under the Constitution and when they contemplate conduct that might adversely affect those rights. That duty arises not just on proven rights, but on substantiated claims. I mean if we take the *Delgamuuk* case¹¹ and the eventual finding in *Tsilhqot’in*,¹² we have a 40-year time period to get a civil claim from start to finish through the courts and millions and millions of dollars and lawyers through the process.

So, the Supreme Court of Canada has recognized that unsubstantiated claims of indigenous claimants can still bring forward a prima facie case to trigger that duty; the duty to consult ranges from the spectrum of consultation all the way to consent. We have our recent case, *Tsilhqot’in*,

that phased out very stringent authorities, substantive authorities for indigenous peoples with a strong aboriginal title claim. There’s really only been one aboriginal title claim through the system, and so the *Tsilhqot’in* case really gives a good overview of what the far extent of that spectrum looks like. Most indigenous peoples are fighting for that kind of recognition but are somewhere in the midst of that process.

Nonetheless, we also have a constitutional framework that recognizes that the environment is a shared jurisdiction; that the federal government is always in a position of setting minimum standards and provincial governments can set more stringent ones. And that goes to municipalities. Then, there are indigenous authorities under the treaties and band council resolution kinds of positions that would overcome provincial law. So any provincial law that restricts an aboriginal right protected under the federal system would be found not enforced or in effect, although the laws of general application tend to apply at the aboriginal level. Most importantly, indigenous rights are only distinguished at the federal level.

There’s also recognition in Canadian law of indigenous customary law. Indigenous customary law begins from the understanding that indigenous peoples listed in this land have their own laws, cultures, and authority from before Canada became a federation. The court is to look to recognition of the inherent laws, laws that arise from the fact of their prior existence on these lands, looking at the royal proclamation, unless those authorities were clearly and plainly extinguished to conform to our Canadian constitutional framework.

Now, we have in that framework many opportunities for indigenous knowledge to make its way into the courts on the substantiation of these types of claim. Our federal court system has put a significant amount of effort into recognition of, or in setting out guidelines for, how the court will handle oral tradition, how it will handle and get by hearsay rules, how it will give indigenous perspectives on the rights at stake on the impacts, and how it will give it effective engagement. They look at some indigenous peoples as experts.

How do we get indigenous peoples to have the kind of expertise whose opinion the courts could adopt as they do with other experts? There are interesting examples of how indigenous people in their humble way and in their traditional customary way assert their expertise. The Mackenzie Valley Pipeline inquiry provides some really interesting examples of that. We also see that it impacts assessment interventions where indigenous people assert their authority beginning with the long-standing relationship with territories through the ancestors going backward.

We have had an interesting recognition of this in Canada at the Supreme Court level in 2014,¹³ about the objective of customary law and how it is about protection of culture and survival as equals. The court also refers to

11. *Delgamuuk v. British Columbia*, [1997] 3 S.C.R. 1010 (Can.).

12. *Tsilhqot’in Nation v. British Columbia*, [2014] S.C.C. 44 (Can.).

13. *Id.*

innovation and adaptation as the key to survival and the continued right of access to the lands, all of which indigenous peoples assert are necessary for their full engagement in society. We have in Canada an unreserved adoption of the U.N. Declaration on the Rights of Indigenous Peoples. We have at this moment a champion in our prime minister, Justin Trudeau. We have had previous governments that also made some significant moves in this regard, but right now we have a federal government that has taken on the issue of meaningful inclusion of indigenous knowledge in Canada's mechanism for decisionmaking. So the full adoption of the U.N. declaration is one of the steps that the government has taken.

Certainly, the sharing of traditional knowledge and the sharing of indigenous knowledge is about the advancement of self-determination. I agree with my colleague Mr. Moffa in his comments in that regard. It's my personal view that until we start looking at systems of protection, the advancement of self-determination will be hampered because economic opportunity doesn't flow in an equitable way.

The traditional knowledge engagement is part of a broader framework in Canada right now. With the adoption of the U.N. declaration, Canada is advancing reconciliation with the indigenous peoples. They are advancing that on a nation-to-nation and government-to-government basis, which has a stark difference in terms of recognition of sovereignty, recognition of dealing with the representatives of the indigenous peoples, and recognition of responsibility of the indigenous peoples for their local community and the communities that exist within their nation.

The government has undertaken a number of acts recently. The prime minister announced the proposal of an aboriginal rights framework for the full recognition that they're developing in partnership with the Assembly of First Nations, the Métis National Council, the Inuit, and their regional authorities.¹⁴ There was a ministerial committee instructed to review all of Canada's laws and policy in relation to the alignment with the declaration. There was also an adoption of 10 principles on the approach to that relationship.¹⁵

There are tables across the country set up to begin negotiation of outstanding rights. They are all in play at this time. Mechanisms are being designed right now for indigenous leaders to address first ministers on all matters—for example, the Canadian Council of Ministers of the Environment. They're dealing with issues of biodiversity conservation and are able to bring any issues forward. That process needs to get more substantive engagement, but the mechanism is there now to begin that growth.

On the climate change front, this has led to quite a significant increase in traditional knowledge engagement. Canada has started an ongoing process and joined Canadian indigenous peoples' tables with each of the indigenous peoples so that we get for example an Inuit-specific dialogue on what's needed for the management of the territories and their strategy for knowledge engagement. That is part of the discussion of the joint table between Canada and the Inuit.

There are similar tables for the Métis Nation where specific issues of traditional knowledge are being discussed. For example, under the climate change regime, I think globally we have an understanding that indigenous peoples are going to be playing a role in community-based monitoring of climate change. Traditional knowledge is playing a significant part in that. So, there's quite a substantive investment in traditional knowledge in that way. Governance of traditional knowledge in that context and any other remains a capacity and policy challenge.

Canada is of course a signatory to the UNFCCC, which acknowledges the importance of inclusion of indigenous knowledge in dealing with climate change. Canada's first ministers agreed to strengthen collaboration with indigenous peoples based on rights, respect, cooperation, and partnership. That community framework on climate change is available online.¹⁶

Additionally, as stated at the outset, Canada, Mexico, and the United States under NAFTA struck the North American Agreement on Environmental Cooperation, which set out to conserve, protect, and enhance the environment. So, there the three environmental agencies on behalf of their respective countries sit together and look at cooperative efforts, where there are overlapping synergies and areas of interest that need to be worked on, and the development of factual bases for consideration by the countries.

Most recently, the Commission formed a TEK roster of experts that allow them to draw on expertise from within each of the three countries to make linkages with local communities to increase engagement of indigenous peoples in their projects, and keep tabs on where they are with indigenous engagement. To improve that, they have jointly undertaken one project that is currently underway. Consultants have been hired. We're really looking at gathering and undertaking an inventory of indigenous authority and indigenous perspectives on how there could be greater cooperation on environmental management and looking at best practices in relation to diversity and government on how traditional knowledge has been used. It's going to be a very interesting project.

It is really a recognition that traditional knowledge is part of a broader knowledge system. It's part of the self-determination aspect and sovereignty aspect of indigenous peoples; it's about the engagement of indigenous

14. Press Release, Government of Canada to Create Recognition and Implementation of Rights Framework (Feb. 14, 2018), <https://pm.gc.ca/eng/news/2018/02/14/government-canada-create-recognition-and-implementation-rights-framework>.

15. GOVERNMENT OF CANADA, DEPARTMENT OF JUSTICE, PRINCIPLES RESPECTING THE GOVERNMENT OF CANADA'S RELATIONSHIP WITH INDIGENOUS PEOPLE (2018), available at <https://www.justice.gc.ca/eng/csjsjc/principles.pdf>.

16. GOVERNMENT OF CANADA, PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE (2016), available at http://publications.gc.ca/collections/collection_2017/eccc/En4-294-2016-eng.pdf.

peoples and their values, rules, and perspectives beyond specific data that I think is generally accepted as valuable moving forward.

Most recently, Canada has tabled two bills, Bill C-68 and Bill C-69, which deal with impact assessment and environmental management over waters and lands, mostly with major projects on navigable waters and how one triggers an assessment process. The new legislation has a lot of permissive aspects to it that at the far end of the spectrum permit the government to delegate to indigenous peoples and indigenous authority the capacity to undertake impact assessments in their entirety.

On the other end of the spectrum, there is indigenous representation on what used to be the National Energy Board. There are different time lines on capacity developments. There are some mandatory aspects, one of which is that the Ministry of Environment is required to include traditional knowledge and then required to protect that traditional knowledge from the public under that piece of legislation. So, how that relates to our information, to access to information legislation, is going to be an interesting challenge.

On the Aboriginal Traditional Knowledge Subcommittee, they are using what they are defining as publically available traditional knowledge. Prof. Ruth Okediji from Harvard has written an interesting piece on behalf of the Centre for International Governance Innovation (CIGI) on just what exactly would fall into the public domain as part of their traditional knowledge project, picking up on some of these challenges.¹⁷

There are a number of other pieces of legislation and mechanisms that Canada has set in place for engagement of traditional knowledge going forward. We have the Species at Risk Act,¹⁸ which provides for statutory inclusion of traditional knowledge. Although mandating inclusion and having successfully included it are perhaps two different things. So, there's continued work to be done there. Certainly the inclusion of women's knowledge and making sure that we have that gender aspect is another key issue.

In Canada as well, they have an intellectual property strategy that is looking at the inclusion of protections for traditional knowledge domestically. The Copyright Act¹⁹ is under a five-year review, but they are broadening that a bit more to try and see what modifications need to be made to the legislation to greatly align it with the U.N. declaration. Not all countries recognize that indigenous peoples own their own traditional knowledge. Canada certainly does. They certainly value the engagement of traditional knowledge for all of the valuable perspectives. Questions of protection and governance remain key conversations that need a fair amount of investment.

Minnie Degawan: I am neither a professor nor a lawyer. I'm probably better described as a traditional knowledge holder. I work with the Indigenous and Traditional Peoples Program of Conservation International. Under this program, we have fellows from different parts of the world who look at the question of traditional knowledge in the context of conservation and climate change.

There have already been some definitions that were put forward on traditional knowledge. I would rather use the term "indigenous knowledge" than TEK because I feel that the whole knowledge system of indigenous peoples is so interrelated. To put it as "ecological knowledge" is actually putting it in a box and removing the other essential components of that knowledge. The indigenous knowledge of indigenous peoples is largely tied to their survival. It is that specific body of knowledge that has ensured the survival of indigenous peoples as distinct people. That is based on their interaction with their specific environment, whether it's land or the sea. And it is that relationship that is the very basis of that knowledge system.

The use of the knowledge is governed by the needs of the community. So, as the needs of the community change, then that knowledge system also changes. As in any aspect of indigenous culture or life, there are complex rules that go with that knowledge and even the use of that. The other important thing to remember is that the indigenous languages are the repositories of this knowledge. The loss of one indigenous language threatens the very survival of the complex knowledge systems. Therefore, when governments outlaw the use of indigenous knowledge, they are in fact killing indigenous language. When they outlaw the use of indigenous language, they are in fact threatening the survival of a specific knowledge system.

Coming from Asia, the Philippines specifically, I have seen how traditional knowledge or indigenous knowledge has been used to make decisions in the community. It is used from the whole aspect of community life from where indigenous peoples or where community members can build their houses to what is to be planted and in what season, even down to who gets to plant first. These are all parts of a knowledge system and most of these knowledge systems are not written down. These are passed orally from one generation to the next.

Even in the discussions that we had on indigenous justice systems, the traditional knowledge is an important consideration in determining the appropriate penalties for certain crimes. In the Philippines, we have an Indigenous People's Rights Act²⁰ that was actually enacted prior to the adoption of the U.N. Declaration on the Rights of Indigenous Peoples. In that Act, it mandates local government units to have indigenous peoples' representatives in the legislative bodies to make sure that where indigenous peoples are, their knowledge systems are incorporated in policies and programs.

17. Ruth Okediji, *Traditional Knowledge and the Public Domain*, CIGI Papers No. 176 (2018), available at <https://www.cigionline.org/sites/default/files/documents/Paper%20no.176web.pdf>.

18. Species at Risk Act, S.C. 2002, c. 29 (Can.).

19. Copyright Act, R.S.C. 1985, c. C-42 (Can.).

20. Indigenous People's Rights Act, Rep. Act No. 8371 (1997) (Phil.).

It's not just in the Philippines; as the previous speakers shared, internationally there is a growing recognition of the importance of indigenous knowledge. For example, in the Paris Agreement, there is an establishment of a local communities and indigenous peoples' knowledge-sharing platform, which is aimed at strengthening the participation of indigenous peoples in climate change actions and at the same time calling on state members to incorporate traditional knowledge in their action plans.

The U.N. Educational, Scientific, and Cultural Organization (UNESCO) and Food and Agriculture Organization (FAO) have conducted studies on specific indigenous knowledge related to climate change and food security.²¹ Even global financing mechanisms, such as the Global Environment Facility and the Green Climate Fund, have policies that call for the incorporation and respect of traditional knowledge in projects.²² So you would think that all is well and there is this recognition and there are ways to protect traditional knowledge. Unfortunately, this is not true, as seen in how these policies are actually being implemented.

First, I think the biggest challenge is that there are very few who actually consider indigenous knowledge as knowledge. It is considered an anecdote. It is something that needs to be validated. I remember in our discussions with some members of the IPCC, when we were requesting that at least a chapter be devoted to indigenous knowledge systems in climate change, the response was that it's very difficult because there is very little peer-reviewed indigenous knowledge.

We were thinking peer review in the context of the scientific world is somebody writing something and somebody reviewing it and saying it's true. Then, we're saying in the context of indigenous knowledge, peer review is actually done by the community when they have a knowledge and then they practice it. By practicing it, then that's not just one person who actually reviews it. It's a community. So, indigenous knowledge is community-reviewed and used as compared to the peer-reviewed that the IPCC was looking for. But that's a big challenge, that there are very few who consider indigenous knowledge as knowledge.

The second challenge is because much of our knowledge is passed via the oral tradition, as elders pass on and the youth become more used to modern gadgets, this traditional passing on of knowledge is lost because the youth are more interested in using their phones and watching television or movies than in sitting down and learning the knowledge from their elders. So, as more of our elders who hold this knowledge pass on, indigenous knowledge is also slowly eroding.

Another challenge, and I think this is the biggest one, is that efforts by parties to document indigenous knowledge has led to problems for some communities. Therefore, more and more, you find indigenous communities protecting their knowledge and not willing to share it as they have shared it before. Because they have seen how, for instance, their knowledge about medicinal plants has been used. Indigenous peoples have always shared information and knowledge because it's for the public good, but they have seen that this is not the same when they share knowledge about medicinal plants. It's companies getting all the money and it's not really for the public good. So, there's that tendency to shy away from sharing traditional knowledge.

There is also the trend or the tendency to unpack indigenous knowledge into various boxes—like ecological knowledge, climate change adaptation, weather forecasting, food security, health, and so on—when in fact indigenous knowledge is much more complex than one discipline. It encompasses physical and metaphysical aspects, so you cannot really separate the knowledge about health from the knowledge on the environment. When we try to do this, then we are helping lead indigenous knowledge to erosion.

Another threat, and this is not often discussed, includes threats against indigenous peoples themselves. All these mining, dams, and other projects intruding into indigenous territories are threatening indigenous knowledge. Because if you take away the land that is the basis of the knowledge, then there's no more use for that specific knowledge. When you take away the people who practice the knowledge, then indigenous knowledge is threatened.

There are many more examples of this. For instance, in recent years, many indigenous rights defenders have been killed simply because they were defending the lands on which their cultures were based. So, I think even before talking about how to protect indigenous knowledge, we have to look at the threats and address these threats. Then we can on equal footing talk about how we can protect the knowledge.

When we talk about protecting knowledge, it's not simply the knowledge, but also those who practice that knowledge, which I think is often lost in these discussions about how we need to respect and protect the knowledge. But we miss out on the fact that this knowledge is only viable and is only useful because there are people who are using this knowledge. If we don't protect the people who use this knowledge, then we are just putting indigenous knowledge in a museum or in a book. That is not going to be useful.

In terms of strengthening indigenous knowledge at the international level, UNESCO has a program documenting indigenous communities' views on climate change. This is I think a very good example of how indigenous peoples can be empowered to be able to do the research themselves, write the research themselves, rather than having researchers go into the community and interview the people about their weather forecasting skills. This, the UNESCO proj-

21. See FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, *Indigenous People*, <http://www.fao.org/indigenous-peoples/en/> (last visited Mar. 11, 2019).

22. See Ming Yang & Yoko Watanabe, *Indigenous Peoples and the GEF*, GLOBAL ENVIRONMENT FACILITY, May 1, 2013, <https://www.thegef.org/news/indigenous-peoples-and-gef>; GREEN CLIMATE FUND, *Indigenous People*, <https://www.greencclimate.fund/safeguards/indigenous-peoples> (last visited Mar. 11, 2019).

ect, was the people themselves doing the documenting. It involved a lot of young people and they were talking with their elders. This has resulted in some instances, for example in Tanzania, of recognizing that it's more effective if we use the elders to announce that there's a pending disaster coming to the community than using all these meteorological data that do not make sense to the communities.

FAO also has efforts at recognizing indigenous food production. It has resulted in some governments partnering with indigenous peoples in agricultural programs. So, it is not always that indigenous peoples share and, thank you very much, we have your knowledge. We write it down. The other way is that there are also indigenous peoples not wanting to share. But there are examples of productive partnerships, which I think is something that we should be looking at.

I want to reiterate that indigenous knowledge is a knowledge system in itself. It is just one among many. It's not inferior and it's not superior to other knowledge systems. In the way that we respect "scientific knowledge," we should also respect indigenous knowledge.

Indigenous knowledge can be a source of information to address some of the environmental issues. It cannot be the only one, but it should not be ignored. Partnerships must be fostered between different knowledge holders. So you can't just have an anthropologist trying to understand indigenous knowledge; it would also be good to have a meteorologist or it's also good to have an agriculturist. Because, as I said, the whole indigenous knowledge system is a complex thing. If it's just an agriculturist, then they will not understand the relationship of why people in the community are always looking toward the moon and they will just look at what is the soil cycle, and so on.

The other thing is in enacting laws and policies that aim to recognize traditional knowledge, it has to be recognized that these are context-specific and must not be forced on another context. For instance, our knowledge system about forests is very different from the knowledge system of somebody from the Amazon. Our context in the Philippines is different from the context of the Amazon. There is also a need for prior informed consent before traditional knowledge is documented or used. There are different holders of each knowledge and there are processes needed for the sharing of this. Sometimes, we forget that in a community there are different holders of specific knowledge. That has to be recognized and in fact respected.

I want to provide an example of how traditional knowledge has been used on planning projects. This is in the context of West Papua in Indonesia, in Raja Ampat specifically, where indigenous peoples have used the traditional system of marine resource management: the *sasi*. They have used this to protect some of their territories. It is very effective simply because it is something that the people have practiced for years. They went to the government and said we want you to respect our *sasi*. This is an ongoing thing now in West Papua, where the government recognizes that there are areas of the sea that they cannot go into simply

because this is the *sasi* of the West Papuans. So, I think it is an area that needs much more dialogue between the different stakeholders, the different knowledge holders, whether Western or indigenous. It is something that we all need to understand and respect.

Greta Swanson: Thank you, Minnie, for your discussion of TEK that places it in a broad international context. I want to start out our conversation with a central question for Anthony and Kathy. What practical advice would you have for practicing attorneys who might want to incorporate TEK in their practice in specific situations?

Anthony Moffa: The first bit, sort of echoing what others have said, is to make sure that you're talking to the right people or you're getting the process right to deal with TEK. By the right people, I mean the holders of TEK and the tribal government perhaps, depending on what the context is. From there, I would say go to what you're trying to do first. If you're trying to make a land use decision based on TEK, that's a private matter. I think that's one thing that's entirely different from if you're a government attorney trying to draft a rule based on TEK.

In the latter situation, on the documentation of the knowledge that you're basing your decision on, you're going to want to make it clear what you are and are not relying on and what the conclusions you're drawing from that knowledge are and where that's leading. You've got to be sure of the very basic outline of what you think you are doing. That would come out of some sort of tribal consultation. I mean that's global and tribal consultation when you work with the government—whereas, no more ad hoc meeting if you're working with a private client. I think in either context it's going to be important to have that use of TEK documented well but also driven by the holder.

Kathy Hodgson-Smith: I agree with that advice. The other thing is that it depends on what your use is and who you are. If you're from inside the community or from outside the community, if you're litigating against the community, if you're litigating for a community, it just really depends what the context is. But as a piece of practical advice, it's kind of key not to take ownership of the TEK. Leave the TEK in the holder's hands and find mechanisms for the TEK holder to speak to their TEK. So, whether it's making space for them in an impact assessment public hearing, whether it's litigating something on their behalf giving them expertise to take the stand in the courtroom, or otherwise, it really depends on what you're doing with it.

The whole database of TEK is a bit stressful for me. I think that there are a couple of models out there. For example there's the Tulalip Tribes that have developed whole mechanisms around the protection of their knowledge, and they've done it in cooperation with their state. I think their sovereignty, they have a nice model there. But in Canada, for the 650 First Nations and the Métis Nation and the Inuit, it's a big challenge to imagine that

kind of capacity. So, my advice is to create space for the holder to speak as opposed to using their TEK to speak on their behalf.

Minnie Degawan: I always reiterate this: do not take TEK piece by piece but take it holistically. You do not zoom in on one particular aspect of TEK. For instance, this whole question of the rotating agricultural practices of many indigenous peoples in Asia, that's being criminalized. Even conservation organizations are just focusing on the slash and burn practice without looking at the holistic aspect of the whole process of production. They zoom in on the burning and say that we do nothing but destroy the forest because we burn it down. They are not looking at it from a holistic point of view that by burning we are actually also enhancing the productive capacities of the land. So, that's the advice that I would put forward.

Greta Swanson: All of you have talked about intellectual property issues involved in the use of TEK. I have a question about the World Intellectual Property Organization (WIPO) that established the Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore. I believe there are efforts to develop a legally binding agreement in regards to intellectual property and TEK. What do you think is possible for that type of binding international agreement to achieve?

Minnie Degawan: I have some colleagues in the indigenous movement who are following the WIPO process. I think there are some things that can be legislated at the international level, but there are I think still very many issues that need to be resolved at the local level. It's unfortunate that the WIPO holds its meetings in Geneva. Not many indigenous knowledge holders can actually travel to Geneva. This is always a problem, I think, when we do policy work at the international level.

I think on this issue the best people to really ask are again the knowledge holders in the community. We often forget that in the desire to put in protection systems. And we are forgetting that, by putting in these protection systems, maybe some of our knowledge holders in the communities may not actually adhere to this. So, I think it is something that still needs to be discussed much more with indigenous peoples at the community level.

Kathy Hodgson-Smith: One of the big questions for me that WIPO is dealing with is the issue of public domain, the governance over TEK. So, even if states enact laws to protect it, who owns it and how is it protected? There's a general set of arguments of people saying, well, once it's out there, it's in the public domain and you don't control it anymore. That's kind of an odd argument. Okediji's paper really dives into that to say is there really a defined public domain into which all this knowledge falls or is it like a song that we hear on the Internet by a singer? We hear it 500 times, but it still belongs to the singer.

So, we have mechanisms for protecting collectively owned knowledge, whether it's a set of shareholders of a corporation or otherwise. But when it comes down to drafting this piece of legislation, whether they end up having it mandatory or voluntary—and indigenous peoples have been advocating for the mandatory nature of it—the fact that there must be protections, the nature of those protections is going to have to be domestically determined. Communities are going to have to be consulted and fully engaged in defining what that domestic regime looks like.

Anthony Moffa: I want to add something on the U.S. intellectual property front. I mentioned FOIA and the *Klamath* case, which basically opened the doors for anything that's shared in the tribal consultation, with the federal government agency in the United States making that subject to FOIA, thanks to the Supreme Court's decision in that case.²³ No matter what WIPO says or what's decided on the international front, Minnie said that U.S. law or state law is going to govern. But intellectual property protections exist. There, I can tell you from experience that there are very few and limited protections for intellectual property in the FOIA context. I'm not sure that any of them would even stretch to extend to TEK without some amendment or some further work there by agency attorneys or legislators.

Greta Swanson: I have a general question for Minnie: how can we collaborate with indigenous knowledge systems to address resource use and food production without appropriating or co-opting this knowledge?

Minnie Degawan: I think it begins with basic respect and acknowledgement. As Kathy rightly said, it begins by acknowledging that these are really the properties of specific communities and to again say that indigenous peoples have traditionally been very open in sharing this knowledge, especially about food production because we believe that everybody has the right to eat. We can't be eating if the other community is not eating. So, if we are sharing knowledge about food production, it is because we believe that it helps others.

I think it is important that we: (1) acknowledge that they own the knowledge; and (2) be very clear on why we are undertaking the partnership for getting their knowledge or for trying to further develop their knowledge. I think what is important is that it is clearly not to be governed by greed, but it is more for sharing. So, any entity that wants to work with indigenous peoples and tries to look at their food production systems or their knowledge on food production has to be very clear from the start why they are doing it and make this clear with the communities.

I think it is also naive to think that once they have shared this that it's not going to be out there. But if there is

23. Department of the Interior v. Klamath Water Users Protective Ass'n, 532 U.S. 1, 31 ELR 20501 (2001).

good faith that we are asking them for all of this information, it is because we want to address a common problem. So, once it's out there, it's going to be public. Some may use it for something that it was not originally intended for. But for as long as the first intent is followed, then I think indigenous peoples would be happy to partner.

Greta Swanson: There's a question as to, under the UNFCCC, how does a way of life get translated as indigenous knowledge into a Western institution? How can it be used for the purposes of the UNFCCC when we're talking about indigenous knowledge coming from an indigenous group but that can apply more generally?

Kathy Hodgson-Smith: That's a very good question, how it's always going to be a challenge not to have your perspectives subsumed into a question previously determined, how you get to raise the questions. I think a growing authority for indigenous peoples will provide opportunities for them to frame the conversation. For example, the Inuit people have sought Canada's support and have now fully developed a research strategy around their knowledge systems. They do work with other scientists, but they bring those scientists in to serve the questions advanced by the community as opposed to always having traditional knowledge serve a broader agenda.

I think it's always a challenge to do that. But I think if we give more authority to the community's observations and needs at the local level, we can bring greater engagement of way-of-life knowledge in addressing these issues.

Minnie Degawan: I would like to add that under the UNFCCC, the proposed Local Communities and Indigenous Peoples Platform—and this is a constant demand of indigenous people—has to fall back to the national level. It cannot be at the international level because, like we said,

our knowledge systems are very context-specific. What may hold true for Canada may not hold true for the Philippines. So, the challenge is really for the UNFCCC members to take note of this decision and bring it back to their countries and implement it at the national level by talking to and partnering with indigenous peoples.

Greta Swanson: I have a question for Anthony, due to your experience with U.S. tribes: Are there some tribes that have been more successful in putting forth TEK in environmental decisionmaking? If so, could others learn from those strategies?

Anthony Moffa: Yes. Certainly, there are tribes in the United States who have been more proactive or at least more conventional. I use "conventional" to mean the way that the U.S. government does it in their use of TEK for their own governance. Most of those examples come from climate change planning documents. There are some native villages in Alaska that have climate change with adaptation plans that are based on traditional knowledge. There are also some larger tribes with pretty well-established environmental programs that have climate change planning documents in the western part of the United States. Those provide pretty good examples from which others can draw.

That seems to be the place where tribal governance and TEK have manifested in documents that are accessible to others outside of that tribal governance. I say that because I'm quite confident that TEK finds its way into governance in many, many ways, like the ways that have been manifested.

Greta Swanson: I want to thank our distinguished panel members and our online audience for participating.