

## **Rebuilding a KINShip Approach to the Climate Crisis: A Comparison of Indigenous Knowledges Policy in Canada and the United States**

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### **Abstract**

Indigenous Peoples have developed Indigenous knowledge systems that have been fundamental to stewarding their territories for millennia. Yet, there remains a continued need for more recognition and the development of frameworks that equitably promote Indigenous knowledges and their vital role in addressing the ongoing climate crisis. Given the evolving policy landscape for Indigenous Peoples in relation to their Indigenous knowledges, it is important to monitor and reflect on how these policies may impact Indigenous communities. To support further policy discourse, we conducted a policy study to compare Indigenous knowledge policy and frameworks in Canada and the United States including their similarities, differences, and gap areas. We more specifically aimed to formally analyze key Indigenous knowledges policies in both countries to reflect on the Canadian Indigenous knowledges policy landscape while also proposing key policy recommendations. Findings from our policy review demonstrate that Indigenous knowledges policy in both countries is still fairly new, with a lack of clarity on the success of operationalizing these policies across jurisdictions and regions. Furthermore, the current state of policies and frameworks exemplifies the continued need to acknowledge the contribution of Indigenous knowledges from a rights-based perspective, alongside Western science, in addressing climate change—including how it impacts Indigenous Peoples.

## Introduction

Indigenous Peoples represent culturally rich and highly knowledgeable societies that have adapted to numerous changes throughout time. Through understandings of Natural Law that has existed since time immemorial, Indigenous Peoples have coexisted for thousands of years with all living beings in balance and harmony (Redvers et al., 2020). Understandings of Natural Law are foundational to Indigenous cultures and lifeways that have been built on a profound respect, reverence, and responsibility for Mother Earth (Martuwarra et al., 2020). Yet, there is a continued underappreciation of how Indigenous Peoples continue to steward their

environments through their Indigenous knowledges (IK) and practices that are rooted within living and understandings of Natural Law (Redvers et al., 2020). State generated climate change solutions that meaningfully incorporate IK are therefore still lacking in meaning and practice (Hernandez et al., 2022), particularly in policy spaces (Reed et al., 2021b). As climate change continues to disproportionately impact Indigenous Peoples and their territories worldwide, it is imperative that Indigenous Peoples and their laws, governance, and knowledges are at the forefront of addressing the climate change crisis within research, policy, and practice (Redvers et al., 2024).

Climate change impacts within Canada and the United States (US) are being experienced at multiple health levels (i.e. physical, mental, spiritual) within Indigenous communities. For example, wildfires are becoming more severe and leading to poor air quality and increased risk for respiratory health impacts in northern communities (Howard et al., 2021). Indigenous communities disproportionately experience vulnerability to climate change due to their deep connectedness with their environments and ecological systems (Macfarlane et al., 2022; Vogel & Bullock, 2021). These communities are culturally and economically tied to their environments through subsistence lifestyles and livelihoods, so disruptions to their environment have broad

impacts. Climate change is therefore having vast and deep transnational impacts on Indigenous health and knowledges in both Canada and the US.

In late 2022, the White House Office of Science and Technology Policy and the Council on Environmental Quality (WHOSTPCEQ) issued a *Guidance for Federal Departments and Agencies on Indigenous Knowledge* Memorandum Policy to ensure that IK was included in US federal agencies' decision making, research, policy, and management. Prior to this, an IK initiative was launched during the 2021 White House Tribal Nations Summit. Consultation with Tribal Nations informed the development of the Memorandum. The Memorandum also recognizes that IK are vital to addressing the climate change crisis (WHOSTPCEQ, 2022). The White House IK Policy provides an overview of IK, stating that it is "a valid form of evidence," implying that other knowledges do not need to validate IK (WHOSTPCEQ, 2022, p. 4). The Policy further states that the "...guidance is founded on the understanding that multiple lines of evidence or ways of knowing can lead to better-informed decision making" (WHOSTPCEQ, 2022, p. 5). The White House IK policy operationalization process, if implemented properly, may provide valuable insight on how governmental policy may be leveraged to support and promote IK while potentially serving as an example to other countries on meaningful engagement and recognition of Indigenous Peoples and their IK.

Given the changing and evolving policy landscape for Indigenous Peoples in relation to their IK, it is important to monitor and reflect on how these policies may impact Indigenous communities. For the purpose of this article, we will compare the White House's *Guidance for Federal Departments and Agencies on Indigenous Knowledge Policy* and the Government of Canada's *Indigenous Knowledge Policy Framework* (IKPF) and their broader policy implications for Indigenous Nations and communities. It must be highlighted however, that there is currently *no* Canadian federal mandate like the US White House IK Policy that requires all federal

agencies to ensure IK are informing research, policy, management, and decision making. The Canadian framework differs from the US policy that *requires* federal agencies to include IK as the Canadian framework states only the need to *consider* IK in their processes. We also discuss the policy implications of potential mandated federal inclusion of IK for Indigenous communities impacted by climate change in Canada. Finally, we will propose key policy recommendations for respectful inclusion and collaboration with Indigenous Peoples and their IK within the Canadian climate policy landscape.

### **Positionality Statement**

The authors position themselves as Indigenous scholars committed to the health and wellbeing of Indigenous Peoples and Mother Earth. The first author (DC) is from the Diné and White Mountain Apache Nations in the US. The second author (NR) is a member of the Deninu K'ue First Nation in northern Canada. The senior author (DM) is Anishnaabe from the Whitefish River First Nation in the Great Lakes.

## **Background Review**

### **Indigenous Knowledges and Worldview**

Indigenous knowledges have been developed and applied since time immemorial by Indigenous Peoples. IK comes from IK systems that include methods of inquiry, analysis, dissemination, and mobilization (Reed et al., 2024). Acknowledging that IK come from diverse IK systems is vital as it shows the educational, historical, governance, and legal structures existing in heterogeneous Indigenous societies that have fostered IK (McGregor, 2021). IK includes long-term ecological information, which contrasts with Western science, which often lacks a long-term perspective (Kimmerer, 2002). IK systems have continued to exist because of

the culturally rigorous processes that Indigenous Peoples have applied for millennia to ensure that younger generations were being taught IK (Simpson, 2004). IK are intimately connected to and from the land, therefore, ongoing environmental destruction and exploitation are a direct attack on IK (Simpson, 2004).

Indigenous knowledges represent ways of life that are “embedded in systems supported by and in support of Indigenous societies” (McGregor, 2021, p. 2). IK is associated with values and worldviews that include “reciprocal respect and obligations between humans and the nonhuman world,” and where nature is subjective not objective (Kimmerer, 2002, p. 434). A significant divergence between Indigenous and Eurocentric worldviews is that Indigenous Peoples’ worldviews generally place emphasis on having a kincentric relationship (i.e. nature viewed as kin) with Mother Earth (Jacobs & Narváez, 2022). Kimmerer (2002) also states that IK can provide a cultural framework embedded within human values when addressing environmental issues such as climate change. IK may include various terminology used across different disciplines (see Table 1).

Table 1: Indigenous Knowledges Terminology Points

- Indigenous knowledges are described using various terms including examples such as ‘Traditional Knowledge’ (TK), ‘Indigenous Traditional Knowledge’ (ITK), ‘Traditional Ecological Knowledge’ (TEK), and ‘Indigenous Traditional Ecological Knowledge’ (ITEK).
- Indigenous Peoples may also refer specifically to their knowledges in their own Indigenous languages such as *Inuit Qaujimaqatuqangit* (IQ), Inuit knowledge, or epistemology from the Arctic (Tagalik, 2010).
- Indigenous Peoples in Canada include First Nations, Inuit, and Métis communities with diverse knowledges. There are over 630 First Nations in Canada, all with their own unique knowledges. Therefore, substantial diversity among Indigenous Peoples means there are unique and distinct knowledges and practices that exists that cannot be homogenized.

Indigenous worldviews are based on collective understandings and the holistic wellbeing of people and the planet, in contrast to Western worldviews, which are often individualistic and de-emphasize reciprocal relationships with the environment (Lefthand-Begay et al., 2024). Jacobs and Narvaez (2022) state, “Kincentrism is the first step toward returning to an earth-based consciousness” (p. 3). Indigenous scholars assert that Western science assumes and behaves in a Eurocentric hegemonic manner, which can result in the disconnection from broader ecosystem dynamics and relational approaches to climate change (Lefthand-Begay et al., 2024; Reed et al., 2024).

Ethical and respectful incorporation of IK continues to remain intangible, particularly in the Canadian environmental governance context (McGregor, 2021). A scoping review done by Macfarlane et al. (2022) found a lack of research in how Indigenous Peoples and their knowledges are contributing to climate change adaptation in Canada. Historically, IK has been viewed by the scientific community as bringing ‘supplemental’ value to Western science that can be ‘integrated’ or used to fill gaps in scientific methods (McGregor, 2021; Whyte, 2018). McGregor (2021) also asserts that IK have been and continue to be extracted from Indigenous Peoples through various methods including a piecemeal approach where only the desired “pieces or bits of relevant knowledge” are taken without considering their deeper ontological meanings and the IK systems they come from (p. 3). Simpson (2004) asserts that while there has been interest in IK to address environmental issues such as climate change, the foundations of IK including Indigenous values and worldviews are “of less interest because they exist in opposition to” Western worldviews (p. 374).

### Canadian Policy Landscape and Indigenous Knowledges

The *Indigenous Knowledge Policy Framework for Project Reviews and Regulatory Decisions* from the Government of Canada (2019) was created after legislation was passed on four different Acts including the *Impact Assessment Act*, *Canadian Energy Regulator Act*, *Fisheries Act*, and the *Canadian Navigable Waters Act*. The IKPF states that the Canadian government is “committed to reconciliation with Indigenous Peoples through a renewed, nation-to-nation, and government-to-government relationship” (Government of Canada, 2019, p.4). Additionally, the *United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) Act of Canada* is highlighted. Indigenous knowledge systems are “considered equally alongside other knowledge, including Western science” in the Framework (Government of Canada, 2019, p. 6). Guiding principles are outlined for applying IK provisions in the various Acts, however, the operationalization of these principles has yet to be evaluated in the Canadian context. The Framework is also limited to project reviews and regulatory decisions. Existing Canadian IK guidance, includes the *Species At Risk Act* of 2002, in which, “Aboriginal Traditional Knowledge” (ATK) informs species assessments with a sub-committee comprised of Indigenous representatives to provide advice and oversight (Committee on the Status of Endangered Wildlife in Canada [COSEWIC], 2017).

Climate change and IK policies situate themselves at various levels in Canada including at the federal, regional, and Indigenous governmental levels. Below are some of the Canadian policies that may promote and/or hinder the consideration, use, and protection of IK.

## UNDRIP

UNDRIP addresses fundamental aspects of IK including the support and protection of Indigenous Peoples' self-determination and "right to control, protect, and develop their cultural heritage, traditional knowledge and traditional cultural expressions" (United Nations [UN], 2007, p. 22). UNDRIP also recognizes that respecting "Indigenous knowledges, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment" is imperative (UN, 2007, p. 4). The 2015 Truth and Reconciliation Commission (TRC) report called upon the Canadian government to fully adopt and implement UNDRIP (Mitchell, 2019). In 2021, Canada passed *Bill C-15* which is intended to ensure that Canadian law is consistent with UNDRIP ("Bill C-15: An Act Respecting the United Nations Declaration on the Rights of Indigenous Peoples," 2021). Through UNDRIP and *Bill C-15*, Canada is obligated to support Indigenous Peoples in Canada including ensuring the protection of their IK (McGregor, 2021). The only province that has codified UNDRIP so far is British Columbia (BC) (Macfarlane et al., 2022).

Although UNDRIP has received royal assent in Canada, little progress has been made in the implementation and harmonization between UNDRIP and Canadian law (Mitchell, 2019). For example, with over half of the world's mining companies based in Canada, Indigenous Peoples continue to be pressured and exploited for resources in Canada and beyond without their direct free, informed, and prior consent (Mitchell, 2019). Indigenous Peoples in Canada still must assert and defend their rights on policies that directly impact their traditional territories in the Canadian legal system (Mitchell, 2019). Mitchell (2019) argues that land negotiations with First Nations communities in Canada amidst great social and economic need do not meet basic requirements for free, prior, and informed consent. With this, UNDRIP continues to be an



ambitious and non-binding document that has been inconsistent with Canadian law for over a decade (Mitchell, 2019). Contextualizing the IKPF within UNDRIP is concerning due to the broad inconsistency of UNDRIP implementation in Canada.

### **Regional-level Indigenous Knowledge policy**

Inclusion of IK among Canadian provincial and territorial governments varies. The Government of the Northwest Territories (GNWT) has a Traditional Knowledge (TK) policy that recognizes that IK provides valid information on the importance of human and land relationships, and the use of natural resources (GNWT, 2005). The GNWT Policy states that IK “should be *considered* in the design and delivery of government programs and services” (GNWT, 2005). The GNWT TK Implementation Plan aims to operationalize the policy including coordination, collaboration, and promotion of IK in government wide initiatives (GNWT, 2009). The GNWT also has a *Best Practices Guide*, as well as various departmental reports and work plans (Keats & Evans, 2020).

Indigenous knowledge policy, such as the NWT Traditional Knowledge policy, is crucial in a region where over half of the population is Indigenous with strong continued relationships with the land and their ways of life. Challenges have been identified, however, by Indigenous communities, researchers, and regulatory boards in how to appropriately balance IK with environmental decisions and actions in the NWT context (Keats & Evans, 2020). Variances between different knowledge systems, disciplines, epistemologies and how to navigate these differences have been reported as areas of understanding that must be improved.

### Indigenous-led Knowledge Governance and Conservation

Indigenous governments and communities in Canada have also developed policies and initiatives to protect and preserve their IK and the lands that they come from. Indigenous governance broadly encapsulates Indigenous Peoples' laws, values, and practices worldwide (Artelle et al., 2019). The Gwich'in government passed a TK Policy in 2004, which states that Gwichi'in TK has come from "living on the land for many millennia" and that their TK is for "the benefit of future generations and all humanity" (Gwich'in Social & Culture Institute [GSCI], 2004, p. 2). Furthermore, the policy states that the Gwichi'in Tribal Council is committed to and will manage, monitor, and safeguard Gwichi'in TK (GSCI, 2004). Through Gwichi'in governance, the TK policy ensures that Gwichi'in TK is used ethically and alongside Western science through a rights-based approach. Indigenous Peoples in Canada have developed their own IK/TK/TEK guidance over the past two decades (McGregor, 2013).

Other Canadian examples of Indigenous-led conservation efforts and policy relevant to IK include the Great Bear Rainforest region (BC), Thaidene Nënë National Park Reserve (NWT), and the Tsá Tué Biosphere Reserve (NWT) (Artelle et al., 2019). In 2016, the Tsá Tué Biosphere Reserve, through a Sahtu Dene government-led effort was designated a United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserve (Xiaorong, 2023). The Reserve encompasses the largest pristine lake entirely in Canada (i.e., Great Bear Lake), and aims to strengthen continued stewardship by Sahtu Dene Peoples. Indigenous land stewardship is vital to the protection and longevity of IK as IK comes from the land. Indigenous land guardian programs have also emerged as effective holistic, intergenerational and monitoring stewardship strategies (Reed et al., 2021a). These programs support stewardship and management of Indigenous Protected and Conservation Areas which

move beyond conventional colonial conservation policy (Moola & Roth, 2019). These initiatives are examples of effective Indigenous-led conservation approaches and practices by the very Peoples that have inhabited these areas since time immemorial, that are directly connected to climate change mitigation and adaptation efforts.

In terms of climate change policy that is relevant to IK, Indigenous governing bodies in Canada have developed their own policies. The Inuit Tapiriit Kanatami (ITK) have developed their *Inuit Priorities for Canada's Climate Strategy: A Canadian Inuit Vision for Our Common Future in Our Homelands* report, which prioritizes advancing Inuit capacity and knowledge in climate decision-making including ensuring that the best climate data is available (ITK, 2016). ITK further promotes that Inuit knowledge is equitably used with other knowledges.

### Analysis

#### Comparison of Canada's IKPF with US Federal IK Guidance Policy

There are similarities and differences between Canada's IKPF and the US White House IK Policy. The IKPF and the US White House IK Policy both provide context on other policies that influence IK in their respective countries. The IKPF highlights UNDRIP and the TRC Calls to Action, while UNDRIP is not highlighted in the US White House IK Policy. The IKPF and US White House IK Policy both include sections where guiding principles are provided including an emphasis of respecting IK. Both also include strategies for federal agencies to seek meaningful and respectful relationships with Indigenous Peoples and their governments.

Further discussion on the historical context of federal policy in both countries is also covered briefly. The Canadian IKPF briefly mentions that the maintenance and development of Indigenous Peoples' IK systems has been affected by colonial history and ongoing systemic

barriers. The US White House IK Policy also briefly mentions that federal agencies should acknowledge history including the past injustices of their agencies and the overall government towards Indigenous Peoples.

Elements of Indigenous data sovereignty are briefly mentioned in both the Canadian IKPF and US White House IK Policy. The IKPF mentions respecting Indigenous data sovereignty through the *First Nations Principles of Ownership, Control, Access, and Possession (OCAP)*, *National Inuit Strategy on Research*, and other relevant protocols for Indigenous communities (Government of Canada, 2019). The US White House IK Policy encourages agencies to align their policies to any existing Tribal policies regarding IK protection and protocols. Both the IKPF and US White House IK Policy state that consent is necessary before IK is included in any federal processes. Free, prior, and informed consent is explicitly mentioned in the Canadian IKPF with its broader implications for aligning with UNDRIP, whereas in the US it is not.

Both the Canadian IKPF and US White House IK Policy include sections on the importance of early consultation and respectful engagement with Indigenous Nations and communities. The Canadian IKPF promotes communication and engagement with Indigenous Peoples to discuss opportunities for sharing IK for project reviews and regulatory decisions. The White House IK Policy requires federal agencies to “engage in regular, meaningful, and robust consultation with Tribal Nations” (WHOSTPCEQ, 2022, p. 9).

There are also notable differences between the Canadian IKPF and the US White House IK Policy. Unlike the US White House IK Policy, the IKPF is not a government-wide mandated policy. The main emphasis of the IKPF is the *consideration* only of IK and its potential to improve outcomes in project reviews and regulatory decisions. The US White House IK Policy requires IK consideration in all federal processes including grant review, policies, and research.

The US White House IK Policy provides an extensive Appendix with examples of collaborative approaches and application of IK between US Tribal Nations and the federal government. For example, the Arctic Rivers Project is a project that includes both Alaska Native Tribes and First Nations dedicated to preservation of the Yukon River watershed.

Formalized recognition of Indigenous worldviews varies between the Canadian IKPF and US White House IK Policy. The US White House IK Guidance Policy includes a brief section that highlights the importance of respecting Indigenous worldviews including culturally embedded ways of knowing and being. There is no mention of IK systems in either the IKPF or US White House IK Policy. The US White House IK Policy states that, “Knowledge co-production is a research framework based on equity and the inclusion of multiple knowledge systems” (WHOSTPCEQ, 2022, p. 12). Indigenous research methodologies are outlined in the US White House IK Policy including responsibility, approach, relevance, representation, respect, and relationship. Federal US scientists are further recommended to “consider using Indigenous methodologies and incorporating Indigenous metrics and indicators” (WHOSTPCEQ, 2022, p. 16). In contrast, the Canadian IKPF only briefly mentions that there is a need to support the capacity of Indigenous Peoples in data collection and “analysis of Indigenous knowledge” (Government of Canada, 2019, p. 11).

The implementation outcomes of both the Canadian IKPF and US White House IK Policy are unclear. Few research studies have been published on the impacts of both in terms of federal processes and IK. The US White House IK Policy has been acknowledged by federal agencies such as the Department of Interior (DOI). The DOI continues to seek input from US Tribal, Alaska Native, and Native Hawaiian Leaders on a DOI policy that would equitably promote IK throughout the Department. Interagency efforts have also included a memorandum of understanding that aims to improve Indigenous Sacred Sites protection through incorporation

of IK across several agencies (DOI, 2021). In the Canadian context, previous reviews have also been conducted of earlier iterations of IK in legislation (Eckert et al., 2020) including the *Species at Risk Act*. These reviews critically highlighted how IK has been implemented in practice (Beaulieu-Guay, 2022).

### **Gaps in Canadian and US Indigenous Knowledges Policy**

There is a gap in research on the implementation of the IKPF and the four specific Acts it encompasses. McGregor (2021) highlights several key considerations of the IKPF including the lack of acknowledgement of the legal, political, and governance systems of Indigenous Peoples. Canadian environmental assessment (EA) processes have been increasingly criticized for their inability to include the best environmental knowledge including IK (Eckert et al., 2020). Research has cited that epistemological obstacles exist when outside entities attempt to engage IK in the EA process (Eckert et al., 2020). The IKPF, including the *Impact Assessment Act*, are argued to be extractive of IK for external governmental purposes (Lajoie-O'Malley et al., 2023; McGregor, 2021). While there are attempts to dismantle the hierarchy between Indigenous and Western knowledges, there is still a lack of epistemic recognition of IK in environmental Impact Assessments (Lajoie-O'Malley et al., 2023). IK continues to be scrutinized by Western science with a frequent tendency to attempt to 'validate' it through Westernized means before it is accepted as legitimate to the Impact Assessment process (Lajoie-O'Malley et al., 2023).

Research exists in other areas where collaborative resource co-management and responsibility is shared between Indigenous and non-Indigenous partners and governments in the Northwest Territories. The *Species at Risk Act* was developed by all co-management partners and fosters consensus building and decisions around species conservation in the region (Singer et al., 2023). The Act requires that there is inclusion of the best information (i.e., both Indigenous

knowledge and Western science) available to inform decision making and implementation processes around ecosystem and species conservation (Singer et al., 2023). The species assessment process specified within the *Species at Risk (NWT) Act* has been refined to “help ensure each knowledge system’s autonomy, uniqueness, and validity are represented and respected” (Singer et al., 2023, p. 3). The Act’s system was built with direct input by Indigenous knowledge holders and practitioners within the NWT. Cross-cultural learning, communication, and working through disagreements are facilitated through the Act’s process.

A significant gap in the Canadian IKPF is that federal health agencies are not included and required to also consider IK. Persistent health inequities impacting Indigenous Peoples in Canada have been well documented (Fridkin et al., 2019). Despite Canada’s national health insurance system and the federal government’s responsibility to provide health care to “Status” First Nations persons and recognized Inuit persons, Indigenous Peoples still face numerous challenges in accessing culturally safe healthcare due partly to jurisdictional complexity (Fridkin et al., 2019). Inclusion of IK in healthcare, health promotion, and community health programming are vital to enhancing Indigenous health in Canada. Furthermore, there is an inextricable link between the health of Indigenous Peoples and the health of the land (UNESCO, 2023). Climate change policy and discourse must also recognize that the determinants of Indigenous health are directly related to the health of the land and planet (UNESCO, 2023). We highlight this significant gap in the IKPF as it has potential to perpetuate the exclusion of IK in Canadian health systems including those serving Indigenous Peoples (National Collaboration Centre for Indigenous Health [NCCIH], 2022).

As stated previously, the US White House IK Policy is still relatively new as demonstrated by the paucity of research or evaluation on the impacts of the policy on IK inclusion on the ground. Additionally, there are also some notable gap areas that may be

highlighted in the policy. There is inadequate discussion in the US White House IK Policy on Indigenous worldviews, which highlights the ontological divide between Indigenous values and Western science and how this might create barriers within operational processes. Although the US IK Guidance Policy is the first executive policy in the US with intentions to improve Tribal Nation-to-Nation collaboration, the uptake of the policy in federal agencies is unclear. Research has shown that policy can be susceptible to changes in political leadership and agendas, which can impact further support and funding (Warne & Frizzell, 2014). It should also be noted that non-federally recognized US Tribal Nations are also excluded from formalized consultation and engagement with US federal agencies, which has significant implications for overall engagement and recognition of their IK.

### **Discussion**

Current research surrounding the inclusion of IK in Canada and the US demonstrate that there are still vast and deep challenges in creating meaningful inclusion and bridging processes that platform IK with Western science from a rights-based approach (Keats & Evans, 2020; Lefthand-Begay et al., 2024; McGregor, 2021; Singer et al., 2023). Although there is some progress in increasing the inclusion of IK from governments in Canada and the US, a meaningful effort that promotes Indigenous worldviews, rights, and collaboration is still needed. As climate change continues to impact ecosystems and health globally, it is imperative that Indigenous Peoples are included as leaders in the development and implementation of climate change-related policy and solutions. There is much opportunity for Indigenous-led approaches that facilitate and create spaces where knowledge sharing, and meaningful engagement can occur.



## Policy Recommendations

We have identified five policy recommendations for enhancing the rights-based inclusion of IK in Canadian governmental processes including climate change policy that are outlined below. These recommendations are based on the policy landscape specifically in Canada as it relates to Indigenous Peoples and their IK.

*1. Centering Indigenous Peoples and their worldviews and values is necessary for respectful rights-based inclusion of Indigenous knowledges in climate change, health, and conservation policy spaces.*

Governments and settler institutions must recognize that IK are inherently embedded in IK systems which are holistic knowledge systems (Latulippe & Klenk, 2020). Indigenous Peoples' knowledge systems are uniquely rooted within notions of environmental sustainability and have promoted adaptive capacities throughout history; they can also contribute to restoring balance with the natural world (Kimmerer, 2018). Indigenous Peoples are self-determining Nations that continue to steward their lands and knowledge systems (Latulippe & Klenk, 2020). Therefore, Indigenous Peoples are the experts of how, when, and where IK should be applied alongside Western science. Increasing recognition of Indigenous Peoples' and their knowledge systems as living knowledge systems is tantamount to changing and improving consultation and collaborative processes between Indigenous Peoples and governments.

*2. More ethical spaces must be created where respectful engagement and sharing on climate change challenges and solutions can occur between Indigenous Peoples and non-Indigenous entities.*

Western-based policy and scientific approaches towards Indigenous knowledges have been extractive in the past and in the present (Latulippe & Klenk, 2020; Lefthand-Begay et al.,

2024; McGregor, 2021). Latulippe & Klenk (2020) assert that Indigenous ways of knowing, being, and doing will only flourish within existing research structures if Indigenous-led relational ethical spaces are established (*making room*) that foster collaboration, understanding, and equity. Decolonization is vital for not only making room but ensuring adequate space for IK, signifying that Indigenous Peoples have full decision-making authority over their territories and knowledge systems (Latulippe & Klenk, 2020). Furthermore, *moving over* means that barriers that impede IK practices and transmission are removed (Latulippe & Klenk, 2020). Although Indigenous and Western knowledge systems & worldviews differ greatly, there are ample opportunities to facilitate spaces and approaches that can platform IK. The *Northern Research Leadership and Equity* report (Council of Canadian Academies [CCA], 2023) provides a framework on how to operationalize these spaces and approaches.

*3. Western science and research must recognize that IK emerges from Indigenous worldviews that are kincentric, therefore, creating mutually beneficial symbiotic spaces where both Indigenous and Western knowledge systems are cooperative not competitive.*

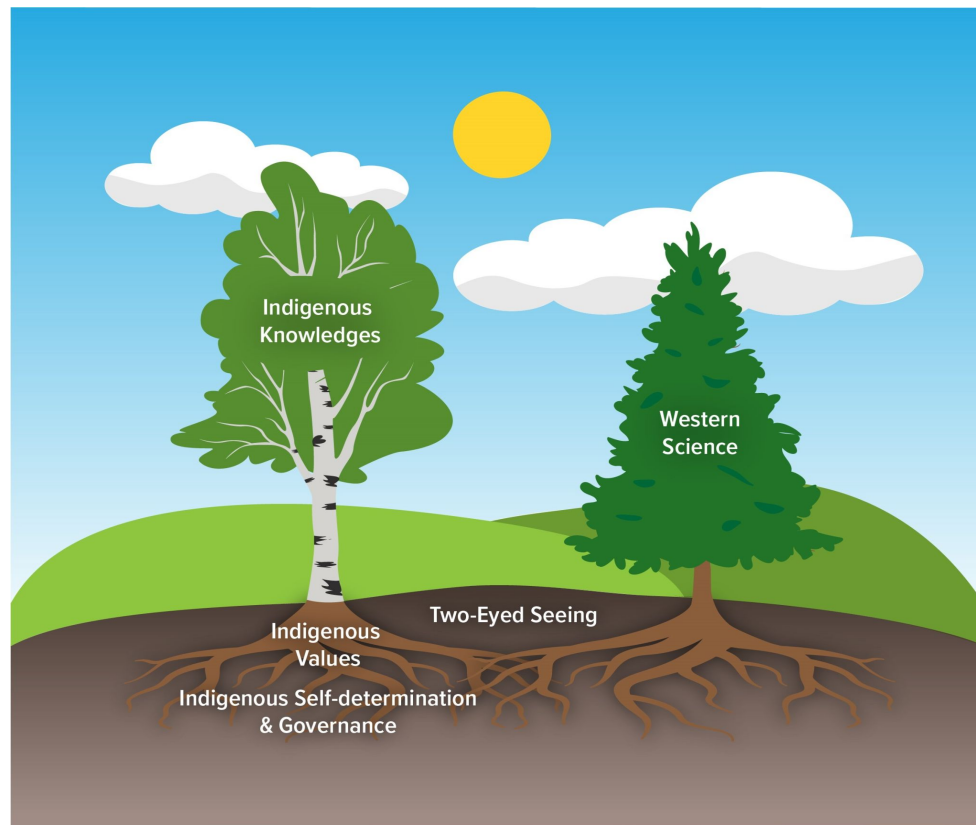
Mother Earth provides many valuable teachings and models of symbiotic relationships in which two different species can both thrive side by side. Ecological research strongly supports that older trees share and redistribute resources with other trees that need extra support for growth—this phenomenon is termed the mother tree hypothesis (Henriksson et al., 2023). We see Mother Trees like our Indigenous knowledges (see *Figure 1*), which have been characterized as longer-term, older knowledge systems that can support and teach younger knowledge systems (i.e. Western science). They also contain valuable wise practices and approaches that promote eco-centric relationality. Mother trees (i.e., Indigenous knowledges) and younger trees (i.e., Western science) both contribute to ecosystems and are equally valued. The roots of IK represent Indigenous values that are inherently embedded in IK and therefore cannot be detached. Simple

inclusion of IK within climate change and governmental policies & processes is ineffective if these systems continue to disregard the roots of IK and continue to platform colonial hegemonic structures. Just as our tree relatives thrive in healthy environments, Indigenous knowledge systems thrive in environments where Indigenous self-determination and governance (i.e., soil where roots sit) and overall Indigenous data sovereignty (see Table 2) are cultivated and platformed. The area where the roots of both trees touch and support one another represents mutually beneficial knowledge exchange where IK and Western science contribute to addressing issues such as climate change. To summarize, we propose that IK must be approached through a *Kincentric* worldview centered in understandings of the *Interconnectedness* of systems and processes, that can foster *Nurturing* respectful environments and *Symbiotic* spaces (i.e., “KINS”).

Table 2: Indigenous Data Sovereignty Elements

- Indigenous data sovereignty is described as Indigenous Peoples’ rights to govern the collection, ownership, and application of their own data (Kukutai & Taylor, 2016).
- UNDRIP reaffirms Indigenous Peoples’ control and self-determination over their data.
- The *CARE (Collective Benefit, Authority to Control, Responsibility, Ethics) Principles for Indigenous Data Governance* (Carroll et al., 2020) and *First Nations Principles of OCAP* ([FNIGC], 2024) promote data governance that is by, for, and with Indigenous Peoples.
- As non-Indigenous entities continue to place pressure on Indigenous communities to share their knowledges, Indigenous data sovereignty and governance through various methods (i.e. data sharing agreements) will become increasingly important.

Figure 1: KINShip Model for Platforming Indigenous Knowledges



*4. Leveraging the Truth and Reconciliation process can increase awareness on the importance of shifting towards KINShip centered value systems and approaches to restore relationships with Mother Earth.*

The Truth and Reconciliation process including Calls to Action provide an important framework (when operationalized appropriately through rights and distinction-based approaches) that can enhance inclusion and leadership of Indigenous Peoples' and their knowledge systems in Canada on various issues including climate change. Rights-based reconciliation may also facilitate a shift in worldview that centers Earth-based relationships through Indigenous values and place-based philosophies (Borrows, 2018). McGregor (2019) states, "...we must reconcile with the Earth, not just with each other, or reconciliation remains incomplete and our collective

future uncertain” (p. 144). Reconciliation means moving away from an anthropocentric worldview lacking reciprocity where we continually extract from the Earth without giving back. Indigenous Natural Law, worldviews, and values foster approaches towards sustainable living and ensuring healthy environments for future generations. Borrows (2018) states, “Living within our limits demonstrates affection for our children. It also shows our respect and love for the Earth” (p. 62). In Canada, living within limits are found in treaties, which can influence how Indigenous Peoples secure healthy, sustainable living and overall ways of life (Borrows, 2018). Treaties contain promises that the Crown must provide Indigenous Peoples for “as long as the grass grew, the river ran, and the sun shone” (Fumoleau, 2004, p. 74). Therefore, restoring a healthy balance to Mother Earth is integral not only for the health and self-determination of current and future generations of Indigenous Peoples in Canada, but for all.

*5. Non-Indigenous entities need to further recognize and support the rights-based protection of Indigenous Peoples’ IK and their territories as they are pivotal to Indigenous and Planetary Health.*

The ‘Health of Mother Earth’ has specifically been identified as an Indigenous determinant of health by Indigenous scholars and the United Nations (UNESC, 2023). Favorably supporting the Indigenous determinants of health and the determinants of planetary health depends greatly on the knowledge systems of Indigenous Peoples (Redvers et al., 2022; UNESC, 2023). Indigenous Elders as well as the languages they hold, are also key keepers and transmitters of Indigenous health knowledges including planetary health (Redvers et al., 2022). Indigenous Elders are the foremost teachers that may provide important guidance on ensuring relational protocols and values surrounding IK are being met for Indigenous and Planetary Health. Additionally, dispossession of Indigenous Peoples from their lands continues to occur globally despite their long-established record of stewarding and protecting their land (Gentry et

al., 2019; Kokunda et al., 2023). The continual demand for resources and lands fuels extractive practices that contribute to climate change at macro scales (Mitchell, 2019). Indigenous knowledges are significant to addressing climate change at multiple scales, which further demonstrates that the protection of Indigenous Peoples’ lands is synonymous with IK protection.

Table 3: Summary of Policy Recommendations for IK Inclusion in Canada

<p>1. Centering Indigenous Peoples and their worldviews and values is necessary for respectful inclusion of Indigenous knowledges in climate change, health, and conservation policy spaces.</p> <p>2. More ethical spaces must be created where respectful engagement and sharing on climate change challenges and solutions can occur between Indigenous Peoples and non-Indigenous entities.</p> <p>3. Western science and research must recognize that IK emerges from Indigenous worldviews that are kincentric, therefore, creating mutually beneficial symbiotic spaces where both Indigenous and Western knowledge systems are cooperative not competitive.</p> <p>4. Leveraging the Truth and Reconciliation process can increase awareness on the importance of shifting towards KINShip centered value systems and approaches to restore relationships with Mother Earth.</p> <p>5. Non-Indigenous entities need to further recognize and support the rights-based protection of Indigenous Peoples’ IK and their territories as they are pivotal to Indigenous and Planetary Health.</p>
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Conclusion

Indigenous knowledges are inextricably connected to Indigenous worldviews & values that foster sacred relationships with Mother Earth. Globally, Indigenous Peoples and their knowledge systems are fundamental to addressing climate change as they provide a cultural framework and worldview to restore respect, relationships, and balance with the Earth. Federal policy that aims to recognize and include IK from a rights-based perspective in both Canadian and US contexts represent an entry point to transforming climate change policy. Policies and

frameworks will only be truly effective when relationships, rights, and values important to Indigenous Peoples and their IK are respected and platformed.

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