

Lost in Translation: Overcoming Distinctions in Worldviews in Environmental Impact Assessments in Canada and Russia

Evgeniia Sidorova et Jenanne Ferguson

Volume 14, numéro 2, 2023

URI : <https://id.erudit.org/iderudit/1106677ar>

DOI : <https://doi.org/10.18584/iipj.2023.14.2.14942>

[Aller au sommaire du numéro](#)

Éditeur(s)

Scholarship@Western (Western University)

ISSN

1916-5781 (numérique)

[Découvrir la revue](#)

Citer cet article

Sidorova, E. & Ferguson, J. (2023). Lost in Translation: Overcoming Distinctions in Worldviews in Environmental Impact Assessments in Canada and Russia. *The International Indigenous Policy Journal*, 14(2), 1–31. <https://doi.org/10.18584/iipj.2023.14.2.14942>

Résumé de l'article

How would the usage of Indigenous languages contribute to overcoming the epistemological gap between Traditional Ecological Knowledge and Environmental Impact Assessments? This article examines incommensurabilities that arise in Sakha-Russian and Cree-English translations of EIA through the translations of the most common words in samples. Without being embedded in Indigenous languages, TEK and other knowledges are easily decontextualized, and results in the loss of layers of meaning. This study adopted a linguistic anthropological approach to language combined with content analysis and guided by a poststructuralist mode of analysis. We argue policies around EIA/EAs must be shifted to center Indigenous languages as the source of TEK and ensure that there is space for these languages to be used in the consultation processes.

© Evgeniia Sidorova, Jenanne Ferguson, 2023



Ce document est protégé par la loi sur le droit d'auteur. L'utilisation des services d'Érudit (y compris la reproduction) est assujettie à sa politique d'utilisation que vous pouvez consulter en ligne.

<https://apropos.erudit.org/fr/usagers/politique-dutilisation/>

érudit

Cet article est diffusé et préservé par Érudit.

Érudit est un consortium interuniversitaire sans but lucratif composé de l'Université de Montréal, l'Université Laval et l'Université du Québec à Montréal. Il a pour mission la promotion et la valorisation de la recherche.

<https://www.erudit.org/fr/>



August 2023

Lost in Translation: Overcoming Distinctions in Worldviews in Environmental Impact Assessments in Canada and Russia

Evgeniia Sidorova

University of Calgary, Canada, esidorova@alaska.edu

Jenanne Ferguson

MacEwan University, Canada, fergusonj73@macewan.ca

Recommended Citation

Sidorova, E., & Ferguson, J. (2023). Lost in translation: Overcoming distinctions in worldviews in environmental impact assessments in Canada and Russia. *The International Indigenous Policy Journal*, 14(2).
<https://doi.org/10.18484/iipj.2023.14.2.14942>

Lost in Translation: Overcoming Distinctions in Worldviews in Environmental Impact Assessments in Canada and Russia

Abstract

How would the usage of Indigenous languages contribute to overcoming the epistemological gap between Traditional Ecological Knowledge and Environmental Impact Assessments? This article examines incommensurabilities that arise in Sakha-Russian and Cree-English translations of EIA through the translations of the most common words in samples. Without being embedded in Indigenous languages, TEK and other knowledges are easily decontextualized, and results in the loss of layers of meaning. This study adopted a linguistic anthropological approach to language combined with content analysis and guided by a poststructuralist mode of analysis. We argue policies around EIA/EAs must be shifted to center Indigenous languages as the source of TEK and ensure that there is space for these languages to be used in the consultation processes.

Keywords

Environmental Impact Assessments (EIAs), Sakha Republic (Yakutia), Alberta, Indigenous Languages, Indigenous Epistemologies

Acknowledgments

Dr. Jen Sidorova would like to thank Yelena Sidorova for helping with Sakha-Russian language translations. Dr. Jenanne Ferguson would like to thank Les Skinner and the Edmonton Public Library Cree courses.

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Lost in Translation: Overcoming Distinctions in Worldviews in Environmental Impact Assessments in Canada and Russia

In this article, we build on previous critiques of how Traditional Ecological Knowledge (TEK) is (or is not) being incorporated into Environmental Impact Assessments (EIA) by expanding this debate to focus on language. In the countries we focus on in this piece—Canada and Russia—EIAs are written in federal official languages of these nations (English or French in Canada, and Russian in Russia) even when dealing directly with Indigenous peoples and discussing the TEK held by members of Indigenous groups. In seeking to understand what is lost or omitted when non-Indigenous languages are used to describe TEK in EIAs, we explore a central question: how could the usage of Indigenous languages contribute to overcoming the epistemological gap between TEK and EIA?

TEK refers to systems of collective knowledge production—developed over time by members of Indigenous groups and transmitted down generations—that discusses and describes the relationships between living things in their environments (Agrawala et al., 2010).¹ It is knowledge that is deeply contextualized within a specific culture and the environments in which individuals of that culture live—yet many studies on TEK do not discuss this knowledge *using* Indigenous languages. We assert that this leads to the simplification and loss of nuance of these knowledges, thus not rendering them as meaningful as they could be within the context of EIAs. EIAs involve assessing the potential impacts of a proposed project on the environment, before deciding whether to undertake the project; they also work to develop and apply measures to avoid or minimize those impacts as conditions of approval for the project (Agrawala et al., 2010).

Through examining translations from the most frequently used terms in Canadian and Russian EIAs, we demonstrate below the vital importance of understanding the contextual and actual meanings of Indigenous concepts on their own terms. As Plains Cree scholar Kovach (2009) has noted, understanding even a few Indigenous nature-related terms could help to incorporate TEK into Western scientific research in a more meaningful way (Kovach 2009); we want to extend her suggestion much further, in pushing for TEK in the original Indigenous language to be the basis of the research, rather than incorporated as an addition or an afterthought (for discussion of “lip service” in the incorporation of TEK into the Arctic Council, see Sidorova 2020). As we will demonstrate, many words in Indigenous languages—in particular, those that describe traditional subsistence practices and connection to the land—are especially difficult to translate adequately. We argue that EIA consultants need to commit to learning as much of a community’s language and culture as possible to overcome these epistemological obstacles and understand the nuances that simply do not translate to English, or Russian, or other colonial languages.

¹ It is important to acknowledge that the “traditional” part of Traditional Ecological Knowledge can be problematic, as the word may connote something old, static, and unchanging, whereas in reality TEK is a dynamic, living tradition that is adaptable to current conditions and new knowledge. However, we use TEK here for its ubiquity and persistence especially in Environmental Impact Assessments. TEK is specific to a community, based in place; other terms used are Local and Indigenous Knowledge Systems (i.e., by UNESCO), Indigenous knowledge(s), and Indigenous Science. The latter term also helps place this knowledge as equivalent to other sciences.

According to Janelle Baker (a settler with maternal Metis heritage) (2021), Western perspectives often receive more acknowledgement in assessments, while the status of Indigenous perspectives are relatively low (Povinelli, 1995, cited in Baker, 2021). Even when traditional land use assessments are included in EIAs, non-Western perceptions of human-environmental relations only minimally influence national economic policy; in the process of making maps and models, researchers and consultants tend to reinforce state authority by sorting Indigenous social and cultural practices into the traditional (valuable) and the untraditional (valueless) (Baker, 2021).² In other words, TEK is only viewed as legitimate when it has been adapted to the specialized narrative of science (Ellis, 2005, cited in Baker, 2021); knowledge that does not support Western-style decision-making is dismissed (Baker, 2021). Similarly, Westman (2013) argues that topics that are not easily rendered technical, including spiritual, cosmological, and ontological issues in Indigenous cultural traditions, are largely dismissed in impact assessments in northern Alberta.

As White (2006) notes in a study on incorporating TEK into the Nunavut Wildlife Management Board practices, the most challenging component of TEK incorporation into EIAs refers to “values about the environment,” which contains moral and ethical positions about the environment, which are largely recognized by Indigenous spiritualities (White, 2006). Indigenous TEK holders often use metaphor, analogy, and myth to transmit cultural values or information (Ellis, 2005). For instance, as Maldonado et al. (2016) state, during the 2014 US National Climate Assessment (NCA), tensions emerged between how government agencies and scientists reviewing the Indigenous Peoples chapter described climate change, and how climate change was explained in technical inputs by Indigenous peoples; this emerged through some phrases and concepts that do not translate effortlessly. For example, in Navajo (Dine), climate change is usually articulated as a disruption of the balance and harmony of one’s spiritual and cultural connection to Mother Earth and Father Sky (Maldonado et al., 2016). Non-Indigenous participants may have difficulties in comprehending this perception of the natural environment (Paci et al., 2001; Ellis, 2005); this is an issue of an epistemological gap or obstacle (Eckert et al. 2020) between how Indigenous languages and their speakers conceptualize nature as compared to individuals operating from an English-language, scientific perspective.

As Peterson (1998) argues, we use language to conceptualize and discuss the natural systems on which we rely; by using language, human societies have imagined, discussed, and implemented technologies for controlling and transforming nature. Language is inherently bound up in relations of power; for instance, the imposition of a standard language has often been a fundamental tool of political influence serving governmental purposes in numerous colonial entities around the world. The usage of official state languages also determines the language of bureaucracy and potentially affects environmental policies in settler-colonial states.

Similarly, Ellis (2005) states that language in board meetings can include many technical and Western scientific terms. Discussions based on written documentation in English reveal only rare instances where

² It is worth noting that Baker’s (2021) article, entitled, “Do Berries Listen?” is a nod to Julie Cruikshank’s (2005) work on the encounters between purveyors of Indigenous and scientific knowledge, “Do Glaciers Listen?”

English terms correspond directly with cultures immersed in TEK. As White (2006) argues, translation, when available, is usually a modest substitute for understanding the distinctive conceptual apparatus that every language contains. The lack of understanding of technical terms in English by TEK experts results in their inability to contribute meaningfully to these discussions. For example, Ellis notes that Indigenous languages tend not to have words for such concepts such as “eutrophication” and “watershed management.” Translating them into Indigenous languages is extremely difficult and leads to the usage of terms that could be oversimplified or even incorrect (Ellis, 2005). In other situations, such as the *Clyde River (Hamlet) v. Petroleum Geo-Services Inc.* case (2017), serious problems arise when little effort is made in trying to translate documents into Indigenous community languages.

Other scholars have suggested the importance of EIA consultants having more anthropological or social science training (e.g., Baker and Westman 2018). This is certainly something that is more easily achievable in the immediate future. However, here we focus on language as something to centre in these analyses, even if it is a less accessible and more long-term goal. We seek to remind researchers of the incommensurability of languages; languages do not simply describe reality on a one-to-one, perfectly equivalent basis, but reflect distinctive and unique worldviews, or ontologies, of their speakers’ cultures. In essence, it is not just a case of naming the world differently and finding equivalents in another language, but understanding the deeper semantic and relational nature of words within their cultural context. When you interpret a language, you also are interpreting a culture. Yet, as we will show, EIAs are written in the dominant languages of the regions we discuss here—English and Russian. Despite describing the potential consequences to lands where Indigenous peoples live, Indigenous languages are not used to convey or discuss what those consequences are. We want to be careful to acknowledge that we are not suggesting translation is futile or impossible, nor is it perfect; it is inherently a subjective process that becomes more complex the wider the differences are between languages and the worldviews they express. By ensuring that Indigenous languages are centered in the EIA process, we argue that we can better include the Indigenous ontologies and understandings of the world, rather than assuming that Indigenous participants engage in the consultation process solely within the bureaucratized Euro-Canadian frames (see Baker 2021; Baker and Westman 2018; Dokis 2015; Nadasdy 2003, 2017).

Epistemological obstacles are created by the differences in Indigenous and Euro-Canadian values, worldviews, and cultures, which are also related to the history of colonialism (Eckert et al., 2020). Numerous scholars have stated that EIAs must be more deeply embedded in the worldviews of Indigenous communities, specifically their knowledge about the land, the world, and their place in it; otherwise, their participation will remain an insertion into a dominant paradigm of knowledge rather than a challenge to the paradigm itself (Dokis 2015; Jolly & Thompson-Fawcett, 2021). As Behn (Eh Cho Dene/Dunne-Za/Cree) and Bakker (2019) have shown in their article on the question of damming the Saaghii Naachii (Peace River), it is usual for EIAs to render the land “technical” through the EIA, but these EIAs rarely acknowledge the land as “sacred”—that is, a space where TEK, spirituality, and personal experiences are fundamentally intertwined.

Furthermore, considering the widespread loss of Indigenous languages worldwide—often due to purposeful eradication by colonial powers, as seen in the residential educational institutions in Canada, for instance—encouraging the use of these languages is also an important consideration. Rather than

further colonizing the knowledge of the land held by speakers of Indigenous languages by documenting it solely in a colonial language, supporting the use of these languages through processes of research and consultation can also contribute to their revitalization in their communities. Creating and sustaining (new) contexts for language use are essential to their maintenance and transmission. Finally, the use of Indigenous languages is also a key method for decolonizing or Indigenizing the research process itself. As Kovach (2009) observed when learning Cree, many linguistic constructs referenced a Plains Cree worldview and mirrored how fluent Cree speakers would have related with their world (see also Daniels-Fiss 2008); having an understanding of how language influences Cree knowledge is a key aspect of a research framework based on Plains Cree epistemology. New policies and guidelines could be implemented to reflect the centrality and essential nature of language in closing these epistemological gaps.

Therefore, we seek to interrogate how working from a colonial language is not enough for the meaningful interpretation of Indigenous worldviews into decision-making. Specifically, we will draw upon examples from Sakha culture and language (in the Sakha Republic, Russia) and Nehiyawewin (Plains Cree) culture and language (in Alberta, Canada) to illustrate these points. Sakha is a Northeastern Siberian Turkic language, indigenous to the regions in the Lena and Viliui river basins, spoken primarily in the Sakha Republic, Russian Federation and neighbouring regions in the Russian Far East (northeastern Siberia). Sakha has a fairly large speaker population, thought to be around 450 000 (Vserossiiskaia Perepis Naseleniia, 2010), which is sizeable compared to other Indigenous languages in Siberia. There are four major dialect groups of the language (Antonov 1997), but speakers tend to view them as all mutually intelligible. Cree is an Algonquian language, often referred to as a dialect continuum of multiple varieties, but also considered by some to be a group of closely related languages (Wolfart, 1996, 390). When considering all the varieties together, it has the most speakers of any Indigenous language in Canada—around 96 000 (Statistics Canada 2017).³ It is spoken in a wide band across Canada from northeastern British Columbia and the southern Northwest Territories and across the prairies all the way to northeastern Quebec. In this paper, we are discussing Nehiyawewin, or Plains Cree (often referred to as y-dialect), the most widely used variety in Alberta.⁴

In this article we wanted to include a comparison to highlight similarities in languages and worldviews among Indigenous groups in different parts of the world, and we considered Alberta (Canada) and the Sakha Republic (Russia) as two key sites for comparison for several reasons. They are both resource extractive regions with large-scale infrastructure and Indigenous populations; they are places where Indigenous communities are engaged in traditional subsistence activities, and both provincial governments in the case studies conduct EIAs (“ethnological” assessments, or EA, in the case of the Sakha Republic).⁵ While both Nehiyawewin (Cree) and Sakha are widely spoken Indigenous languages

³ We have used the 2016 data, since the 2021 census data collection in Indigenous communities is incomplete. Collection was hampered by COVID lockdowns, wildfires, and other accessibility issues (Statistics Canada 2023).

⁴ Plains Cree is considered to have some subdialects as well, such as Northern Cree spoken in parts of north central Alberta; some researchers suggest it is distinct enough to be its own dialect (Westman and Schreyer 2014).

⁵ Sakha Republic is among three Russian regions (the other two being Sakhalin and Yamalo-Nenets Autonomous Okrug) that practice public ethnological assessments (also known as anthropological expert reviews) (Novikova, 2017).

in their respective territories, in both cases, assessments do not involve the use of Indigenous languages.⁶ Furthermore, we also have enduring connections to these regions. Evgeniia Sidorova is an urban Indigenous Sakha political scientist who grew up in the Sakha Republic and now lives and works in Alberta; she is fully trilingual in Sakha, Russian, and English. Jenanne Ferguson is a non-Indigenous (Ukrainian-British) linguistic anthropologist born in Alberta who also resides there and has also conducted research in the Sakha Republic for over a decade. She is a first language English speaker with advanced Russian, intermediate level Sakha, and is currently a beginning Cree learner. We each have different lived experiences in both regions that have informed how we have learned the languages of these places and engaged and interacted with the lands themselves.

In examining the language used in EIAs, we have adopted a linguistic anthropological approach to language. Language, as we discussed, is not a neutral tool or vehicle, but rather socially charged and embedded within a cultural worldview (c.f. Duranti 1997, Duranti et al., 2011). It is the basis for both how we come to learn about our social worlds as well as recreate and transmit them to others (Duranti et al., 2011). Languages create the discourses of knowledge, with discourses being those practices through which meanings are produced, identities constituted, and social relations established (Campbell & Bleiker, 2013). Our analysis of the EIAs is also informed by the poststructuralist mode of analysis suggested by Shapiro (1989). Textual modes of analysis emphasize “discourse” rather than language because the concept of discourse implies a concern with the meaning and value-producing practices in language rather than simply relationships between utterances and their referents (Shapiro, 1989). In the more conventional methods to studying political phenomena, language is often perceived as a transparent tool, an unobtrusive conduit between thoughts or concepts and things. As opposed to that conventional method, a discourse-centered approach views language as opaque and suggests an analysis of both the language of inquiry itself, and the linguistic practices within which various phenomena—political, economic, social, biological, and so on—are embedded (Shapiro, 1989).

To this end, we performed a content analysis of ethnological assessments (EA) in the Sakha Republic and EIA in Alberta. Content analysis implements this by systematically and objectively examining either the content of the document, the process of communication itself, or both (Sproull 1988, as cited in McNabb, 2015). The sources were chosen by using a purposive sampling technique and analyzed using qualitative content analysis and manual coding techniques using NVIVO software. Once we had ascertained the top ten frequently occurring words in the assessments, we could then perform a deeper analysis of the contexts and meanings of those words.⁷

Both the EIA guidelines reports and EA reports are available online.⁸ The terms in the Alberta table were drawn by analyzing a selection of current EIAs on Treaty 6 and Treaty 8 territory (Metis Nation territories 1, 2, 4, 5, and 6) where most historical and current Cree-speaking communities in Alberta are

⁶ Other Indigenous languages are spoken in both regions, e.g., Dene Suline, Nakoda, Siksika (Blackfoot) in Alberta, and Evenki, Even, Yukaghir, Dolgan, etc. in the Sakha Republic. However we have focused on the languages here with the largest speaker populations in both areas. Cree is widely spoken in the regions where most of the intensive resource extraction occurs (Oil Sands areas in Northern Alberta). It is important to note that Dene Suline is also a key language in this region, but as the authors do not have any familiarity with this language, we chose Cree as our focus here.

⁷ The focus here was content words (articles, pronouns, conjunctions, etc. were not included in the tables).

⁸ For the Sakha Republic, Government of Sakha Republic EA: <https://www.sakha.gov.ru/npa/front/index>

located.⁹ The documents for each (e.g., Final Terms of Reference, Public Comments) can be accessed online (Environmental Impact Assessments, n.d.).

The Online Cree Dictionary (Nehiyaw Masinahikan) (Miyo Wahkohtowin Community Education Authority, n.d.), the Sakha Tyla Dictionary (SakhaTyla, n.d.) and the itwêwina Plains Cree Dictionary (Alberta Language Technology Lab, 2023) were also searched to verify the translations; the latter dictionary draws upon entries from multiple print dictionaries. These include the Alberta Elders Cree Dictionary (LeClaire and Cardinal, 2002), and the Cree: Words series (Wolvengrey, 2001), and the Maskwacis dictionary (Maskwachees Cultural College, 2009), so this was helpful for comparison. All translations from Sakha and Russian to English were done by the authors and with the help of a Sakha-Russian translator.

Discourses of Nature and Land in EIAs/EAs

Languages are not easily extracted from the context in which they are spoken; the linguistic anthropologist Dell Hymes (1974) reminds us that context is essential to meaning—we rely on sociocultural knowledge to both produce and interpret language. In other words, we want to understand language as a social action, intrinsically part of the conditions or situations in which it is used, rather than simply as lists of words and phrases that can be gleaned and extracted from random communications or elicited on cue. In Hymes' words (1974: 196), “social function gives form to the ways linguistic features are encountered in actual life.” As Yellowknives Dene scholar Coulthard (2014) notes, we must deeply examine language—and discourse—to better understand oppressive configurations of power derived in settler-colonial societies; discursive formations are not neutral; they manage the ways that an issue can be meaningfully constructed, discussed, and rationalized.

Past research has revealed how consultants responsible for conducting EIA and Indigenous representatives who participate in the EIA processes often do not understand each other's worldviews—nor each other's language. For instance, Killingsworth & Palmer's (2012) study showed how their Indigenous interlocutors expressed concern about the difficulties understanding the language of the Environmental Impact Statements (EIS) they were investigating. Another Indigenous representative mentioned his life-long experience living on the land, and how the EIS technicians did not capture the complexity of natural environment on his lands. The terms that EIA/EAs use in assessing impacts on nature do not correspond with Indigenous concepts and worldviews. A key gap in TEK literature is a deeper analysis of how environmental policies are being shaped by non-Indigenous understandings of nature, land, wilderness, and the like. For Indigenous societies, land and nature are deeply interconnected with cultural practices, beliefs, and values, and because of that, ethics and morality play a crucial role in their interactions with natural environment. Indigenous languages reflect Indigenous cosmologies, rituals, and beliefs that reflect Indigenous perceptions, worldviews, and, most importantly, traditional sustainability practices (cf. Ferguson & Weaselboy, 2020). As TEK is deeply rooted in the

⁹ The projects included the AHP Development Corporation Amisk Hydrological Project; Canadian Natural Resources Limited Horizon North Pit Extension; Canadian Natural Resources Limited Pike 2 Project; Pembina Gas Services Ltd's Proposed Two Lakes Sour Gas Processing Facility Project; Suncor Energy Inc. Base Mine Extension; Suncor Energy Inc. Lewis; Value Chain Solutions Inc. VCS Heartland Complex Expansion.

lived landscape, along with the values, practices, and beliefs of people who produce it, natural resource management must embody the same values, practices, and beliefs (Christensen & Grant, 2007). As White (2006) notes, certain spiritual-cosmological components of TEK, including relationships among humans, are incompatible with the worldviews of the bureaucratic state in which governmental institutions such as the Canadian co-management boards are embedded.

To counteract this English/Western discourse, we see how Indigenous researchers like Zoe Todd (Metis), stress the importance of using Cree-language concepts—like *wahkohtowin*, to be discussed later in the paper—to inspire how policy should instead reflect the Indigenous “fish pluralities” and center human-fish relationships (Todd 2018). While not specifically focused on language, Todd’s approach to relationality through a Metis-Cree worldview is another example of how Indigenous languages reflect connection to the land and Indigenous spiritualities and cosmologies. In sections to follow, we reiterate the ways in which Indigenous worldviews reflect distinctly separate ideas about human-nature interactions and sustainability, and argue that to fully grasp and appreciate these ideas, Indigenous languages must be centered in research. The analysis of words as an outcome of social interactions helps to explain why Indigenous perceptions of nature and Western-state environmental policy are so inherently distinct.

Because of incommensurability of terms and concepts in EIA/EAs with their own perceptions of nature and the land, Indigenous communities have had to adjust their ways of thinking to official legislative terminology, while state institutions have rarely made concessions the other way around. Nadasdy (2003) states that the processes of state-Indigenous relationships led to the situation where Indigenous societies in Canada have been bureaucratized to a large extent, and this bureaucratization has included learning essentially new and atypical ways of speaking and thinking for Indigenous communities. For example, to engage with scientists in the co-management processes, Indigenous communities must engage “language” of bureaucratic resource management. Nadasdy stresses that this bureaucratization happens through communication practices, citing Bourdieu’s (1993) contention that all speech acts must be understood as a product of the relationship between a “linguistic habitus” and a “linguistic field” or “market.” If a speaker wants to successfully generate discourse in a particular field, they must observe the forms and formalities of that field and adjust their speech—and their thinking—to fit the correct market and achieve their desired results. Employing only communications in the languages of the settler state in TEK studies (as well as in community engagement sessions) creates obstacles in revealing existing discourses that colonial governments established. Hence, Indigenous communities are forced to adapt to Euro-Canadian discourses of nature and land to engage in bureaucratic processes.

On the other side, as Satterthwaite (1996) notes, during public engagement sessions regarding impacts on bison in Wood Buffalo National Park, EIA panel members had difficulties understanding the local cultural significance of these animals for First Nations. They took the comments seriously but could not comprehend the information. The Canadian government representatives focused on objective knowledge to the exclusion of moral and aesthetic concerns; as a result, policy narratives reduced emotions to values, and values to facts (Satterthwaite, 1996). Similar issues to those raised by Nadasdy (2001) and Satterthwaite (1996) have been commented upon by others, notably Dokis (2015) and Lukawiecki et al. (2015), highlighting how Indigenous community members are expected to concede to

bureaucratized, Euro-Western frameworks, rather than the opposite. As Dokis (2015) quotes in the title of one of her book's chapters, the (English) language used in consultations is characterized as "very nice talk in a very beautiful way" that glosses over the experiences and ontologies of Indigenous participants. As values, beliefs and morals constitute an important part of TEK, the incorporation of TEK into EIA reports as well as meaningful engagement with Indigenous communities during the EIA process becomes challenging; however, using Indigenous languages, as we will discuss, may be a key part of remedying that challenge.

Greenspeak in EIA

The current dominant globalized discourse of environmental policy—also termed "Greenspeak"—shapes EIA terminology by using bureaucratic/managerial language which is inconsistent with Indigenous worldviews. Greenspeak started emerging around Earth Summit 1992, when declarations, speeches, and reports consistently used terms like "global thinking," "global perception," and "One World" (Harré et al., 1999). Environmental discourses exist predominantly in English (Mühlhäusler & Peace, 2006), so Greenspeak is applicable not only to the US context but also to English-speaking countries in general, including Canada.

Harre et al. (1999) argue that in Greenspeak, nature is thought of as wilderness, or the world without people. Furthermore, they argue that nature rarely emerges alone in environmental documents and is often discussed in combination with natural resources. This connects to the idea of domesticated nature, with the image of Earth as a farm, as opposed to the concept of a free independent nature where human beings are just participants in various processes (Harre et al., 1999). Similarly, environmental discourse tends to equate the notion of environment with that which sustains human life; this discourse focuses on concerns and issues covering no more than a human life span (Mühlhäusler & Peace, 2006). Thus, nature in English-speaking discourse primarily serves utilitarian purposes.

Settler-colonial history in the US, Canada, Australia, and New Zealand (the English diaspora, in particular) influenced the emergence of Greenspeak to a large extent. North American Anglo environmentalism is drawn from discourses that historically view nature as an object that must be "conquered" because the Anglo settlers in North America attempted to turn the land into something familiar to them. Land was "real estate," and it was incorporated into society (Dunlap, 1999). As Dunlap (1999) states, even though the days of conquest are gone, European settlers still want to manage and change the land around them, if only to restore a natural paradise that existed before they arrived. The emergence of ecology as a field of study has not changed that view, but rather provided it a new vocabulary (Dunlap, 1999).

Environmental terminology in English reflects these Western settler-colonial worldviews. Pickerill (2007) discusses how "wilderness" is a colonial word as it expresses the concept of *terra nullius*; in other words, "wilderness" implies Indigenous communities did not exist, and the land was not inhabited prior to European arrival (Pickerill, 2007). As a European social construct, wilderness could have a meaning of something "to be feared, an area of waste," which must be "civilized," ordered, and productive (Pickerill, 2007). According to Cronon (1996) wilderness has no space for human beings. Wilderness embodies a dualistic perception in which the human is entirely outside the natural world. The place

where human beings are is the place where nature is not (Cronon, 1996). Castree & Braun (2001) argue that whose discourse of nature is accepted as legitimate is a question of social struggle and power politics. Knowledge and language are used to make sense of a natural world that is both different from humans and yet which humans are a part of. In this paper, we argue that the presence of non-human entities in a natural world is part of Indigenous worldviews, and only Indigenous languages can most accurately reflect Indigenous perceptions of a natural world.

Other recent studies reveal how environmentalists and Indigenous Peoples perceive the conception of land and nature differently. During the Dakota Access pipelines protests, environmentalists tended to view the land in the context of the land ethic of Aldo Leopold, the preservation of ecological systems, and recreation in public lands (Bosworth, 2021). For the Lakota, Dakota, Ponca, and other Indigenous Nations, protection of land could encompass a wider normative domain of politics, including protection and reclamation of the relationships and obligations with each other and the earth violently besieged by settler colonialism for the last several hundred years (Bosworth, 2021). Willow (2015) notes that environmentalists perceive nature as “living museums” without humans being an integral part of the natural world. Yet, she also recognizes that emerging numbers of environmentalists now recognize that solving ecological issues will require thinking about social and environmental issues not as separate entities, but as related elements of complex systems that involve both humans and non-humans (Willow, 2015). We argue that environmentalist views that advocate for preservation as opposed to the concept of humans as part of ecosystems would be challenged if consultants who conduct EIA/EA studies could use Indigenous languages in their studies.

In the USSR until the 1970s, the dominant environmental policy approach was aimed at governing and controlling natural resources—all entirely owned by the Soviet government (Brinchuk, 2008). While contemporary Russian environmental policy is based on a plurality of forms of ownership and integration into global environmental legal frameworks, Soviet environmental discourse was built on the ideas of resource management and extraction; the recent approach tends to copy global trends in environmentalism (Brinchuk, 2008), including Greenspeak. As Krasnova (2019) notes, current Russian legislation mostly focuses on ecological damages, such as rights to access information about environmental quality and rights to compensation for environmental damage that cause health issues. The constitutional right to healthy environment as a necessary condition for sustainable development of human-beings and society has not been much advanced in the Russian legislation (Krasnova, 2019). Hence, the Russian legal framework emphasizes negative impacts on environment instead of adopting a broader approach which views a healthy sustainable environment as a societal value and a necessary condition for societal existence (Krasnova, 2019).

The concepts of wilderness and environment in northern Canada are shaped by Euro-Canadian wildlife managers, who use bureaucratic language that frames the environment in similar ways. The use of these terminological framings has political and social implications. In this regard, De Luca & Demo (2001) argue that as an outcome of Eurocentrism, environmental organizations view environmental issues through a lens of pristine wilderness while erasing the issues in environments where people live. “Wilderness” in environmental discourse is recognized as an “other place” for use against a normal, everyday space (Bennett and Chaloupka, 1993). Other English terms are similarly objectifying, as others

like Dunlap (1999) have noted. “Landscape” in most common uses conveys land that people view as having significance for the nation and their culture; “science” is the organized, written knowledge of plants and animals and the land, supported by social institutions; “Nature” in English refers to the concept of the land and the living creatures on it at the level of “unaided observation” (Dunlap, 1999). These terms guided the emergence of public discourses on environmental policy in North America.

The Greenspeak-inflected dominant state environmental discourse is framed by language that reflects these ostensibly objective views on nature. Policy makers rely on managerial language, which is rooted in a technocratic understanding of a public interest that can be determined by experts through analysis (Eckert et al., 2020). Killingsworth & Palmer (2012) name the EIS language a pseudo-democratic rhetoric and point out that lack of readability is rooted in principles of objectivity. Objectivity implies impartiality, and thus to fulfill that tenet, people must be made into things that are countable in an operationalist logic. All relationships of person to person and person to nature must be stated in terms of increase and decrease (Killingsworth & Palmer, 2012). This kind of rhetoric about the natural environment reflects and establishes dominance of objective scientific perceptions of nature (Pickerill, 2007). Thus, to better understand the connections between state power and language, researchers must take the layered meanings of environmental concepts into account. Killingsworth & Palmer’s (2012) study analyzed the rhetoric of EIS¹⁰ in the US, and they concluded that the EIS language is adjusted to bureaucratic practices and requires special training to be properly understood. The language of the expert nullifies potential identification with the ordinary reader and with the physical and social environment that is examined. The author’s personality is expunged by impersonal constructions and passive voice, which attempts to create a kind of “data-gathering machine” approach that is object-object rather than subject-subject; as result, it is not surprising that groups such as small farmers and Indigenous peoples are marginalized further by government practices using this discourse (Killingsworth & Palmer, 2012). They concluded that the production of these assessments—which they consider a new genre of written discourse—is primarily one that simply reproduces government control. EIS experts are not part of the mainstream scientific community. They are interested in facts and procedures, not scientific or political action (Killingsworth & Palmer, 2012).

Public policy, formulated through language, is the outcome of argumentative processes (Fischer & Gottweis, 2013, p. 489, cited in Behagel et al., 2019). As Behagel et al. (2019) argue, this viewpoint has led to an implicit preference for discursive and formalized descriptions of policy processes over more practice-based and informal ones. The accounts of policy, based on empiricism, tend to neglect the important role that values and norms play in defining policy problems and tend to favour powerful voices over marginalized ones (Behagel et al., 2019).

Positivist views on nature merged with formalized policy language result in specific perceptions of natural environment in environmentalism and public policy. The more environmental discourses are becoming institutionalized and bureaucratized, the less likely these discourses are comprised of values and norms. Values are included in policy narratives, but only in the institutionalized forms

¹⁰ The emergence of EIS in the US was caused by the implementation of the National Environmental Protection Act of 1969. The EIS is supposed to describe a proposed action, reasons for it, and any short- or long-term effects (Killingsworth & Palmer, 2012).

(Satterthwaite, 1996). These embedded values are strategically put beyond general interpretation and take on the peculiar technical character of systems variables, becoming quasi-facts (Satterthwaite, 1996). Thus, with increased bureaucratization and the dominance of objectivity in environmental discourses, the ethical and aesthetic dimensions of Indigenous worldviews—discussed in the next section—are less and less likely to be included in EIAs.

Indigenous Languages as Reflection of Indigenous Values, Beliefs, and Worldviews

Indigenous languages contain not only different interpretations of the natural environment, but also understandings fundamentally linked to specific place-based contexts. Depending on the language used, discourses of nature, land, and wildlife shift, and Indigenous languages offer distinct apparatuses for understanding these concepts; when considering the diversity of interpretations of the relationship between humans and the natural environment, there may be multiple insights that could be of crucial importance to the governments (Harre, 1999). However, many of these insights can be lost through the failure to engage with the Indigenous languages in question.

A key theme that must not be overlooked is that land and language are intrinsically connected in many Indigenous ontologies and should not be considered separately; doing so compromises the epistemological relationship between land, language, and the knowledge embedded therein. Land is a space of cultural meaning that includes both living and ancestral humans and other-than-human beings (Chiblow and Meighan, 2022; Daniels-Fiss, 2008; Ferguson and Weaselboy, 2020). Land, in other words, is not space considered either “pristine” and “untouched” (see discussions of “wilderness” in the previous section) *or* inhabited or impacted by humans, but rather an inherently living, dynamic, and thoroughly cultural space. Language is viewed similarly in some cultures as well; in other words, language too is animate, dynamic, and essentially a part of the world itself rather than an autonomous tool simply used by humans to describe the world. For many speakers of Indigenous languages, these issues can be further obscured when speakers must use another language to talk about TEK, or even when words from an Indigenous language are brought into English but all the aspects of their meanings are not investigated or fully understood by non-speakers. This is why we argue that using the respective Indigenous language when discussing TEK is paramount; as Chiblow and Meighan (2022, p. 4) write, “One reason for this is to avoid reducing Indigenous worldviews and ideas into ill-fitting English words, binaries, or colonial mindsets (such as viewing the land as a resource).” As others have noted (e.g., Coulthard 2014; Dokis 2015; Nadasdy 2003, 2017; Whyte et al. 2016) dealing with the Euro-Western bureaucracies means shifting from framing land as relationship to land as resource (cf. Coulthard 2014); to engage with Indigenous languages could help shift the frame back to land as relationship first.

What we wish to stress here is that it is of intrinsic importance when working with speakers of other languages, we do not simply assume “that all languages really look like English when the cultural miscellany is stripped away” (Webster, 2017, p. 254; see also Webster, 2015). For instance, as Potawatomi botanist Kimmerer reveals, her language (like many other languages in the Algonquian language family, including Cree), categorizes all nouns as either animate or inanimate. There is no way to directly translate this distinction into English when referring to a particular thing, other than perhaps distinguishing by asking “What is it?” for those classified as inanimate things, and “Who is it?” for animate non-human things (Kimmerer, 2013, p.56). Kimmerer stresses that this grammatical animacy

also has moral and ethical implications as well; it reflects how humans are expected to interact with respect with other animate beings.

The issue of (un)translatability highlights the importance of power dynamics in environmental discourses. As Webster (2017, p. 239) states in his discussion of the inequalities and inequivalences when translating place names from Dine (Navajo) to English, we can never assume equivalency; rather “only by pretending that languages do not exist within social and political fields—animated in the lives of human beings, and animating those lives—could such an argument be made.” Words are not only embedded into their speakers’ worldviews, but also within a web of sociopolitical relationships experienced by those speakers. Words—in this article, place names—reflect sociohistorical realities, as do the conditions by which certain words are recognized as legitimate names and others are not. This article highlights the ways in which certain speakers of certain languages are afforded the power to name places officially while others are not, and that Indigenous language speakers are often part of that latter category within colonial nation-states.

As some terms and concepts are not easily translatable, using Indigenous names and definitions could help to avoid the loss of layers of meaning in translation.¹¹ In a recent study in Nunavut, researchers reported on various ways of dealing with incommensurability issues between Indigenous languages and Western scientific terms in EIAs. The Sabina Gold & Silver Corp Back River Project hosted community engagement sessions during EIA in Nunavut, Canada; according to Prno, Pickard & Kaiyogana (2021), while professional interpreters were present, and relevant documents were translated into Indigenous dialects prior to their dissemination in communities, there were still difficulties in communication. Challenges were presented when certain mining and EIA terms did not have Inuktitut equivalents; this was mitigated by working with interpreters in advance of meetings to ensure proper understanding, or otherwise being available to review these terms with the community in alternative ways (Prno, Pickard & Kaiyogana, 2021). The engagement program also used plain language and varied communication techniques (e.g., visual and audio media), which helped to provide greater uptake of data during the EIA process. Traditional Inuit¹² place names gathered through TEK research were also referenced where available to ensure common understanding by traditional land users (Prno, Pickard & Kaiyogana, 2021). Hence, professional translation alone is not enough in EIA engagement sessions, and it is necessary for all participants to be familiar with local TEK to ensure effective communication. We will come back to this point in the conclusion.

TEK and Policy: Environmental Decision-making in Canada and Russia

Ethnological assessments (EA) in Russia are practiced at the provincial level; the first provincial regulation that introduced the EAs—which evaluated the impacts of industrial development on livelihoods of Indigenous communities (ethnological expertise or assessment)—was adopted in the

¹¹ A caveat: without relevant context, it can be difficult to discern what phrases refer to, even if we understand the individual meanings or parts of phrases. Therefore, it is important to be careful when recording local knowledges even in the Indigenous language, we do not leave the contribution as simply a list of terms. Rather, further contextual information must be included and elucidated.

¹² Inuit — Inuktitut for “the people” — are an Indigenous People, the majority of whom inhabit the northern regions of Canada (the Canadian Encyclopedia, 2022).

Sakha Republic in 2010 (Telhigova, 2015). Thus, unlike other regions, the Sakha Republic has an existing legal mechanism for incorporation of TEK into policymaking.

The Sakha Republic, a subnational entity within the Russian Federation, is the first region in that country that facilitates a public (as opposed to other types of consultations that involve only non-governmental stakeholders) consultation process with Indigenous Peoples—specifically those classified as the *malochislennye korennye narody Severa* (small-numbered Indigenous Peoples of the North)¹³ regarding industrial projects (Sleptsov, 2015). For a Canadian contrast, we compare the Sakha context with that of Cree speakers within the Albertan EIA process, which has many similarities (as well as some key differences) with that used within the Sakha Republic. Despite the widespread use of Indigenous languages in these regions (especially in the Sakha case, with more than 400,000 speakers), Indigenous languages are not incorporated into the reporting process of these environmental assessments.

The legal act “About the Arrangements for Ethnological Expertise in the Sakha Republic” issued by the Government of Sakha Republic in 2011, does not include fluency in any of the Indigenous languages of the Republic as the requirement for experts; rather, requirements for experts include post-secondary education, work experience, knowledge of international law and research skills (Pravo.gov.ru, 2022). In both Sakha and Alberta, traditional land use studies/reports are components of EAs and EIAs (Sleptsov, 2015; Government of Alberta, 2013). In Alberta, the Best Practices Handbook of Traditional Use Studies recommends selecting interviewers who are fluent in both the Indigenous language of the community and in English so they can communicate effectively with custodians of knowledge (Government of Alberta, 2003). According to 3.5. Traditional Ecological Knowledge and Land Use section in Guide in Preparing EIA Reports in Alberta, along with *Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted under the Canadian Environmental Assessment Act—Interim Principles* report, this Handbook is a useful source for collecting and integrating TEK and traditional land use information into their EIA reports. (Government of Alberta, 2013). However, the recommendation to select bilingual interviewees is not mandatory. We argue that Indigenous languages usage in TEK research is needed not only in terms of providing enhancement or ease of communication, but necessary to appreciate the depth and significance of the TEK itself. Understanding terms and concepts in Indigenous languages closely connects non-Indigenous researchers with holistic and spiritual components of TEK, which is fundamental to appreciating Indigenous epistemologies. Incorporating Indigenous languages should be part of the best practices for researchers and consultants who engage with any work on policy or reporting on TEK.

In Canada, TEK has long been considered as a necessary component of environmental assessments (Stevenson, 1996). Environmental agreements and EIAs with industrial companies and the government claim to incorporate TEK into management of environmental issues (Ellis, 2005). The common law duty to consult is based on judicial interpretation of the obligations of the Crown in section 35 of the Constitution Act, 1982, and stems from the Honour of the Crown and the unique relationship between the Crown and Indigenous Peoples (Government of Canada, 2022). Pursuit of political and property rights by Indigenous communities globally and the recognition of these rights by nation states were

¹³ These are groups of Indigenous ethnic minorities with populations of less than 50,000 (Postonavlennie Pravitel'stva RF 2000).

partly the reason why TEK has been claimed to be incorporated into impact assessments (Stevenson, 1996). The Berger inquiry (although not conducted in Alberta) also set a precedent of consultation with Indigenous communities in the north regarding the existing and potential impacts of resource extraction in their own Indigenous languages (Christensen & Grant, 2007). As Justice Berger mentions: “The impact of the industrial system upon the native people has been the special concern of the Inquiry, for one thing is certain: the impact of a pipeline will bear especially upon the native people. That is why I have been concerned that the native people should have an opportunity to speak to the Inquiry in their own villages, in their own languages, and in their own way” (Berger, 1977, p. 8). Yet, while EIAs have the potential to benefit communities, there is a risk of exploiting TEK and treating TEK keepers simply as other stakeholders (Baker & Westman, 2018; Beausoleil et al., 2021), especially if EIAs are not conducted in Indigenous languages.

As TEK and Western science are based on different epistemologies, worldviews, and norms (Berkes, 2009), many governmental officials and scientists may follow a protocol of management (e.g. wildlife as a resource to be managed), as opposed to the protocol of caretaking and stewardship of TEK holders (Berkes, 2009; Whyte et al., 2016)). For example, the Mi’kmaq¹⁴ people’s approach proposes intertwining of environmental governance with the experience and practices of the community, while the Canadian government looks for legitimacy in mandates stemming from federal and provincial legislation (Giles et al., 2016). More recent studies outside of environmental policy also recognize the distinction of Indigenous worldviews from Euro-Canadian ways of knowing and emphasize the importance of applying Indigenous research methodologies to their research along with grounded theory. Ferreira et al. (2021) argue that Indigenous food and health research cannot be fully understood without taking into Indigenous women’s worldview, which is based on relationality (a kinship worldview). This kinship worldview challenges colonial, patriarchal, and capitalist discourses and ideologies that have excluded Indigenous women in knowledge production across disciplines (Ferreira et al., 2021). Similarly, Quinn (2022) in her study of Indigenous former youth in care, used grounded theory, a Relational Worldview model, and a two-eyed seeing approach as she recognized that the distinction between Indigenous and Western worldviews and practices. Hence, not only TEK/EIA studies but also Indigenous studies in general must recognize these separate ways of thinking and knowing. For instance, in the context of the Sakha Republic more specifically, wildfires are becoming a regular and increasing phenomenon (Vinokurova et al., 2022); as the authors suggest, in order to understand and act on forest fire protection, natural scientific approaches combined with modern technologies should be incorporated with methodologies of traditional environmental cultural knowledge.

Yet, despite this difference in worldviews, governmental agencies that have power to regulate and legislate Indigenous-state relations and natural resource development activities primarily employ bureaucratic top-down approach in the TEK incorporation (Ellis, 2005). White (2006) states that the incorporation of TEK collides with Euro-Canadian governance processes. Eckert et al. (2020) suggest that widespread recognition of Indigenous-led EIA is a step forward, alongside cooperative assessments designed by Crown and Indigenous authorities. Indigenous-led EIA is on-going in Canada and

¹⁴ Mi’kmaq (Mi’kmaw, Micmac or L’nu, “the people” in Mi’kmaq) are Indigenous Peoples who are among the original inhabitants in the Atlantic Provinces of Canada (the Canadian Encyclopedia, 2022).

represents a reassertion of Indigenous management rights that may respond comprehensively to legal, historical, epistemological, and political challenges (Eckert et al., 2020). This Indigenous-led EIA process has the potential to improve relationships between governments, project proponents, and practitioners while upholding human rights (Eckert et al., 2020).

Unfortunately, even proponents of Indigenous-led EIA such as Eckert et al. (2020) do not recognize the importance of Indigenous language usage in the process of conducting community-guided EIAs. Section 4.4. of “Guidance: Indigenous Participation in Impact Assessment on the Government of Canada” website (2022) states that “where an Indigenous-led assessment is occurring in parallel or in cooperation with the impact assessment, the Agency will consider the results of the Indigenous-led assessment in the development of its Impact Assessment Report and proposed conditions.” The Government of Canada website (2022) also offers an example of an Indigenous-led Assessment carried out by the Stk’emlúpsenc te Secwépemc Nation (SSN) Joint Council in BC and “facilitated informed decision-making by their communities consistent with their laws, governance, traditions, and customs.” Again, the role of Indigenous languages in Indigenous-led Environmental Assessments has not been recognized.

To some degree, translation into Indigenous languages is provided in northern land claim boards. In the Nunavut Wildlife Management Board translation of all short documents (less than six pages) and recordings (less than five minutes) is required, while longer documents or recordings must be accompanied by a translated summary; meetings of boards are conducted in both English and Indigenous languages. Communication through translation of the board meetings, however, is not always efficient, as even professional translators may have lapses (White, 2006). This example is a reminder of how language cannot be treated as an afterthought but needs to be centered in all work on TEK. In the next section we present our analyses of EIA/EA language in the Sakha Republic, followed by that in Alberta, to highlight this issue in further depth.

Sakha Republic Case Study

In the Russian Federation, the Federal Law “About Ecological Expertise” states that any economic activity must be compliant with the ecological standards imposed by the government (Tel’higova, 2015). Yet this law does not necessarily mention the inclusion of TEK or traditional land use as required components of environmental assessment. However, ethnological assessments are conducted in these areas of industrial development where only so-called “small-numbered Indigenous Peoples reside” (Novikova, 2017), which means that other larger Indigenous peoples such as Sakha are not considered as subjects by this legislation (Sidorova, 2019). Still, we focus on the Sakha language here, as many of the Indigenous people who are subject to EAs are fluent native Sakha speakers in addition to—or sometimes instead of—the Indigenous languages of their ethnicity (Robbek, 1998).

It is worth noting a few critiques of the EA process first, as they are not as comprehensive as EIAs when it comes to TEK. According to Novikova (2017), EAs in Russia do not really address the issues of cultural and linguistic preservation in small-numbered Indigenous communities in the Russian Arctic; instead, they focus on the consideration of economic damages caused by industrial activities. Novikova (2017) argues that this focus on damages is mainly caused by corporate paternalism of the Russian industrial

companies, which has been inherited from the Soviet era.¹⁵ Focus on damages can also be a direct consequence of perception of nature as external, which results in commodification of nature where “pieces” of the environment become privatized, individuated, alienable and so on (Castree, 2003).

As the EA analysis in Sakha Republic revealed, the relationships between companies and Indigenous peoples in Sakha Republic are one-sided. Extractive corporations are capable of determining the amount of financial aid to Indigenous peoples and Indigenous peoples in Russia often lack experience in expressing their own interests in negotiations with companies (Samsonova et al., 2017). It is impossible to ensure sustainable development of Indigenous cultures and Indigenous well-being without addressing social, linguistic, and cultural impacts of industrial development—in other words—aspects related to TEK, which are usually neglected by EAs in favour of economics (Novikova, 2017; see also Sleptsov 2015). Despite these identified shortcomings, we still analyzed these policies as they currently exist to discover what is being discursively produced through the language being used.

The following table demonstrates the comparison between the most frequently used terms in the Russian language EAs and their translations in Sakha. The distillation of the terms was done by NVIVO software, and translations were done by the first author with the help of a Sakha linguist/language expert. The first author and the Sakha language expert used literary translation to capture the context, sound, and feeling behind the words. In some instances, literal meanings of the terms were added.

¹⁵ In the USSR, corporations paid most of the living expenses for local communities, including financial support of hospitals and kindergartens (Novikova, 2017).

Table 1. The translation of most frequently used terms in EA into Sakha.

The terms in EA ¹⁶ (Russian)	Sakha translation
Vozdeistvie (impact)	d'ajyy; sabydyallaahyn (to force someone to do something; to try in a forceful way to get things done, being pushy)
Prozhivanie (residency)	oloruu (existence; habitation)
Traditsionnyj (traditional)	üges buolbut (traditional)
Khoziastvennaia deiatel'nost' (economic activity)	hahaajstybannaj üle (economic work, copied from Russian)
Territoriiia (territory)	sir-uot (territory; literal meaning: land-house)
Mesto (place)	sir (place; literal meaning: land)
Etnologicheskaia (ethnological)	etnologicheskai (ethnological, copied from Russian)
Sreda (environment)	ejge (surroundings)
Ubytki (economic damages)	n'ochoot (costs)
Dokumentatsiia (documentation)	dokumuonnar (documents, copied from Russian).

The translation of these terms into Sakha demonstrates numerous gaps. Firstly, technical terms cannot be translated into Sakha accurately. Some words in Sakha, like *etnologicheskaj* (ethnological); *hahaajstybannaj* (economic) and *dokumentatsiia* (documentation) had not been present in the Sakha language originally and were adopted from Russian during the process of colonialism, as they reflected numerous introduced concepts central to bureaucracy and governance. Secondly, other Russian words such as *vozdēistvie* (impact), *mesto* (place), and *ubytki* (economic damages) have Sakha equivalents but their meanings in Sakha are not quite the same. For example, the Sakha translation of impact, which is *d'ajyy* or *sabydyallaahyn*, refers to someone being pushy and forcing someone other to do something

¹⁶ As mentioned in the Methodology section, we chose the sources using a purposive sampling technique and analyzed using qualitative content analysis and manual coding techniques using NVIVO software. This is how we ascertained the top ten frequently occurring words in the assessments.

(Sidorova E, personal communication, February 1 2022)¹⁷ rather than the action of one object coming forcibly into contact with another (as in Russian and English). This might be related to the animistic nature of Sakha traditional beliefs, where lakes, rivers, or lands can have their own spirits despite their inanimate classification in Western science. In this regard, *d'ajyy* is used only to refer to animate (human/non-human) nouns having impact on other things. The Sakha counterpart of the Russian term *mesto* (place), which is *sir* (land), also might refer to the traditional subsistence activities (e.g. cattle breeding), as naming any place as “the land” connotes that a person lives in a countryside as opposed to the urban areas.

Finally, words such as territory (*sir-uot*) and residency (*oloruu*) further reveal connections with Sakha spiritual ontologies. *Sir-uot* is directly translated as land-house, and it might refer to Sakha traditional way of living in *alaas* (a wide-open area that includes hayfields, pasture, and a lake (Crate, 2021) with a house (either summer or winter housing). Thus, naming any territory *sir-uot* implies that this land has houses; it is inherently inhabited and seen as “home”—the opposite of what a term like “wilderness” might convey. *Oloruu* does not simply mean the bureaucratized term “residency,” but rather the existence of human-beings. In English, a similar meaning could be expressed by the words “living” or “being alive, existing.”

Next, we look at case studies from Alberta and find similar linguistic discrepancies and gaps alongside Cree equivalents that reflect key aspects of Indigenous ontologies.

Alberta Case Study

Unsurprisingly, as with all the studies on discourse mentioned in the previous literature reviews, here too the English vocabulary used in these reports does not reflect the principles underlying a Cree worldview. After discussing the table, we introduce some widely-used Cree terms which describe relationships with land that are absent from the reports. As with the Sakha Republic’s reports using Russian, the formula for these EIAs is based on an English-language framework for the required sections, and do not deviate from this template. The EIA process in Alberta includes space for responses from impacted communities, though some responses were redacted and thus unavailable for analysis. However, for the three projects where public comments could be read (Proposed Two Lakes Sour Gas, Suncor Energy Inc. Lewis, and the VCS Heartland Complex) the comments provided by First Nations were also solely in English, using the same terminology as found in Final Terms of Reference Reports. This speaks to a hegemonic norm of the use of English for these kinds of documents—there is an expectation that these reports also follow this norm.

In the following table, the most common terms¹⁸ from Alberta EIAs are translated into Cree (note that some words—e.g., environment, environmental—are considered together as they share the same root) by referencing two online Plains Cree dictionaries: the itwêwina Plains Cree Dictionary (Alberta

¹⁷ The first author consulted with the Sakha linguist Elena Sidorova to receive professional expertise on the meanings of some Sakha words.

¹⁸ As mentioned in the Methodology section, we chose the sources using a purposive sampling technique and analyzed using qualitative content analysis and manual coding techniques using NVIVO software. This is how we ascertained the top ten frequently occurring words in the assessments.

Language Technology Lab, 2023) and Nehiyaw Masinahikan / Online Plains Cree Dictionary (Miyo Wahkohtowin Community Education Authority, n.d.) which compile multiple published sources as mentioned on p. 6 These sources are drawn from multiple Albertan communities where the Plains variety is spoken.

Table 2. The translation of most frequently used terms in EIA into Cree.

English term	Cree translations
Environment(al)	n/a – does not appear in the dictionaries; the closest word might be “surroundings,” wasakaskamihawin
Ecology; ecological	n/a – does not appear in the dictionaries
Land	askiy – this can also refer to: land, country, earth, world, settlement, colony, pieces of farmland/land under cultivation
Water	Nipiy
Manage(ment)	A noun for “management” is not found; however, in a verb construction (e.g., to manage) we could use pamihtâw
Wildlife	The word for “wild animal(s)” is pakwâcipisiskiw(ak)

From this small sampling, we can already see several linguistic incongruencies emerge. There is no word for environment; if we take a related word like “nature,” we also find that there is no entry in the Nehiyawewin Online Plains Cree Dictionary, while Nehiyaw Masinahikan does have an entry for a phrase, rather than a word: *askehk kîkway ka ohcimakahk*, which means “something that originates from/encompasses the land/earth.” The translation into a descriptive phrase defining the English word suggests it may be a newer coining, too; there is no word for nature (nor environment) in Watkins (1865), a much older source, which supports this idea. A similar case exists for “ecology/ecological.” As M’Lot (2002, p. 3) stresses, a word for “ecosystem” does not exist in Cree, though something like this concept is embedded in other words, like wahkohtowin, which is discussed below.

As Daniels-Fiss (2008) notes, we see with “land” in Cree that there are many more possible interpretations—that askiy can be the whole earth/world as well as spaces that are more delineated (a cultivated piece of land, etc.) suggests that ideas of bounded land are influenced by English-language/Western notions of property and settlement. Daniels-Fiss (2008, 238) further comments that there is also the term okâwîmâwaskiy, used to refer to earth or land, which involves the word for “mother,” okâwîmâw, highlighting relationality or kinship. While wildlife can be translated as “wild animals” as seen above, it is important to note that in the Nehiyawewin Masinahikan (n.d.) it is mentioned that the term can also refer to any large animal (“domesticated” as well; e.g., a dog or horse). Most animals are simply pisiskiwak, regardless of their domesticated or wild nature. Finally, “management” is also difficult to render in Cree; there is no widespread noun form for the concept. Regarding the verb “to manage,” we can examine the form given above which is best translated as “one takes care of something” and can also mean “looks after, attends to, tends to, drives something, manages (a business).” There is also the root kask- which can be used to create verbs meaning “to manage” but with more of a sense of “control” (also meaning “to be able to do something”). It would thus be telling which word would be used by Cree speakers creating an EIA document in that language—is “land management” seen as a form of care, or one of control?

In discussing Cree worldview principles, the concept of wahkohtowin (sometimes translated as “relationality”) is an illustrative example. There has been much written about the incorporation of wahkohtowin as an Indigenous “legal order,” which Cree legal scholar Val Napoleon (2007, p. 2) argues underlies “social, economic, political, and spiritual institutions”; applying this to environmental or ecological studies is not a new idea either. For instance, Todd (2016) stresses the importance of always beginning from a place rooted in Indigenous legal orders, specifically one that is grounded in wahkohtowin; (Todd, 2016, p. 66) Todd argues that the use of Cree concepts like wahkotowin “give us tools with which to examine how human-animal, human-environmental, human-spiritual relations operate in the active assertion of, tending to, and enactment of Indigenous self-determination in the face of complex colonial processes, experiences, and paradigms.”

Thus, wahkohtowin not an equivalent term for “ecology,” though it subsumes some of the concept of relationships of beings to their surroundings present in the English scientific definition. According to Donald (2016, p. 11), a Metis scholar discussing what he terms “ethical relationality,” wahkohtowin is part of a broader ecological understanding: “Ethical relationality is an ecological understanding of organic connectivity that becomes readily apparent to us as human beings when we honour the sacred ecology that supports all life and living.” In discussing the incorporation of this principle into Educational Resources and Development at Maskwascis, Ermineskin Cree scholar Matthew Wildcat (2018, p. 14; for more, see also McAdam 2015) notes that wahkohtowin involves being related to human and other-than human relatives, and is based on the premise that everything that exists is animate, and involves protocols for respecting and maintaining relationships with all things in existence. It thus inherently involves obligation and responsibility. Thus, wahkohtowin is deeply culturally embedded, and must be considered a place to start from conceptually; it cannot simply be overlaid onto Western understandings of biology or ecology, or environment, or the words listed above. Wahkotowin shows a different way of conceptualizing everything around us as fundamentally inseparable from us; it

focuses on the connections between subjects, rather than the separate parts of objects or objectified space.

Conclusion: New Discursive (and Policy) Formations

In showing the incommensurabilities that arise in Sakha-Russian and Cree-English translations through our assessments of the most common content words in a sample of EIAs/EAs, we have presented a glance at the kinds of epistemological obstacles (Eckert et al., 2020) or gaps that arise when conducting consultations and assessment work in non-Indigenous languages. Further analysis here could delve deeper into linguistic structures in the languages in question, but even in these brief examples, it becomes clear that the use of Indigenous languages is essential for truly starting from the ground and taking the bottom-up perspective. Without being embedded in Indigenous languages, TEK and other knowledges are easily decontextualized, losing layers of meaning that anchor the concepts within their broader ontological or epistemological frameworks. When language is reclaimed, people can also reconnect with knowledge they may not have been able to access and recognize other layers of meaning that have been deliberately stripped. Thus, we argue policies around EIA/EAs must be shifted to center Indigenous languages as the source of TEK and ensure that there is mandated space for these languages to be used in the consultation process as well as the writing of the assessments themselves. We suggest that there are several major reasons for the importance of re-centering language, including increased self-government and decolonization, fulfilment of calls to reconciliation, aiding linguistic and cultural continuity, as well as better working relationships in which trust is built through the EIA/EA processes where Indigenous communities are better heard on their own terms.

Using Indigenous languages in EIA contributes to recognizing traditional subsistence practices fully or partly destroyed by colonial states and contributes to the revelation of Indigenous self-government and self-determination principles and values (Coulthard 2014). This is an essential part of decolonization for Indigenous communities worldwide. As noted in the previous section regarding the Cree concept of *wahkohtowin* as a legal order (Napoleon 2007; Todd 2016), conceptions and terms in Indigenous languages mirror pre-colonial legal and political traditions, and thus are inherently connected to Indigenous self-governance and conducive to better understanding of interactions between humans and other beings (see also Irlbacher-Fox, 2009 on *danshaa* as concept related to both moosehide-tanning and intergroup negotiation; Watson, 2015 on the concept of *kaldowinyeri* among First Peoples in South Australia). In the Sakha case examined here, we see analysis of terms from Sakha EAs translated from Russian into Sakha revealed that some words are absent in Sakha, and their Sakha equivalents were copied from Russian (words such as economic, ethnological), and several terms have deeper, sophisticated meanings in Sakha (the Sakha word for “territory” is literally translated as “land-house”; the Sakha translation of “place” means “the land”). In addition, the word “impact” (*d’ajyy*) in Sakha alludes to worldviews regarding humans and other beings, as impact is always by someone—that is, an agent—not by something. On this note, the EA framework in the Sakha Republic needs to include comprehensive TEK study as part of the assessment to evaluate impacts on culture and language, rather than only the purely economic damages that could arise.

These kinds of terms mentioned above cannot simply be included as selective afterthoughts amidst documents first written in the registers of Greenspeak, as discussed earlier, but need to be documented

within the context of the Indigenous language first and foremost. As discussed in relation to the study by Prno, Pickard, & Kaiyogana (2021), simply translating is not enough—explanations, teachings, and negotiations of understanding are essential when engaging with TEK. We recognize that EIA/EAs will need to be translated at some point when all primary materials are collected in an Indigenous language—however, we feel that to best capture the epistemological and ontological dimensions, it is necessary to ground everything in the Indigenous language itself where that is possible. Any act of translation will not simply mean finding “the equivalent”—it may involve much more explanation, teaching, and work to convey the concepts in English. However, conceptualizing in the Indigenous language first is necessary to maintain the integrity of TEK (rather than attempting to fit it into a framework based on “land/nature as resource” or “object,” for example) and how it might inform the assessment and any future outcomes.

While both the Government of Alberta and the Sakha Republic Government do not address technical challenges with translations, the official document on “best practices for applying traditional knowledge in government of the Northwest Territories programming and services” mentions this issue. According to that document, not only is it difficult to translate Indigenous concepts regarding the natural world into English, but it is also difficult to translate conventional scientific and technical concepts into Indigenous languages (Government of NWT, n.d.). Ideally, people engaging in TK-related activities (whether research, programming, or service delivery) within Indigenous communities would be proficient in understanding, at least, the oral language of the particular dialect of the Indigenous peoples they are working with. An understanding of the written language would also be very useful. Bilingual personnel are a tremendous asset for bridging language gaps that may exist. Where bilingual personnel are not available, the use of experienced and/or certified interpreter-translators can also help bridge this gap (Government of NWT, n.d.). Hence, varieties of local dialects also pose a challenge for conducting EIA studies. Nevertheless, we stress that language must be seriously considered as only Indigenous languages could support incorporation of Indigenous cosmologies, spiritualities, and epistemologies into impact assessments. Indigenous cosmologies are a vital component of TEK and traditional land use (TLU). TLU is a spiritual activity, not merely a technical one (Westman, 2013).

In the Canadian context, implementing more definitive and binding guidelines around linguistic and cultural knowledge for consultants and researchers is particularly crucial when considering the Truth and Reconciliation Commission’s Calls to Actions (2015). Calls 13-17 deal with language and culture, and having a stronger mandate for those working on EIAs to be linguistically and culturally competent could be part of Call 14, which involves an Aboriginal Languages Act. The first principle of such an act would recognize “Aboriginal languages are a fundamental and valued element of Canadian culture and society, and there is an urgency to preserve them”—having a mandate to ensure consultants working on EIAs have a high degree of linguistic and cultural competency provides greater opportunities for language and culture to be transmitted. Just as Call 14 states “the preservation, revitalization, and strengthening of Aboriginal languages and cultures are best managed by Aboriginal people and communities,” EIAs/EAs should be Indigenous-led. Local Indigenous representatives could conduct TEK studies by interviewing local communities in Indigenous languages. This could be achieved through training and hiring more Indigenous people (who possess linguistic competency) as consultants first, but funding (another part of Call 14) local knowledge and language projects to ensure that TEK

and other local knowledge can be documented and passed down within those communities is also an essential part so that there will be enough people equipped to carry out more linguistically complex assessments.

The urgency of the matter cited in the Calls to Action cannot be overlooked. Some Indigenous concepts are expressed only in old forms of languages, which will decrease the understanding of TEK if lost. The lack of capacity of federal and provincial governments to communicate in Indigenous languages results in broadening the generation gap, by increasing the reliance of Elders on other individuals (GNWT Department of Culture and Communication, 1991). These issues of loss and lack of capacity have only become more severe in many communities, and policy and program supports need to be put in place to change this. Mandating Indigenous language use—where possible—also creates new domains for the use of the language. The process of language revitalization often involves creating new spaces in which there are norms of use for the language, and the creation of those spaces also revalorizes the language as speakers—new and old—are reminded of its value and usefulness.

Finally, if it is not always possible to have Indigenous EIA consultants working on the assessments, the need to use Indigenous languages will be something for outside consultants to consider in their work. The attempts to learn the languages—to the best of one's ability—of the people they work with is something that linguistic and sociocultural anthropologists see as paramount to ethnographic fieldwork to gain as close a perspective as possible of the lives of those they seek to collaborate with and better understand. We suggest that learning Indigenous languages is something that all researchers working with Indigenous communities make a serious commitment to do.¹⁹ The act of making the effort and accommodating the community, rather than replicating the colonial dynamics of assuming others will accommodate you—will perhaps help to not just deepen the understanding of TEK and other relevant knowledge, but foster deeper trust between community members and outsider researchers, ultimately leading to better working relationships.

References

- Agrawala, S., Matus Kramer, A., Prudent-Richard, G., & Sainsbury, M. (2010). Incorporating climate change impacts and adaptation in Environmental Impact Assessments: Opportunities and challenges. *OECD Environmental Working Paper No. 24*.
<https://doi.org/10.1787/5km959r3jcmw-en>
- Alberta Language Technology Lab. (2023). *itwēwina Plains Cree Dictionary*. Alberta Language Technology Lab. <https://itwewina.altlab.app/>
- Antonov, N. K. (1997). *Iakutskii Iazyk* [Sakha language]. Indrik.

¹⁹ If, of course, the community feels this is appropriate. There are cases of Indigenous communities desiring to keep their languages to inside members only and not teach them to outsiders (e.g. Debenport, 2015)

- Baker, J. M. & Westman, C. N. (2018). Extracting Knowledge: Social Science, Environmental Impact Assessment, and Indigenous Consultation in the Oil Sands of Alberta, Canada. *The Extractive Industries and Society*, (5)1, 144-153. <https://doi.org/10.1016/j.exis.2017.12.008>
- Baker, J. M. (2021). Do Berries Listen? Berries as Indicators, Ancestors, and Agents in Canada's Oil Sands Region, *Ethnos*, 86(2), 273-294, <https://doi.org/10.1080/00141844.2020.1765829>
- Beausoleil, D., Munkittrick, K., Dubé, M. G., & Wyatt, F. (2021). Essential components and pathways for developing Indigenous community-based monitoring: Examples from the Canadian oil sands region. *Integrated Environmental Assessment and Management*, 18(2), 407-427. <https://doi.org/10.1002/ieam.4485>
- Behagel, J. H. et al., (2019). Beyond argumentation: a practice-based approach to environmental policy. *Journal of Environmental Policy & Planning*, 21(5), 479-491. <https://doi.org/10.1080/1523908x.2017.1295841>
- Behn, C. & Bakker, K. (2019). Rendering technical, rendering sacred: The politics of hydroelectric development on British Columbia's Saaghii Naachii/Peace River. *Global Environmental Politics*, 19(3), 98-119. https://doi.org/10.1162/glep_a_00518
- Bennett, J. & Chaloupka, W. (1993). *In the nature of things: Language, politics and the environment*. University of Minnesota Press.
- Berger, T. R. (1977). *Northern frontier, northern homeland* (Vol. 1). J. Lorimer & Company.
- Berkes, F. (2009). Indigenous ways of knowing and the study of environmental change. *Journal of the Royal Society of New Zealand*, 39(4), 151-156. <https://doi.org/10.1080/03014220909510568>
- Bosworth, K. (2021). "They're treating us like Indians!": Political Ecologies of Property and Race in North American Pipeline Populism. *Antipode*, 53(3), 665-685. <https://doi.org/10.1111/anti.12426>
- Bourdieu, P. (1993). *Language and symbolic power*. Raymond, G. and Adamson, M. (Trans.). Harvard University Press.
- Brinchuk M.M. (2008). *Jekologicheskoe pravo: Uchebnik*. [Ecological Law. Textbook]. Consultant Plus, 2008.
- Campbell and Bleiker (2013). Poststructuralism. In Dunne, T., Kurki, M., & Smith, S. (Eds.). (2013). *International relations theories: Discipline and diversity*. Oxford University Press. pp. 196-218.
- Castree, N. (2003). Commodifying what nature? *Progress in human geography*, 27(3), 273-297. <https://doi.org/10.1191/0309132503ph428oa>

- Castree, N., & Braun, B. (2001). *Social nature: Theory, practice and politics*. Wiley.
- Chiblow, S. & Meighan, P. (2022). Language is land, land is language: The importance of Indigenous languages. *Human Geography*, 15(2), 206-210. <https://doi.org/10.1177/19427786211022899>
- Christensen, J., & Grant, M. (2007). How political change paved the way for Indigenous knowledge: The Mackenzie Valley Resource Management Act. *Arctic*, 115-123. <https://doi.org/10.14430/arctic236>
- Clyde River (Hamlet) v. Petroleum Geo-Services Inc. (2017). SCC 40 (CanLII), 1 SCR 1069.
- Coulthard, G. S. (2014). *Red skin, white masks: Rejecting the colonial politics of recognition*. University of Minnesota Press.
- Crate, S. A. (2021). *Once Upon the Permafrost: Culture and Climate Change in the 21st Century*. UAPress.
- Cronon, W. (1996). The trouble with wilderness: Or, getting back to the wrong nature. *Environmental history*, 1(1), 7-28. <https://doi.org/10.2307/3985059>
- Cruikshank, J. (2005). *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination*. UBC Press.
- Daniels-Fiss, B. (2008). Learning to be a Nêhiyaw (Cree) through language. *Diaspora, Indigenous, and Minority Education*, 2(3), 233-245. <https://doi.org/10.1080/15595690802145505>
- Debenport, E. (2015). *Fixing the books: Secrecy, literacy and perfectibility in Indigenous New Mexico*. University of New Mexico Press.
- DeLuca, K.M., & Demo, A.T. (2001). "Imagining nature and erasing class and race: Carleton Watkins, John Muir, and the construction of wilderness." *Environmental History* 6(4), 541-560.
- Dokis, C. A. (2015). *Where the rivers meet: Pipelines, participatory resource management, and Aboriginal-state relations in the Northwest Territories*. UBC Press.
- Donald, D. (2016). Chapter three: From what does ethical relationality flow? An "Indian" act in three artifacts. *Counterpoints*, 478, 10-16.
- Dunlap, T. (1999). *Nature and the English diaspora: environment and history in the United States, Canada, Australia, and New Zealand*. Cambridge University Press.
- Duranti, A. (1997). *Linguistic anthropology*. Cambridge University Press.
- Duranti, A., Ochs, E., & Schieffelin, B. (2011). *Handbook of language socialization*. Wiley-Blackwell.

- Eckert, L. E., Claxton, N. X., Owens, C., Johnston, A., Ban, N. C., Moola, F., & Darimont, C. T. (2020). Indigenous knowledge and federal environmental assessments in Canada: applying past lessons to the 2019 impact assessment act. *Facets*, 5(1), 67-90. <https://doi.org/10.1139/facets-2019-0039>
- Ellis, S. (2005). "Meaningful consideration? A review of traditional knowledge in environmental decision making." *Arctic*, 58(1), 66-77. <https://doi.org/10.14430/arctic390>
- Ferguson, J. & Weaselboy, M. (2020). Indigenous sustainable relations: Considering land in language and language in land. *Current Opinion in Environmental Sustainability*, 43, 1-7. <https://doi.org/10.1016/j.cosust.2019.11.006>
- Ferreira, C., Gaudet, J. C., & Loukes, K. A. (2022). Indigenous women's worldview in food-related research: Rematriating food, bodies and lands. *Applied Physiology, Nutrition, and Metabolism*, 47(2), 210-213. <https://doi.org/10.1139/apnm-2021-0400>
- Fischer, F., & Gottweis, H. (2013). The argumentative turn in public policy revisited: twenty years later. *Critical policy studies*, 7(4), 425-433. <https://doi.org/10.1080/19460171.2013.851164>
- Giles, A., Fanning, L., Denny, S., & Paul, T. (2016). Improving the American eel fishery through the incorporation of indigenous knowledge into policy level decision making in Canada. *Human ecology*, 44(2), 167-183. <https://doi.org/10.1007/s10745-016-9814-0>
- GNWT Department of Culture and Communication. (1991). Report to the Traditional Knowledge Working Group. Yellowknife : Dept. of Culture and Communications, Govt. of the Northwest Territories
- Government of Alberta (2003). Best practices handbook for traditional use studies. 2003. Alberta Aboriginal Affairs and Northern Development, Edmonton, Alberta. <https://open.alberta.ca/dataset/d46f92fc-f34c-4177-a9f2-13deaf432452/resource/06aecba1-06f5-480f-a416-dde54c46301d/download/best-practices-handbook-for-traditional-use-studies.pdf>
- Government of Alberta (2013). Guide to preparing Environmental Impact Assessment reports in Alberta. <https://open.alberta.ca/dataset/7fc11c66-3691-455f-a27e-389c74cecc9e/resource/23786d37-27c9-48ef-b173-4642803e9f32/download/2013-guidepreparingeiareportsalberta-2013a.pdf>
- Government of Canada (2022). Government of Canada and the duty to consult. Government of Canada website. <https://www.rcaanc-cirnac.gc.ca/eng/1331832510888/1609421255810>
- Government of Canada. (2022). Guidance: Indigenous Participation in Impact Assessment. Government of Canada website. <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-indigenous-participation-ia.html>

- Government of NWT (n.d.). Summary of best practices for applying traditional knowledge in government of the northwest territories programming and services. Government of NWT website. https://www.enr.gov.nt.ca/sites/enr/files/reports/tk_best_practices_summary.pdf
- Government of Sakha Republic (2011). "About the Arrangements for Ethnological Expertise in the Sakha Republic." Government of Sakha Republic.
- Harré, R., Brockmeier, J., & Mühlhäusler, P. (1999). *Greenspeak: A study of environmental discourse*. Sage publications.
- Hymes, D. (1974). *Foundations in Sociolinguistics*. University of Pennsylvania Press.
- Irlbacher-Fox, S. (2009). *Finding Dahshaa: Self government, social suffering and Aboriginal policy in Canada*. UBC Press.
- Jolly, D., & Thompson-Fawcett, M. (2021). Enhancing Indigenous impact assessment: Lessons from Indigenous planning theory. *Environmental Impact Assessment Review*, 87, 106541. <https://doi.org/10.1016/j.eiar.2020.106541>
- Kimmerer, R. W. (2013). *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Milkweed Editions.
- Killingsworth, M. J., & Palmer, J. S. (2012). *Ecospeak: Rhetoric and environmental politics in America*. Southern Illinois University Press.
- Kovach, M. (2009). *Indigenous Methodologies: Characteristics, Conversations and Contexts*. University of Toronto Press.
- Krasnova, I. O. (2019). Pravo na blagoprijatnuju okruzhajushhuju sredu kak konstitucionnoe i jekologicheskoe pravo. [Right to healthy environment as part of constitutional and ecological law]. *Aktual'nye problemy rossijskogo prava*, 105(8), 165-175.
- LeClaire, N., and Cardinal, G. (2002). *Alberta Elders' Cree Dictionary / alperta ohci kehtehayak nehiyaw otwestamâkewasinahikan*. University of Alberta Press and Duval House Publishing.
- Lukawiecki, M., Gagnon, R., Dokis, C., Walters, D., and Molot, L. (2015). Meaningful engagement with Indigenous peoples: A case study of Ontario's Great Lakes Protection Act. *International Journal of Water Resources Development*, 37(4), 603-618. <https://doi.org/10.1080/07900627.2019.1681261>
- Maskwachees Cultural College. (2009). Maskwacis Dictionary of Cree Words / Nêhiyaw Pîkiskwêwinisa. Maskwachees Cultural College.
- McAdam (Saysewahum), S. (2015). *Nationhood interrupted: Revitalizing nêhiyaw legal systems*. Purich Publishing.

- McNabb, D. E. (2015). *Research methods for political science: quantitative, qualitative and mixed method approaches*. Routledge.
- Maldonado, J., Bennett, T.M.B., Chief, K., Cochran, P., Cozzetto, K., Gough, B., Redsteer, M.H., Lynn, K., Maynard, N., & Voggesser, G. (2016). Engagement with Indigenous peoples and honoring traditional knowledge systems. *Climatic Change*, 135, 111–126.
<https://doi.org/10.1007/s10584-015-1535-7>
- Miyo Wahkohtowin Community Education Authority. (n.d.) *Nehiyaw Masinahikan / The Online Cree Dictionary*. Miyo Wahkohtowin Community Education Authority (MWCEA) and the University of Alberta (UofA). <https://www.creedictionary.com/>
- Stk'emlúpsemc te Secwépemc Nation (SSN). (2013). Me7e Pípsell Ta7a Ajax Yes Pípsell No Ajax SSN Response to British Columbia's & CEAA Environmental Assessment Office. Stk'emlúpsemc te Secwépemc Nation (SSN). https://stkemlups.ca/wp-content/uploads/2013/11/2017.08.09__SSN-Media-Release-re-Me7ePipsell_Ta7aAjax-EAReport.pdf
- M'Lot, M. (2002). Ka Isanakwak Askiy: Using Cree Knowledge to perceive and describe the landscape of the Wapusk National Park Area. MA Thesis. University of Manitoba.
<http://hdl.handle.net/1993/3777>
- Mühlhäusler, P., & Peace, A. (2006). Environmental discourses. *Annual Review of Anthropology*, 35(1), 457-479. <https://doi.org/10.1146/annurev.anthro.35.081705.123203>
- Nadasdy, P. E. (2003). *Hunters and bureaucrats: Power, knowledge, and Aboriginal-State Relations in Southwest Yukon*. UBC Press.
- Nadasdy, P. E. (2017). *Sovereignty's entailments: First Nation state formation in the Yukon*. UBC Press.
- Napoleon, V. (2007). *Thinking About Indigenous legal orders*. National Centre for First Nations Governance, http://fngovernance.org/ncfng_research/val_napoleon.pdf
- Novikova N. (2017). "Jetnologicheskaja jekspertiza v Rossijskoj Federacii: pravovye osnovanija i perspektivy dlja korennyh narodov." [Ethnological expertise in Russian federation: legal foundations and future scenarios for Indigenous peoples]. *Arktika XXI vek. Gumanitarnye nauki* 3(13), 4-20.
- Paci, C., Tobin A., & Robb P. (2001). Reconsidering the Canadian Environmental Impact Assessment Act: A place for traditional environmental knowledge. *Environmental Impact Assessment Review*, 22(2), 111-127. [https://doi.org/10.1016/s0195-9255\(01\)00095-6](https://doi.org/10.1016/s0195-9255(01)00095-6)
- Peterson T.R. (1998). Environmental communication: Tales of life on earth, *Quarterly Journal of Speech*, 84(3), 371-386. <https://doi.org/10.1080/00335639809384225>

- Pickerill, J. (2007). From wilderness to wild country: The power of language in environmental campaigns in Australia. *Environmental Politics*, 17(1), 95-104. <https://doi.org/10.1080/09644010701811681>
- Povinelli, E. (1995). Do Rocks Listen? The Cultural Politics of Apprehending Australian Aboriginal Labor. *American Anthropologist*, 97(3), 505-518. <https://doi.org/10.1525/aa.1995.97.3.02a00090>
- Pravo.gov.ru (2022). O porjadke organizacii i provedenija jetnologicheskoy jekspertizy v mestah tradicionnogo prozhivaniya i tradicionnoj hozhajstvennoj dejatel'nosti i na territorijah tradicionnogo prirodopol'zovanija korenykh malochislennykh narodov"[About the Arrangements for Ethnological Expertise in the Sakha Republic]. *Pravo.gov.ru*. <http://pravo.gov.ru/proxy/ips/?docbody=&prevDoc=178101080&backlink=1&&nd=178022780&rdk=0&refoid=178101087>.
- Prno, J., Pickard, M., & Kaiyogana, J. (2021). Effective Community Engagement during the Environmental Assessment of a Mining Project in the Canadian Arctic. *Environmental management*, 67(5), 1000-1015. <https://doi.org/10.1007/s00267-021-01426-5>
- Quinn, A. L. (2022). Experiences and well-being among Indigenous former youth in care within Canada. *Child abuse & neglect*, 123, 105395.
- Robbek, V. (1998). Language situation in Sakha Republic (Yakutia). In E. Kasten (Eds.), *Bicultural education in the North: Ways of preserving Indigenous People's languages and Traditional Knowledge* (pp. 13-22). Waxman Verlag.
- SakhaTyla. (n.d.) Sakha Tyla / Iakutskii Slovar' [Sakha Dictionary]. <https://sakhatylya.ru/>
- Samsonova, I.V., Neustroeva A.B., & Pavlova M.B. (2017). "Vzaimootnosheniya korenykh malochislennykh narodov Severa i dobyvajushhih kompanij (na materialakh Mirninskogo raiona Respubliki Saha (Iakutiia))." [The relationships between northern Indigenous small-numbered peoples and resource extractive companies]. *Arktika XXI vek. Gumanitarnye nauki*, 3 (13), 21-33.
- Satterthwaite, A. J. (1996). *Public voices and wilderness in environmental assessment: A philosophical examination of resource policy decisions*. PhD Thesis. York University.
- Shapiro M. J. (1989). Textualizing Global Politics. In Der Derian, James, and Michael J. Shapiro, eds. *International/intertextual relations: Postmodern readings of world politics*. Lexington Books, 1989.
- Sidorova, E. (2020). The incorporation of Traditional Ecological Knowledge in the Arctic Council: Lip service? *Polar Record*, 56, E28. <https://doi.org/10.1017/S0032247420000273>
- Sidorova, E. (2022). Personal communication, February 1, 2022

- Sleptsov, A.N. (2015). Gosudarstvennaja jetnologicheskaja jekspertiza Respubliki Saha (Jakutija). [State ethnological assessment in the Sakha Republic]. *Arktika XXI vek. Gumanitarnye nauki*, 1(4), 15-24.
- Statistics Canada. (2017). Census in Brief: The Aboriginal languages of First Nations people, Métis and Inuit. Catalogue no. 98-200-X2016022. Government of Canada.
- Statistics Canada. (2023). Census in Brief: Indigenous Language Across Canada. Catalogue number 98-200-X, issue 2021012. Government of Canada.
- Stevenson, M. G. (1996). Indigenous knowledge in environmental assessment. *Arctic*, 49(3), 278-291.
<https://doi.org/10.14430/arctic1203>
- The Canadian Encyclopedia (2022). Inuit. *The Canadian Encyclopedia*. Retrieved from
<https://www.thecanadianencyclopedia.ca/en/article/inuit>
- The Canadian Encyclopedia (2022). Mi'kmaq. *The Canadian Encyclopedia*. Retrieved from
<https://www.thecanadianencyclopedia.ca/en/article/micmac-mikmaq>
- Tel'higova, M.S. (2015). "Jetnologicheskaja jekspertiza kak vazhnaja chast' jekologicheskoy jekspertizy promyshlennyh proektov v sfere nedropol'zovanija na severnyh territorijah Rossijskoj Federacii. [Ethnological expertise as an important part of ecological expertise of industrial objects in the field of resource extraction in northern areas of Russian Federation]. *Problemy jekonomiki i juridicheskoy praktiki* 1, 145-148.
- Todd, Z. (2016). "From fish lives to fish law: Learning to see Indigenous legal orders in Canada." *Somatosphere: Ethnographic Case Series*. February 1, 2016.
<http://somatosphere.net/2016/from-fish-lives-to-fish-law-learning-to-see-indigenous-legal-orders-in-canada.html/>
- Todd, Z. (2018). Refracting the State Through Human-Fish Relations: Fishing, Indigenous Legal Orders and Colonialism in North/Western Canada. *DIES: Decolonization, Indigeneity, Education, and Society*, 7(1): 60-75.
- Truth and Reconciliation Commission of Canada. (2015). Truth and Reconciliation Commission of Canada: Calls to Action. www.trc.ca
- Vinokurova, L., Solovyeva, V., & Filippova, V. (2022). When ice turns to water: forest fires and indigenous settlements in the Republic of Sakha (Yakutia). *Sustainability*, 14(8), 4759.
- Vserossiiskaia Perepis' Naseleniia. (2010). Informational Materials about the Final Results of the 2010 All-Russian Population Census.
http://www.gks.ru/free_doc/new_site/perepis2010/perepis_itogi1612.htm
- Watkins, E. A. (1865). *A Dictionary of the Cree Language as Spoken by the Indians of the Hudson's Bay Company's Territories*. Society for Promoting Christian Knowledge.

- Watson, I. (2015). *Aboriginal Peoples, Colonialism and International Law: Raw Law*. Routledge.
- Webster, A. K. (2015). Why the world doesn't sound the same in any language and why that might matter: A review of the language hoax: Why the world looks the same in any language, by John H. McWhorter. *Journal of Linguistic Anthropology*, 25(1), 87-93.
- Webster, A. K. (2017). Why Tséhootsooi does not equal "Kit Carson Drive": Reflections on Navajo place names and the inequalities of Language. *Anthropological Linguistics*, 59(3), 239-262.
<https://doi.org/10.1353/anl.2017.0009>
- Westman, C. (2013). Social impact assessment and the anthropology of the future in Canada's tar sands. *Human Organization*, 72(2), 111-120.
- Westman, C. N., & Schreyer, C. (2014). ÎNÎHIYAWÎTWÂW 'They are speaking Cree': Cree language use and issues in Northern Alberta, Canada. *International Journal of the Sociology of Language*, 2014(230), 115-140.
- White, G. (2006). Cultures in collision: Traditional knowledge and Euro-Canadian governance processes in northern land-claim boards. *Arctic*, 59(4), 401-414.
<https://doi.org/10.14430/arctic289>
- Whyte, K. P., Brewer, J. P., & Johnson, J. T. (2016). Weaving Indigenous Science, Protocols and Sustainability Science. *Sustainability Science*, 11(1), 25-32. <https://doi.org/10.1007/s11625-015-0296-6>
- Wildcat, M. (2018). Wahkohtowin in Action. *Constitutional Forum constitutionnel*, 27(1), 13-24.
<https://doi.org/10.21991/cf29370>
- Willow, A. J. (2015). The shifting topology of environmentalism: Human-environment relationships and conceptual trends in two North American organizational histories. *Nature and Culture*, 10(2), 157-177. <https://doi.org/10.3167/nc.2015.100202>
- Wolfart, H. C. (1996). Sketch of Cree, an Algonquian language. *Handbook of North American Indians*, 17, 390-439.
- Wolvengrey, A. (2001). *néhiyawêwin: itwêwina / Cree: Words*. Regina: Canadian Plains Research Center.