

Original article

Can indigenous community-based monitoring act as a tool for sustainable self-determination?

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ABSTRACT

This study seeks to gain a better understanding of the implications of Indigenous community-based monitoring (ICBM) for Indigenous governance in resource extractive regions. Using a comprehensive review of the literature and the author team's personal involvement, we review an ICBM program in the oil sands region of Alberta, Canada. We use sustainable self-determination, as a sub-set of Indigenous governance, as a critical theoretical lens to assess outcomes of this program and its role in the broader environmental governance of the oil sands region. To conclude, we propose some recommendations to advance a *sustainable self-determination* lens for ICBM. As these programs continue to proliferate across the country, now is the time to incorporate such a lens in order to simultaneously support meaningful monitoring of environmental, economic, and social change, while also advancing the resurgence of Indigenous Nations.

1. Introduction

A recent emphasis on Indigenous-state collaboration in environmental decision-making has sparked the development of a subset of environmental governance literature referred to as collaborative environmental governance (Yaffee and Wondolleck, 2003; Davidson and Frickel, 2004; von der Porten et al., 2015). This literature characterizes collaboration as the sharing of power and responsibility among state and non-state actors in environmental decision-making (Carlsson and Berkes, 2005; Nagendra and Ostrom, 2012). However, scholars (von der Porten and de Loë, 2014) have identified a major divergence between the collaborative environmental governance and Indigenous governance literature generally, and the role of Indigenous Peoples more specifically. In *environmental governance*, Indigenous Peoples are identified as 'stakeholders' or 'interest groups' (Cullen et al., 2010), whereas *Indigenous governance* identifies them as sovereign Nations (Alfred, 2009a; Coulthard, 2010; von der Porten, de Loë, and Plummer, 2015). Far from simply semantic, the result is significantly different outcomes for participating Indigenous Nations. For instance, the "stakeholder" narratives often minimize Indigenous Peoples' ability to exercise their self determination and afford them little opportunity to participate in land management as self-governing Nations (Alfred and Cortassol, 2005; von der Porten et al., 2015).

An approach to supporting collaborative environmental governance is community-based monitoring (CBM), where local communities,

Indigenous Peoples, and other relevant actors are involved in the management and governance of environmental or social phenomenon (Danielsen et al., 2009). The literature has discussed both benefits and challenges of CBM activities (Danielsen et al., 2009; Conrad and Hilchey, 2011). Accordingly, the popularity of CBM has simultaneously grown, particularly among Indigenous Peoples (Kuokkanen, 2019) and those in the boreal and arctic regions (Brunet et al., 2014; Brunet et al., 2014a; Whyte et al., 2016). Indigenous Guardian programs – also known as Rangers or Watchmen – is one example of this growing in popularity (Reed et al., 2020). In such circumstances, Indigenous Peoples have turned to the development of CBM to address specific community needs and concerns in the face of resource development (Whiteman and Mamen, 2002).

Studies of Indigenous community-based monitoring (ICBM) conceptualize ICBM as a tool to empower communities (Danielsen et al., 2009); build trust and credibility among actors (Fernandez-Gimenez et al., 2008); monitor activities on their lands and territories (Dehcho First Nations et al., 2016); and support cultural revitalization and intergenerational knowledge sharing (Peachey, 2015). Conversely, some scholars have criticized its conceptual and practical benefits due to its potential to result in: the marginalization of minorities (Lane and Corbett, 2005); the underuse of CBM data in decision-making (Conrad and Hilchey, 2011); and long-term underfunding (Austin et al., 2018).

Exploring uncertainties regarding the outcomes of ICBM is particularly relevant in the oil sands region of Alberta, Canada, where the

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pursuit of a ‘world class’ environmental monitoring system has been a half-century-long endeavor (Cronmiller and Noble, 2018). Oil sands development has increasingly become a public concern with highly polarized views between (and among) Indigenous Peoples, environmentalists, industries, and governments on its environmental, climate, and health impacts (Royal Society of Canada (RSC), 2010).¹ In particular, Indigenous-led environmental monitoring initiatives in the oil sands have been underfunded over the last decade, resulting in the absence of community baselines, indicators, and thresholds centered upon local values (Joly and Westman, 2017). However, in line with the reconciliation agenda,² the governments of Alberta and Canada renewed their commitment in 2018 to collaborative environmental monitoring by signing a Memorandum of Understanding: *Respecting Environmental Monitoring of Oil Sands Development*.³ Commitments included a new pledge to include Indigenous Peoples in future governance relating to environmental monitoring. Such a commitment parallels the growing sub-body of governance literature where scholars describe CBM as an exercise of Indigenous sovereignty and jurisdiction (Wilson et al., 2018) that can counter unequal power relationships between Indigenous Nations and colonial governments (Kotaska, 2013).

This study seeks to further our understanding of the implications of ICBM for Indigenous governance in resource extractive regions, reflecting upon recent efforts to establish ICBM programs in the oil sands Region of Alberta, Canada. We use sustainable self-determination, as a sub-set of Indigenous governance, as a critical conceptual lens to assess program outcomes. As Indigenous Peoples employ both state and non-state strategies to assert their self-determination, they often navigate “an inescapable web of negotiation, contention, and concession that leads to further entanglement.” (Dennison, 2017, p. 684). These points of interconnection and negotiation illustrate the sustainable self-determination dialectic that Indigenous Peoples in the oil sands often face (Nuttall, 2009). We base our analysis on our own involvement in a CBM project in the oil sands region (described in Section 3.3), and an in-depth review of both founding policy documents and academic literature. We begin with an exploration of the intersections between environmental and Indigenous governance in achieving sustainable self-determination (Fig. 1). We then provide an overview of the history and current status of ICBM in the oil sands region of Alberta, Canada and conclude with some recommendations for ICBM to support Indigenous sustainable self-determination. Importantly, this analysis is focused on the institutional barriers erected by the governments of Alberta and Canada, drawing lessons for other state-led programs attempting to support the development of ICBM.

2. Theoretical framework- towards sustainable self-determination

2.1. Environmental governance

Although there are wide variations in how the literature defines and uses environmental governance, at its core, environmental governance represents the ways that decisions are made on environmental matters (Duit et al., 2010). Meadowcraft (2007) attributes this variability to the origin of the word, stemming from normative reference point for environment and development policy-making rather than a technical vocabulary of social science. As a result, the concept is constantly evolving and re-interpreted, resulting in multiple definitions (see

¹ For a detailed overview of the history of environmental effects monitoring in the lower Athabasca Region, refer to Cronmiller & Noble, 2018.

² Since 2015, Prime Minister Trudeau committed to renewing the nation-to-nation, government-to-government, and Inuit-Crown relationship. Most recently, this was articulated in the *Principles respecting the Government of Canada's relationship with Indigenous Peoples*, found here: <https://www.justice.gc.ca/eng/cs-jc/principles-principes.html>

³ The MOU can be found here: <http://oilsandsmonitoringprogram.com/wp-content/uploads/2018/06/OSM-MOU-December-1-2017.pdf>

Adger et al., 2003; Davidson and Frickel, 2004; Lemos and Agrawal, 2009).

Having evolved from a focus on the market or state to the role of communities and local institutions, environmental governance works to develop collaborative relationships between various partners (Lemos and Agrawal, 2006). This emphasis on collaboration has led to the emergence of collaborative environmental governance as an important subset of the environmental governance literature (Davidson and Frickel, 2004). Collaborative relationships are the key to allowing various partners, including non-governmental partners, to leverage their strengths, jurisdictional authority, and knowledge systems (Nagendra and Ostrom, 2012). Accordingly, collaborative environmental governance is growing in popularity (Yaffee and Wondollock, 2003; von der Porten et al., 2015).

Despite some literature indicating that Indigenous engagement in collaboration will help empower Indigenous Peoples (Hill et al., 2012), there remains a lack of information tailored to multi-actor environmental stewardship efforts involving Indigenous Nations (Reo et al., 2017). Furthermore, some scholars (e.g. Reo et al., 2017) believe there are differences between CBM and other forms of collaborative environmental governance, such as co-management and protected areas management, because of the formal recognition of Indigenous Nations as sovereign governments (Natcher et al., 2005).

The conceptual intersection, and gaps, of collaborative environmental governance and Indigenous governance are discussed in detail by von der Porten and de Loë (2014) (see Fig. 1). In short, while both sets of literature discuss the governance of waters, lands, and territories, the major divergence between the two is how they position the role of Indigenous Peoples in this governance (von der Porten, 2012; Reo et al., 2017). This disconnect has resulted in the conceptualization of Indigenous Peoples as stakeholders, allowing for the consideration of Indigenous values and concerns (Fortier et al., 2013) and the access of Indigenous knowledge (Berkes et al., 2000). Yet, these “stakeholder” narratives often minimize Indigenous Peoples’ ability for self-determination (Alfred and Corntassel, 2005; von der Porten et al., 2015) which perpetuates the treatment of Indigenous peoples as subjects to be acted upon rather than as active agents in the formulation of environmental decisions (Borrows, 1997). von der Porten and de Loë (2014) believe this disconnect may reinforce obstacles to Indigenous participation in environmental governance, especially when these partnerships, and their underlying assumptions, do not reflect Indigenous ways of knowing (Nadasdy, 2007).

2.2. Indigenous governance

Indigenous governance includes the concept of Indigeneity and the role of Indigenous Peoples as Nations who use their rights, knowledge, and jurisdiction as a tool to develop solutions for their emancipation (Corntassel, 2008; Smith, 2012). It discusses a wide variety of topics, including inherent, Treaty, and constitutionally protected rights (Borrows, 2002; Mills, 2016); decolonization (Smith, 2012); Indigenous knowledge (McGregor, 2004, 2018; Reed et al., 2020); and self-determination (Corntassel, 2008; Alfred, 2009a). Using the example of the Blackfoot Nation (*Siikisikaawa*), Ladner (2003) describes how governance is not limited to people, nor their non-authoritative, non-hierarchical and non-coercive relations between one another. Rather, it is a relationship that extends to all beings within a territory and is “about people establishing a relationship with a territory and learning from that relationship” (p. 125). In this literature, particularly in Canadian scholarship, Indigenous governments are considered sovereign (von der Porten, 2012), possessing *sui generis* rights due to their occupation of the land prior to the assertion of sovereignty by Canada or its predecessors Britain and France (Borrows, 2002). Indigenous legal experts critique Canada's assertion of exclusive sovereignty, arguing that Canada does not have underlying title or overarching sovereignty in Indigenous territories (Borrows, 2002; Mills, 2016). Alfred (2009a),

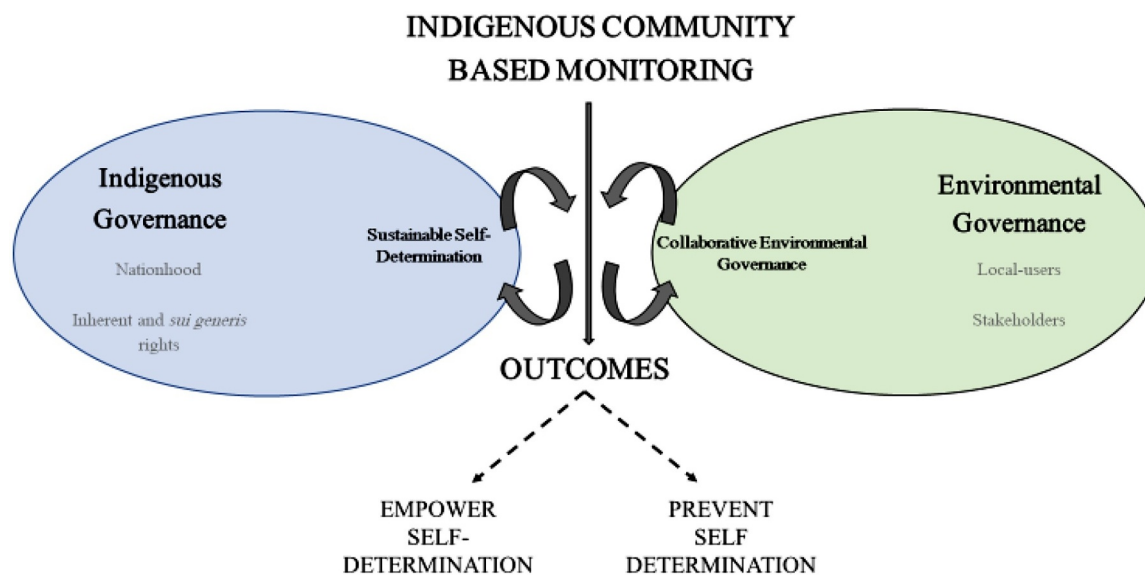


Fig. 1. Conceptual Framework for assessing Indigenous Community Based Monitoring:

In the above, the evaluation of Indigenous community-based monitoring depends on the theoretical mode of analysis and the conceptualization of Indigenous Peoples' role in decision-making. If a collaborative environmental governance conceptualization is used (i.e. Indigenous Peoples are stakeholders), the outcome may continue to prevent the meaningful articulation of Indigenous self-determination. However, if an Indigenous governance, and by extension sustainable self-determination, conceptualization is used, there is potential to envisage an alternative outcome that empowers Indigenous Nations' right to self-determination, thus contributing to governance frameworks that support their revitalization.

asserts that "...Indigenous nationhood is about reconstructing a power base for the assertion of control over Native land and life" (p. 70).

Evidently, this literature emphasizes the notion of nationhood, self-determination, and Indigenous knowledge (Turner, 2006). The work of Taiaike Alfred (2009a, 2009b), has been critical to this understanding, exploring the complex issue of Indigenous sovereignty in light of a colonial government's agenda of power retention and governance. In particular, he frames Indigeneity and sovereignty as being fundamentally opposed values systems, arguing that any progress made toward justice will be marginal. Other scholars (i.e. Dennison, 2017) do not outright disagree with this analysis, but question Alfred's zero-sum framing by recognizing the often messy nature of sovereignty that entangles both the colonized and the colonizer. This is not to say that concepts of sovereignty are neutral towards Indigenous governance; rather it is an acknowledgment that there are points of interconnection and negotiation implicit in the pursuit (Nuttall, 2009).

Given this complexity, decolonization must be considered an ongoing process that purposefully seeks to advance the cause of self-determination (Turner, 2006; Smith, 2012). Indigenous self-determination refers to the aspects of Indigenous governance related to sovereignty, autonomy, and assertions of Indigenous nationhood (von der Porten, 2012). Indigenous Peoples continue to experience significant resistance from states indicating that self-determination requires ongoing negotiation and relationship-building (Anaya 2009). Lightfoot and Macdonald (2017) capture this continuous nature of self-determination, describing it as: "...mov[ing] beyond a discrete moment of political decision, like a declaration of independence or a referendum, but rather, is conceptualized as part of an ongoing set of relations and obligations—political, cultural and spiritual" (p. 35). The implementation of this right is inextricably linked to the ongoing colonial injustices that intentionally repress Indigenous self-determination through, for example, the forced resettlement of Indigenous Peoples onto reserves (Alfred, 2009a). These experiences are not exclusive to those in Canada; similar injustices occurred in South America (Gudynas, 2011), Australia (Carter, 2008), and elsewhere.

Other scholars (Coulthard, 2010; Mackey, 2016) have differentiated the politics of recognition and self-determination, noting that 'recognition' is often used as a tool to sustain systems of domination over

Indigenous Peoples. In Canada, according to Dene scholar, Glen Coulthard (2014), the 'politics of recognition' is used by Canada and the provinces to "...reproduce the very configurations of colonial power that Indigenous [P]eoples' demands for recognition have historically sought to transcend" (p. 52). Alfred (2009a) further articulated this reality in a critique of the search for 'sovereignty'. Using the example of land claim negotiations, he questioned their ability to make progress towards justice (or sovereignty) when the State will only tolerate progress to the "extent that it serves, or at least does not oppose, the interests of the state itself" (p. 81). In this light, self-determination must be asserted and acted upon, and is not something that can be negotiated or offered by the state. For example, the Yolngu peoples in North-East Arnhem Land, Northern Territory (Australia), have been trying to advance their program, *Caring For Country*; however, "...until there is a 'space' created for Yolngu self-determination, that is resourced and institutionally acknowledged (rather than operating in the margins of funding contracts) then self-determination will always be forced into a prescribed, predetermined context." (Muller, 2014, p. 139).

Cherokee scholar, Jeff Corntassel (2008) summarized the main critiques of the rights-discourse over the last 30 years into four inter-related themes: i) the compartmentalization of Indigenous powers of self-determination by separating questions of land and natural resources from political/legal recognition under the existing framework of the state; ii) the denial of the existence of Indigenous Peoples by reframing their existence as minority populations or other less accountable terms under international law; iii) the de-emphasis of cultural responsibilities and relationships that Indigenous Peoples have with their families and the natural world; and iv) the establishment of ad-hoc restrictions that attempt to limit Indigenous Peoples ability to decolonize institutions. In order to address and move beyond these limitations, he believed that Indigenous views of self-determination need to be reframed to address contemporary challenges to Indigenous nationhood; namely that any effort of self-determination must be *sustainable* to avoid becoming another right in name only.

2.2.1. Sustainable self-determination

Corntassel (2008) defines sustainable self-determination as both an individual and community-driven process that ensures "...indigenous

livelihoods, food security, community governance, relationships to homelands and the natural world, and ceremonial life can be practiced today locally and regionally, thus enabling the transmission of these traditions and practices to future generations.” (p. 156). An important component of such an approach is to de-center the state to refocus the discussion on the cultural, social, and political mobilization of Indigenous Peoples (Corntassel, 2012). By doing this, Indigenous Peoples are required to *act*, often in conflict with the political rights of the state, in order to enact the community-based powers of sustainable self-determination. For this to be successful, Indigenous Peoples need to reposition their focus away from a state-driven, narrowly constructed rights discourse towards “...a responsibility-based movement centered on sustainable self-determination.” (Corntassel, 2008: p. 124). In an environmental context, reconnecting to the land is seen as a rejection of the colonial-capitalist agenda that is causing loss of biodiversity, the climate crisis, and environmental imbalance, enabling Indigenous Nations to practice sustainable self-determination (Corntassel and Bryce, 2012; Cameron et al., 2019).

There have been few studies exploring sustainable self-determination in practice (Corntassel and Bryce, 2012; Cameron et al., 2019). A recent article used the Turtle Lodge in Sagkeeng First Nation, Manitoba, founded by Elder Dave Courchene, as a case study to explore some of the challenges and nuances of sustainable self-determination in practice (Cameron et al., 2019). The authors believe the concept of sustainable self-determination aligns well with Anishinaabe traditional law. They used this tradition to explore how the Turtle Lodge exemplifies the principle goal that underpins their relationships, cultural and stewardship activities, and governance: “...working towards independence of their community and others with consideration to the environment, community well-being, sustainability, and transmission of cultural knowledge and values for future generations.” (p. 15). For instance, the Turtle Lodge governance structure is autonomous and rooted in traditional Anishinaabe law and governance. This includes using culturally appropriate protocol and ceremony, such as the pipe and water ceremony, to open all gatherings and guide how the Lodge interacts with their diversity of projects and partners. Through a sustainable self-determination lens, the practice of traditional ways of governance combats attempted erasure by colonial governments, and instead acts as “... the antidote to... the disempowerment of our people and communities.” (Alfred, 2009a, p. 5).

3. The emergence of indigenous community-based monitoring in the oil sands region of Alberta

3.1. A short history of environmental monitoring in the oil sands

A wide variety of actors have been involved in oil sands monitoring efforts. These actors, including the federal, provincial, and Indigenous governments, industry, universities, and regional associations, have long and complicated histories of interacting with one another (Cronmiller and Noble, 2018). This review focuses on environmental monitoring efforts over the last decade beginning with the well-known Schindler (2010) and Royal Society of Canada (2010) reports. These reports, as well as significant public and Indigenous pressure, are credited with persuading the federal government to launch a Federal Oil Sands Advisory Panel (2010) responsible for the review of the water monitoring approach on the Lower Athabasca River Basin and other connected waterways (Boothe, 2015). The Panel found, among other considerations, that despite the numerous monitoring programs in the region, there was “...no evidence of science leadership to ensure that monitoring and research activities are planned and performed in a coordinated way...” (OSAP, 2010, p. 34). Their recommendation – the creation of a shared national vision and management framework – was advanced by the Alberta Environmental Monitoring Panel (2011), concluded the need for; i) a new environmental monitoring system; ii) better organization of environmental monitoring across the province

and topics; and iii) a permanent sustainably-funded arm's length Environmental Monitoring Commission. The province responded to these recommendations in two ways: i) the formation of the *Joint Canada-Alberta Implementation Plan for Oil Sands Monitoring (JOSM)*; and ii) the eventual creation of the Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA).

The JOSM was jointly announced in February 2012 by the federal and provincial governments. The Agreement was launched for three years (2012–2015) to improve environmental monitoring of the oil sands area, receiving \$50 million of funding from industry per year. Despite the stated objective of “work[ing] on an ongoing basis with stakeholders on implementation and adaptation of the Plan” (JOSM, 2012, p 2), there was a lack of inclusion of Indigenous Nations and stakeholders in its design and implementation (Stratos Inc., 2015). In response, five First Nations withdrew publicly from the JOSM agreement due to a lack of explicit recognition of Treaty rights and opportunities for meaningful and constructive input (Stratos Inc., 2015). In 2015, the JOSM agreement was left to expire due, in large part, to AEMERA's unwillingness to accept Environment Canada as an equal partner in oil sands monitoring (Boothe, 2015).

Following the twelve recommendations of the Alberta Environment Monitoring Working Group, AEMERA was created through *Bill 31 – Protecting Alberta's Environment Act* in 2014 with the purpose of “...obtain[ing] credible and relevant scientific data and other information regarding the condition of the environment in Alberta” (Stratos Inc, 2015, p. i). Following several years of operation, a scathing report from a former federal Deputy Minister, Dr. Paul Boothe (2015), prompted the new NDP government to dissolve AEMERA and roll its activities back into the Alberta Environment and Parks Ministry. According to Joly and Westman (2017), this led to positive strides in Indigenous monitoring initiatives, including the appointment of the Indigenous Wisdom Advisory Panel.⁴

The commitment to environmental monitoring continued during this institutional change and led to its renewal in 2017 through the signing of the Alberta-Canada Memorandum of Understanding (MOU) *Respecting Environmental Monitoring in the Oil Sands Region*. During the preparation of this manuscript, officials in the *Environmental Monitoring and Science Division (EMSD)* were notified that their department was being dissolved and rolled into a new structure effective October 15, 2019.⁵ Few details of the new structure have emerged since.

3.2. The new oil sands monitoring program – an overview of the operational framework agreement

The signing of the MOU marked a new page in environmental monitoring in the oil sands wherein the provincial and federal governments sought to work with Indigenous Peoples through an “adaptive and inclusive approach” to better understand the cumulative and environmental effects of oil sands development (Dubé et al., 2018). It created an integrated monitoring, evaluation, and reporting system between governments, and sought to engage Indigenous Peoples in the design of effective mechanisms for their participation. Several considerations relating to Indigenous Peoples were included in the MOU, such as the recognition of Treaty and Aboriginal Rights. Following the signing, an *Operational Framework Agreement (OFA)* was developed to explain the governance architecture and implementation model to guide decision-making within the OSM Program in 2018.

⁴ The Indigenous Wisdom Advisory Panel was mandated to advise government monitoring activities on how to incorporate Indigenous knowledge into environmental monitoring. Autonomously creating its Terms of Reference on the basis of Indigenous legal traditions and spirituality, it is the first deliberative body of its kind in Canada (Joly and Westman, 2017).

⁵ For more information, refer to <https://www.cbc.ca/news/canada/edmonton/new-oilsands-agency-1.5287514>

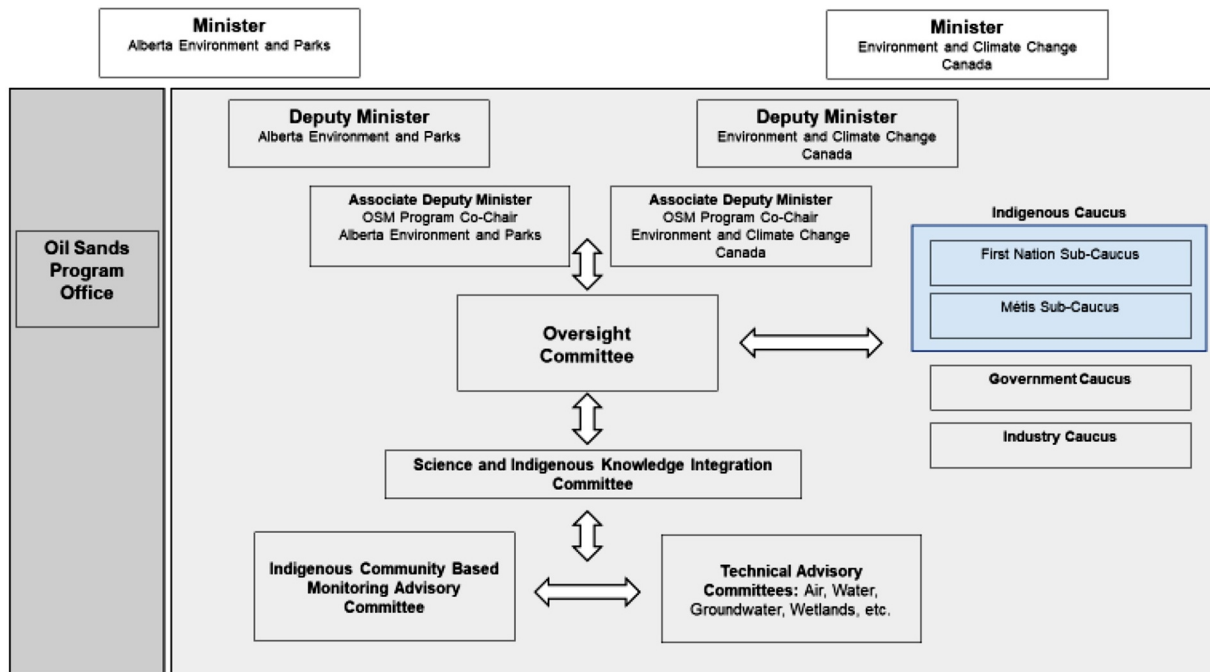


Fig. 2. Operational Framework Agreement Governance Architecture (Adapted from Dube et al., 2018: p. 9).

To do this, the governments of Alberta and Canada worked with First Nations and Métis governments through a Task Team. With some funding available, 17 First Nations and Métis governments participated in the drafting process of the OFA, outlining the vision, principles, and objectives of the program. The collaborative vision was the following: “An integrated monitoring, evaluation and reporting system inclusive of and responsive to Indigenous Communities [that] inform[s] management, policy and regulatory action and respects potential impacts to section 35 Rights” (Dube et al., 2018, p.1). Since then, the OFA has come into force with a governance structure that incorporates Indigenous participation (Fig. 2). The funding arrangement is identical to the JOSM agreement, except that the federal government has pledged around \$8 million for environmental monitoring and research in the area, with \$2 million allocated to assist Indigenous Nations in the development of community-based monitoring programs.

3.3. Author involvement in ICBM establishment process within the case

Beyond reflections on the literature regarding the role of ICBM in achieving self-determination in the oil sands region of Alberta, Canada, direct observation and engagement in the establishment of such a program in this region also served to enrich our findings. In particular, co-authors (NBD, DCN) were funded by the Government of Alberta Environment and Parks between 2016 and 2019 to work with partners in First Nations and Métis governments in the three oil producing regions of Alberta.⁶ The goal was to develop a parallel or linked Indigenous and western science-based approach whereby Indigenous environmental knowledge was directly applied to development of program design for the monitoring and assessment of the fish health. Program objectives were:

⁶ The funding was delivered to First Nation and Métis communities via University of Saskatchewan faculty members. Communities within the regions were asked if they would like to participate. The team developed specific approaches with each partner that fit needs and expectations. Most of the funds were given directly to partner communities or used in support of local monitoring efforts, such as testing for toxins in fish using lab equipment at the University of Saskatchewan. See Brunet et al., (under review) for an example of one of these collaborations.

- 1) To involve Indigenous communities directly in fish monitoring study design, field collection, analysis/interpretation and reporting;
- 2) To develop a methodology whereby western and indigenous knowledge systems are applied to study design and evaluation; and
- 3) To establish local Indigenous indicators of fish health.

Our team was also called upon to coordinate our efforts with other CBM programs in the region on wetlands, lakes and berries.⁷ This provided the team with insights into the outcomes of a broad range of programs, on different environmental parameters within different local contexts.

4. Applying a sustainable self-determination lens to indigenous community-based monitoring in the oil sands region of Alberta, Canada

The political, environmental, and institutional evolution of environmental monitoring in the oil sands offers a thought-provoking case through which we can better understand the successes and challenges of ICBM in extractive regions, particularly through a sustainable self-determination lens. In this case, ICBM programs are clearly embedded within the institutional framework of a provincial government. As such, it is difficult to imagine that sustainable self-determination may be achieved in this context, given an apparent disregard for Treaty relationships, traditional governance, and the inclusion of Indigenous-specific indicators in program planning and design. We explore each in the text that follows. Our assessment found that the current approach perpetuates the conceptualization of Indigenous Nations as “stakeholders” who can “bring a wider range of knowledge to understand ecosystem change” (Berkes et al., 2007: p. 145), while providing no formal decision-making power to First Nations or Métis governments. Meanwhile, our observations as active participants in the establishment

⁷ For more details on the monitoring programs related to Wetlands and Berries, please refer to <http://environmentalmonitoring.alberta.ca/wp-content/uploads/2017/12/Culturally-Important-Wetland-Plants.pdf> and <http://environmentalmonitoring.alberta.ca/wp-content/uploads/2017/12/Community-Led-Berry-Contamination-Study.pdf>, respectively.

of this program over the last 3 years have indicated that Indigenous partners, may in fact be *using* these programs to achieving community objectives which may include sustainable self-determination as an outcome; however not in the way they were intended (elaborated in Section 4.2).

4.1. Institutional barriers to achieving sustainable self determination

The Operational Framework Agreement (the “Framework”) provides the new institutional framework for the development of ICBM in the oil sands region, and indirectly the recognition of Indigenous Nations’ relationship to land. While it contains important statements of inclusion for Indigenous designed and led community-based monitoring, the entire Framework is considered nonbinding in that it creates no “...legally binding obligations between any government, entity, group, organization, or community” (Dubé et al., 2018, p. 2) and makes no alteration to the “legislative or other authorities of the Government of Alberta or the Government of Canada.” (Dubé et al., 2018, p. 2). The result of this language is significant: the legally non-binding OFA of the OSM Program is subject to the Oil Sands Monitoring Program Regulation (2013) which, in times of conflict, could mean that the Regulation is given precedence over the new OFA, and the progressive language with regard to the inclusion of Indigenous Peoples would be lost. This reality aligns with other Indigenous-related policies in the oil sands, such as water management (Passelac and Buss, 2011) or consultation (Westman and Joly, 2019) strategies that often acknowledge Treaty rights, but do little to protect them. This results in the ongoing infringement of these original agreements (Baker and Westman, 2018). For sustainable self-determination to be cultivated in the oil sands, environmental governance must respect Indigenous-Crown relationships including the commitments outlined in Treaties 6 and 8. Otherwise, the program risks perpetuating concerns that Elders and Chiefs from Treaty 6, 7, and 8 raised in 2010: “Alberta cannot simply pay lip services to those rights... While we are open to discussing how we can protect our Treaty rights, we are not open to an approach unilaterally developed by Alberta which ignores those rights in practice.” (Confederacy of Treaty Six First Nations, 2010, p. 3).⁸

In addition to disregarding Treaty relationships, the Framework actively prevents Indigenous Nations from exercising their inherent, Treaty, and constitutionally-protected rights. Final decision-making authority is maintained by federal and provincial co-chairs, permitting their discretion, even if dispute-resolution paths are followed, to infringe on the aforementioned rights (refer to Fig. 2). Wilkins (1993) described a similar contradiction in the United States, where Native American governments are “...recognized sovereigns with rights that can be systematically quashed” (p. 391). This is consistent with the consultation economy in northern Alberta, where the proponent treats Indigenous Nations as ‘stakeholders’ only to be informed about a project and invited to conduct a traditional land use assessment (Baker and Westman, 2018). As a result, the objectives of sustainable self-determination cannot be achieved when First Nations and Métis community-level governance are not recognized, no matter the procedural strength of a deliberative process. By contrast, the example of the Turtle Lodge (Cameron et al., 2019) emphasized how maintaining traditional forms of Indigenous governance was vital to practicing sustainable self-determination. In the example of Turtle Lodge, Elder Courchene viewed their work as an endeavor guided by the Great Spirit and rejected the legitimacy of the government ‘granting’ their sovereignty – rather, he insisted that true self-determination must be asserted and acted upon, aligning with Corntassel (2008) and Muller (2014).

Under the Framework – and the former Joint Oil Sands Monitoring

plan – there has been a specific emphasis on the direct environmental impacts of the oil sands, measured through a predominantly quantitative lens. The result is a lack of credible studies that seek to understand the impacts of oil sands-related industrial activity on Indigenous Peoples’ livelihoods and rights (Westman and Joly, 2019) as well as other aspects of Indigenous livelihoods and food security (see Baker, 2018). This is despite the desire of Indigenous Nations to be involved in the full life cycle of environmental monitoring in the oil sands, from design to evaluation (Stratos Inc., 2015). The challenge, however, is that support for Indigenous-led initiatives has lacked community baselines, indicators, and thresholds centered upon local values (Joly and Westman, 2017). Those examples of Indigenous-led monitoring programs, such as Kimberley Indigenous Saltwater Science Project (Austin et al., 2019) and the Indigenous Observation Network (Wilson et al., 2018), reflect the multi-dimensional perspective of monitoring. This approach considers intergenerational knowledge transfer (Sherman et al., 2010), trauma, culture, and language (Muller, 2014), and exercises of Indigenous governance (Wilson et al., 2018). In these situations, Corntassel and Bryce (2012) advocate for “the revitalization of land-based and water-based cultural practices... premised on enacting indigenous community responsibilities, which entails sparking a spiritual revolution rather than seeking state-based solutions that are disconnected from indigenous community relationships.” (p. 160).

As referenced above, the current design and implementation of oil sands monitoring is largely insufficient to support those participating Indigenous Nations in exercising their sustainable self-determination. Given the limitations associated with the OSM program, it is reasonable to ask why any Indigenous government would willingly participate in a process that could ultimately reinforce political inequalities and dis-possession of their territorial interests. We discuss this below.

4.2. Strategic engagement in ICBM

Rather than being transformative in nature, ICBM programs have too often reflected and have reinforced the values and interests of those already in power. By engaging in these processes, and by acquiescing to the institutions of government, Indigenous participation in CBM may further distort their territorial visions for the future (Carroll, 2014). Dennison (2012) aptly describes this conundrum as ‘colonial entanglement’, which often involves a web of negotiation, concession, and contention that entangles both the colonized and the colonizer (Dennison, 2017). Despite the risks involved, many Indigenous Nations enter into CBM programs with governments or other resource sector industries knowing that, in comparison to other alternatives (e.g., litigation and civil disobedience), they may be able to derive short-term benefits that can be channeled to community services and programs, ultimately contributing to their longer-term goals of self-determination (O’Faircheallaigh, 2013).

While the principle motivation for participating in CBM may be to regain some measure of influence over their ancestral lands, Indigenous leaders are also cognizant of the opportunities for leveraging economic and political advantage, even if only in the short-term through local employment or service provisioning opportunities. For instance, the Giringun Nation in Australia has used ‘indigeneity’ to ‘scaffold’ their modest beginnings (i.e. limited statutory Indigenous rights) into co-management and joint-venture arrangements with the State (Zurba et al., 2012). In other cases, Indigenous involvement in CBM have been motivated by the need to ward off threats of environmental degradation, land dis-possession, and socio-cultural impoverishment (Alfred 2009a). Owing to the ‘strategic reversibility’ of power (Foucault, 1991), CBM programs can serve as sites of Indigenous resistance where possibilities for reconstituting existing power relationships can be realized. Factoring in the agency of Indigenous leadership, CBM may provide opportunities for Indigenous Peoples, who remain sceptical of the efficacy of these processes, to negotiate a new space for

⁸ Treaty 8 Elders in Alberta note that the term share was used when Treaty 8 was described to them, which was then honored in ceremony, instead of cede, as captured in the written accounts. (<http://www.treaty8.ca/>)

ethical engagement (Ermine, 2007). Such scepticism requires Indigenous Nations to actively reconcile traditional teachings and resource control (often vested by the State) (Carroll, 2014).

In this way, CBM programs can allow for deliberation over the colonial tensions that have long dissuaded equitable engagement in the past and revoke the historic denial and erasure of Indigenous rights by Settler legal and political institutions (Ladner 2003, 2014; Dennison, 2012). While this outcome may be overly optimistic, Indigenous participation in government-sponsored CBM programs do make it more difficult, although not impossible, for governments to unilaterally dictate the terms of development without provoking Indigenous political reaction. And since past government policies tended to neglect the rights and territorial interests of Indigenous Peoples (Borrows, 2002; Coulthard, 2014) any change that allows greater Indigenous involvement and decision-making will arguably have a positive effect. Such benefits of crown recognition should not go unrecognized, though there is merit in recognizing the parallel conflicts between realism and idealism that Indigenous officials face when working "...within existing political structures ... to reinvent tribal governance outside of dominant sociopolitical structures (Deloria and Lytle 1984, p. 242).

Considering the risks and opportunities involved, CBM should be seen as neither all empowering nor all co-opting of Indigenous nationhood, rights, and interests. Rather CBM is simply one of many strategies being used by Indigenous Peoples (i.e., litigation, co-management, protest) to advance the protection and respect of their rights, their socio-political and governance aims, and self-determination (Simpson, 2011; Low, 2018). Viewed in this way, CBM is lending in important, yet often unobservable ways, to the advancement of Indigenous politics and their sustainable self-determination dialectic.

5. The path forward: Support for indigenous sustainable self-determination in community-based monitoring

In this article, we have used a conceptual application of sustainable self-determination to assess the design and implementation of an ICBM program in the oil sands region of Alberta, asking whether ICBM acts as a tool for sustainable self-determination. Through the examination of the relationship to homelands, community governance, and support for Indigenous livelihoods, we concluded that, as designed, the ICBM program may in fact be preventing Indigenous Nations from exercising sustainable self-determination. More empirical research, driven by those Indigenous Nations, navigating this question is needed. While such a criticism is not new (i.e. that state-led programs do not support Indigenous self-determination – see Borrows, 1997), it is essential to consider solutions that ensure Indigenous Nations are placed at the center of environmental governance through the restructuring of federal and provincial institutions. Unfortunately, there is a fundamental tension here: on the one hand, Indigenous Nations are actively participating in and constructively reshaping modes of environmental governance and management institutions to better reflect their Indigenous legal orders, rights, knowledge system, and governance (Carroll, 2014). On the other hand, working within these systems, particularly within a politics of recognition framework (Alfred and Corntassel, 2005; Coulthard, 2010) may actually prevent the exercise of Indigenous sustainable self-determination by inadvertently "...mimicking state functions rather than honoring their own sustainable, spiritual relationships with their homelands" (Corntassel and Bryce, 2012, p. 153). Future research, in full partnership with those Indigenous partners, is needed on how Indigenous Nations participating in ICBM navigate this entanglement. This could include the concept of 'nested sovereignty' (Simpson, 2014), attempting to understand the practices of Indigenous sovereignty "on the ground" in those CBM programs (Low, 2018). Further, a full understanding of the implications of current government funding structures in supporting ICBM would also shed light on better ways to foster sustainable programs as Indigenous Nations attempt to achieve self-determination targets.

The application of a true Indigenous sustainable self-determination lens necessitates a different approach to environmental governance and the design of ICBM programs. One potential example of sustainable self-determination in action is the growing phenomenon of Indigenous Guardians (Reed et al., 2020). While Indigenous Guardian programs do not follow a 'one-size-fits-all' approach, they broadly involve: community-based environmental stewardship (Garnett and Sithole, 2007; Griffiths and Kinnane, 2011); support cultural revitalization and inter-generational knowledge sharing (Peachey, 2015); and monitor activities on their lands and territories (Dehcho First Nations et al., 2016). Having garnered much interest among Indigenous governments in recent years, as many as 30 individual programs now exist in Canada (See: <http://www.ilinationhood.ca/>), including those funded through the federal government's *Indigenous Guardians Pilot Program*. A well-known example is the Coastal Guardian Watchman Network, run by a network of First Nations-led monitoring programs on the North and Central Coast of Haida Gwaii. Despite this increase in popularity, there has been no systematic review of their emergence in the literature. In a forthcoming article, (Reed et al., 2020) characterize the evolution and current status of Indigenous guardian programs focusing on the cases of Aotearoa/New Zealand, United States of America, Australia, and Canada. Early findings suggest that many of the same tensions between ICBM in the oil sands exist in Indigenous Guardian programs, particularly those in Australia under the Working on Country model (Zurba et al., 2012; Fache, 2014).

We close this article by echoing some of the recommendations by Reo et al. (2017) and von der Porten (2012) to advance *sustainable self-determination* in ICBM. First, one must understand how the ongoing and historic legacy of settler colonization impacts the relationships implicit in environmental governance and must seek to redistribute power through the honoring of original agreements between Indigenous Nations and settler states. Second, while we do not make a judgment on the multitude of ways Indigenous Nations advance their sustainable self-determination, including through ICBM programs, we see immense benefit in Indigenous Nations working together to advance their interests outside of the state-led parameters, pursuing Indigenous-led alternatives (Simpson, 2011; Low, 2018). Third, literature on CBM (and ICBM) must continue to shift its' conceptualization of Indigenous Peoples in line with global efforts to 'decolonize' the academy (Tuck and Yang, 2012; Ladner, 2017). Finally, we urge policymakers and non-Indigenous designers of CBM programs to first invite Indigenous Nations as program co-designers; or at minimum, to institutionalize this new lens of analysis based on sustainable self-determination (Brunet et al., 2014a). As these programs continue to proliferate across the country, now is the time to incorporate such a perspective in order to simultaneously support meaningful monitoring of environmental, economic, and social change, while also advancing the resurgence of Indigenous nations. Furthermore, given the relative infancy of the Operational Framework Agreement (OFA) and the purported commitments from the Albertan and Canadian governments, we believe these recommendations could present an opportunity to course-correct through the revision of the institutional documents (the OFA) and the design of ICBM programs in the oil sands. While these institutional challenges may be the most enduring and constraining to long-term successful monitoring programs (Cronmiller and Noble, 2018), we have little doubt that a 'world class' monitoring can advance Indigenous nationhood simultaneously.

Declaration of Competing Interest

None.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [10.1016/j.exis.2020.04.006](https://doi.org/10.1016/j.exis.2020.04.006).

References

- Adger, W.N., Brown, K., Fairbrass, J., Jordan, A., Paavola, J., Rosendo, S., Seyfang, G., 2003. Governance for sustainability: towards a 'thick' analysis of environmental decision-making. *Environ. Plann. A* 35 (6), 1095–1110.
- Alberta Environmental Monitoring Panel (AEMP), 2011. A World Class Environmental Monitoring, Evaluation and Reporting System for Alberta. Report of the Alberta Environmental Monitoring Panel.
- Alfred, T., 2009a. *Peace, Power Righteousness: An Indigenous Manifesto*, 2 eds. Oxford University Press.
- Alfred, T., 2009b. Colonialism and state dependency. *J. Aborig. Health* 5 (2), 42–60.
- Alfred, T., Corntassel, J., 2005. Being Indigenous: resurgences against contemporary colonialism. *Govern. Oppos.* 40 (4), 597–614.
- Anaya, J.S. (Ed.), 2009. *International Human Rights and Indigenous Peoples*. Aspen Publishers, New York, NY.
- Austin, B.J., Robinson, C.J., Fitzsimons, J.A., Sandford, M., Ens, E.J., Macdonald, J.M., ..., Kennett, R., 2018. Integrated measures of Indigenous land and sea management effectiveness: challenges and opportunities for improved conservation partnerships in Australia. *Conserv. Soc.* 16 (3), 372–384.
- Austin, B.J., Robinson, C.J., Mathews, D., Oades, D., Wiggin, A., Dobbs, R.J., ..., Garnett, S.T., 2019. An Indigenous-led approach for regional knowledge partnerships in the Kimberley region of Australia. *Hum. Ecol.* 47 (4), 577–588.
- Baker, J.M., Westman, C.N., 2018. Extracting knowledge: social science, environmental impact assessment, and Indigenous consultation in the oil sands of Alberta, Canada. *Extract. Ind. Soc.* 5 (1), 144–153.
- Berkes, F., Berkes, M.K., Fast, H., 2007. Collaborative integrated management in Canada's north: the role of local and traditional knowledge and community-based monitoring. *Coast. Manag.* 35 (1), 143–162.
- Berkes, F., Colding, J., Folke, C., 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecol. Appl.* 10 (5), 1251–1262.
- Borrows, J., 1997. Living between water and rocks: first Nations, environmental planning and democracy. *Univ. Tor. Law J.* 47 (4), 417–468.
- Borrows, J., 2002. *Recovering Canada: The Resurgence of Indigenous Law*. University of Toronto Press, Toronto, ON.
- Boothe, P.M., 2015. Review of the Alberta Environmental Monitoring, Evaluation and Reporting Agency. Report to the Alberta Minister of Environment and Parks.
- Brunet, N.D., Hickey, G.M., Humphries, M.M., 2014. The evolution of local participation and the mode of knowledge production in Arctic research. *Ecol. Soc.* 19 (2). <https://doi.org/10.5751/ES-06641-190269>.
- Brunet, N., Jardine, T., Jones, P., Macdermid, F., Reed, G., Bogdan, A., Tchir, D., Natcher, D., 2014a. Towards Indigenous community-led monitoring of fish in the oil sands region of Canada: at the intersection of cultural consensus and fish science (under review). *Extract. Ind. Soc.* 36, 247–261.
- Cameron, L., Courchene, D., Ijaz, S., Mauro, I., 2019. The Turtle lodge: sustainable self-determination in practice. *AlterNative: Int. J. Indig. Peoples* 15 (1), 13–21.
- Carlsson, L., Berkes, F., 2005. Co-management: concepts and methodological implications. *J. Environ. Manag.* 75 (1), 65–76.
- Carroll, C., 2014. Native enclosures: tribal national parks and the progressive politics of environmental stewardship in Indian Country. *Geoforum* 53, 31–40.
- Carter, J.L., 2008. Thinking outside the framework: equitable research partnerships for environmental research in Australia. *Geogr. J.* 174 (1), 63–75.
- Confederacy of Treaty Six First Nations. (2010). *Treaty Number Six Chiefs' Position Paper on Consultation*. Submission to the Government of Canada and Alberta. Retrieved from: <https://www.assembly.ab.ca/committees/abecomfuture/EHS/Submissions/AEF-HSR-008.pdf>.
- Conrad, C.C., Hilchey, K.G., 2011. A review of citizen science and community-based environmental monitoring: issues and opportunities. *Environ Monit Assess* 176 (1–4), 273–291.
- Corntassel, J., 2008. Toward sustainable self-determination: rethinking the contemporary Indigenous-rights discourse. *Alternatives* 33 (1), 105–132.
- Corntassel, J., 2012. Re-envisioning resurgence: indigenous pathways to decolonization and sustainable self-determination. *Decol. Indig. Educ. Soc.* 1, 86–101.
- Corntassel, J., Bryce, C., 2012. Practicing sustainable indigenous approaches to cultural restoration and revitalization self-determination. *Brown J. World Affairs* 18 (2), 151–162.
- Coulthard, G., 2010. Place against empire: understanding Indigenous anti-colonialism. *Affinities: J. Rad. Theory, Cult. Action* Retrieved from: <https://ojs.library.queensu.ca/index.php/affinities/article/view/6141>.
- Coulthard, G.S., 2014. *Red skin, White masks: Rejecting the Colonial Politics of Recognition*. University of Minnesota Press, Minnesota, MN.
- Cronmiller, J.G., Noble, B.F., 2018. The discontinuity of environmental effects monitoring in the Lower Athabasca region of Alberta, Canada: institutional challenges to long-term monitoring and cumulative effects management. *Environ. Rev.* 26 (2), 169–180.
- Cullen, D., McGee, G.J., Gunton, T.I., Day, J.C., 2010. Collaborative planning in complex stakeholder environments: an evaluation of a two-tiered collaborative planning model. *Soc. Nat. Res.* 23 (4), 332–350.
- Danielsen, F., Burgess, N.D., Balmford, A., Donald, P.F., Funder, M., Jones, J.P., ..., Child, B., 2009. Local participation in natural resource monitoring: a characterization of approaches. *Conserv. Biol.* 23 (1), 31–42.
- Davidson, D.J., Frickel, S., 2004. Understanding environmental governance: a critical review. *Org. Environ.* 17 (4), 471–492.
- Dehcho First Nations, Indigenous Leadership Initiative (ILI), & Tides Canada, 2016. In: *Analysis of the Current and Future Value of Indigenous Guardian Work in Canada's Northwest Territories*. ILI, Yellowknife, NWT. Retrieved from: <http://www.ilionationhood.ca/wp-content/uploads/2016/11/value-in-indigenous-guardian-work-nwt.pdf>.
- Deloria, V., Lytle, C.M., 1984. *The Nations within: The past and Future of American Indian Sovereignty*. University of Texas Press, Austin, TX.
- Dennison, J., 2012. *Colonial Entanglement: Constituting a Twenty-First-Century Osage Nation*. University of North Carolina Press.
- Dennison, J., 2017. Entangled sovereignties: the Osage Nation's interconnection with governments and corporate authorities. *Am. Ethnol.* 44 (4), 684–696.
- Dubé, M., Cash, K., Wrona, F., Enei, G., Cronmiller, J., Abel, R., ... Zhira, M. (2018). *Oil Sands Monitoring Program Letter of Agreement and Operational Framework*. Retrieved from <https://open.alberta.ca/dataset/6db4cece-f936-40d6-bd9d-d8e5f2a60d3a/resource/1742d86f-e992-4af4-953f-032c0340a321/download/osm-fofa-signed-loa-including-citation-nov-15-2018.pdf>.
- Duit, A., Galvaz, V., Eckerberg, K., Ebbesson, J., 2010. Governance, complexity, and resilience. *Global Environ. Change* 20 (3), 363–368.
- Ermine, W., 2007. The ethical space of engagement. *Indig. Law J.* 6 (1), 193–203.
- Fache, E., 2014. Caring for country, a form of bureaucratic participation. conservation, development, and neoliberalism in indigenous Australia. *Anthropol. Forum* 24 (3), 267–286.
- Fernandez-Gimenez, M.E., Ballard, H.L., Sturtevant, V.E., 2008. Adaptive management and social learning in collaborative and community-based monitoring: a study of five community-based forestry organizations in the western USA. *Ecol. Soc.* 13 (2).
- Fortier, J.F., Wyatt, S., Natcher, D.C., Smith, M.A.P., Hébert, M., 2013. An inventory of collaborative arrangements between Aboriginal peoples and the Canadian forest sector: linking policies to diversification in forms of engagement. *J. Environ. Manag.* 119, 47–55.
- Foucault, M., 1991. *The Foucault Effect: Studies in Governmentality*. University of Chicago Press, Chicago.
- Garnett, S., Sithole, B., 2007. In: *Sustainable Northern Landscapes and the Nexus with Indigenous Health: Healthy Country, Healthy People*. Land & Water Australia, Canberra, Aus Retrieved from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.363.8351&rep=rep1&type=pdf>.
- Griffiths, S., Kinnane, S., 2011. *Kimberley Aboriginal Caring For Country Plan — Healthy country, Healthy People*. Kimberley Language Resource Centre, Halls Creek, WA Retrieved from: <http://klrc.org.au/projects/projects/caring-for-country>.
- Gudynas, E., 2011. *Buen Vivir : today's tomorrow*. Development 54 (4), 441–447.
- Hill, R., Grant, C., George, M., Robinson, C.J., Jackson, S., Abel, N., 2012. A typology of indigenous engagement in Australian environmental management: implications for knowledge integration and social-ecological system sustainability. *Ecol. Soc.* 17 (1), 312–328.
- Joint Oil Sands Monitoring Plan (JOSMP), 2012. *Joint Canada/Alberta implementation Plan for Oil Sands Monitoring*. Government of Alberta/Government of Canada, Edmonton, AB.
- Joly, T.L., Westman, C., 2017. *Taking Research Off the Shelf: Impacts, Benefits, and Participatory Processes around the Oil Sands Industry in Northern Alberta*. Final Report - Social Sciences and Humanities Research Council.
- Kotaska, J.G., 2013. *Reconciliation 'at the End of the Day': Decolonizing Territorial Governance in British Columbia after Delgamuukw*. Doctoral dissertation, University of British Columbia <https://doi.org/10.14288/1.0074235>.
- Kuokkanen, R., 2019. At the intersection of Arctic indigenous governance and extractive industries: a survey of three cases. *Extract. Ind. Soc.* 6 (1), 15–21.
- Ladner, K.L., 2003. Governing within an ecological context: creating an alternative understanding of Blackfoot governance. *Stud. Polit. Econ.* 70 (1), 125–152.
- Ladner, K.L., 2014. Political genocide: killing nations through legislation and slow-moving poison. In: Hinton, A.L., Woolford, A., Benvenuto, J. (Eds.), *Colonial Genocide in Indigenous North America*. Duke University Press.
- Ladner, K.L., 2017. Taking the field: 50 years of Indigenous politics in the CJPS. *Can. J. Polit. Sci./Revue Can. Sci. Polit.* 50 (1), 163–179.
- Lane, M.B., Corbett, T., 2005. The tyranny of localism: indigenous participation in community-based environmental management. *J. Environ. Policy Plann.* 7 (2), 141–159.
- Lemos, M.C., Agrawal, A., 2006. Environmental Governance. *Annu. Rev. Environ. Resour.* 31 (1), 297–325.
- Lemos, M.C., Agrawal, A., 2009. Governance for the environment: New perspectives. In: Delmas, M.A., Young, O.R. (Eds.), *Environmental governance and political science. Governance for the environment: New perspectives*. Cambridge University Press. Governance for the environment: New perspectives, Cambridge, UK, pp. 69–97.
- Low, M., 2018. *Practices of Sovereignty: Negotiated Agreements, Jurisdiction, and Well-being for Heiltsuk Nation*. Doctoral dissertation, University of British Columbia Retrieved from: <https://open.library.ubc.ca/collections/ubctheses/24/items/1.037564>.
- Lightfoot, S., Macdonald, D., 2017. Treaty Relations between Indigenous Peoples: advancing Global Understandings of Self-determination. *New Divers.* 19 (2), 25–39.
- Mackey, E., 2016. *Unsettled Expectations. Uncertainty, Land and Settler Decolonization*. McGreggor, D., 2004. Coming full circle: indigenous knowledge, environment, and our future. *Am. Ind. Q.* 28 (3), 385–410.
- McGreggor, D., 2018. *Mino-mnaamodzawin: achieving indigenous environmental justice in Canada*. *Environ. Soc.* 9 (1), 7–24.
- Meadowcroft, J., 2007. Who is in charge here? Governance for sustainable development in a complex world. *J. Environ. Policy Plann.* 9 (3–4), 299–314.
- Mills, A., 2016. *The lifeworlds of law: on revitalizing indigenous legal orders today*.

- McGill Law J./Revue de droit de McGill 61 (4), 847–884.
- Muller, S., 2014. Co-motion: making space to care for country. *Geoforum* 54, 132–141.
- Nadasdy, P., 2007. The gift in the animal: the ontology of hunting and human–animal sociality. *Am. Ethnol.* 34 (1), 25–43.
- Nagendra, H., Ostrom, E., 2012. Polycentric governance of multifunctional forested landscapes. *Int. J. Commons* 6 (2), 104–133.
- Natcher, D.C., Davis, S., Hickey, C.G., 2005. Co-management: managing relationships, not resources. *Human Org* 240–250.
- Nuttall, S., 2009. *Entanglement: Literary and Cultural Reflections on Post Apartheid*. Wits University Press, Johannesburg, SA.
- O’Faircheallaigh, C., 2013. Extractive industries and Indigenous peoples: a changing dynamic? *J. Rural Stud.* 30, 20–30.
- Oil Sands Advisory Panel (OSAP). (2010). A foundation for the future: building an environmental monitoring system for the oil sands. Submitted to the Minister of Environment. Retrieved from: <http://environmentalmonitoring.alberta.ca/resources/archive/>.
- Passelac-Ross, M., Buss, K., 2011. Water stewardship in the Lower Athabasca River: is the Alberta government paying attention to Aboriginal rights to water? *J. Environ. Law Pract.* 23, 69–83.
- Peachey, K., 2015. On-The-Ground Indigenous Stewardship Programs Across Canada: Inventory Project. Tides Canada, Vancouver BC Retrieved from. https://www.indigenousguardianstoolkit.ca/sites/default/files/Community/Resource_Final_Report_with_Profiles_March_27_2015_1.pdf.
- Reed, G., Brunet, N.D., Longboat, S., Natcher, D.C., 2020. Indigenous guardians as an emerging approach to indigenous environmental governance. *Cons. Bio.* <https://doi.org/10.1111/cobi.13532>.
- Reed, G., Dagli, W., Hambly Odame, H., 2020. Co-production of knowledge for sustainability: an application of reflective practice in doctoral studies. *Reflect. Pract.* 9 (2), 1–15.
- Reo, N.J., Whyte, K.P., McGregor, D., Smith, M.A., Jenkins, J.F., 2017. Factors that support Indigenous involvement in multi-actor environmental stewardship. *AlterNative: Int. J. Indig. Peoples* 13 (2), 58–68.
- Royal Society of Canada (RSC). (2010). Environmental and Health Impacts of Canada’s Oil Sands Industry. Retrieved from https://rsc-src.ca/sites/default/files/RSC_Oil_Sands_Panel_Main_Report_Oct_2012.pdf.
- Schindler, D., 2010. Tar sands need solid science. *Nature* 468 (7323), 499–501.
- Sherman, K.P., Van Lanen, J., Sherman, R.T., 2010. Practical environmentalism on the Pine Ridge Reservation: confronting structural constraints to Indigenous stewardship. *Hum. Ecol.* 38, 507–520.
- Simpson, A., 2011. On ethnographic refusal: indigeneity, ‘voice’ and colonial citizenship. *Junct.: J. Thematic Dialogue* 9, 67–80.
- Simpson, L.B., 2014. Land as pedagogy: Nishnaabeg intelligence and rebellious transformation. *Decol.: Indig. Educ Soc* 3 (3), 1–25.
- Smith, L.T., 2012. *Decolonizing Methodologies: Research and Indigenous Peoples*, 2nd edition. Zed Books Ltd, New York.
- Stratos Inc., 2015. In: Governance review of oil sands monitoring, evaluation and reporting. Submitted to Alberta Environmental Monitoring, Evaluation and Reporting Agency AEMERA. Stratos Inc., Ottawa, Ont..
- Tuck, E., Yang, K.W., 2012. Decolonization is not a metaphor. *Decol.: Indig., Educ. Soc.* 1 (1), 1–40.
- Turner, D.A., 2006. *This is Not a Peace pipe: Towards a critical Indigenous Philosophy*. University of Toronto Press.
- von der Porten, S., 2012. Canadian indigenous governance literature: a review. *AlterNative: Int. J. Indig. Peoples* 8 (1), 1–14.
- von der Porten, S., de Loë, R.C., 2014. How collaborative approaches to environmental problem solving view Indigenous peoples: a systematic review. *Soc. Nat. Resour.* 27 (10), 1040–1056.
- von der Porten, S., de Loë, R., Plummer, R., 2015. Collaborative environmental governance and indigenous peoples: recommendations for practice. *Environ. Pract.* 17 (2), 134–144.
- Westman, C.N., Joly, T.L., 2019. Oil sands extraction in Alberta, Canada: a review of impacts and processes concerning indigenous peoples. *Hum. Ecol.* 47 (2), 233–243.
- Whiteman, G., Mamen, K., 2002. In: Meaningful consultation and participation in the mining sector? A review of the consultation and participation of Indigenous Peoples within the international mining sector. The North-South Institute, Ottawa, ON Retrieved from. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.199.2901&rep=rep1&type=pdf>.
- Whyte, K.P., Brewer, J.P., Johnson, J.T., 2016. Weaving Indigenous science, protocols and sustainability science. *Sustain. Sci.* 11 (1), 25–32.
- Wilkins, D.E., 1993. Modernization, colonialism, dependency: how appropriate are these models for providing an explanation of North American Indian ‘underdevelopment’? *Ethn. Racial Stud.* 16 (3), 390–419.
- Wilson, N.J., Mutter, E., Inkster, J., Satterfield, T., 2018. Community-Based Monitoring as the practice of Indigenous governance: a case study of Indigenous-led water quality monitoring in the Yukon River Basin. *J. Environ. Manag.* 210, 290–298.
- Yaffee, S.L., Wondollock, J.M., 2010. Collaborative ecosystem planning processes in the United States: evolution and challenges. *Environ.: J. Interdiscipl. Stud.* 31 (2), 59–72.
- Zurba, M., Ross, H., Izurieta, A., Rist, P., Bock, E., Berkes, F., 2012. Building co-management as a process: problem solving through partnerships in Aboriginal country, Australia. *Environ. Manag.* 49 (6), 1130–1142.