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Review

Enabling Indigenous-centred decision-making for a just energy transition? Lessons from community consultation and consent in the circumpolar Arctic

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ABSTRACT

Governance and decision-making that uphold the rights, interests, knowledges, and values of Indigenous peoples and land-connected communities are increasingly recognised as critical components of a just energy transition. Despite the unprecedented inclusion of Indigenous peoples in resource governance, it is unclear how community consultation and consent can effectively support Indigenous-centred decision-making. In this paper, we provide an integrative and case review of community experiences with consultation and consent across the Arctic and sub-Arctic region which along with other 'resource geographies' are increasingly affected by transition minerals mining and renewable energy infrastructure. Key themes identified in the review include: (1) limitations of state- and company-led community consultation and consent; (2) practices of Indigenous-centred (Indigenous-led, Indigenous-benefiting and Indigenous-informed) decision-making; and (3) barriers to Indigenous-centred decision-making. Focusing on the circumpolar north, this paper contributes to broadening the discussion on just energy transitions for Indigenous peoples. Implications for scholarship and practice are discussed, reflecting on community consultation and consent in the current rush to supply minerals and infrastructure for the global energy transition.

1. Introduction

Indigenous peoples and communities with land-based livelihoods worldwide are facing mounting pressure from the unprecedented scale and pace of low-carbon energy transitions [1–4]. Mining and energy projects require access to land that is central to Indigenous cultures and livelihoods, with Indigenous peoples holding responsibilities as guardians of ancestral lands and cultural heritage [5,6]. While industrial-scale mining and energy projects can offer remote communities socio-economic and environmental benefits (better access to energy, income, services, and education) [e.g., [7,8]], research highlights significant negative impacts, including loss and degradation of ancestral lands and waters, conflicts and displacements, risks to health and life, impacts on culturally significant sites and activities, and unfair benefit-sharing [e.g., [9,10,11]] Ongoing energy transitions are deeply tied to colonial histories, when hydroelectric dams and oil exploration were developed in a way that disrupted Indigenous ways of life and marginalised Indigenous leadership in resource governance. Many Indigenous communities continue to be excluded from decision-making, and are subjected to violence, discrimination, criminalisation and ignorance [12,13]. Calls for justice emphasize the need to rectify colonial legacies and avoid perpetuating marginalization by recognising and respecting Indigenous sovereignty in infrastructure planning and resource management [14,15]. In particular, there is a significant interest in decision-making which is inclusive and respectful of cultures, rights, interests, knowledges, and values of Indigenous peoples [1,16–21], which we refer to as Indigenous-centred decision-making.

Indigenous-centred decision-making is increasingly recognised as a critical component of a just energy transition [15,21,22]. Originating in the United States (US) labour movement of the 1980s, the concept of a "just transition" has broadened to encompass the energy transition, and has been increasingly instrumental in calls for theoretical pluralization

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that highlight multiple understandings of "just transitions", including those of Indigenous peoples [23–25]. The global Indigenous peoples' movement has outlined multiple principles for a just transition, ranging from the "Right to life" to a "Rights-based approach to supply chains" (see the summary document from the 2024 Indigenous Summit on Just Transition [15]). Just transition for Indigenous Peoples means "exercising our own customary institution and Indigenous Peoples' governance systems, based on our traditions and ways of life" (p. 3). In the context of the energy transition, this includes "a supply chain that respects Indigenous Peoples' decision-making authority and free, prior and informed consent (FPIC) at all steps" (p. 7). This vision aligns with research on the topic that emphasises the centrality of procedural power and justice for Indigenous knowledge [22]. There continues to be a strong research need for a better understanding of concepts of justice and just energy transitions grounded in perspectives of Indigenous and land-connected people, with existing literature highlighting two broad perspectives: one rooted in ontological and epistemological understanding of justice (centred on relationality among human, non-human, physical and spiritual), and second focuses on a rights-based notion of justice (recognition and implementation of Indigenous rights under common law and moral frameworks) [26,27]. This paper primarily engages with the latter approach, while drawing connections to the former.

The significance of Indigenous-centred decision-making has grown in importance in light of the rush to develop low-carbon projects driven by climate urgency, geopolitical instability, and energy security concerns. This haste has created an urge to expedite decision-making processes, sometimes weakening safeguards for affected people and the environment [28,29]. As the global Indigenous peoples' movement put it, "we will continue to engage/challenge local, national, state, provincial, federal and international regulations, standards, laws, policies and actions that streamline 'green/clean' energy projects that ignore our free, prior and informed consent and socio-cultural and environmental review processes in order to 'fast track' such projects in the name of public or national interest" [15].

In this paper, we focus on Indigenous-centred decision-making linked to large-scale mining and renewable energy projects in the Arctic and sub-Arctic, and ask whether and how it can be supported through community consultation and consent. As a form of public engagement in natural resource governance and planning, community consultation and consent are key relationship-shaping norms intended to moderate power imbalances between governments, the private sector, and people affected by industrial development. Community consultation is a common requirement for public participation, while free, prior and informed consent (FPIC) is an internationally recognised right of Indigenous peoples to provide consent or reject projects impacting their lands. The endorsement of these norms is evident in the growing recognition of human rights in legal and judicial spheres, in natural resource governance and due diligence initiatives, and in regulations, policies, and guidelines promoting responsible resource development [e.g., [30,31]]. A significant number of academic publications, media, and United Nations' reports frequently flag a lack of consent and inadequate consultation, citing lack of specificity, loose interpretations, and weak implementations [e.g., [32,33,34]]. They highlight diverse project- and context-specific as well as structural issues, including the disregard of Indigenous rights and the right to veto a project, neocolonial mindsets, centralised governance, or corporate neglect of social complexities. These challenges illustrate both the importance of addressing this topic and the complex nature of its practical implementation.

To better understand Indigenous-centred decision-making, we reviewed community experiences of consultation and consent regarding mining and low-carbon energy projects (wind, solar, and hydro power) across the circumpolar north, encompassing Arctic and sub-Arctic regions of Canada, Kalaallit Nunaat (Greenland), Finland, Sweden, Norway, Russia, and the US. This diverse region provides rich ground to explore models of and barriers to Indigenous-centred consultation and consent. In the circumpolar north, projects encroach on Indigenous lands, impacting traditional cultures and nature-based livelihoods of reindeer herding, hunting, fishing, and foraging [35,36]. Arctic nations (except Russia) are democratic, high-income countries with strong governance, rule of law, trusted judiciary, and adherence to international human rights treaties. Indigenous communities increasingly exercise influence over development on their lands and demonstrate robust leadership [37–40]. While opportunities for fair treatment have improved compared to historical colonisation and industrialisation [41], Indigenous peoples continue to be excluded from decision-making, as conflict situations of complex, prolonged, epistemic and value-based disagreements mark the 'green' transition in the north [13,36].

This review draws on over 100 academic papers by Indigenous (self-identified) and non-Indigenous authors, adopting an interdisciplinary approach in order to recognise the interdependencies of justice components and leverage the authors' specialisations in geography, law, history, Indigenous studies, and environmental governance. The review identified three key themes: (1) limitations of state- and company-led community consultation and consent; (2) practices of Indigenous-centred decision-making; and (3) barriers to Indigenous-centred decision-making that continue to hinder their application in practice. To analyse Indigenous-centred decision-making, we developed a conceptual framework that differentiates Indigenous-led approaches from Indigenous-informed and Indigenous-benefiting. Indigenous-led approaches emphasize self-governance and prioritize Indigenous knowledge and decision-making, while Indigenous-informed and Indigenous-benefiting approaches involve external leadership that may include consultation but lacks full Indigenous control. This review contributes to the ongoing discussion on Indigenous perspectives on justice, in particular on the role of community consultation and consent in enabling just energy transitions for Indigenous peoples. It expands existing scholarship on resource governance and transition planning in the circumpolar north by synthesising region-specific literature. Beyond academic contributions, it offers insights for policymakers, practitioners, and communities implicated in decision-making about industrial-scale energy and mining projects.

The following section introduces key concepts and establishes the conceptual framework. This is followed by a contextual overview of justice challenges in Arctic energy transitions. The methodology is introduced next. Then, results are presented, and finally, we discuss the results and implications for scholarship and practice.

2. Conceptual framework for the review

2.1. Justice as it relates to indigenous peoples

Justice theory in the social sciences is characterised by pluralism, with various theories providing specific insights into the conditions of social or environmental injustices [26]. Whilst theorisation of justice is rooted in liberal theories, recent scholarship explored alternative conceptualisations of justice, including environmental justice (focuses on the equitable distribution of environmental benefits and burdens), climate justice (deals with the benefits and burdens linked to climate change), and energy justice (addresses fairness in energy access, and benefits and burdens of energy production and energy transitions) [24,26]. Key dimensions in justice literature linked to energy transitions commonly include distributional (distribution of benefits and burdens across populations), procedural (fair, equitable and inclusive decision-making), and recognition (historic and ongoing inequalities) justice, while some add restorative (injustices in need of rectification) and cosmopolitan (the effects from a global context) justice [25,42,43].

Indigenous approaches to justice, though enriching justice theorising, remain marginalised [26]. These conceptions underscore relationships and harmony among physical, human, non-human and sacred worlds, offering a holistic, relational perspective on justice. Given the diversity of Indigenous groups and their beliefs, justice is rooted in

ontological and epistemological traditions unique to each group [27]. Indigenous peoples also advocate for a right-based approach to justice, asserting rights to ancestral lands, self-determination, and cultural preservation, from both legal and moral perspectives [26]. This paper adopts the approach focused on rights, while also recognising its role in protecting and promoting ontological and epistemological perspectives. Both are important for breaking the colonisation-injustice loop, as from the Indigenous perspective, all injustices have the same roots linked to historical and ongoing colonisation [22].

2.2. Just transitions and Indigenous perspectives

One important discussion in the literature focuses on how to ensure that ongoing energy transition is equitable and fair [44]. The concept of just transition, with origins in the 1980s US labour movement, has gained prominence in theory and practice, drawing on environmental, energy, and climate justice frameworks [24]. While its narrow interpretation focuses on workers' rights in the shift away from fossil fuels, its broader application encourages critical reflections on the societal implications of decarbonisation, both moving away from fossil fuels and towards low-carbon industries, including energy transition minerals mining, alluding to the sense of fairness for affected communities. The concept and its application are highly contested, with varied interpretations across academic and non-academic domains [45]. For example, the United Nations' concept of a just green transition is anchored to the principle of "leaving no one behind" [46]. Recognising the multiplicity, scholars acknowledge the plurality of "just transitions", highlighting the diversity of perspectives and experiences of changes unfolding in different contexts. One significant discussion focuses on Indigenous perspectives on just energy transitions.

Rioux-Gobeil and Thomassin [22] conducted a comprehensive review on the effects of renewable energy production on Indigenous peoples, focusing on settler states such as Canada and Australia. They argue that while procedural, distributional, and recognition justices are important, they are insufficient. The authors highlight the need to consider justice for Indigenous knowledge renewal, socioeconomic impact distribution, and procedural power [22]. Other research demonstrates that procedural fairness of decision-making for Indigenous peoples is deeply linked with recognition justice (recognition of Indigenous rights, plural worldviews and knowledges) and restorative justice (as an opportunity for healing, reparation and reintegration) [23]. Building on this work, we focus on current approaches to consultation and consent, which we consider to be at the core of these discussions.

2.3. Community consultation and consent

It is widely accepted that whenever development affects people, they should be involved in decision-making. Public participation generally involves formal consultation, where information about a project is disseminated, and citizens are invited to comment – although feedback may not always influence decision-making [44,47]. Formal consultation is often a requirement for project approval and impact assessments. International frameworks, guidelines, and academic research stress the importance of meaningful engagement – from the outset and throughout the project's lifecycle [30,31]. Meaningful engagement is believed to help to understand local needs and concerns, promote more equitable benefit distribution, and reduce disputes and conflicts around industrial projects [48,49].

Indigenous peoples have international legal protections requiring FPIC, a recognised right under the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and International Labour Organization's Indigenous and Tribal Peoples Convention 169 (ILO C169). FPIC gives Indigenous people the right to provide and withhold consent regarding projects impacting their lands. True consent includes the right to say "No", and the right for that decision to be respected. In some countries, Indigenous peoples hold these rights under national legislation, providing decision-making and negotiating power, and a right to remedies [50]. Even without legal mandates, governments and companies can voluntarily incorporate FPIC into decision-making processes [51]. Despite commitments to meaningful consultation and FPIC, there are inherent power relations as "decision-making is not made by those who are affected by those decisions" [52]. Indigenous peoples continue to assert that their voices are often ignored, and their demands unmet.

The potential of Indigenous rights is that they provide prerequisites for Indigenous-led decision-making processes. In 2013, the former UN Special Rapporteur on the Rights of Indigenous Peoples, James Anaya, highlighted a "preferred" model of resource development based on Indigenous control, emphasizing the Indigenous right to "determine priorities and strategies for the development or use of their lands and territories", as per Article 32 of the UNDRIP [53,54]. Recent research on environmental, climate, and energy justice from the Indigenous perspective emphasises the importance of respecting and centering Indigenous peoples' rights, interests, knowledges, and responsibilities in decision-making and relationships with governments and corporations [14,55–57]. Indigenous-centred decision-making is essential for a just energy transition: the latter can be achieved only when the former is respected [23,58].

2.4. Indigenous-centred decision-making

Indigenous-centred decision-making goes beyond state- and company-controlled consultation and consent processes, and aim to uphold Indigenous rights, interests, knowledges, and responsibilities. At the heart of Indigenous-centred decision-making is the principle of self-determination, ensuring that Indigenous communities control their resources and governance, particularly in land use, energy sovereignty, and cultural preservation. Studies increasingly highlight Indigenous-centred decision-making in project planning and impact assessments, including Indigenous-controlled FPIC processes which Doyle et al. [59] found to be present in 20 countries. Shilling-Vacaflor and Flemmer [60] studied consultation implementation in Bolivia, Colombia and Peru, focusing on Indigenous peoples' agency and leadership. They identified "new Indigenous-led spaces of decision-making and environmental governance", where Indigenous groups create their own rules, regulate and implement FPIC processes. The authors suggest that these efforts have been influential, as "indigenous agency has resulted in new legislation, the systematic implementation of prior consultation processes, the improvement of the quality of consultation processes, the adoption of relatively strong final consultation agreements and the states' responsiveness (in some cases) to address broader grievances articulated in consultation processes" (p. 312). However, they also noted that many initiatives "have been curtailed and in several cases stories of indigenous success turned out to debilitate indigenous life projects in the longer run", "through 'divide and rule' tactics used by state or corporate actors or violent state responses to indigenous claims" (p. 312).

In this paper, we argue that it is important to highlight an essential distinction in Indigenous-centred decision-making, clearly delineating the agency and leadership of Indigenous peoples in various approaches. The proposed spectrum (Fig. 1) – Indigenous-led, Indigenous-benefiting, and Indigenous-informed approaches – reflects these varying levels of leadership of Indigenous peoples involved.

Indigenous-led approaches represent Indigenous leadership and agency, with Indigenous values and knowledge deeply embedded in and driving decision-making processes. Indigenous peoples have control and authority over setting the agenda, and defining the terms and processes of engagement. *Indigenous-benefiting* approaches accommodate consultation and consent as part of negotiations and agreements to establish compensation for impacts and share benefits from industrial development on their lands. While Indigenous peoples may contribute through consultation and advisory roles, they may not have significant decision-making power. *Indigenous-informed* approaches focus on including

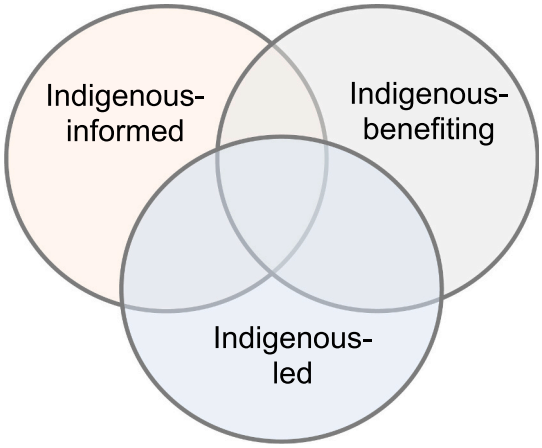

Fig. 1. A spectrum of Indigenous-centred decision-making comprised of Indigenous-led, Indigenous-benefiting, and Indigenous-informed approaches.

Indigenous perspectives, knowledges, rights and values into project planning and implementation, with decision-making authority remaining with external actors [61]. Indigenous-led approaches are interconnected with the other two, as they are likely to involve the benefits for communities, while also integrating Indigenous perspectives into broader decision-making frameworks. The goal of introducing this framework is not to categorise or 'label' emerging approaches, but to reflect critically on power dynamics at play. Next section establishes a context for the review.

3. Context: Energy transitions in the circumpolar north

In recent years, the Arctic and sub-Arctic regions have seen an increased interest in investment in mining and low-carbon energy infrastructure [62,63]. As Fig. 2 shows, at least 80 % of low-carbon energy (all stages from planning to operating) and mineral (including exploration, construction, operating, closure, and abandonment) projects are intersected with territories where diverse circumpolar Indigenous people's' languages are spoken and Indigenous peoples hold land-based rights, interests, and knowledges. This number could be even higher, as the absence of Indigenous languages on the map does not necessary mean there are no Indigenous peoples or land rights. And it is likely that extractive and energy industries will expand, be it deep seabed mineral exploration, rare earths mining, wind energy generation, storage, and transmission and transportation infrastructure. Among multiple drivers behind this increase are energy security concerns, global geopolitical re-alignments [64], and numerous policies and strategic documents, including the European Green Deal (2020), the European Critical Raw Materials Act (2023), the US's Inflation Reduction Act (2022), and Canada's Critical Minerals Strategy (2023), among others. While these documents underscore the importance of balancing economic development with social and environmental goals, there is a need to bring light to the distribution of burdens and opportunities of energy transition in the circumpolar north [65].

Central to this understanding is that energy transitions in the circumpolar north are deeply intertwined with the history of colonialism, as it continues to shape the region's environmental and socio-political landscape [33,66]. Colonial policies have been prioritizing extractive industries (such as fur trading, mining, forestry, hydropower and oil extraction) in the region perceived as the "terra nullius", expropriating lands, and marginalising Indigenous communities [67]. Ongoing energy transitions are intensifying resource extraction against the legacy of historical and existing extractive industries and reproducing colonial attitudes as decision-making continues to exclude Indigenous peoples [22,33]. These dynamics have led to the framing of the region as a "green sacrifice zone" [35,36,68], providing a deep interrogation of neocolonial, racial, cultural, and environmental underpinnings of making "green" industrial economies. The concept of "sacrifice zones" has gained popularity in the US regarding nuclear testing locations, waste sites and extractive regions, which are "sacrificed" for a higher purpose in the name of profit and progress, highlighting environments and populations that are marginalised [68,69]. The value of its application in the Arctic context is that it "helps to see how the participation and distribution of burdens and benefits are understood and considered" given the impacts of industrial projects on communities driven by top-down policies and the global demand for resources and low-carbon energy [69] (p. 106).

Issues of a just energy transition in the Arctic have received increasing attention, with the calls for evaluation of existing projects, legal instruments and policy frameworks, as well as identification of gaps and areas for improvement [65]. This review addresses these needs.

4. Methodology: An integrative narrative and case review

This paper employs an integrative review method to synthesise and analyse literature on community experiences with consultation and consent in the Arctic and sub-Arctic. Integrative reviews are well-suited for addressing dynamic topics and for formulation of lessons learned [70]. It was supplemented by a case study review [71] to capture contextual complexities and the plurality of local experiences. The interdisciplinary team, including Indigenous and non-Indigenous scholars in geography, law, history, Indigenous studies, and environmental governance, enabled a more holistic approach to the review. The authors have extensive lived and research experience in the study region, informing keywords selection and findings interpretation.

Research design included three phases. In Phase I (literature search), to identify relevant academic English-language articles, we systematically searched Scopus and Web of Science on 10 July 2023 with no restrictions on publishing year. We used Title-Abstract-Keywords returns from a search about the "place" category (arctic* OR sub-arctic* OR circumpolar* OR alaska* OR yukon* OR lapland* OR nunavut* OR finnmark OR greenland* OR "Northwest Territories" OR Sámi OR sapmi); narrowed by "industry" (mining* OR exploration OR "mine closure" OR wind* OR solar* OR "energy transition" OR "critical mineral" OR battery* OR "deep sea" OR mineral* OR renewable* OR "resource extraction" OR "resource development"); and further narrowed by "participation" (consult* OR consent* OR fpic* OR participat* OR engage*), and the Boolean Operator 'NEAR/10' ensured the most relevant articles. In total, 391 documents were identified.

In Phase II (full-text screening), after removing duplicates, abstracts were evaluated against inclusion criteria: Arctic /sub-Arctic focus; relevance to mining or low-carbon energy projects; broad focus on community consultation and consent (consultation and consent are not necessary core of the study); Indigenous-centred decision-making can be identified; original research and/or review. Exclusions applied to non-English texts, unavailable full texts, and studies on oil and gas. This reduced the sample to 79 articles and book chapters for in-depth integrative and case review, and 26 articles were used for contextual review.

In Phase III (coding and analysis), each of 79 documents was coded using study characteristics (study scope, discipline, and research methods), and key themes were identified. Most articles (48 %) focused on specific projects, while others had regional (25 %), national (22 %), Indigenous nation (9 %), policy (1.3 %) or company (1.3 %) focus. Environmental management was the most common discipline (14 %), followed by law (13 %), political science (11 %), and Indigenous studies (8 %). Qualitative methods dominated, with interviews (38 %) and document analysis (27 %) most frequently employed. Most articles were published in the last decade, with notable increases in 2014, 2019 and 2023. This trend reflects the attention to FPIC and Indigenous rights, and more recently – to decarbonisation and energy transitions. When reporting results, it is important to acknowledge a common bias in academic literature towards problematic issues. Positive experiences,

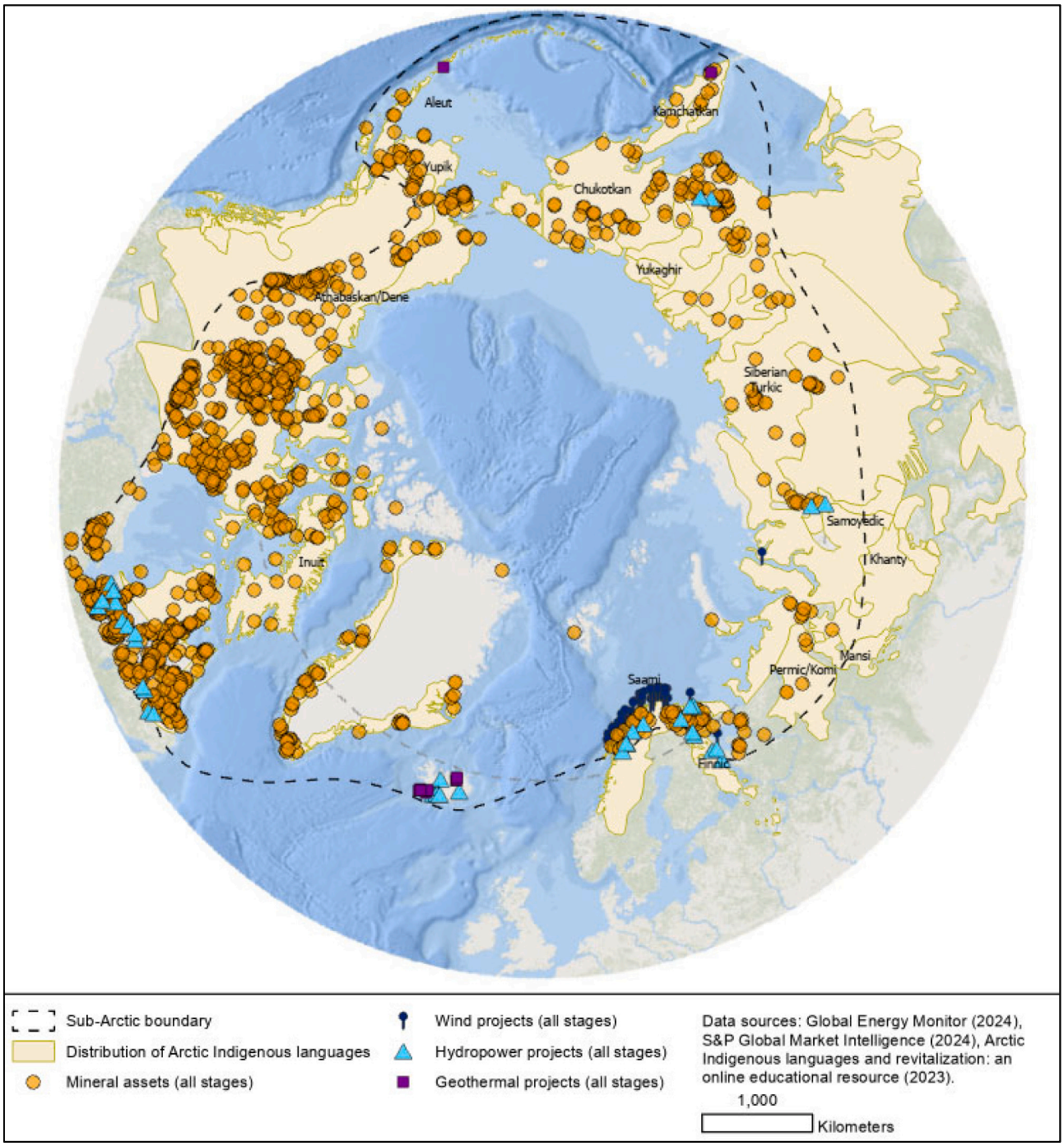

Fig. 2. Low-carbon energy projects, mineral properties, and Indigenous peoples' territories in the circumpolar north. Map created by the authors using ArcGIS Pro.

often less emphasised in research, are more prevalent in the literature on best practices [e.g., [72,73,74]]. Consequently, our review reflects this bias, as search words did not distinguish between positive and negative experiences. This limitation highlights the importance of interpreting findings with an understanding of the broader context in which they are presented.

5. Results

5.1. Overview

The governance framework for community consultation and consent across circumpolar countries relies on the complex interplay of international norms, national and sub-national legislation, jurisprudence, and corporate-led engagement. Different circumpolar jurisdictions and pan-Arctic institutions have established requirements and guidelines for public participation in decision-making. Some are general and others are specific to the scale, type, location, and complexity of projects and localities, covering different stages of project planning and implementation [75]. Key requirements and triggers for community consultation and consent across circumpolar north countries are extensively discussed elsewhere [see, e.g., [76,77,78]]. Table 1 provides an overview of country-specific requirements and triggers for consultation and consent, as identified in our review.

The Environmental Impact Assessment process is a common way of accommodating state-led consultation across jurisdictions. In addition

Table 1
A selection of specific requirements and triggers for consultation and consent, as reported in reviewed articles*.

National context	Triggers for consultation and consent
Canada	Constitutional Duty to Consult by the Crown (Section 35 of the Constitution Act).
	Modern land claim agreements and treaties: government-to-government agreements between First Nations and the Provinces (treaties) guarantee some level of participation related to specific types of decisions (e.g., the 1975 James Bay and Northern Quebec Agreement, the Tłı̨chǫ Agreement).
	Statutory duties under the Canadian Environmental Assessment Act (2012).
	Sub-national and district regulations and acts, e.g., Nunavut Planning and Project Assessment Act or the Mackenzie Valley Resource Management Act.
	Courts and case law.
	Truth and reconciliation commission of Canada.
Finland	Mining Act (2011,2023).
	Reindeer Husbandry Act (1990).
	Sami Parliament Act (1995). Duty to consult Indigenous peoples is related to international obligations but applies only to the Sami Homeland (~10 % of Finnish land area).
	Act on the Environmental Impact Assessment Procedure (2017).
	EU-specific legislation (e.g., protocol on Strategic Environmental Impact Assessments (SEA)).
	Municipal plans.
	Voluntary company-led consultations.
	Akwé: Kon guidelines.
Kalaallit Nunaat (Greenland)	Mineral Resources Act (2010), including 2014 (pre-consultation and consultation for large-scale projects).
	Guidelines on Social Impact Assessment and Environmental Impact Assessment (2016).
	EU-specific legislation (e.g., protocol on Strategic Environmental Impact Assessments (SEA)).
Norway	Norwegian Constitution (paragraph 108).
	The Finnmark Act (2005).
	Consultation Agreement and Guidelines (2005).
	Planning and Building Act (2008).
	Minerals Act (2009).
	Sámediggi's Mineral Guide (2010).
	Sámidiggi's Guidelines for the consideration of Sámi interests in the context of applications for changed land use in Finnmark.
Russia	Federal Act On environmental expert review (1995).
	Federal Act On guarantees of the rights of the Indigenous small-numbered peoples of the Russian Federation (1999).
	Federal Act On the general principles of organization of communities of Indigenous small-numbered peoples of the North, Siberia, and the Far East (2000).
	Federal Act On territories of traditional use of natural resources by small-numbered Indigenous peoples of the North, Siberia, and the Far East of the Russian Federation (2001).
	Sub-national regulations, e.g., the Sakha Republic (Yakutia) regional legislation On ethnological expert review (2010).
Sweden	Environmental Code (1998).
	Act on National Minorities and Minority Languages (2009).
	Domestic jurisprudence.
USA (Alaska)	The Alaska Native Claims Settlement Act (ANCSA) (1971).
	Alaska National Interest Lands Conservation Act (ANILCA) (1980).
	National Environmental Policy Act (NEPA) (1969).
	Environmental Protection Agency (EPA) consultation policy (2011) and other department similar policies.

* The list is not exhaustive and include only triggers mentioned in reviewed articles.

to formal consultation, company-led consultations are driven by corporate policies and industry guidelines that require community engagement, in-depth consultations and in some cases FPIC [79], for example in the context of negotiations focussed on impact and benefits agreements. In Canada, FPIC has become a required process if a company wants to develop a project on lands under a treaty, however this is not always followed [61]. In the Nordic context, a more ambitious (beyond the law) consultation process with stakeholders has become increasingly common [80], but FPIC is not an established process; companies rather organise consultations with a specific target group (e.g., reindeer herders) or a broader community. The demands for meaningful consultation and FPIC are a result of hard work that led to Indigenous and treaty rights being recognised and integrated with resource and environmental governance. More recently, Canada and the Nordic countries have entered the process of truth-telling and seeking reconciliation, which provides further opportunities for Indigenous people to affirm their sovereignty and rights, creating a basis for Indigenous-centred decision-making.

Indigenous communities are adopting a variety of approaches to increase their involvement in decisions about industrial activities on their lands, including through resistance, partnerships and development of Indigenous-led policies and protocols. Partnerships underpin agreements between states and Indigenous peoples, such as the Nunavut Land Claims Agreement in Canada [81] and Norway's Consultation Agreements [82]. Collaborative governance and Indigenous-led assessments are suggested by the Arctic Council's Sustainable Development Working Group's good practice recommendations for environmental and social impact assessments [75]. Energy and mining strategies increasingly include Indigenous-centred decision-making. For example, Canada's Critical Minerals strategy states that the government will "honour treaty obligations; uphold the duty to consult, with the aim of securing the free, prior, and informed consent of Indigenous peoples; and, move beyond legal obligations by strengthening Indigenous participation and leadership in the sector." [83]. However, each Indigenous nation and community is unique and they have diverse experiences of participation in decision-making. Despite this diversity, common experiences arise. The next section provides qualitative summaries of these experiences across three themes that surfaced in the review.

5.2. Key themes

Theme 1 refers to limitations of company- and state-led consultation and consent, and Theme 2 refers to ways in which Indigenous-centred approaches are seeking to address these limitations. Theme 3 focuses on barriers to Indigenous-centred consultation and consent.

5.2.1. Limitations of company- and state-led consultation and consent

Limitations of company- and state-led consultation and consent is a common thread in the reviewed literature. Table 2 summarises these limitations by national context. We then present five limitations shared across all circumpolar jurisdictions: 1) procedural issues; 2) legal ambiguity and gaps; 3) weak relationships and lack of trust; 4) cultural disconnect; and 5) asymmetries in power, knowledge, and control. These limitations are largely systemic in nature and profoundly

Table 2
A selection of country-specific limitations to company- and state-led consultation and consent across the circumpolar north, as reported in reviewed articles.

National context	Limits to meaningful consultation and consent	References
Canada	o The legal duty to consult sits with the Crown but procedural elements of consultation are delegated to private actors which might be poorly prepared to address the concerns of Indigenous communities, especially the cumulative effects. o Economic dependency on mineral and energy projects creates pressures for Indigenous groups to engage in consultations and consent. o Complex set of overlapping interests and jurisdictions.	[84–89]
Finland	o Duty to consult is defined by the authority to be limited geographically to the Finnish north, known as the Sámi Homeland (~10 % of Finnish land area), while the traditional territory of the Sámi people is much broader. There is too narrow definition of persons belonging to the Indigenous people in legal practice. o Duty to Consult is limited to the Sámi Parliament (local Sámi groups and Skolt Sámi are not always included). o Overlapping interests across territories and multiple owners and users of land, including 'seasonal' stakeholders such as tourism operators, second-home owners and reindeer herders.	[76,90–92]
Kalaallit Nunaat (Greenland)	o Institutional legitimacy is at an early stage; current policies demonstrate a tension between the democratic requirements and the political goal of achieving sovereignty in Greenland. o Lack of guidance on public consultation procedures. o Lack of transparency and openness.	[93–99]
Norway	o International conventions are not specific enough to guide action, lack of clarity on FPIC practice. o The state has the final say. o Failure to address deep concerns over traditional livelihoods and Indigenous rights.	[76,100–103]
Russia	o Strong role of the state in the decision-making process. o Indigenous groups without formal documentation on land use rights are excluded from the decision-making process. o No consent mechanisms exist.	[78,104,105]
Sweden	o No state obligations concerning consultation in law; no requirement for mandatory stakeholder consultation, consultation is normally carried out voluntarily by applicants. o Government bias to resource projects (as serving collective interests) versus individual interests of reindeer herders as stakeholders. o The Sámi Parliament lacks political mandate.	[76,106–111]
United States (Alaska)	o Significant political contestations and legal conflicts. o Legislation gives preference to the land uses of the greatest economic benefit. o Conflicting claims to authority.	[112–116]

influence the dynamics of consultation and consent across the circumpolar north.

5.2.1.1. Procedural limitations. A key limitation to company- and state-led consultation and consent is procedural, with studies highlighting issues around the goals, scope, and timing of engagement. Communities often perceive consultations as bureaucratic box-ticking exercises [117], with pre-determined agendas aimed at project approval rather than genuine dialogue. Accommodations are typically limited to project terms and conditions, framing the question as "how" rather than "whether" to execute a project [33]. In terms of timing, there is a perception that engagement: does not start early enough in the planning process [99,118]; leaves insufficient time for preparation, discussion and addressing concerns; and is inadequate in engaging vulnerable and often excluded groups, such as youth [119] or women [89]. In Greenland, for example, "insufficient, late and overly narrow public participation are major themes in the decision phase of the natural resource projects" [120]. A 2014 report by the Greenland NGO "Coalition for Better Citizen Involvement" made recommendations for improving citizen engagement [96], yet procedural issues continue to undermine effective and meaningful communication, impacting the ability of communities and stakeholders to reach agreeable decisions [99].

5.2.1.2. Legal ambiguity and gaps. Another limitation refers to legal ambiguity and gaps regarding land and property rights. Studies highlight the issues of overlapping and unresolved land claims and legal interests across territories and among multiple owners and land users [89,121]. This creates confusion regarding the rights and responsibilities of stakeholders, contributing to disputes and challenges in achieving meaningful consent. In addition, there are uncertainties or inadequacies in legal frameworks concerning triggers for consultation and consent. In Russia, for example, "the federal regulation requires companies to hold public hearings with local communities to discuss environmental impacts as part of EIA [environmental impact assessment] at the stage of state project approval. However, the federal regulation does not require a specific consultation with Indigenous peoples" and there are no requirements for Indigenous consent [78].

5.2.1.3. Weak relationships and lack of trust. Across the north, historical grievances, past experiences of extractive industries and ongoing colonial practices continue to strain relationships between Indigenous communities, governments, and industry [112]. However, these tensions are not merely historical but are rooted in the persistent effects of coloniality, including systemic marginalization and dispossession of Indigenous lands [91]. Centralised top-down structures and processes perpetuate mistrust, diminish self-confidence, and undermine communities' willingness to engage with government- and company-led initiatives [122]. Building trust is strongly linked to effective communication and transparency, and consultation and consent are fundamentally about building long-lasting relations [73,123]. For example, Bowes-Lyon, Richards [49] explained that due to the lack of communication over contamination issues, community members distrusted the Nunavut government in the reclamation of the Nanisivik townsite as part of the mine closure. Furthermore, many engagement activities are perceived as opportunistic and transactional, with organisations engaging communities only when a need arises [73]. From the community's point of view, this reinforces colonial dynamics, as organisations frequently fail to acknowledge historical and ongoing injustices, or invest in creating genuine relationships, which prioritize Indigenous self-determination and agency in decision-making processes.

5.2.1.4. Cultural disconnect. Cultural disconnect refers to epistemological differences in worldviews, values, and decision-making cultures between Indigenous communities and external stakeholders [124,125]. Issues arise from the inability of the engagement process to recognise different ways of gathering and understanding information, or relating to the environment. The Southern Sámi scholar Fjellheim [33] explains that "dialogues" promoted as a prescription of good governance are underpinned by epistemic miscommunications, devaluing Indigenous relations with the landscapes, knowledges, practices, and interests. These differences lead to disagreements over consultation goals, the nature of consent, and ideas of justice. As Table 3 demonstrates, stakeholders have deeply rooted values, ideologies and epistemologies, translating into plural rationalities [126] when it comes to decision-making. Importantly, a diversity of objectives exists within these groups, as neither community, company, nor government are

Table 3
Diversity of rationalities for community consultation and consent (Source: author analysis).

Indigenous/land-connected community	Companies	Governments
o Safeguard environment, culture, identity, well-being, livelihoods, ancestors o Fulfill community and ceremonial responsibilities and obligations o Control land use and decision-making processes o Redress historical inequities and harms o Secure economic basis for the future of the community o Ensure access to services, energy, and education o Establish rehabilitation of biocultural landscape	o Create value for shareholders and stakeholders o Seek project approval o Build relationships with communities to minimise risks to projects and avoid disruptions to operations o Secure social license to operate and demonstrate corporate social responsibility o Comply with legal frameworks and regulations that mandate community consultation and consent o Develop IBA (impact-benefit agreements) o Satisfy standards and due diligence	o Reach consensus in multicultural societies o Negotiate conflicts over land uses o Ensure compliance with legal frameworks and regulations that mandate community consultation and consent o Comply with international treaties and conventions o Ensure fair distribution of impacts and benefits o Balance economic growth with environmental and social objectives o Provide opportunities to object and seek remedy o Achieve political goals

homogeneous entities. A key challenge is how to reconcile different perceptions of participatory mechanisms and FPIC procedures among actors [90,104].

5.2.1.5. Asymmetries in power, knowledge and control. The fifth limitation is about asymmetries in power, knowledge, and control [95,102,110,122]. These asymmetries continue to marginalise communities in engagement processes dominated by top-down models of governance [95,111,124]. Governments and companies design and control engagement processes, which are criticised for being too formal and too technical [91,95]. The definition of "public consultation" in Greenland largely refers to one-way flow of information sharing in a way proposed by project proponents [127,128]. As demonstrated by Teschner and Holley [112], participants in the Environmental Impact Statement for the Donlin Gold project in Western Alaska "felt patronized by a bureaucratic process that focused on fitting stakeholder concerns into technical and scientific disciplines for analysis by outside experts". Communities feel powerless and distrust external processes where the final decision is not in their hands [129]. Government- or corporate-led meetings are not always perceived as neutral, inclusive, equal, or deliberative [117]. In some cases, communities refused to attend consultation meetings due to "company's abandonment of protocol and disrespectful behaviour", as was reported in the case of Gallok, Jokkmokk in Sweden [107]. Scobie and Rodgers [122] found that during consultations about a mining project in northern Baffin Island, communities reported "inability to express their concerns" due to "insufficient education and inaccessible information" and "a general discomfort with the atmosphere in meetings" which had "formal and intimidating nature". They were concerned that "if they spoke up, it may ruin job opportunities for youth" (p. 237).

These limitations of company- and state-led consultation and consent marginalise Indigenous voices in decision-making about resource development and environmental management in the Arctic region, leading to and reinforcing procedural injustices.

5.2.2. Indigenous-centred consultation and consent

In this section, we discuss approaches that support Indigenous-centred decision-making, using the conceptual framework of Indigenous-informed, Indigenous-benefiting, and Indigenous-led approaches introduced in section 2. We analyse how these approaches uphold Indigenous peoples' rights, knowledges, interests, and values, and address procedural injustices arising from limitations of company- and state-led consultation and consent, presented in the previous subsection.

5.2.2.1. Indigenous-informed. In Canada, the Eleonore mine reclamation process incorporating Cree Indigenous knowledge highlights the adoption of a "co-design" Indigenous-informed approach [130]. Several advantages were identified, including complementarity (rather than integration) of traditional ecological knowledge to Western science, taking into account Indigenous concerns over the long-term impacts, and inclusion of Indigenous peoples' priorities in post-mine land use planning [130]. In the case of the Raglan nickel mine in Nunavik, the Inuit communities informed an impact assessment, facilitating more meaningful engagement and providing an opportunity "to integrate cultural information, revise the project, co-develop mitigations and monitoring measures, and jointly define levels of significance for each impact after mitigation and eventually settle on a decision" [74]. In Nunavut, corporate-led community engagement during the environmental impact assessment for the Back River mine included traditional knowledge of caribou, significantly influencing community experience of engagement and project design [73]. In the Northwest Territories, ongoing initiatives integrate Indigenous knowledge in mine site remediation, ensuring community engagement is informed and integrates Indigenous values [87].

In Greenland, there has been a growing interest in incorporating traditional knowledge in the environmental impact assessment process. However, as Dahl and Hansen [131] show based on a review of three environmental impact assessment reports, the level of influence of Indigenous knowledge was low and with no significant impact on the project assessment, project design, or mitigation measures concerning issues identified by Indigenous peoples. However, other studies suggest that the incorporation of Indigenous knowledge in impact assessment and project planning provides an opportunity to account for the totality of livelihood impacts, complexity of northern mixed economies, energy poverty, gender hierarchies, and other intersecting challenges [89] as well as help to build trust, improve dialogue and enhance communication during consultation procedures [121].

5.2.2.2. Indigenous-benefiting. In the past, Arctic communities have often seen minimal benefits from mines and energy projects [41]. Recognition of Indigenous rights has established pre-conditions for distributing benefits and compensations for losses through agreements [132]. Impact and benefit agreements have become common mechanisms across Canada and are increasingly taking place in northern Fennoscandia [91] and Greenland [96]. These agreements are viewed as partnership-based mechanisms [53], however the extent of consultation, negotiation, and accommodation varies significantly from project to project. In Canada, an Inuit community in Nunavut that lived through multiple mines "have learned that development of non-renewable resources cannot benefit Arctic communities unless they are actively involved in the planning and development" [41]. The authority and mineral rights of Nunavut since the signing of the Nunavut Land Claims Agreement (NLCA) have enabled control and decision-making power over resource development on Inuit lands [41]. The NLCA has provided grounds for equitable and responsible relationships of accountability, and improved shared understanding between stakeholders and Indigenous peoples [41].

There is a growing interest in partnering with Indigenous groups through equity-based models. In Canada, for example, a growing number of policies support or require Indigenous equity participation in renewable energy and hydro power projects. These partnerships have the potential to provide an opportunity for Indigenous peoples to exercise control over decision-making and benefit distribution, thereby

safeguarding their interests and values. Despite potential benefits, research remains cautious about the true benefits to Indigenous peoples, in particular, in localities where Indigenous agency and ability to effectively make decisions and take control over project design might be limited. Meaningful benefits are more likely to be realised in smaller community-scale projects where Indigenous communities have greater direct control and involvement in decision-making, with limited research addressing outcomes of Indigenous co-ownership in large-scale projects [133]. Actual dynamics and effectiveness of these arrangements at play may vary depending on the levels of agency, leadership, and decision-making power granted to Indigenous partners.

5.2.2.3. Indigenous-led. Across the circumpolar north, literature provides examples of Indigenous-led community-based environmental monitoring initiatives. Herrmann et al. [121] documented examples where Sámi people in Sweden and First Nations in Canada utilise GIS (geographic information systems) and field data to support community-led monitoring of mine impacts on habitat and animal populations. Jääskeläinen [125] highlights the importance of developing Indigenous-led metrics and tools that allow ontological multiplicity which is crucial for evaluating the sustainability of industrial projects based on Indigenous perspectives. For Bjørgo and Bay-Larsen [102], community-led assessments should have an interdisciplinary approach and include marginal actors, providing more holistic insights into the complex issues of economic, social, and environmental development.

Another example of Indigenous-led decision-making is the Red Dog mine in Alaska operated by an agreement between Teck Alaska Inc. and the landowner NANA, which is a Native corporation owned by the Iñupiat people. NANA leaders are actively involved in managing the mine as part of the committee, focusing on environmental monitoring and monitoring subsistence concerns [114]. Furthermore, the Nunavut Impact Review Board in Canada enables the participation of Inuit communities in decision-making, e.g., through evaluating projects for the inclusion of traditional knowledge [74]. Indigenous-led initiatives provide the ability to control processes in accordance with self-determined priorities and values [134]. Indigenous-led assessment process offers "opportunities for operationalizing reconciliation, consent-based processes, and more respectful relationships between Indigenous communities and the state" as well as increases respect for traditional knowledge [82].

Indigenous peoples are increasingly asserting their own interpretations and applications of FPIC, and demonstrating their autonomy in decision-making processes concerning development projects on their lands. The cases originate predominantly in Canada, as different to the Sámi people across Sapmi, who have only limited land rights, some First Nations in Canada are self-governed and partially own land, enhancing their leverage to negotiate and impact decision-making. Papillon and Rodon [135] discuss how the Cree Nation of James Bay developed their own mining policy for their traditional territory of Eeyou Istchee in the James Bay region of Quebec. This policy has established clear criteria for expressing Indigenous consent to projects, conditional on the negotiation of agreements with project proponents. While not having any legal force under Canadian law, its strength lies "in its capacity to influence project proponents and federal and provincial authorities" that face a choice of acknowledging the process or facing costly consequences linked to project delays and political mobilisations [135]. The authors suggest that it is a gap between the principle of Indigenous consent and institutional mechanisms of its implementation that enabled the Cree to lead decision-making on their own terms [135].

5.2.3. Barriers to Indigenous-centred consultation and consent

While the potential of Indigenous-centred decision-making can be transformational and there are positive examples, studies highlight barriers to its implementation in practice [82], suggesting that more can be done to support Indigenous-centred decision-making [136].

5.2.3.1. Lack of recognition and integration of Indigenous peoples' rights. To some extent, there is growing recognition of Indigenous peoples' rights and integration of UNDRIP into law and governance. In Canada, the United Nations Declaration on the Rights of Indigenous Peoples Act (2021) is a driving legal tool that supports the integration of Indigenous peoples right into resource and environmental governance, enabling Indigenous people to introduce their own legal structures and governance [132]. In Norway, the Sámi Parliament and multiple consultation and co-management arrangements enable consideration of Sámi perspectives and knowledges in decision-making. Yet, many challenges remain. In Finland, questions of who should be considered a Sámi person and who should represent Sámi people in consultations and negotiations have been raised [92]. These questions center on the access to participation and right to FPIC defined based on criteria decided by national legislations regardless of existing direct connection to the land and traditional livelihoods in the affected areas.

Indigenous communities continue to face a lack of recognition of their sovereignty and rights by mainstream society, undermining their authority in decision-making processes. In the Arctic, the recognition of Indigenous rights is also central to decision-making about ocean governance, with climate change making access to the Arctic Ocean's mineral resources easier. Connolly [137] argues that the inclusion of Indigenous peoples as active partners should be central to national and international deliberations; and no offshore renewable or mineral projects in the Arctic Ocean should proceed without FPIC.

5.2.3.2. Indigenous representation and internal decision-making. The prospects of Indigenous-centered decision-making are dependent on the internal dynamics of Indigenous governance and communities. Important questions are: Who has the power and how it is distributed? Who is a partner, who is an influencer, who needs to be informed? Who has cultural authority to speak for country rather than about country? Internal divisions, conflicts, or differing priorities within Indigenous communities can complicate efforts to achieve consensus. Community leadership might change throughout the project cycle. As Scobie and Rodgers [122] shows, while community members were optimistic about receiving royalties from agreements with Baffinland, there were concerns that their 'wins' are conditional upon their ability to represent their own interests. Several studies highlight the lack of capacity of Indigenous communities to take control of decisions and integrate community values [122,124]. There may be a lack of capacity in areas such as governance, legal expertise, project management, and negotiation skills needed to engage effectively in decision-making processes. In Canada, powerful alliances have emerged to fill this niche.

5.2.3.3. Formal legal and regulatory constraints. Laws, regulations, and corporate policies are yet to accommodate Indigenous systems of governance and decision-making. While in Canada, much progress has been achieved in Indigenous-led decision-making, in the Nordic countries the prerequisites for Indigenous-led processes are almost non-existent, and would require legal reforms [82]. In Sweden and Finland, Indigenous peoples continue to be viewed as stakeholders or the 'general public to be consulted' rather than right-holders. Policy incoherencies are constraining the scope for Indigenous decision-making. Existing formal technical requirements have limitations in integrating Indigenous vision and priorities [130]. This is largely due to existing permitting and operating regimes that may take time to adjust. The challenge is that Indigenous forms of governance are not yet well defined [138]. In such a context, companies might establish their own procedures for uplifting Indigenous decision-making that goes beyond formal processes. There may be support from the government and industry to encourage and support Indigenous-led reviews [139]. As Larsen and Raitio [140] found in their study of national park planning in northern Sweden, Sámi representatives observed that they "have seen a strengthening of knowledge and understanding, both within SEPA

(Swedish Environmental Protection Agency) as an organization and among individual officials" (p. 6), and this has had a positive impact on decision-making and community engagement.

6. Discussion and lessons learned

In the context of the global rush to decarbonise, participatory processes of community consultation and consent received heightened importance and urgency. Meaningful consultation and consent are crucial to balancing power relations between governments, industry and affected communities. Despite an unprecedented recognition of Indigenous peoples' rights and their role in just energy transitions, complex challenges continue to characterise consultation and consent driven by states and companies. Based on an integrative narrative and case review of over 100 academic articles, we have identified limitations of company- and state-led consultation and consent across the circumpolar north, with common categories being: inadequate procedures or frameworks for consultation; unclear legal frameworks and gaps; weak relationships and distrust between Indigenous communities, state and industry; cultural disconnect; and asymmetries in power, knowledge, and decision-making authority. They clearly speak to key components of just energy transitions for Indigenous peoples, as conceptualised by Rioux-Gobeil and Thomassin to include justice for Indigenous knowledge renewal and procedural power [22].

Many of these limitations are structural, rooted in colonial legacies, top-down and centralised decision-making, and neoliberal economic systems. These limitations are also relational, stemming from insufficient efforts, resourcing, and lack of trust-building relationships. As cases from the circumpolar north illustrate, each community experience is unique, given the local complexities of histories, cultural practices, political contexts, and resources that Indigenous peoples have at their disposal to engage meaningfully. Only a few cases documented positive community experiences of consultation and consent, reflecting common bias in academic literature to focus on problematic cases. While many of the reviewed studies focus on the lack of Indigenous capacity and ability to engage, other studies discuss activism and resistance to colonial and extractive structures that increasingly impact on resource decision-making [13,40].

A lack of or insufficient consultation and consent has been attributed to legal disputes and project cancelations. In conflict situations of complex, prolonged, epistemic and value-based disagreements, the opportunity to object and seek remedies is important, however Indigenous people question whether these are sufficient to enable equitable decision-making. In northern Fennoscandia and northern Canada, Indigenous peoples are taking to court energy and mining companies and governments for violation of their rights, including the right to FPIC, with mixed outcomes [33,84,141]. However, even in the case of legal victories, there are no clear implications for future projects questioning the fairness of the ongoing transitions [84]. Some argue that conflicts can represent an opportunity for re-framing conventional approaches in democratic societies, generating novel spaces for systemic change towards sustainability and equity [38,117].

Achieving justice in energy transitions requires not only changes in technology or regulations. Enabling just energy transitions necessitates a redefinition of governance and norms that enable deep structural and relational changes so that Indigenous and land-connected people control development on their lands on their own terms [57]. Across circumpolar countries, advances in jurisprudence and Indigenous peoples' assertion of their rights have influenced governments, companies, right-holders and stakeholders to start re-envisioning, reviewing, and redesigning norms and approaches to consultation and consent. The scope of these initiatives is broader than the narrow legal definitions of the "duty to consult" [89], which "appears to mostly enable, rather than impede, the expansion of colonial and capitalist social relations" [84]. Increasingly, communities are negotiating access to the lands they own, manage and use, generating some level of control. Cases in Canada demonstrate Indigenous-led and Indigenous-centred decision-making that leverages the UNDRIP and treaties to define and control the decision-making processes, including through Indigenous-led impact assessments and Indigenous-co-ownership arrangements. However, as cases have demonstrated, the Sámi across the Sápmi have less leverage to influence decision-making.

In the paper, we provided a nuanced understanding of transitions in governance across the Arctic and sub-Arctic regions [142], focussing on Indigenous-centred decision-making. We differentiated Indigenous-benefiting and Indigenous-informed from Indigenous-led approaches, with the key difference being in the level of leadership and agency of Indigenous peoples. Indigenous-led approaches recognise that Indigenous land-connected communities are not just stakeholders, they are rightsholders as well as leaders and managers. Indigenous nations should be considered as self-determining entities, without imposing unilateral processes [86]. This is the key principle of Indigenous-led FPIC, as per recent guidelines developed by the Securing Indigenous Peoples' Rights in the Green Economy (SIRGE) Coalition [143].

While governments and companies are seeking to strengthen and multiply participatory channels for meaningful community engagement in decision-making, new initiatives in governance and management with direct participation of Indigenous peoples point to promising avenues for justice and equity in transition processes, however, challenges remain. In the paper, we identified barriers to Indigenous-centred decision-making including lack of recognition and integration of Indigenous peoples' rights, Indigenous representation and internal decision-making, and formal legal and regulatory constraints. Furthermore, critical literature on Indigenous rights and consultation and consent cautions to be aware of different power effects these initiatives might entail beyond their stated aims [144], as several studies argue that norms with an "emancipatory and reconciliation potential" can ultimately lead to disempowering processes when their meaning is curtailed [145]. This is because Indigenous-informed, Indigenous-benefiting and many Indigenous-led approaches, whilst aiming to ensure Indigenous peoples are active participants in decision-making, are based on formal and patronized decision-making processes which are institutionalised within top-down legal, regulatory, and corporate systems.

While advances have been reported in the circumpolar context, more needs to be done for re-centring Indigenous-led decision-making for just energy transitions. Some of the key lessons learnt from our review are:

1. Prioritizing trust and relationships. Meaningful decision-making moves at "the speed of trust" and communication and transparency are critical to developing and sustaining collaborations and partnerships.
2. Indigenous-centred and led approaches are based on not only capacity and leadership of Indigenous people, but more so on the capacity of institutions and organisations. Building institutional capacities must be driven by clearly defined visions, values and practices and align with Indigenous-centred priorities and approaches.
3. It is important to establish a shared understanding of definitions and meanings of terms such as 'consent', 'dialogue', and 'benefit-sharing', as they can vary significantly and can be loaded with negative meanings. The concept 'Indigenous-led' can be exploited to get access to land and resources.
4. Enabling Indigenous-centred decision-making requires access to resources and support including capital, technical and legal expertise, infrastructure and time. Sufficient resourcing is needed to meaningfully engage and negotiate as well as fulfill cultural responsibilities and rights.
5. To be of value to Indigenous people, consultation and consent should incorporate the recognition of a 'no' as a valuable outcome of consultation. Furthermore, conditions for consent are not static and are subject to renegotiation, in particular, in the context of the

shifting (re-)assertion of Indigenous rights and self-determination, emphasizing the need for ongoing dialogue.

6. Finally, just transition hinges upon the recognition of Indigenous rights, self-determination and economic reconciliation. Research highlights the importance of restorative justice and truth-telling about the profound impacts of colonisation on Indigenous peoples across generations to enable equitable consultation and consent.

Overall, we suggest that securing just energy transition calls for a shift in the practices of community consultation and consent that embeds processes and norms that uphold the rights, interests, knowledges, and values of Indigenous peoples and land-connected communities. Further research should continue to document and critically examine community consultation and consent focusing on practices that genuinely value and embed Indigenous perspectives. In particular, there is a need for a wider range of academic analysis that includes both cautionary and positive examples of community engagement as well as resistance [65,146]. Such contributions are important for advancing research and understanding of justice in the context of energy transitions that incorporate the rights and perspectives of Indigenous and land-connected peoples [22,147].

CRediT authorship contribution statement

Julia Loginova: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Mia Landauer:** Writing – review & editing, Writing – original draft, Conceptualization. **Juha Joona:** Writing – review & editing, Writing – original draft, Conceptualization. **Ranjan Datta:** Writing – review & editing, Writing – original draft. **Tanja Joona:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

No data was used for the research described in the article.

References

[1] SIRGE, *Letter to COP28 Delegates from Indigenous Leaders & Allies: Ensure Indigenous Peoples' Rights Are Secured in the "Green" Transition. Available at: https://www.culturalsurvival.org/news/letter-cop28-delegates-indigenous-leaders-allies-ensure-indigenous-peoples-rights-are-secured, accessed February 1, 2024.* 2023.
[2] C.M. Kennedy, et al., Indigenous Peoples' lands are threatened by industrial development; conversion risk assessment reveals need to support indigenous stewardship, One Earth 6 (8) (2023) 1032–1049.
[3] Scheidel, A., et al., Global impacts of extractive and industrial development projects on indigenous Peoples' lifeways, lands, and rights. Sci. Adv., 2023. 9 (23): p. eade9557.
[4] J.R. Owen, et al., Energy transition minerals and their intersection with land-connected peoples, Nature Sustainability 6 (2) (2023) 203–211.
[5] S.R. Butzier, S.M. Stevenson, Indigenous peoples' rights to sacred sites and traditional cultural properties and the role of consultation and free, prior and informed consent, J. Energy Nat. Resour. Law 32 (3) (2014) 297–334.
[6] V. Marshall, Removing the veil from the 'rights of nature': the dichotomy between first nations customary rights and environmental legal personhood, Aust. Fem. Law J. 45 (2) (2019) 233–248.
[7] G.C.M. Moia, V.J. Matlaba, J.F. dos Santos, Evaluation of the impact of mining royalties on socio-environmental indicators in Parauapebas, Pará, the eastern Amazon, The Extractive Industries and Society 19 (2024) 101512.
[8] E.A.H. Shoeib, E.H. Infield, H.C. Renski, Measuring the impacts of wind energy projects on US rural counties' community services and cost of living, Energy Policy 153 (2021) 112279.
[9] B.K. Sovacool, et al., Dispossessed by decarbonisation: reducing vulnerability, injustice, and inequality in the lived experience of low-carbon pathways, World Dev. 137 (2021) 105116.
[10] T. Kramarz, S. Park, C. Johnson, Governing the dark side of renewable energy: a typology of global displacements, Energy Res. Soc. Sci. 74 (2021) 101902.
[11] J. Matanzima, J. Loginova, Sociocultural risks of resource extraction for the low-carbon energy transition: evidence from the global south, The Extractive Industries and Society 18 (2024) 101478.
[12] N. Butt, et al., The supply chain of violence, Nature sustainability 2 (8) (2019) 742–747.
[13] Fjellheim, E.M., Wind energy on trial in Saepmie: epistemic controversies and strategic ignorance in Norway's green energy transition. Arctic Review on Law and Politics, 2023. 14: p. 140–168-140–168.
[14] R. Datta, M.A. Hurlbert, Pipeline spills and indigenous energy justice, Sustainability 12 (1) (2019) 47.
[15] Indigenous Peoples Global Coordinating Committee, *Indigenous Peoples Principles and Protocols for Just Transition. Geneva, Switzerland. Available at: https://www.culturalsurvival.org/news/indigenous-peoples-reach-unanimous-agreement-defining-just-transition-and-provide-principles (accessed October 10, 2024).* 2024.
[16] K. Black, E. McBean, Increased indigenous participation in environmental decision-making: a policy analysis for the improvement of indigenous health, The International Indigenous Policy Journal 7 (4) (2016).
[17] K. Leonard, et al., Water Back: a review centering rematriation and indigenous water research sovereignty, Water Alternatives 16 (2) (2023) 374–428.
[18] World Economic Forum, *Renewables projects must respect Indigenous Peoples and local communities. Here's how. Available at: https://www.weforum.org/agenda/2023/05/renewables-indigenous-local/, accessed 1 February, 2024.* 2023.
[19] Publish What You Pay, *Civil Society Recommendations for the UNSG's Panel on Critical Energy Transition Minerals. Available at: https://pwyp.org/civil-society-recommendations-for-the-unsgs-panel-on-critical-energy-transition-minerals/, accessed July 12,* 2024. 2024.
[20] United Nations, *United Nations Secretary-General's Panel on Critical Energy Transition Minerals. Available at: https://www.un.org/en/climatechange/critical-minerals#:~:text=%E2%80%9CA%20world%20powered%20by%20renewables,cannot%20trample%20over%20the%20poor, accessed July 17,* 2024. 2024.
[21] Walker, D. and J. Carling, *Indigenous Peoples and Local Communities Must Lead the Way to a Just Energy Transition. Ford Foundation. Available at: https://www.fordfoundation.org/news-and-stories/stories/indigenous-peoples-and-local-communities-must-lead-the-way-to-a-just-energy-transition/, accessed April 10, 2024.* 2023.
[22] F. Rioux-Gobeil, A. Thomassin, A just energy transition for indigenous peoples: from ideal deliberation to fairness in Canada and Australia, Energy Res. Soc. Sci. 114 (2024) 103593.
[23] A. Doyon, J. Boron, S. Williams, Unsettling transitions: representing indigenous peoples and knowledge in transitions research, Energy Res. Soc. Sci. 81 (2021) 102255.
[24] R.J. Heffron, R.J. Heffron, What is the "just transition"? Achieving a just transition to a low-carbon economy (2021) 9–19.
[25] S. Carley, D.M. Konisky, The justice and equity implications of the clean energy transition, Nat. Energy 5 (8) (2020) 569–577.
[26] Ohlsson, J. and S. Przybylinski, *Theorising Justice: A Primer for Social Scientists*. 2023: Policy Press.
[27] J. Hendry, et al., Indigenous Justice: New Tools, Approaches, and Spaces, Springer, 2018.
[28] J.R. Owen, et al., Fast track to failure? Energy transition minerals and the future of consultation and consent, Energy Res. Soc. Sci. 89 (2022) 102665.
[29] P. Narang, Fragmentation of community consent standard in the era of friendshoring and nearshoring, Global Trade and Customs Journal 19 (3) (2024).
[30] OECD, OECD *due diligence guidance for meaningful stakeholder engagement in the extractive sector.* OECD Publishing, 2017.
[31] ICMM, *Mining principles. Available at: https://www.icmm.com/website/publications/pdfs/mining-principles/miningprinciples.pdf?cb=59962, accessed 1 May, 2024.* 2023.
[32] J.R. Owen, D. Kemp, 'Free prior and informed consent', social complexity and the mining industry: establishing a knowledge base, Res. Policy 41 (2014) 91–100.
[33] E.M. Fjellheim, "You can kill us with dialogue:" critical perspectives on wind energy development in a Nordic-Saami Green colonial context, Hum. Rights Rev. (2023) 1–27.
[34] United Nations, *Extraction Operations on Indigenous Peoples' Land without Consent Cause Irreparable Harm, Speakers Stress, as Permanent Forum Begins Session. Available at: https://press.un.org/en/2022/hr5467.doc.htm, accessed May 1, 2024.* 2022.
[35] R.F. Dale, L. Gross, *10. The Arctic: last frontier for energy and mineral exploitation?* Handbook on international development and the, Environment 0 (2023) 154.

[36] K. Hanaček, et al., On thin ice–the Arctic commodity extraction frontier and environmental conflicts, Ecol. Econ. 191 (2022) 107247.
[37] A.-A. Oksanen, Dimming the midnight sun? Implications of the Sámi Council's intervention against the SCoPEx project, Frontiers in Climate 5 (2023) 994193.
[38] R.K. Larsen, K. Raitio, Protected areas and indigenous rights in Sápmi: an agonistic reading of conflict and collaboration in land use planning, J. Environ. Policy Plan. (2022) 1–13.
[39] Rodon, T. and F. Lévesque, Understanding the social and economic impacts of mining development in Inuit communities: experiences with past and present mines in Inuit Nunangat. Northern Review, 2015(41): p. 13–39-13–39.
[40] J. Gobby, et al., Resistance as governance: transformative strategies forged on the frontlines of extractivism in Canada, The Extractive Industries and Society 9 (2022) 100919.
[41] H. Green, State, company, and community relations at the Polaris mine (Nunavut), Études/Inuit/Studies 37 (2) (2013) 37–57.
[42] R.J. Heffron, The role of justice in developing critical minerals, The extractive industries and society 7 (3) (2020) 855–863.
[43] M. Hazrati, R.J. Heffron, Conceptualising restorative justice in the energy transition: changing the perspectives of fossil fuels, Energy Res. Soc. Sci. 78 (2021) 102115.
[44] I. Suboticki, et al., Fostering justice through engagement: a literature review of public engagement in energy transitions, Energy Res. Soc. Sci. 99 (2023) 103053.
[45] X. Wang, K. Lo, Just transition: a conceptual review, Energy Res. Soc. Sci. 82 (2021) 102291.
[46] UN DESA, *Policy Brief No. 141: A just green transition: concepts and practice so far. Abailable at: https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-no-141-a-just-green-transition-concepts-and-practice-so-far/ (accessed 10 November, 2024)*. 2022.
[47] J.H. Armstrong, People and power: expanding the role and scale of public engagement in energy transitions, Energy Res. Soc. Sci. 78 (2021) 102136.
[48] M.D. Kadenic, Socioeconomic value creation and the role of local participation in large-scale mining projects in the Arctic, The Extractive Industries and Society 2 (3) (2015) 562–571.
[49] L.-M. Bowes-Lyon, J.P. Richards, T.M. McGee, Socio-economic impacts of the Nanisivik and Polaris mines, Nunavut, Canada, Mining, society, and a sustainable world (2010) 371–396.
[50] T. Koivurova, L. Heinämäki, The participation of indigenous peoples in international norm-making in the Arctic, Polar Record 42 (2) (2006) 101–109.
[51] L. Heinämäki, Legal appraisal of Arctic indigenous peoples' right to free, prior and informed consent, in: Routledge Handbook of Indigenous Peoples in the Arctic, Routledge, 2020, pp. 335–351.
[52] LaDuke, W., *The Indigenous Women's Network – Our future, our responsibility. Statement presented at WCW NGO Forum '95. Available at: http://www.igc.org/beijing/plenary/laduke.html, accessed May 1, 2024*. 1995.
[53] E. Wilson, What is benefit sharing? Respecting indigenous rights and addressing inequities in Arctic resource projects, Resources 8 (2) (2019) 74.
[54] J. Anaya, Report of the Special Rapporteur on the Rights ofIndigenous Peoples, James Anaya: Extractive Industries and Indigenous Peoples; UN General Assembly Report No. a/HRC/24/41, United Nations, Geneva, Switzerland, 2013.
[55] D. McGregor, S. Whitaker, M. Sritharan, Indigenous environmental justice and sustainability, Curr. Opin. Environ. Sustain. 43 (2020) 35–40.
[56] Whyte, K., *Indigenous experience, environmental justice and settler colonialism.* Environmental Justice and Settler Colonialism (April 25, 2016), 2016.
[57] C. Mang-Benza, J. Baxter, Not paid to dance at the powwow: power relations, community benefits, and wind energy in M'Chigeeng first nation, Ontario, Canada. Energy Research & Social Science 82 (2021) 102301.
[58] D. Cambou, The significance of the Fosen decision for protecting the cultural rights of the Sámi indigenous people in the green transition, in: The Significance of Sámi Rights, Routledge, 2024, pp. 52–71.
[59] Doyle, C., et al., *Free prior informed consent protocols as instruments of autonomy: laying foundations for rights based engagement*. 2019, 889wx.
[60] A. Schilling-Vacaflor, R. Flemmer, Mobilising free, prior and informed consent (FPIC) from below: a typology of indigenous peoples' agency, International journal on minority and group rights 27 (2) (2020) 291–313.
[61] T. Mitchell, et al., Towards an indigenous-informed relational approach to free, prior, and informed consent (FPIC), International Indigenous Policy Journal 10 (4) (2019) 1–28.
[62] Arctic Economic Council, *Arctic investment opportunities that show you the numbers. Available at: https://arcticeconomiccouncil.com/news/arctic-investment-opportunities-that-show-you-the-numbers/, accessed May 1, 2024*. 2022.
[63] UK Parliament, *Our friends in the North: UK strategy towards the Arctic Contents. Chapter 4: Prospects and impacts of growing economic activity in the Arctic. Available at: https://publications.parliament.uk/pa/ld5804/ldselect/ldintrel/8/808.htm, accessed May 1, 2024*. 2023.
[64] M.J. Price, Seeing Green, lifecycles of an Arctic agricultural Frontie, Rural. Sociol. 88 (4) (2023).
[65] D. Shapovalova, Just Transition in the Arctic Context: Introduction, Taylor & Francis, 2023, pp. 191–194.
[66] Watt-Cloutier, S., *The right to be cold: one woman's story of protecting her culture, the Arctic and the whole planet*. 2015: Penguin Canada.
[67] Wood-Donnelly, C. and J. Ohlsson, Arctic Justice: Environment, Society and Governance, Bristol, Bristol University Press, UK, 2023.
[68] Å. Össbo, Back to Square One, Green sacrifice zones in Sápmi and Swedish policy responses to energy emergencies, Arctic Review on Law and Politics 14 (2023) 112–134.
[69] B. Skorstad, *Sacrifice Zones: A Conceptual Framework for Arctic Justice Studies?*, in *Arctic Justice*, Bristol University Press, 2023, pp. 96–108.
[70] R.J. Torraco, Writing integrative literature reviews: using the past and present to explore the future, Hum. Resour. Dev. Rev. 15 (4) (2016) 404–428.
[71] P.N. Carvalho, et al., Nature-based solutions addressing the water-energy-food nexus: review of theoretical concepts and urban case studies, J. Clean. Prod. 338 (2022) 130652.
[72] B. Sistili, et al., An aboriginal perspective on the remediation of mid-Canada radar line sites in the subarctic: a partnership evaluation, Arctic (2006) 142–154.
[73] J. Prno, M. Pickard, J. Kaiyogana, Effective community engagement during the environmental assessment of a mining project in the Canadian arctic, Environ. Manag. 67 (5) (2021) 1000–1015.
[74] Karvinen, P.A. and S. Rantakallio, *Good practices for environmental impact assessment and meaningful engagement in the Arctic – including good practice recommendations.* 2019, Arctic Council Sustainable Development Working Group and Arctic Environmental Impact Assessment (EIA) Project: Tromsø Norway.
[75] Sustainable Development Working Group, *Good Practices for Environmental Impact Assessment and Meaningful Engagement in the Arctic. Arctic Council. Available at: <https://oaarchive.arctic-council.org/bitstream/handle/11374/2377/Arctic-EIA_FInal-Report_May-2019.pdf?sequence=1andisAllowed=y>, accessed April 5, 2024*. 2019.
[76] C. Allard, The rationale for the duty to consult indigenous peoples: comparative reflections from Nordic and Canadian legal contexts, Arctic Review on Law and Politics 9 (2018) 25–43.
[77] S.-G. Ross, From Consultation to Consent: A Comparative Analysis of Arctic States, An Interdisciplinary Look into Arctic Sustainable Development, Arctic Summer College Yearbook, 2018, pp. 9–20.
[78] N. Yakovleva, et al., Free prior informed consent in the extractive industry: approaches to involving indigenous peoples in decision-making in Russia, J. Environ. Manag. 344 (2023) 118341.
[79] E. Wilson, Indigenous rights and resource development in the Arctic: an overview of international standards and principles for consultation, participation and consent, Regulation of Extractive Industries. (2020) 11–46.
[80] N.H. Tarras-Wahlberg, Social license to mine in Sweden: do companies go the extra mile to gain community acceptance? Miner. Econ. 27 (2014) 143–147.
[81] L.-P. Dana, R.B. Anderson, Mining and communities in the Arctic: lessons from baker Lake, Canada, Int. J. Entrep. Small Bus. 22 (3) (2014) 343–361.
[82] C. Allard, D. Curran, Indigenous influence and engagement in mining permitting in British Columbia, Canada: lessons for Sweden and Norway? Environ. Manag. (2021) 1–18.
[83] Government of Canada, *The Canadian Critical Minerals Strategy: From Exploration to Recycling: Powering the Green and Digital Economy for Canada and the World. Available at: https://www.canada.ca/en/campaign/critical-minerals-in-canada/canadian-critical-minerals-strategy.html, accessed April 15, 2024*. 2023.
[84] W. Bernauer, The duty to consult and colonial capitalism: indigenous rights and extractive Industries in the Inuit Homeland in Canada, Northern Review 54 (2023).
[85] J. Tollefson, B. Panikkar, Contested extractivism: impact assessment, public engagement, and environmental knowledge production in Alaska's Yukon-Kuskokwim Delta, Journal of Political Ecology 27 (1) (2020) 1166–1188.
[86] T. Brock, M.G. Reed, K.J. Stewart, Indigenous community participation in resource development decision-making: practitioner perceptions of legal and voluntary arrangements, J. Environ. Manag. 283 (2021) 111922.
[87] J. Sandlos, A. Keeling, Aboriginal communities, traditional knowledge, and the environmental legacies of extractive development in Canada, The Extractive Industries and Society 3 (2) (2016) 278–287.
[88] H. Sam-Aggrey, The Role of the Tłı̨chǫ Comprehensive Agreement in Shaping the Relationship between the Tłı̨chǫ and the Mining Industry in the Mackenzie Valley, Northwest Territories (NWT), Natural Resources and Governance, Canada. Indigenous Peoples, 2021, pp. 104–124.
[89] S.K. Dalseg, et al., Gendered environmental assessments in the Canadian north: marginalization of indigenous women and traditional economies, Northern Review 47 (2018) 135–166.
[90] M. Landauer, N. Komendantova, Participatory environmental governance of infrastructure projects affecting reindeer husbandry in the Arctic, J. Environ. Manag. 223 (2018) 385–395.
[91] J.M. Kotilainen, L. Peltonen, K. Reinikainen, Community benefit agreements in the Nordic mining context: local opportunities for collaboration in Sodankylä, Finland. Resources Policy 79 (2022) 102973.
[92] T.L. Joona, J. Joona, Natural resource development in the Arctic and the question of Saami land rights in Finland, in: The Routledge Handbook of Polar Law, Routledge, 2023, pp. 437–455.
[93] M. Ackrén, Public consultation processes in Greenland regarding the mining industry, Arctic Review on Law and Politics 7 (1) (2016).
[94] A.M. Hansen, R.L. Johnstone, In the shadow of the mountain: assessing early impacts on community development from two mining prospects in South Greenland, The Extractive Industries and Society 6 (2) (2019) 480–488.
[95] L.R. Bjørst, F. Sejersen, K. Thisted, *Affective Approaches: Rethinking Emotions in Resource Extraction*, in *Resource Extraction and Arctic Communities: The New Extractivist Paradigm*, Cambridge University Press, 2022, p. 145.
[96] P. Bowles, F. MacPhail, N. Giguère, Social Licence comes to Greenland's mining sector, Arctic 74 (4) (2021) 496–508.
[97] R. Kuokkanen, At the intersection of Arctic indigenous governance and extractive industries: a survey of three cases, The Extractive Industries and Society 6 (1) (2019) 15–21.

[98] C. Pelaudeix, E.M. Basse, N. Loukacheva, Openness, transparency and public participation in the governance of uranium mining in Greenland: a legal and political track record, Polar Record 53 (6) (2017) 603–616.

[99] I. Henriques, S. Böhm, The perils of ecologically unequal exchange: contesting rare-earth mining in Greenland, J. Clean. Prod. 349 (2022) 131378.

[100] A.A. Espiritu, Kautokeino and Kvaslund compared: rejection and acceptance of mining in communities in northern Norway, Northern Review 39 (2015).

[101] Angell, E., V. Nygaard, and P. Selle, *Industrial development in the North–Sámi interests squeezed between globalization and tradition.* Acta Boreal., 2020. 37(1–2): p. 43–62.

[102] F. Bjørgo, I. Bay-Larsen, Lost in translation–critical reflections on the disposal of submarine tailings in Kvalsund municipality, The Extractive Industries and Society 4 (3) (2017) 481–488.

[103] A.J. Spitzer, P. Selle, Claims-based co-management in Norway's Arctic? Examining Sami land governance as a case of treaty federalism, Canadian Journal of Political Science/Revue canadienne de science politique 52 (4) (2019) 723–741.

[104] Goloviznina, M.P., *Indigenous agency through normative contestation*, in *Indigenous Peoples, Natural Resources and Governance*. 2022. p. 85.

[105] J. Loginova, E. Wilson, "Our consent was taken for granted": A relational justice perspective on the participation of Komi people in oil development in northern Russia, in: Regulation of Extractive Industries, Routledge, 2020, pp. 156–184.

[106] R. Lawrence, S. Moritz, Mining industry perspectives on indigenous rights: corporate complacency and political uncertainty, The Extractive Industries and Society 6 (1) (2019) 41–49.

[107] A. Zachrisson, K. Beland Lindahl, Extractive governance and mining conflicts: challenging scalar hierarchies through 'opening up' to local sustainability pathways, Polit. Geogr. 105 (2023) 102927.

[108] R. Lawrence, R.K. Larsen, The politics of planning: assessing the impacts of mining on Sami lands, Third World Q. 38 (5) (2017) 1164–1180.

[109] K. Raitio, C. Allard, R. Lawrence, Mineral extraction in Swedish Sápmi: the regulatory gap between Sami rights and Sweden's mining permitting practices, Land Use Policy 99 (2020) 105001.

[110] S. Persson, D. Harnesk, M. Islar, What local people? Examining the Gállok mining conflict and the rights of the Sámi population in terms of justice and power, Geoforum 86 (2017) 20–29.

[111] A. Szpak, Relocation of Kiruna and construction of the Markbygden wind farm and the Saami rights, Polar science 22 (2019) 100479.

[112] B. Teschner, E. Holley, Participation or frustration? Local stakeholders and the National Environmental Policy act (NEPA): Donlin gold project, Western Alaska, The Extractive Industries and Society 8 (4) (2021) 100962.

[113] K. Hébert, Chronicle of a disaster foretold: scientific risk assessment, public participation, and the politics of imperilment in Bristol Bay, Alaska, J. R. Anthropol. Inst. 22 (S1) (2016) 108–126.

[114] E.A. Holley, C. Mitcham, The pebble mine dialogue: a case study in public engagement and the social license to operate, Res. Policy 47 (2016) 18–27.

[115] J. Jones, N.A. Nix, E.H. Snyder, Local perspectives of the ability of HIA stakeholder engagement to capture and reflect factors that impact Alaska native health, Int. J. Circumpolar Health 73 (1) (2014) 24411.

[116] B. Panikkar, "Litigation is our last resort": addressing uncertainty, undone science, and Bias in court to assert indigenous rights, Nature and Culture 15 (2) (2020) 173–198.

[117] A. Johansson, Managing intractable natural resource conflicts: exploring possibilities and conditions for reframing in a mine establishment conflict in northern Sweden, Environ. Manag. 72 (2023).

[118] D. McCauley, et al., Energy justice in the Arctic: implications for energy infrastructural development in the Arctic, Energy Res. Soc. Sci. 16 (2016) 141–146.

[119] A.-S. Skjervedal, Youth as a resource in extractive industry decision-making processes: A case study using social media and visual methods to engage young Greenlanders, in: Regulation of Extractive Industries, Routledge, 2020, pp. 101–124.

[120] Committee for Greenlandic Mineral Resources to the Benefit of Society, *to the Benefit of Greenland*, University of Greenland, 2014.

[121] T.M. Herrmann, et al., Effects of mining on reindeer/caribou populations and indigenous livelihoods: community-based monitoring by Sami reindeer herders in Sweden and first nations in Canada, Polar J. 4 (1) (2014) 28–51.

[122] W. Scobie, K. Rodgers, Diversions, distractions, and privileges: consultation and the governance of mining in Nunavut, Stud. Political Econ. 100 (3) (2019) 232–251.

[123] L. Banfield, C.G. Jardine, Consultation and remediation in the north: meeting international commitments to safeguard health and well-being, Int. J. Circumpolar Health 72 (1) (2013) 21231.

[124] R.K. Larsen, et al., The impacts of mining on Sámi lands: a knowledge synthesis from three reindeer herding districts, The Extractive Industries and Society 9 (2022) 101051.

[125] T. Jääskeläinen, The Sámi reindeer herders' conceptualizations of sustainability in the permitting of mineral extraction–contradictions related to sustainability criteria, Curr. Opin. Environ. Sustain. 43 (2020) 49–57.

[126] Grauer, M., M. Thompson, and A.P. Wierzbicki, *Plural Rationality and Interactive Decision Processes: Proceedings of an IIASA (International Institute for Applied Systems Analysis) Summer Study on Plural Rationality and Interactive Decision Processes Held at Sopron, Hungary, August 16–26, 1984*. Vol. 248. 2013: Springer Science & Business Media.

[127] H. Tiainen, Contemplating governance for social sustainability in mining in Greenland, Res. Policy 49 (2016) 282–289.

[128] M. Nuttall, The Isukasia iron ore mine controversy: extractive industries and public consultation in Greenland, Nordia Geographical Publications 41 (5) (2012) 23–34.

[129] D.N. Scott, Extraction contracting: the struggle for control of indigenous lands, South Atlantic Quarterly 119 (2) (2020) 269–299.

[130] M.K. Cissé, et al., Integration of Cree traditional ecological knowledge (TEK) into the revegetation process of the Eleonore mine tailings storage facility, The Extractive Industries and Society 14 (2023) 101263.

[131] P.P.E. Dahl, A.M. Hansen, Does indigenous knowledge occur in and influence impact assessment reports? Exploring consultation remarks in three cases of mining projects in Greenland, Arctic Review on Law and Politics 10 (2019) 165–189.

[132] C.E. Hoicka, K. Savic, A. Campney, Reconciliation through renewable energy? A survey of indigenous communities, involvement, and peoples in Canada, Energy Res. Soc. Sci. 74 (2021) 101897.

[133] K. Buhmann, et al., *Towards Socially Sustainable Renewable Energy Projects through Involvement of Local Communities: Normative Aspects and Practices on the Ground*, in *Renewable Economies in the Arctic: A State of Knowledge*, 2021.

[134] C. O'Faircheallaigh, Shaping projects, shaping impacts: Community-controlled impact assessments and negotiated agreements, in: New Mechanisms of Participation in Extractive Governance, Routledge, 2018, pp. 139–155.

[135] M. Papillon, T. Rodon, The transformative potential of indigenous-driven approaches to implementing free, prior and informed consent: lessons from two Canadian cases, international journal on minority and group rights 27 (2) (2020) 314–335.

[136] R. Merino, Re-politicizing participation or reframing environmental governance? Beyond indigenous' prior consultation and citizen participation, World Dev. 111 (2018) 75–83.

[137] C. Connolly, Under the Arctic ice: climate futurism, Inuit sovereignty, and deep seabed Mining in the Just Transition, Ocean Yearbook Online 37 (1) (2023) 311–360.

[138] F. MacPhail, K.B. Lindahl, P. Bowles, Why do Mines Fail to Obtain a Social License to Operate?: Insights from the Proposed Kallak Iron Mine (Sweden) and the Prosperity/New Prosperity Gold–Copper Mine (Canada), Environ. Manag. (2022) 1–18.

[139] G. Gibson, D. Hoogeveen, A. MacDonald, Impact Assessment in the Arctic: Emerging Practices of Indigenous-Led Review, Gwich'in Council International, 2018.

[140] R.K. Larsen, K. Raitio, Implementing the state duty to consult in land and resource decisions: perspectives from Sami communities and Swedish state officials, Arctic Review on Law and Politics 10 (2019) 4–23.

[141] I. Côté, et al., The plan Nord in northern Québec, Canada: pathway to peace and prosperity or powder keg? Ethnopolitics (2022) 1–21.

[142] R.L. Johnstone, K. Buhmann, Megaprojects on ice: lessons from the Kárahnjúkar hydropower project for a just transition, Polar J. (2023) 1–24.

[143] SIRGE, *Securing Indigenous Peoples' Right to Self-Determination: A Guide on Free, Prior and Informed Consent. Available at: https://www.culturalsurvival.org/news/new-guide-helps-indigenous-leaders-define-fpic-priorities-and-protocols#:~:text=The%20second%20section%20of%20the,investors%20when%20they%20seek%20your, accessed May 1, 2024.* 2024.

[144] M. Lindroth, Indigenous rights as tactics of neoliberal governance: practices of expertise in the United Nations, Soc. Leg. Stud. 23 (3) (2014) 341–360.

[145] F. Montambeault, M. Papillon, Repoliticising indigenous participation: FPIC protocols in Canada and Brazil, The International Journal of Human Rights 27 (2) (2023) 335–358.

[146] A.K. Bidgood, J. Hall, We need to talk about Mining in the Arctic, Earth Science, Systems and Society 4 (2024) 10117.

[147] D. Kemp, J.R. Owen, W. Schuele, J. Loginova, M.L.E. Ang, Climate change, biodiversity, and the energy transition: the potential role of the UN's declaration on peasants' rights, One Earth 8 (1) (2025) 1–7.