Land-use governance and Indigenous engagement in Arctic Alaska and Norway: successes, current gaps, and paths forward

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Land-use governance and Indigenous engagement in Arctic Alaska and Norway: successes, current gaps, and paths forward

Ningning Sun

Senior Honors Thesis

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Abstract

This study aims to analyze the land use governance structures and the role of Indigenous engagement in Alaska and Norway using a comparative approach, with special focus on successful practices, current gaps, and paths forward to achieve equitable governance. Extractive land uses, such as oil and gas extraction and the construction of wind farms, have mixed impacts on Indigenous communities and lead to social and legal issues such as land use conflict and environmental injustice. Previous research has studied land use governance in Arctic countries with regard to Indigenous Peoples, yet there is a lack of literature that spans Alaska and Norway, a gap that this study aims to fill. To maximize comparability given different colonial histories and produce informative results that contribute to knowledge-sharing, this thesis focuses on Indigenous Peoples that still actively practice subsistence livelihoods: Iñupiats in the North Slope of Alaska and Sámi reindeer herders in Norway. To examine similarities and differences in the determinants, status quo, and opportunity areas of land use governance in Alaska and Norway, I conducted semi-structured interviews with Indigenous leaders, locals, and researchers followed by thematic analysis. Supplemental informal interviews as well as document and literature review add to the results. I found that land use governance structure is highly path-dependent, with governance in the North Slope being more Indigenous-driven, which better meets community interests. The structure of government institutions and policies in Norway is less conducive for Sámis to have the same degree of self-determination as seen in Alaska, but Sámis may work within the Norwegian structure to indigenize decision-making. Self-determination, Indigenous Knowledge, and relationship-building among stakeholders are crucial to successful and equitable land use governance, as decisions affecting Indigenous Peoples should be made with Indigenous Peoples who have been great stewards of their lands since time immemorial.
I. Introduction

This thesis uses a comparative approach to study land use governance and decision-making structures in Arctic Alaska and Norway and the role that Indigenous engagement plays in these structures to influence policy outcomes. Oil and gas as well as wind energy are of particular focus in this thesis. Research has indicated that extractive resource use in the Arctic has a variety of impacts that cannot be defined as purely beneficial or harmful. For example, on the one hand, it is widely believed that oil and gas development leads to economic growth (A. M. Hansen & Virginia, 2018); on the other hand, many studies indicated that the social, economic, and environmental costs of the development might outweigh the benefits (Anderson & Theodori, 2009; Park & Stokowski, 2009; Smith et al., 2001). Since oil and gas development was commercialized in the 1970s, land use and resource governance practices related to decision-making around oil and gas extraction have evolved over time as well (A. M. Hansen & Virginia, 2018). Furthermore, especially in Norway, with the increasing pressure for renewable energy transition, wind energy has been developing at a high pace and has led to conflicts between Sámi reindeer herders, government, and industry regarding Sámi land rights and traditional livelihoods, with the Fosen case being the most recent (Johansson et al., 2023; Norwegian National Human Rights Institution, 2023). Oil and gas development in Alaska and Norway as well as the emerging wind energy industry in Norway provide this thesis with jumping-off points to examine land use governance especially when it is related to the relationship between extractive land use and Indigenous livelihoods.

An important focus of this research is on identifying where Indigenous Knowledge (IK) and participation play a role in decision-making around land use and resource governance,
looking into the historical practices and contemporary advances with consultation, Indigenous representation on decision-making boards, ethical and equitable collaboration in terms of government stance, initiatives, implementation, and practices, as well as the co-production of knowledge (CPK) in research that supports decision-making. This thesis also aims to develop policy recommendations based on analysis as well as the input and advice provided by Indigenous Peoples. Importantly, through identifying current gaps and opportunities for more effective and equitable collaboration with Indigenous Peoples, this research hopes to highlight potential efforts to improve understanding of Indigenous Knowledge, environmental governance practices, and ways of life, and promote a shift in mentality and research paradigm from the “standardized” and “established” Western ways to an inclusive one where all forms of knowledge are considered equal and barriers in understandings are actively overcome. In this way, the knowledge is complementary and can generate new insights into best practices for place-based and culturally appropriate resource management.

This thesis focuses on Indigenous Iñupiat Peoples in the North Slope of Alaska and Sámi reindeer herders in Norway, to compare Indigenous-driven land use governance practices and levels of Indigenous engagement in decision-making designed to preserve traditional livelihoods and promote sustainable development in their communities.

**Research Questions**

In order to explore land use governance and decision-making structures in Alaska and Norway and the opportunity areas for improving Indigenous engagement, it is important to first understand the historical, social, and political determinants of current structures before identifying the successful practices that can be shared, as well as the policy insights that are
appropriate and applicable given the different contexts in Alaska and Norway. When developing interview questions, conducting thematic analysis, and reviewing documents and literature, the following are the main research questions that guided the process:

1. What are the similarities and differences between Alaska and Norway when it comes to the levels of Indigenous engagement in decision-making and governance related to land use and resource extraction?
2. What are the historical, social, and political determinants of these decision-making and governance structures?
3. What insights and policy recommendations can be drawn and shared between Alaska and Norway to improve Indigenous engagement and achieve equitable land use governance, given their distinct governance structures and social contexts?
II. Background

1. Geography and Natural Environment

The North Slope of Alaska is located on the Arctic Coastal Plain of Alaska with Brooks Mountain Range to the south and the Chukchi and Beaufort Seas to the west and north (Martha Raynolds, 2022; U.S. Department of the Interior & U.S. Geological Survey, 2012). Encompassing an area of 94,796 square miles, the North Slope features a tundra climate with long cold winters and persistent high winds, which may challenge the communities with issues such as snow drifting and melting (National Snow & Ice Data Center, 2018; North Slope Borough, 2019c).

The North Slope is characterized by a treeless landscape with the Arctic tundra, thaw lakes, streams and rivers, and freshwater wetlands, supporting a wide variety of wildlife as well as essential ecosystem functioning (North Slope Borough, 2019c; U.S. Department of the Interior & U.S. Geological Survey, 1997). The Borough pointed out in its Comprehensive Plan that the land and waters of the North Slope along with the wildlife hold tremendous natural, cultural, and nutritional values; the designation of some rivers by the U.S. Congress to be Wild and Scenic Rivers, for example, help safeguard the natural resources for generations to come (Inuit Circumpolar Council-Alaska, 2015; National Wild and Scenic Rivers System, 2014; North Slope Borough, 2019c). The importance placed on protecting the natural environment can also be seen in the zoning of the North Slope Borough: 96% of the land within the Borough is zoned Conservation. The Borough also emphasized the importance of careful siting in project planning processes in order to minimize disruptions to the natural environment and wildlife habitat.
The North Slope is home to a wide variety of wildlife including migratory birds, fish, land and marine mammals, etc., which are essential to the Arctic ecosystems and provide subsistence resources to the residents. Prominent wildlife species include caribou and bowhead whales, which are essential to the livelihoods of the Iñupiat Peoples and were brought up frequently in the interviews with the leaders when discussing topics including food security, ecological monitoring, resource use stipulations, and community wellbeing. For example, given the migration of caribou on land from southern winter grounds to northern summer grounds to forage and calve, as well as the migratory routes of whales in the ocean, stipulations on oil and gas industries, such as those related to pipeline construction and offshore activities, have been put in place to mitigate potential ecological disruptions. When it comes to bowhead whales, leaders discussed cases and efforts related to the International Whaling Commission (IWC) setting the catch quota and the Alaska Eskimo Whaling Commission (AEWC) advocating for subsistence whaling rights and habitat protection (Mowry, 2010; North Slope Borough, 2019c). Also, notably, the Arctic National Wildlife Refuge (ANWR) managed by the U.S. Fish and Wildlife Service (USFWS) spans an area of more than 19 million acres and is designated for the preservation for research and the protection of nature (North Slope Borough, 2019h).

Norway is located in Northern Europe, with the Barents Sea to the north and the North Atlantic Ocean to the east. The Indigenous Sámi peoples reside in the subarctic north of Fennoscandia, Sápmi, which they consider as their homeland (Ellingsen, 2020; Wråkberg & Granqvist, 2014). Finnmark is the most important reindeer-herding county in Norway (Arbo & Hersoug, 1997). It is the northernmost county in Norway, borders Russia and Finland, and covers an area of 48,637 square kilometers (18,779 square miles). In Finnmark, the climate is oceanic, and the sea never freezes (Ramstad, 2009).
2. Demographics and Culture

It is important to recognize that Arctic Indigenous Peoples have many shared experiences with colonization, assimilation, and discrimination (Broderstad, 2011), but are also different in terms of culture and demographic characteristics. The extent and nature of the Indigenous Peoples’ experiences differ across demographic groups and geographies due to different historical and social contexts of specific countries.

The North Slope Borough is primarily populated by Iñupiat Peoples and is home to eight dispersed rural communities. The population size of the North Slope Borough is 11,031 as of 2020, and around half of the population is concentrated in Utqiagvik, the largest city and the borough seat of government (North Slope Borough, 2019b). Due to the high percentage of Iñupiat Peoples, the planning and development of the North Slope Borough, such as those reflected in its Comprehensive Plan, revolve around twelve traditional Iñupiat values. The twelve values include Avoidance of Conflict, Compassion, Cooperation, Family and Kinship, Humility, Humor, Hunting Traditions, Knowledge of Our Language, Love and Respect for our Elders and One Another, Respect for Nature, Sharing, and Spirituality (North Slope Borough, 2005, 2019a).

In Norway, the Sámi Peoples are the only Indigenous inhabitants in the Sápmi area in the northern and middle parts of Norway, yet unlike in the North Slope of Alaska, there are many non-Sámi Norwegians residing in the same areas as them (Ravna, 2015). There are an estimated 40,000 to 50,000 Sámis in Norway (Axelsson & Sköld, 2011). However, the long assimilation process of the Sámis has led to questions about what Sámi affiliation entails, and how much they identify with Sámi traditions and livelihoods. When it comes to Sámis who still practice reindeer-herding, the number of this sub-group is significantly smaller, estimated to be somewhat over 3000 people, of whom 2200 live in Finnmark (Ministry of Agriculture and Food, 2023). In
Finnmark, people of Norwegian, Sámi, and Finnish origins coexist, and most of them settle along the coast in small towns (Arbo & Hersoug, 1997). More broadly, in the Declaration from the 22nd Saami Conference in Váhtjer, the Saami Council emphasized that the policy of assimilation has made Sámis “more likely to stay silent regarding violence and abuse” but Sápmi can be strengthened by “increasing each individual’s sense of belonging and identity,” highlighting the importance placed by the Sámi People on protecting Sámi culture and identity (Saami Council, 2022).

3. Subsistence Livelihoods

Subsistence livelihoods are paramount to communities on the North Slope for nutritional, cultural, and spiritual reasons. Rural Alaska subsistence users harvest about 36.9 million pounds of wild foods annually, and 97.3% of NSB households include subsistence foods in their diets (Alaska Department of Fish and Game, 2024; North Slope Borough, 2015, 2019d). These food sources include a variety of land and marine mammals as well as fish and waterfowl, the most representative being bowhead whales, beluga whales, seals, and caribou, which provide the majority of Iñupiat subsistence needs (North Slope Borough, 2019d). Subsistence is also culturally important as hunting, fishing, and gathering are part of the Iñupiat Peoples’ identities, are ways Iñupiat Peoples relate to the world, and are how they maintain ancestral traditions (Green et al., 2020; North Slope Borough, 2019d).

Subsistence activities take place year-round in Alaska. For instance, when it comes to the bowhead whales, spring and fall whale hunts take place in various coastal villages in the North Slope, such as Utqiagvik and Wainwright (North Slope Borough, 2019d).
In Norway, reindeer herding is a way of life crucial to Sámi culture, language, traditions, economy, and survival (Hydle & Henriksen, 2022). In Norway, there are about 250,000 reindeers herded today, with more than 185,000 being in Finnmark. The estimated number of over 3,000 Sámi reindeer herders makes them an evident minority not just in Finnmark but more so in Norway as a whole, compared to in the North Slope of Alaska where Iñupiats are the majority. This has an important implication on Indigenous engagement in decision-making, which will be discussed later in this thesis.

Reindeer pastoralism in Norway features seasonal migrations. The migrations in Finnmark take place between the winter pastures of the inland plateaus and the summer pastures on the coast. As a result of the nomadic nature of Sámi reindeer herders and their traditional livelihoods, they have periodic contact with other communities (e.g. farming communities), and land rights conflicts often arise (Benjaminsen et al., 2015)

Subsistence livelihoods are vulnerable and are affected by industrial activities such as oil and gas development and related pollution, ecological impacts, as well as long-term environmental changes such as climate change. The background and impacts of climate change are elaborated in the section below. With the development of extractive industries, since Indigenous Peoples base their livelihoods largely on the use of lands such as pastures and hunting grounds, they are very vulnerable compared to non-Indigenous people to these industries.

4. Climate Change and Impacts on Communities

The Arctic has warmed nearly four times faster than the globe since 1979, due to its high susceptibility to biophysical feedbacks (Khachatoorian, 2017; Rantanen et al., 2022). Climate
change impacts in the North Slope include melting sea ice, coastal erosion, permafrost thaw, and changing migration patterns, all of which lead to complex ecological changes that may be irreversible and pose threats to the well-being of wildlife and communities (North Slope Borough, 2019c; U.S. Environmental Protection Agency., 2017).

For example, the retreating sea ice in the summer leads to longer open water seasons, making the coastline of the North Slope more vulnerable to erosion, which places infrastructures such as roads and buildings and public safety at risk. Permafrost thaw damages infrastructure, and the carbon dioxide and methane released during the thawing process also lead to more warming, creating a positive feedback loop that further exacerbates the pressing climate crisis faced by the Arctic communities (North Slope Borough, 2019c; Schneider von Deimling et al., 2012; Turetsky et al., 2019).

The impacts of climate change on subsistence are multifaceted and interconnected. First of all, the migration patterns of culturally and nutritionally important animal species are altered due to climate change, creating difficulties for hunting activities and threatening Iñupiat Peoples’ food security. On the other hand, when it comes to hunting activities, warming temperatures lead to late freeze-ups and accelerated thawing of permafrost, which create barriers for snow machines in traveling and hunting and also complicate food security.

Hunters already travel great distances for subsistence. Changes in migration patterns and in landscape force hunters to travel even further, increasing the costs and risks associated with hunting activities or even causing hunters to miss hunting opportunities (North Slope Borough, 2019d).

Ecological changes related to climate change – such as Arctic rain-on-snow events – have been affecting reindeer herders to a large extent, and related Indigenous concerns have been
emphasized by multiple previous studies (Forbes et al., 2019; Savo et al., 2016; Serreze et al., 2021). Due to the heavy dependence on pasture quality and availability, reindeer herding is especially vulnerable to climate change (Arctic Climate Impact Assessment (ACIA), 2005; Burkhard & Müller, 2008; Turner et al., 2000).

5. Governance Structure and Policy Process

The North Slope Borough is one of the 19 boroughs in Alaska, all of which are equivalent to regional governments that have mandatory powers (Guettabi, 2017). Governance agencies in the North Slope include the borough government (with 14 departments), city governments, tribal governments and organizations, Arctic Slope Regional Corporation (established as one of the 13 Native Corporations in Alaska through the ANCSA in 1972), etc (North Slope Borough, 2019a). These government agencies along with other stakeholders are involved in the land ownership and resource use in the North Slope.

The Alaska Native Claims Settlement Act of 1971 (ANCSA) is a foundational document signed into law in history that continues to guide land use governance in Alaska. It was intended to resolve outstanding Alaska Native land claims and disputes (Huhndorf & Huhndorf, 2011; North Slope Borough, 2019h; State of Alaska Department of Commerce, Community and Economic Development, 2022). This legislation provided both a cash and a land settlement and mandated the creation of 12 Alaska Native regional corporations to manage these resulting assets (M. E. Thomas, 1986).

The passing of ANCSA, the largest Indigenous land claims settlement in U.S history, was a crucial historical moment in history that continues to shape Alaska’s land use governance today, as it not only helps promote economic growth in Alaska but more importantly allows
Alaskan Indigenous communities to self-determine and pursue their own goals (Huhndorf & Huhndorf, 2011).

Norway has a very different historical and colonial context. Sámis are a very small minority when it comes to the total population. In Norway, there is also a lack of foundational historical agreements like the ANCSA. However, several important Supreme Court rulings in Norway have resulted in documents that affirm and protect Sámi land rights, such as the Finnmark Act of 2005 that transferred land and resources formerly owned by the State to be transferred to Finnmark inhabitants through the Finnmark Estate, acknowledging immemorial usage rights of Sámi Peoples, including for ownership and pasture rights. Yet criticism exists due to the gap between the provisions in the Act and the realization of these provisions as reflected in the level of Sámi participation in decision-making, which is considered not “fully in compliance with” the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) in the International Labour Organization (ILO) Convention No.169 (Savaşan, 2023). The overall land use governance structure in Norway is quite straightforward, democratic, and top-down, with the Supreme Court being instrumental in acknowledging and realizing Indigenous rights and immemorial usage (Ravna & Bankes, 2017), and with the participation of various Sámi and non-Sámi agencies, even though controversies regarding the actual political power of Sámi Peoples in the current policy process still remain to be addressed.

5.1. Governance Structure: Energy

There are important differences between Alaska and Norway in the structures and hierarchy of governance influencing the power of Indigenous Peoples in decision-making processes. The paragraphs below discuss institutions and land use governance related to energy
resources, such as the development and implementation of oil and gas projects as well as the construction of new wind farms.

**Alaska**

In the North Slope of Alaska, the NSB Department of Planning and Community Services is the main entity that oversees proposed land use and development projects, following NSB zoning and subdivision requirements. The Department is guided by its mission to protect the land, wildlife, and culture within the Borough, regulates and monitors development, and plans for a future that enhances the sustainability of the communities (North Slope Borough, 2018, 2019h). Zoning is a major component of local planning and land use governance, which includes dividing areas into districts for current and potential land use.

The Department of Planning and Community Services is highly Iñupiat-led and the governance decisions are very community-centered, as can be seen in how the planning efforts “must include the consultation and collaboration with the North Slope Borough, Alaska Native organizations, local communities, and subsistence users” and should “incorporate and utilize traditional Iñupiat knowledge.” In order to ensure that development is environmentally friendly and the Indigenous Peoples are well informed, the industry is required to implement the project at a pace that allows for time for comments, consultation, and risk mitigation. The Department’s governance of energy and extractive land use places a high importance on the input of Indigenous Knowledge holders and the preservation of Iñupiat Peoples’ livelihoods, as project planning is required to include the identification and preservation of traditional land use sites that are of historical and cultural importance, to gather data related to predicted impacts on subsistence hunting and the health of the environment and the people, and the industry is
sometimes required to employ subsistence advisors to monitor their operations. Areas critical to subsistence and wildlife, such as zones for whaling, are excluded from leasing and development plans (North Slope Borough, 2019h).

An important component in land use governance and project approval is Environmental Impact Statements (EISs), following the NEPA requirements (Emerson et al., 2022). The EISs consist of comprehensive, scientific, and systematic analysis of the environmental impacts of proposed projects and actions, in order to generate and release information for agency and public benefit and discuss alternatives to the proposals (Czarnezki, 2003). The EIS guides how projects are going to be developed, and the EIS process includes scoping activities and reports, issue identification, the development of a draft EIS for public comment, the documentation of how to address public comment, and the publishing of a final EIS. In the context of the NSB specifically, communities on the North Slope as well as in Fairbanks and Anchorage are engaged in public scoping meetings regarding oil and gas activities (North Slope Borough, 2019h).

Norway

In Norway, oil and gas development was initially steered by technocrats and politicians, with the present-day governance involving more participation from civil society, even though technocracy still plays a major role (Overland, 2018). Currently, wind power development is prioritized by the Norwegian national government, as the country pushes for a green energy transition. The EEA agreement and the Norwegian Government’s commitment to renewable energy transition makes Norway obliged to increase its share of renewable energy, and it is striving to have 67.5% share of energy coming from renewable sources by the end of 2020 (Bøeng, 2011; Ellingsen, 2020).
When it comes to the specific structure of energy governance, due to the small size of Norway, national initiatives have a straightforward and direct impact on regional implementation. The Norwegian Parliament sets the political framework for energy resource management and has executive authority with the support of various ministries, including the Ministry of Petroleum and Energy and the Ministry of Trade and Industry. The Ministry of Petroleum and Energy is the main entity in charge of managing energy resources in Norway and follows the guidelines provided by the Norwegian Parliament and the Government.

Take wind energy for example, the Ministry of Petroleum and Energy and the Ministry of Trade and Industry in Norway together own Statkraft SF, which is a government-owned energy company that develops specific wind power projects like Fosen. They follow the National Framework for Onshore Wind Power Development created in 2019 by the Norwegian Water Resources and Energy Directorate (NVE) – a directorate under the Ministry of Petroleum and Energy – which provides “a national structure, guideline, and coordination strategy for all wind power development projects in Norway” (Ellingsen, 2020). The power and agency of the Norwegian national government in energy governance is thus overwhelmingly big, as it is in charge of not only setting the directions for energy development but also controlling the industry in terms of where, when, and how specific energy projects are carried out, rendering the energy governance in Norway highly centralized in Oslo. Municipalities also have power in this governance structure, as national, regional, and local authorities can file objections towards project proposals if they identify conflicts; the central energy authority will then discuss potential mitigation measures in a meeting. Ultimately, it is the NVE that grants or declines licenses for energy projects (Eikeland et al., 2023; Wolsink, 2007).
5.2. Governance Structure: Subsistence

There are distinct institutions and decision-making processes related to subsistence livelihoods in Alaska and Norway. The paragraphs below discuss institutions and land use governance related to subsistence livelihoods, such as the policies on hunting, fishing, and reindeer herding.

Alaska

The section above covered not only the land use governance related to industry projects, but also how subsistence is protected through requirements and regulations. Other state and federal legislation, such as the Federal Marine Mammal Protection Act, also allows only Alaska Natives to practice the “noncommercial” subsistence harvesting of fish and wildlife (North Slope Borough, 2019h).

The NSB Department of Wildlife Management plays a major role in subsistence governance and assistance, as their work includes facilitating sustainable harvest, monitoring populations of fish and wildlife through scientific research and Indigenous Knowledge, and maintaining these resources at healthy population levels so “residents can continue to practice traditional methods of subsistence harvest of wildlife resources in perpetuity.” The Department of Wildlife Management also works closely with other NSB departments (e.g. Planning, Fish and Game Management) and state and federal agencies (e.g. the Federal Bureau of Land Management, the State of Alaska, the National Marine Fisheries Service), including to mitigate industry impacts (Department of Wildlife Management, North Slope Borough, 2024). Similar to the Department of Planning & Community Services, both under the NSB administration,
subsistence governance and research efforts of the Department of Wildlife Management also
employ a highly Iñupiat-centered approach.

Norway

Reindeer herding is significant not just to the Sámi Peoples but also to Norway as a whole, both economically and culturally (Labba, 2006). Norway is the only country with a Sámi population that has ratified the International Labour Organization Convention no.169 Concerning Indigenous and Tribal Peoples in Independent Countries (ILO-169) and is thus obligated to identify and protect areas that Sámi possess. Furthermore, under ILO-169, Sámis shall be able to enjoy substantial participation in the governance and management of their traditional lands (Ravna, 2015). Under such international legal frameworks, specific practices in reindeer herding governance are then implemented under national frameworks.

Reindeer herding livelihoods in Norway are governed at three levels: national, regional, and district/local. Specifically, at the highest level, the Ministry of Agriculture and Food is the entity in charge of reindeer-pastoralism policy, and subject to the Ministry is the national reindeer husbandry board, which includes members appointed by both the Ministry and the Sámi Parliament. Also at the national level, the Sámi Parliament of Norway is a governing agent and a consultative party for policy developments and represents Sámi Peoples, and the national reindeer husbandry board has both an advisory and a managerial role. Governed under the parliamentary principle, the Sámi Parliament is popularly elected by Sámis, is “a democratic instrument for Sámi self-determination,” and is committed to “strengthen the Sámi’s political position and promote the Sámi’s interests in Norway, contribute to equal and fair treatment of the Sámi people and work to create the right conditions for the Sámi to secure and develop their
language, culture and social life,” all of which are crucial in Sámi issues (The Sámi Parliament, 2024).

Going from the national to the regional level, the responsible entities are the regional boards that can approve land-use regulations developed by districts and object to land-use plans that are contrary to reindeer-herding needs. At district/local levels, the main entities are reindeer-herding district boards constituted by members of different siidas (siidas: reindeer herding organizational units at local levels) within the district, and siida governance not just relates to reindeer herding per se but also helps build resilience to climate uncertainty (Næss et al., 2021; Turi, 2016). Summer pastures are divided into separate reindeer grazing districts, yet winter pastures are considered “migratory zones” or “commons” and shared between districts. Maximum population or carrying capacity is determined for the summer pastures by agencies including the Ministry of Agriculture and Food, the Reindeer Husbandry Administration, etc., with the overarching guidance of the Norwegian Parliament (Benjaminsen et al., 2015; Ims & Kosmo, 2001). Aside from local municipalities, reindeer herding in Norwegian structures and policy processes also involves several other entities, such as the Land Administration Agency and the Sámi Land Administration Agency (Savaşan, 2023).

As Norway expands its industry development and plans for new projects, the governance of reindeer herding has become increasingly tied to other land uses, and this is reflected in the Norwegian governance structure and processes as well. Within the Norwegian national-regional-local hierarchy for reindeer-herding governance, regional co-management boards are responsible for objecting to zoning plans that may “imply undue negative consequences for reindeer pastoralism,” yet in this hierarchy, regional-level governance is too big to have policymaking be the most appropriate for the local reindeer-herding contexts that are
smaller in scale. Also, in this structure, Sámi reindeer herders are categorized as “other actors or policy interests” and are incorporated through consultation processes, and EISs and social impact assessments are pivotal to decision-making, but it is the policy directions and processes at national levels that play the major role in determining land-use planning (Turi, 2016).

Additionally, there are opportunities tied to Sámi representation at an international level. First of all, besides its role at a national level to represent Sámi rights, the Sámi Parliament can also be an institutional policy instrument that facilitates the implementation of international laws related to Indigenous rights and livelihoods (Turi, 2016). Even the local siidas can engage in a process called “scale-jumping” where they participate in international spaces to defend their land rights and interests, specifically through appealing to Indigenous and customary rights (Cox, 1998; Turi, 2016).

Through specific national and international frameworks, such as those related to Indigenous rights, biodiversity, and conservation, another layer of protection is added to reindeer herding livelihoods as these frameworks are linked to the wider context of global environmental sustainability and emphasize the importance of traditional-knowledge-based land use in protecting biodiversity. These international provisions are binding and “interact with national and regional legislations” (Turi, 2016), prompting the government agencies in not just Norway but also the U.S. and Alaska to take action on them.

Yet challenges exist, as reindeer herders in Norway (as well as Sweden and Finland) have expressed dissatisfaction with the regional and national reindeer administration, pointing out that they are inflexible, almost dysfunctional, and inappropriate for local priorities, leading to impairment of traditional reindeer herding (Laakso, 2008; Reinert, 2006; Turi, 2016).
5.3. The Role of NGOs

Non-governmental organizations (NGOs) play an important role in land use governance by promoting policy changes, championing Indigenous rights at local, national, and international levels, and enhancing the publicity of Indigenous issues to promote more immediate action.

In Alaska, the Inuit Circumpolar Council (ICC) plays an instrumental role in calling for government and outside researchers to adjust the directions of their work based on Indigenous priorities and allow Indigenous peoples to lead scientific research and decision-making to serve community needs. The ICC is one of the six Permanent Participants in the Arctic Council, which is an intergovernmental forum that promotes collaboration between Arctic countries (The Arctic Council, 2024). Meanwhile, many members in these NGOs also hold important positions in government agencies, which help implement important research paradigm shifts and policy initiatives.

In the Circumpolar Inuit Protocols for Equitable and Ethical Engagement (ICC EEE protocols), the call for ethical research serving community needs has been elevated to national decision-making platforms, which is crucial since a lot of decision-making is based on ongoing scientific research. The release of OSTP-CEQ Guidance on Indigenous Knowledge by the White House, which cited extensively from ICC publications and documents, is a great demonstration of the success of NGO’s efforts in eliciting positive policy changes that benefit Indigenous communities (Inuit Circumpolar Council, 2019, 2020, 2022; Office of Science and Technology Policy & Council on Environmental Quality, 2022).

In Norway, just like the role that ICC plays in promoting Inuit rights in Alaska as well as other areas in the Inuit homeland, Sámi organizations play a big part in negotiating international agenda related to Indigenous Peoples, and the Sámi Council – also a Permanent Participant in the
Arctic Council – is instrumental in engaging with international bodies and promoting policy changes through attracting attention and inducing changes at the highest level so that national policies and frameworks in Norway that are important to Sámi livelihoods at local levels will be influenced as well. Such Indigenous organizations are involved in both ethical research involving Sámis as well as legal development such as the adoption of UNDRIP. The Association of Sámi Reindeer Herders in Norway also engages in important negotiations. Furthermore, cross-level collaboration can have a big impact; for example, the Sámi Council can also work with local siidas to appeal to UN bodies when industry-related land-use conflicts such as pasture encroachment occur, as these conflicts can be framed within international frameworks related to Indigenous rights (Holmberg, 2022; Minde et al., 2007; Turi, 2016).


6.1. Oil and Gas

Alaska is home to rich oil and natural gas reserves, and the development of the oil and gas industry starting in the 1960s has contributed substantial economic growth to the State of Alaska and its residents and benefited the country as a whole (Sherval, 2013; Tussing, 1984).

As early as before the 1800s, the Iñupiat Peoples were already aware of oil seepages on the coastal plains in the North Slope. At the very beginning, it was the U.S. Navy that utilized the 23 million-acre Naval Petroleum Reserve No.4 (PET-4) in the North Slope as emergency oil supply, which later became the well-known National Petroleum Reserve-Alaska (NPR-A). It was in the 1960s when the rapid commercialization of oil and gas and the development of oil industries started to take place on the North Slope, along with the entry of outside companies. In 1964, the State of Alaska held its first lease sale in Prudhoe Bay, and in 1968, building on the
mapping work done by the US Geological Survey (USGS) and other expeditions, the Atlantic Richfield Co. and Humble Oil and Refining Co. (now ExxonMobil) announced the discovery of Prudhoe Bay after the drilling of wells Prudhoe Bay State #1 Sag River State #1. Prudhoe Bay is still by far the largest oil field in North America that has made a substantial contribution to the nation’s economy (Mull, 2003). The estimated 9.6 billion barrel reserve at that time was more than twice the size of the East Texas field, evoked the wave of oil exploration on the North Slope which is still present to this day.

In 1969, Oil lease sales generated $900m for the State of Alaska, and in the same year, oil companies started to build the 800-mile Trans-Alaska Pipeline which was finished in 1977 (North Slope Borough, 2019g). In 1980, petroleum revenues in Alaska tripled, and the oil revenues received by the Alaska Permanent Fund accumulated and were later distributed to Alaskan residents in dividends (Alaska Permanent Fund Corporation, 2024). Note that the history of the development of the oil and gas industry was also accompanied by a series of environmental regulations and decolonization policies. The National Environmental Policy Act (NEPA) was passed in 1969 to create national environmental standards, and the Alaska Native Claims Settlement Act was signed into law in 1971 (North Slope Borough, 2019g).

NPR-A was transferred to the Department of Interior by Congress in 1977, when an additional 21 well exploration program was mandated. Seismic and well-drilling activities took place, and in the 1980s, the Federal government leased an additional 1.4 million acres to oil companies (Mull, 2003; W. C. Thomas & Thomas, 1982). Note that provisions exist and apply to both oil exploration activities as well as the protection of subsistence livelihoods (North Slope Borough, 2019h). The Bureau of Land Management (BLM) has been holding annual oil and gas lease sales of blocks throughout the NPR-A since 2010, authorized under the Naval Petroleum
Reserves Production Act of 1976 and as amended (Houseknecht et al., 2010; U.S. Department of the Interior, Bureau of Land Management, 2017). The 2017 lease sale resulted in over $1 billion bid for the offered tracts, half of which was dedicated to the State of Alaska (U.S. Department of the Interior, Bureau of Land Management, 2017). A very recent and controversial project is Willow, with its Master Development Plan (MDP) proposed by ConocoPhillips Alaska, Inc. (CPAI) (Bureau of Land Management, 2023). Willow, approved in 2023, is estimated to contain more than 300 million barrels of recoverable oil and is located in the northeast area of the NPR-A (North Slope Borough, 2019g; Purisch, 2023). The project remains a center of debate and policy changes, as in April 2024, the Department of Interior announced that future oil and gas drilling will be limited across NPR-A (Joselow, 2024).

Another area that is a center of controversy is the Arctic National Wildlife Refuge (ANWR), created under the Alaska National Interest Lands Conservation Act (ANILCA) by Congress. However, 1.5 million acres of its coastal plain (the 1002 area) was set aside for potential oil and gas exploration, with two leases ordered by Congress under the Tax Cuts and Jobs Act of 2017 which brought national and international interest in exploring oil and ANWR (Bradner, 2018; North Slope Borough, 2019g). Due to its nature of being protected wilderness, political debate continues and its future remains uncertain: “exploration of ANWR, originally withdrawn from entry in 1960, remains in limbo” (Mull, 2003).

Multiple stakeholders are involved in oil and gas resource use and governance in the North Slope. For example, field studies, mapping, and analytical projects of the Alaska Division of Geological & Geophysical Surveys (DGGS) were sponsored by a consortium of not only oil companies such as ConocoPhillips, BP, and Shell and government agencies such as the Alaska Division of Oil and Gas, but also Indigenous-led institutions such as the Arctic Slope Regional
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Corporation (ASRC) and the NSB, highlighting the importance of good relationship-building between these stakeholders (Mull, 2003). Also, as can be seen in the Biden administration’s decision on restricting oil development on NPR-A, the role that the Federal government plays in making resource use decisions is significant as well, further pointing to the multi-level nature of relationship-building and multilateral conversations. The NSB’s practices and experience of relationship-building with various levels of government agencies as well as industry stakeholders to achieve good land use governance are discussed later in the results section of this thesis.

In Norway, the Snøhvit field started its operation in 2007 after its discovery, and the gas has been transported by seabed pipeline to Hammerfest to be transformed into liquified natural gas (LNG) at the industrial island of Melkøya (Loe & Kelman, 2016). Oil companies (including companies providing supporting services) such as Statoil started to grow rapidly, and Norway became a big exporter of crude oil and was more integrated into the international economy (Fosu, 2013). Even though local residents in Hammerfest are happy about the jobs and income brought by the oil and gas industry, the oil and gas operations take place in parts of Sápmi – Sámi Peoples’ homeland – and the Sámi reindeer herders have expressed concerns related to the impacts brought by modern industrial development (Kangasluoma, 2021).

6.2. Wind and Renewable Energy

In Alaska, even though oil and gas are a large source of revenue, local diesel remains expensive, and the high fuel costs due to transportation and industrial facility operation in the North Slope add to the already high costs of living for residents. Coupled with challenging realities in the Arctic, where the cold climate creates freezing issues for public facilities and
increases energy needs and costs, the communities of the North Slope have expressed interest in renewable energy and energy diversification (North Slope Borough, 2019f).

Meteorological data of the North Slope Borough have indicated that while wind energy potential is low for inland communities, viable wind sources are found in Point Hope, Point Lay, Kaktovik, and Wainwright. However, even in places where potentials exist, they are not prioritized even when funding is available. Some studies indicate positive cost-benefit ratios for wind energy in several communities, while other renewable energy sources, such as solar, are not well-researched and do not seem cost-effective. In the NSB Comprehensive Plans, it has been pointed out that the NSB should “follow through” with the promising sites for wind energy, yet it is also indicated that the “cost-benefit ratios are not strong, and the economics of each site should be further studied before any commitment to construction is made” (North Slope Borough, 2019f).

The interest in wind energy development exists in Alaska, yet progress is slow, with oil and gas more prioritized. Despite being abundant, oil and gas will eventually be depleted, and the environmental impacts associated with climate change and environmental disruptions are substantial. Therefore, the NSB aims to explore alternative and renewable resource options (North Slope Borough, 2019f), and it will be beneficial for them to keep collecting community interests in energy diversification and act accordingly. With “attain energy independence and energy security” and “continue research into alternative energy sources and implement where feasible” stated in its comprehensive plans and the “potential economic and environmental gains” being recognized, the North Slope Borough shows that it is open to energy research and diversification (North Slope Borough, 2019f).
Norway’s geographic characteristics bless it with abundant wind resources, and coupled with a stable economy as well as reliable power infrastructures, Norway has become an ideal country for large-scale wind energy development and one of the global leaders in the wind industry (Ellingsen, 2020; Hovland, 2018). Along the western coastline in Norway, the average wind speed exceeds 8m/s and in some areas 9m/s, and the onshore wind power in Finnmark county is more than 50% of that in the whole country (Blindheim, 2013). Even though the electricity generation in Norway primarily comes from hydropower, the limited room for new hydropower projects as well as energy deficits in regions such as Mid-Norway has been motivating policymakers to increase wind power capacity (Eikeland et al., 2023; François et al., 2017). In Norway, the first wind turbine was built in 1986, and then the number of wind parks grew to 33 in 2017, with an 1188 MW capacity (Ellingsen, 2020). And from 2017 on, The rapid development of wind energy in Norway has increased its share in the national electricity production mix from 1.4% to 10% in 2022 (Skjærseth et al., 2023). When it comes to onshore wind power specifically, which is controversial in that relevant projects and wind turbine construction may cause conflicts with Sámi reindeer herders’ livelihoods on the land, Norway possesses substantial capacity for onshore wind development, as it is projected that an additional 5800 to 7150 MW of wind power can be added to the grid (Staupe-Delgado & Coombes, 2020; Waagaard et al., 2008). Since 2008, the major wind projects have been subsidized by Enova SF, a Norwegian state enterprise established to fund renewable energy and energy efficiency, contributing to a sufficient and growing production volume (Blindheim, 2013).
7. Economy

In the North Slope of Alaska, oil and gas leasing activities are the main source of revenue. The Borough owns multiple tracts of land within Deadhorse, a census-designated place within Prudhoe Bay, which are subject to lease agreements and contracts and provides ongoing annual lease revenues for the NSB. The NSB is able to lease to petroleum companies that conduct oil and gas exploration and development on the North Slope and tax oil and gas infrastructure within its borders (North Slope Borough, 2019g). Infrastructure development was indicated by NSB leaders in the interviews as well as residents (mentioned in the Comprehensive Plan) to be highly important in economic development and land use governance, and both oil and gas and subsistence activities rely on infrastructure including community roads, industry roads, trails, airstrips, and ports, all of which help enhance connectivity and economic development (North Slope Borough, 2019e).

Before the development of oil industries, Norway had export income through its shipbuilding industry, and at that time, people practiced seasonal fisheries domestically. The Norwegian economy really began to flourish with the rapid development of the oil and hydropower industries, helping its welfare and prosperity thrive and turning it from a poor European country to one of the wealthiest countries in the world (Bang & Lahn, 2020; Fosu, 2013). Now, Norway’s economy largely relies on the oil and gas industry, fish and seafood export, and shipping services (Johansen et al., 2019).

One important area where social cleavages and colonial legacies are reflected is how Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK) are treated in decision-making processes. Alaska and Norway both have histories of colonization and discrimination against Indigenous Peoples, and these legacies still negatively impact Indigenous Peoples – both Inupiats and Sámis – to this day (K. L. Hansen et al., 2016). In regions where deep cleavages still exist between Indigenous Peoples and the Western government dominated by the majority non-Indigenous group, Indigenous Knowledge is usually viewed merely as “supplementary” to Western science, or even completely ignored, despite the practices that the Indigenous Peoples have proved successful over time with their rich observations and experience through their effective environmental stewardship since time immemorial (Nadasdy, 1999).

For example, in Norway, colonial legacies can be reflected in the recent case of Fosen, where wind turbines are located in Sámi reindeer herders’ pasture areas, highlighting the problem of environmental injustice known specifically as “green colonialism” as the industry land use on Sámi land repeats the colonial practice of dispossession through accumulation (Ellingsen, 2020; Normann, 2021).

Before delving into the status quo of the integration of IK and TEK in decision-making in Alaska and Norway, the general background of IK is presented first, for the purpose of showing its unique characteristics and highlighting its significance in contributing to environmental and land use governance. Then, challenges and recent advancements regarding integrating IK in Alaska and Norway are discussed.
8.1. Definition and Characteristics of Indigenous Knowledge (IK)

IK is a body of observations, oral and written knowledge, innovations, practices, and beliefs developed by Indigenous Peoples through direct interaction, experimentation, and long-term experiences with the landscapes, ecosystems, species, and ecological processes over millennia (Atleo, 2012; Berkes, 2017; Jessen et al., 2022). IK as a systematic way of thinking has been applied by Indigenous Peoples to phenomena across biological, physical, social, cultural, and spiritual systems, and such extensive knowledge has been passed from generation to generation (Inuit Circumpolar Council, 2022; Office of Science and Technology Policy & Council on Environmental Quality, 2022). Opposite to the stereotype of IK being “locked in a box” (Nadasdy, 1999), IK continues to evolve and develop and span disciplinary boundaries (Jessen et al., 2022), especially in recent years with the onset of rapid environmental changes that disproportionately affect Indigenous communities (Office of Science and Technology Policy & Council on Environmental Quality, 2022; Whyte, 2016). Previous studies have supported this point by mentioning IK is “often augmented with contemporary observations and experiences that refine accumulated knowledge and allow for flexibility and adaptability in the context of environmental and social change” (Berkes & Armitage, 2010; Ford et al., 2015; Jessen et al., 2022).

One important aspect of IK is that it is heterogeneous and diverse, as it is a collective term that represents the many place-based knowledge systems accumulated across generations within a myriad of specific cultural contexts (Jessen et al., 2022).

Another very crucial characteristic of IK is its recognition of system complexity and its holistic approach of viewing and understanding the environment (Atleo, 2012; Cajete, 2016; Jessen et al., 2022; Turner et al., 2000). Such understandings of humans and other ecosystem
components are largely “relational,” in which Indigenous Peoples draw connections among organisms whether through lived experience or cultural transmission. This holistic approach is considered a “true ecosystem approach” where impacts are being analyzed cumulatively in interconnecting systems (Ellam Yua et al., 2022).

One reason why IK is holistic is that IK is based on ethical foundations often grounded in social, spiritual, cultural, and natural systems that are frequently intertwined and inseparable (Office of Science and Technology Policy & Council on Environmental Quality, 2022). Compared to Western science, which usually implies that human beings are separate and distinct from the rest of the world, IK does not embrace the rigid Western distinction between humans and the environment; rather, many IK holders believe that humans are connected with other species and are “part of the land, part of the water” (Jessen et al., 2022; Nadasdy, 1999). The kinship between humans and other organisms, the linkage between health and spiritual well-being in them, and the mutual reliance among them are distinct emphases in IK compared to Western science (Jessen et al., 2022).

8.2. Role of IK in Governance

Indigenous Knowledge (IK) holders play a significant role in environmental governance, helping identify biocultural indicators and engaging directly in research, monitoring, and management, in which they strive to preserve the linkages between the people and the ecosystems on which their cultures and societies depend (Jessen et al., 2022; Turner & Sivaramakrishnan, 2008). Indigenous Knowledge has been increasingly incorporated into research programs, which enhances contemporary understandings of ecology, evolution, physiology, and applied ecology, such as wildlife conservation and management (Jessen et al.,
Research that aims to generate information about long-term processes will especially benefit from partnerships with IK holders, as their knowledge is shaped by continued interaction with and observation in ecosystems over millennia.

Indigenous Peoples accumulate knowledge in various fields over time as their survival depends on their knowledge of the environment as a whole. This is especially true in the Arctic context, where the tough environmental conditions, the extreme cold, and the remoteness all pose challenges to survival. Their knowledge is therefore even more “uncompartmentalized” (i.e. holistic) because in order to survive, one must know about not only certain animals, but “how they fit into a complex web of practices, values, and social relations that encompass not only animals, plants, and landforms, but humans as well” (Nadasdy, 1999). Putting this into the Arctic context, the fact that Arctic Indigenous Peoples have been successfully living there since time immemorial and continue to be doing so is beyond powerful in showing they are the true experts of the Arctic ecosystems and everything within. The validity of their knowledge does not need to be “proved” by other forms of knowledge or by scientists who are based in places far away from the Arctic. Rather, scientists are encouraged to embrace the differences and bridge the gap as different forms of knowledge can be complementary and spark new understandings that will largely benefit effective and inclusive resource management efforts, especially on Indigenous lands.

The notion of co-production of knowledge (CPK) has come up in recent literature as an important step towards equitably integrating IK in decision-making. CPK, according to Ellam Yua et al. (2022), is the process of “bringing together two different knowledge systems, in true partnership and equity, to enhance, learn, and create new understandings on a specific topic.” When done correctly, the co-production of knowledge allows people to bring different ways of
knowing together and generate new knowledge and understanding of topics. Equity is foundational to true co-production of knowledge, where space is fairly provided for all knowledge holders in an agreed-upon research process. True CPK helps reconcile the differences between two distinct knowledge systems and produce knowledge that incorporates both Indigenous and Western science and lessons learned, resulting in findings highly applicable to contemporary environmental governance, especially when it comes to the governance of land inhabited by Indigenous communities.


Self-determination is crucial for the well-being of the Indigenous communities and should cover not only cultural, but also political, environmental, and economic aspects. UNDRIP highlighted the “urgent need to respect and promote the inherent rights of indigenous peoples which derive from their political, economic and social structures and their cultures, spiritual traditions, histories and philosophies, especially their rights to their lands, territories and resources” (Minde et al., 2007).

The North Slope of Alaska is primarily inhabited by Iñupiat Peoples, who consist of approximately 80% of the population (North Slope Borough, 2015, 2019b). The North Slope is characterized by a high level of self-governance as 61% of its residents are employed by the local government, including by the city, tribes, and the borough (North Slope Borough, 2019g). However, there are still major challenges with IK integration and true co-production of knowledge: not enough research is directed or guided by Indigenous Peoples, Indigenous Peoples’ knowledge systems are not equitably included, and the needs and concerns of communities are not adequately addressed (Ellam Yua et al., 2022).
To resolve these challenges, there have been more and more literature, protocols, and government guidance being published, providing comprehensive frameworks and guidelines for the ethical co-production of knowledge (Ellam Yua et al., 2022; Interagency Arctic Research Policy Committee, 2018; Inuit Circumpolar Council, 2022; Office of Science and Technology Policy & Council on Environmental Quality, 2022). Recent studies also advise researchers to build trusting relationships with Indigenous Peoples and determine research priorities and agreements with them before beginning data collection (Jessen et al., 2022; Lake et al., 2017).

In the U.S. specifically, in 2022, the Office of Science and Technology Policy and the Council on Environmental Quality of the United States issued the Guidance for Federal Departments and Agencies on Indigenous Knowledge (Office of Science and Technology Policy & Council on Environmental Quality, 2022). This document marks a big advancement in promoting equitable collaboration with Indigenous Peoples in federal decision-making processes, in which the agencies would appropriately consider Indigenous People’s priorities, enhance their understanding of and respect for Indigenous Knowledge and worldviews, develop ethical, equitable, and mutually beneficial relationships with Indigenous Peoples, and enable a government-wide effort to improve the recognition and inclusion of Indigenous Knowledge in federal decision-making as well as and the empowerment of Indigenous-led research and Indigenous-centered governance. It also emphasizes the importance and contributions of Indigenous Knowledge to various aspects of scientific research and resource management, and highlights that Indigenous Knowledge should not depend on other forms of knowledge for validation and agencies should embrace multiple ways of knowing as a way to improve research outcomes and decision-making. More specifically, the document reviews past efforts and identifies future goals comprehensively through listing detailed guidelines for promoting full
participation of Indigenous Peoples in decision-making, including guidelines on environmental impact assessments (EIAs), relationship-building, capacity-building, Indigenous-driven research, addressing past injustices, elevating Indigenous Knowledge, early and sustained engagement, respecting different worldviews, co-management structures, co-production of knowledge, and funding. A big step forward from earlier practices where Indigenous Knowledge is merely “considered” and “integrated” instead of being recognized as an equal way of knowing and practicing and should take the lead in the training for agencies and in decision-making (Nadasdy, 1999), the document shows a strong initiative to promote a research diagram and mentality shift by expressing that Indigenous Peoples should lead in the research process and that the research should be relevant to Indigenous experiences, perspectives, priorities, and ways of knowing and living in these communities.

When it comes to IK and its role in research and decision-making, OSTP indicated that “Indigenous Knowledge has also been historically marginalized in scientific communities and excluded from research and academic resources, funding, and other opportunities … Some Federal decision-makers have taken strides to address these historical wrongs and elevate Indigenous Knowledge, but more work remains” (Office of Science and Technology Policy & Council on Environmental Quality, 2022). Yet the release of the Indigenous Knowledge Guidance for Federal Agencies itself by the White House is already a breakthrough and a big step forward towards addressing the gaps in integrating IK in decision-making, reconciling differences and increasing accessibility and ease for Indigenous participation, and treating two different knowledge systems as equal and mutually beneficial.

For Sámi reindeer herders in Norway, there are successes in promoting their self-determination. This can be seen in political compromises being made by the Norwegian
government, the political power of the Sámi Parliament, cases of Supreme Court rulings in favor of Sámi over land use disputes, and the Norwegian Parliament adopting the Finnmark Act in 2005 that partly incorporated ILO No. 169 which gave additional rights to Sámi Peoples (Broderstad, 2015; Eriksen, 2002; Ravna, 2011). Yet, despite these advancements, there are still gaps that need to be addressed to enhance Sámi self-determination, such as in the institutionalization of Sámi rights as well as in reconciling disagreements between the Norwegian Parliament and the Sámi Parliament over land use governance, industry development, and Indigenous rights. Also, there is criticism of the Finnmark Act’s shortcomings, pointing out that the extent of Sámi rights in practice can still be questioned as “the Norwegian government does not undertake any measures to identify those areas that had been traditionally occupied in order to prevent the exploitation and destruction of natural resources and lands” (Savaşan, 2023) and “formal rights of the Sámi are not always acknowledged by the politicians who make the final decision” (Bjärstig et al., 2020). Self-determination and Indigenous participation in order to allow Sámis to pursue their own economic, social, and cultural development goals is therefore still a work in progress (Aasen, 2005; Broderstad, 2015).

The TEK possessed by Sámi reindeer herders includes lands, climate, grazing, the handling of animals, etc. It can also have a significant contribution to contemporary environmental governance; for example, Sámi knowledge of pasture quality can be combined with real-time GPS data to indicate habitat preferences of reindeers and offer more precise data for estimating the effects of land use change (Hausner et al., 2020; Svensson et al., 2012). Sámi worldviews can also “influence the herders’ understanding of the relationship between humans, reindeer, and nature and how this relationship should be governed” (Johnsen et al., 2017).
Indigenous engagement and the integration of Sámi’s TEK in Norway are particularly interesting, as Norway is widely regarded as one of the global leaders in sustainable development and good environmental governance, but has also witnessed resistance from Indigenous Peoples due to land-use conflicts (Fjellheim, 2023). With the Norwegian case, they place more focus on the wind industry as wind energy has become controversial despite its benefits as a clean and renewable energy source in climate change mitigation, due to issues related to environmental injustices and green colonialism the wind industry placed on Sámi reindeer herders through land uses that interfere with reindeer herding.

In the Fosen case, Fosen Vind DA and the Norwegian state “strategically ignored all knowledges that threatened capitalist and green colonial interests,” despite the Supreme Court ruling in October 2021 that the wind turbines on Fosen violated Sámi Peoples’ rights (Norwegian National Human Rights Institution, 2023). This highlights the asymmetric power relations between the Norwegian state, the industries, and the Sámi Indigenous Peoples, as well as the lack of pathways for Sámi Peoples to protect their land rights and livelihoods in practice, instead of only achieving successes in the legal system but not in implementation (Fjellheim, 2023). As mentioned by Johansson et al. (2023), Sámi litigants were able to win courtroom victories, but the challenge is that the government is still reluctant to make tangible changes after the court decisions. Therefore, it is important to view the legal system as only one of the many channels for Sámi people to have a voice, and to recognize there are still unaddressed gaps in the protection of Sámi rights.

More generally, when it comes to TEK integration, Sámi reindeer herders have expressed dissatisfaction with the weight given to their knowledge and interests when making land-use decisions. Examples of threats posed by competing land uses include disruptions on migratory
routes, calving lands, and pastures, all of which should be protected according to the Norwegian planning system (Hausner et al., 2020). In addition, with the additional challenges forced on Sámi Peoples due to climate change, competing land uses such as infrastructure construction reduce the adaptation options for reindeer herders as they cause the fragmentation of pastures (Hausner et al., 2020; López-i-Gelats et al., 2016).

Reindeer herders’ knowledge about their land is not only essential for the sustained survival of their livelihoods but also beneficial to contemporary environmental governance for the protection of the environment and biodiversity (Axelsson-Linkowski et al., 2020). Therefore, it is urgent to improve pathways for Sámi Indigenous Peoples to co-produce knowledge with Western scientists and decision-makers, negotiate practices that protect their rights and livelihoods, and be engaged sufficiently in national, regional, and local decision-making processes. This is essential to the survival of reindeer herding livelihoods and the wellbeing of Sámi reindeer herders given the increasingly concerning challenges posed by climate change.
III. Methods

The methods employed in this thesis will be discussed in three sub-sections. The first describes the choice of study areas for comparative analysis. The second presents methods for data collection: semi-structured interviews, informal interviews, and document review. The third describes methods for qualitative data analysis, including thematic analysis and comparative case study analysis.

1. Study Areas

To answer the research questions, I conducted two separate fieldwork trips, one to Utqiaġvik, Alaska in December 2022, and the other to Rovaniemi, Finland as well as Tromsø, Norway and Hammerfest, Norway in April 2023. The components of my fieldwork include semi-structured interviews, observation, and informal interviews. I applied a comparative approach to study the effective practices and gaps in land use governance and Indigenous engagement. The selection of study areas of focus was especially important as it would generate insights into governance both in and beyond specific local contexts (Turi, 2016). The rationale for choosing the State of Alaska and the country of Norway for comparative analysis of governance structure and Indigenous engagement is described below.

As Indigenous engagement is oftentimes connected to subsistence livelihoods and extractive industry, the North Slope Borough in Arctic Alaska in the United States and the Finnmark county in Arctic Norway stood out as two areas to compare when it comes to oil and gas activities in particular, and going beyond oil and gas activities, wind energy development in the country of Norway as a whole can also help generate important insights into how the land use
governance structure functions in Norway as compared to in Alaska, as well as the determinants of their respective status quo.

Geographically, the state of Alaska in the United States and Norway both have territories considered to be Arctic and sub-Arctic, have long coastlines, and face similar challenges brought by the far north such as remoteness, difficult weather and climatic conditions, and rapid environmental changes. They are also home to Indigenous communities who have practiced traditional subsistence livelihoods and are faced with both environmental and social changes brought by extractive industries.

Despite the broader similarities, there are also marked differences in these aspects as well as the political, institutional, and governance settings. The type of subsistence livelihoods being practiced, the socio-economic status of their residents, as well as the historical context related to colonization, are all very different. Yet these differences serve as great jumping-off points for our analysis.

When it comes to the merit of comparative analysis, Mill’s methods (Method of Agreement and Method of Difference) emphasize the importance of critical similarities and differences to investigating the causes of phenomena (Lieberson, 1991). Though this thesis does not follow such methods pedantically, the essence of such methods well applies to the purposes of this thesis, which aims to identify the determinants of the different levels of Indigenous engagement in land use governance and decision-making processes. Furthermore, a comparative analysis helps avoid the pitfalls of “panaceas” and can produce recommendations that are place-based and appropriate for specific socio-economic, cultural, and environmental contexts in places and groups that share both similar and different characteristics (Pahl-Wostl et al., 2021).
2. Data Collection

2.1. Primary Data Collection: Semi-Structured Interviews

In Alaska, a total of 10 face-to-face semi-structured interviews were conducted in the city of Utqiaġvik, using research methods in cultural anthropology explained by Bernard (1988). The semi-structured interviews lasted for an average of 30 minutes. Fieldnotes from the interviews and observations of the community were also documented by the author. This project was approved by the Institutional Review Board (IRB) at Dartmouth College, and the interviews strictly follow the IRB guidelines regarding informed consent and the protection of human subjects, and only recorded the interviews upon the participant’s agreement. The informed consent information is attached in Appendix 1, and interview guides are attached in Appendix 2.

Interview subjects were chosen based on their roles in the community as well as their expertise and insights into land use governance practices in the North Slope. The author made an effort to ensure that the interview subjects represented a wide range of backgrounds. Specifically, the interview subjects included Inupiat leaders from the North Slope Borough (NSB) Planning & Community Services Department, NSB Department of Wildlife Management, the Alaska Eskimo Whaling Commission, and the City of Utqiaġvik; local hunters and oil field workers; and biologists who were non-Indigenous but were long-term residents of Utqiaġvik.

Additionally, a few virtual interviews were conducted before the fieldwork to seek feedback and advice from experts and Indigenous leaders based in Alaska on ethical research and community priorities, so the risk of research fatigue or duplication can be minimized and potential biases or preconceptions embedded in the interview questions can be eliminated. In an effort to follow and practice the ethical engagement protocols, in the preliminary interviews with
Indigenous leaders based in Utqiaġvik, questions about planned visit dates, approval processes, and other things to take in mind before visiting the community were confirmed, to make sure the visit does not disrupt any potential hunting activities or harvest schedules.

Eight semi-structured interviews were conducted on issues related to Norway, five of which were conducted in Tromsø, Norway and three of which were conducted at the University of Lapland’s Arctic Centre in Rovaniemi, Finland. Of the eight semi-structured interviews, two interviewees were Sámi leaders who also practice traditional livelihoods and are involved in Sámi Indigenous organizations when it comes to advocacy and Indigenous rights. I recognize that compared to in Alaska, the interviews conducted in Norway did not cover as many Indigenous interviewees as desired, as it was more difficult to reach them due to reasons including the geographical remoteness of reindeer herding districts, the nomadic nature of reindeer herders, lack of initial contact persons, concerns of research fatigue expressed by Sámi leaders, and language barriers. However, supplemented by document review and analysis and informal interviews, which will be explained later in this section, with the semi-structured interviews conducted in Norway with leaders and scholars with direct and indirect experiences in terms of land use governance and Sámi engagement in decision-making, patterns and prominent themes still emerged, yielding fruitful results. The selection of interview subjects who range from non-Sámi academics to Sámi leaders also help ensure a diverse background and achieve the goal of obtaining a wide spectrum of perspectives. Table 1 gives an overview of the interviews conducted for this research. The interviewees are all anonymized, but important context about their respective roles and backgrounds is given in the description and also indicated by the letter, as explained in the coding notes at the bottom of the table.
Table 1. Overview of interviews. Note that not all interviews that discussed issues related to Norway were included in the thematic analysis section, and the table only includes the ones that are used.

<table>
<thead>
<tr>
<th>Name (anonymized)</th>
<th>Place</th>
<th>Date</th>
<th>Description</th>
<th>Format of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 9, 2022</td>
<td>Iñupiat leader, NSB Department of Planning &amp; Community Services (Planning)</td>
<td>Semi-structured (30min)</td>
</tr>
<tr>
<td>L2</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 12, 2022</td>
<td>Iñupiat leader, NSB Planning</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>I1</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 9, 2022</td>
<td>Iñupiat local hunter / oil field worker</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>I2</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 9, 2022</td>
<td>Iñupiat local hunter / oil field worker</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>L3</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 9, 2022</td>
<td>Iñupiat leader, NSB Department of Wildlife Management (DWM)</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>L4</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 14, 2022</td>
<td>Iñupiat leader, NSB DWM</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>B1</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 12, 2022</td>
<td>Non-Indigenous biologist at NSB DWM</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>B2</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 13, 2022</td>
<td>Non-Indigenous biologist at NSB DWM, retired</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>L5</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 13, 2022</td>
<td>Iñupiat leader, various organizations</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>B3</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 13, 2022</td>
<td>Non-Indigenous biologist at NSB DWM, retired</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>L6</td>
<td>Utqiagvik, Alaska</td>
<td>Dec 13, 2022</td>
<td>Iñupiat leader, City of Utqiagvik</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>A1</td>
<td>Rovaniemi,</td>
<td>Apr 5,</td>
<td>Non-Indigenous</td>
<td>Semi-structured</td>
</tr>
<tr>
<td></td>
<td>Finland</td>
<td>2023</td>
<td>academic</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>---------</td>
<td>----------</td>
<td>--------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>S1</td>
<td>Tromsø, Norway</td>
<td>Apr 12, 2023</td>
<td>Sámi leader and academic</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>S2</td>
<td>Tromsø, Norway</td>
<td>Apr 13, 2023</td>
<td>Sámi leader</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>A2</td>
<td>Tromsø, Norway</td>
<td>Apr 13, 2023</td>
<td>Non-Indigenous academic</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>A3</td>
<td>Tromsø, Norway</td>
<td>Apr 13, 2023</td>
<td>Non-Indigenous academic</td>
<td>Semi-structured</td>
</tr>
<tr>
<td>H1</td>
<td>Hammerfest, Norway</td>
<td>Apr 15, 2023</td>
<td>Construction worker, local</td>
<td>Informal</td>
</tr>
<tr>
<td>H2</td>
<td>Hammerfest, Norway</td>
<td>Apr 15, 2023</td>
<td>Taxi driver, Hammerfest local</td>
<td>Informal</td>
</tr>
<tr>
<td>H3</td>
<td>Hammerfest, Norway</td>
<td>April 16, 2023</td>
<td>Taxi driver, Hammerfest local</td>
<td>Informal</td>
</tr>
<tr>
<td>H4</td>
<td>Hammerfest, Norway</td>
<td>Apr 16, 2023</td>
<td>Hotel staff member, Hammerfest local</td>
<td>Informal</td>
</tr>
</tbody>
</table>

Coding notes for the names of interviewees: L – Iñupiat leader; I – Iñupiat local hunter; B – biologist at NSB; A – academic (in Norway); S – Sámi leader; H – Hammerfest local

2.2. Core Question Areas in Interviews

Before conducting the semi-structured interviews, a comprehensive interview guide was developed with questions aiming to learn from the Indigenous Peoples about their perspectives on and experience with various aspects of land use governance. In the interview guides attached in Appendix 2, the guide used in Utqiagvik, AK is in Appendix 2.1. and the guide used in Norway is in Appendix 2.2. The questions covered the areas below:

- Perspectives on and experience with oil and gas & wind development
Current controversies, injustices, and discrimination relevant to Indigenous land use

Procedures or policy processes on industry regulations, project approvals, and monitoring

How subsistence livelihoods have changed or developed over time

Balance between industrial development and traditional subsistence livelihoods

Level of Indigenous engagement and leadership in governance and decision-making

The role of Indigenous Knowledge in ecological research and decision-making

Paths forward and policy recommendations:

- Community interests and priorities
- Successful practices in land use governance
- Gaps and challenges in land use governance and self-determination
- Visions for the future of community development
- Advice and guidance for researchers

As can be seen above, the question areas correspond to the three major research questions of this thesis stated in the Introduction section: determinants, status quo, and paths forward. The interview participants’ answers to the questions become qualitative data I use to answer the research questions of this thesis. In addition to these core topics, questions about the interviewees’ work at their current organization were asked at the beginning of the interviews. Questions were tailored to the interviewees’ background and the answers they gave, and occasional follow-up questions were asked to the interviewees in order to dig deeper into any particular perspective or experience that they shared.
2.3. A Principle in the Ethical Research Approach: a Research Paradigm Shift

The research leading to this thesis was largely influenced by the Circumpolar Inuit Protocols for Equitable and Ethical Engagement published by the Inuit Circumpolar Council (2022), and it differs from traditional research projects in its core approach in developing interview questions and conducting interviews. To look into the land use governance practices in the North Slope Borough of Alaska and in Norway, one principle was in place throughout the process: research questions are subject to constant readjustments based on the Indigenous Peoples’ perspectives and advice, and the Indigenous Peoples will play a crucial role in further shaping the research questions based on their community priorities and what they hope outside researchers can do. I made a commitment to going into the community with no preconceptions about industrial development being “either positive or negative,” and my research plan and interview guide were subject to adjustments and revisions during and after the semi-structured interviews and the fieldwork. The Indigenous Peoples expressed a great interest in knowledge-sharing when it comes to land use governance practices in circumpolar communities beyond their own, which further demonstrates the significance of this research.

2.4. Supplementary Data Collection: Informal Interviews

During the fieldwork in Hammerfest, even though no semi-structured interviews were pre-scheduled due to the fact that the nomadic Sámi reindeer herders were not yet adjacent and there lacked initial contacts, opportunities still emerged for informal interviews (also known as unstructured or natural conversational interviews) with local non-Sámi residents who had lived experiences with the entry of industry, the social and economic impacts of the LNG industry, and the overall development of Hammerfest.
A total of six informal interviews were conducted with residents including locals and immigrants, whose occupations ranged from construction workers and taxi drivers to hotel receptionists. I took advantage of the opportunities of informal conversations with locals to not just learn about their experience growing up or moving to Hammerfest but also followed up with questions that appeared as natural inquiries, evoking locals to share their perspectives on how Norwegians in general view the development of LNG and how that changed the community they reside in over time (Whitehead, 2005). Though not the center of my approach, these informal interviews effectively supplemented the semi-structured interviews, which would enrich our analysis.

2.5. Document Review and Analysis

To supplement semi-structured and informal interviews, additional policy and government documents are reviewed and analyzed together with our first-hand qualitative data (Turi, 2016). Examples of these documents include the NSB Comprehensive Plan 2019-2039, the OSTP Guidance for Federal Departments and Agencies on Indigenous Knowledge, the Norwegian Reindeer Herding Act of 2007, as well as other reports, hearings, documents, and zoning plans. The review and analysis of these key documents and literature not only contribute to the background and context sections of this thesis, but they are also analyzed in conjunction with interview quotes and themes in the results section to generate and support more findings.
3. Data Analysis: Interview Transcript Coding and Thematic Analysis

This project primarily used thematic analysis to generate findings and learnings related to land use governance practices in the North Slope of Alaska and in Norway, as well as the importance of Indigenous engagement in various governance areas including developing industry-related stipulations and preserving subsistence livelihoods. Multiple rounds of deep, immersive, and active reading of the interview transcripts were conducted during the analysis process, and recurring themes were coded throughout. Extensive side notes were written while the interview transcripts were coded, to document any emerging patterns, themes, and outstanding informative comments. After coding the interview data, the data were interpreted and condensed into several distinct themes relevant to land use governance practices and Indigenous engagement.

In the qualitative data analysis based on interview transcripts, both frequency and uniqueness are valued when determining emerging themes of significance, as unique but less mentioned perspectives may turn out to be very crucial to answering the research questions. On the other hand, frequency indicates what constitutes specific patterns and how often a key word comes up, and is therefore included in the tables of emerging themes (Preiser et al., 2021).

Note that the interviews done in Tromsø and Hammerfest did not involve as many participants (especially Indigenous Peoples) compared to the interviews done on the North Slope of Alaska. As such, the comparisons between Alaska and Norway are asymmetrical, with a heavier focus on the information received from participants from the North Slope. The colonial context related to ANCSA as well as the power held by the Native Corporations in Alaska are not directly relevant in the Norwegian context. However, these differences are all accounted for when conducting thematic analysis, and many connections related to multi-level land use
governance and decision-making, efforts to achieve a balance between subsistence livelihoods and industrial development, as well as relationship-building and negotiations between Indigenous entities and Western government agencies are still successfully drawn between these two Arctic regions.
Sun 60
IV. Results and Discussions

Through coding and analyzing the interviews, many themes emerged when it comes to the determinants, success stories, and lessons learned on land use governance in Alaska and Norway. These themes are major findings after an analysis that combines interview transcripts and literature research, each supported by one or more interview quotes and associated context and analysis. Tables 2–4 provide an overview of these themes, and these themes are grouped based on the respective research questions they help answer. As such, the results section is organized as follows: first, results related to the context and determinants of land use governance in Arctic Alaska and Norway are presented, corresponding to Themes 1–2 (Part I, presented in Table 2). Second, the status quo of land use governance and relevant structures in Alaska and Norway, such as their similarities and differences are covered, corresponding to Themes 3–4 (Part II, presented in Table 3). Third, policy insights and paths forward regarding increasing Indigenous engagement and achieving effective and equitable land use governance are given, which are detailed in Themes 5–9 (Part III, presented in Table 4). These themes not only emerged in interviews, but are also supplemented with extensive literature and document review and analysis. Each table that summarizes the key findings is attached before the corresponding themes.
Table 2. Part I: Context and determinants of land use governance in Arctic Alaska and Norway: emerging themes and key quotes from semi-structured interviews. This table presents prominent codes that emerged when having discussions related to the context and determinants of land use governance in Arctic Alaska and Norway. The number in the frequency column represents the total number of times it was brought up in all the interviews. Prominent codes are organized into distinct emerging themes in the results section.

<table>
<thead>
<tr>
<th>Topic and definition</th>
<th>Prominent codes</th>
<th>Frequency</th>
<th>Key quote</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Context and determinants of land use governance in Arctic Alaska and Norway (Themes 1–2)</strong></td>
<td>Climate change and sea ice loss</td>
<td>26</td>
<td>“And the melting sea ice, what is that doing to the human food? Like, we wait for good ice to bring the food in the seals, you know, but we don't see that anymore. So what does that mean? When the ice is not coming in with the animals. That means it's not bringing in food for the Iñupiats, because they always depended on that ice.” (L1)</td>
</tr>
<tr>
<td>Land-use conflicts</td>
<td>11</td>
<td></td>
<td>“So it's all the time, in a way, conflicts and new installation of industries.” (S1)</td>
</tr>
<tr>
<td>Energy transition</td>
<td>10</td>
<td></td>
<td>“[Sámis might say] windmills are threatening our future because they're interfering with reindeer herding and such. Whereas a Norwegian might say, We need to transition, we're seeing climate change is the biggest threat. Therefore wind farms and wind energy is a part of the solution for this.” (A2)</td>
</tr>
<tr>
<td>Socio-economic cleavages and discrimination</td>
<td>7</td>
<td></td>
<td>“I was some weeks ago in the parliament in Oslo, and people have so many strange views of who Sámi are and things like that, so it's like, ‘the knowledge is so poor’ in a way, and people say so many strange things about Sámi people in a way in newspaper. It's like crazy.” (S1)</td>
</tr>
</tbody>
</table>
Dangers

“If it is the majority of the municipality that decide if Sámi language should be protected, if Sámi culture should be right. So it’s a dangerous pattern.” (S2)

Rights

“And [the people who claim to be Sámis] are talking about the rights that are connected to reindeer herding. Like in the Fosen case, they want to say that that rights should not be exclusive for reindeer herding, that should belong to all people in those areas … everything that the Sámi people have fought since the 50s is now starting to become undermined by people claiming to Sámis.” (S2)

1. Climate change adaptation as a key focus in land use governance

In the interviews, leaders and community members discussed how climate change has been threatening subsistence livelihoods, for example, through disrupting harvesting activities that depend on sea ice (North Slope Borough, 2019c; U.S. Department of the Interior & U.S. Geological Survey, 2016). A local hunter indicated how the ice was essential to hunting activities and to the well-being of the animals themselves, and explained how the hunters utilized the ice to travel:

“Like right now, the ocean, normally this time of the year we have ice and we can hunt on the sea ice, in the dark ... which was good. And the seals were on the ice... and the polar bear used the ice too ... [Ice] was good for the spring whale hunt. We had two seasons
for whale – spring and fall. We call it shore-fast ice, it's locked to the land. So we drive
out there with snow machines and sled with all our camping gear. We set up camp and
then we wait for a whale to come to us.” (I1).

However, he then emphasized the negative impacts that sea ice loss could have on
hunting when ice is melted:

“Right now our ocean doesn't have ice on it, it's – it's been like that all fall, early winter,
and right now it's open water. When the ice was here [this past summer], that's when you
get the seals, you want dry meat. All the good stuff. [This winter] we don't have any ice
on the ocean.” (I1).

The local hunter implied in his account that the presence of ice is closely linked to the
accessibility of essential food for the Iñupiats. An Iñupiat leader also highlighted the concerns
related to food insecurity brought by climate change. Iñupiats are highly dependent on sea ice to
travel and hunt, but the melting sea ice due to global warming and climate change has been
threatening food security and Iñupiat livelihoods. She encouraged researchers to study it further
in the future as it is of high priority among Iñupiats:

“And the melting sea ice, what is that doing to the human food? Like, we wait for good
ice to bring the food in the seals, you know, but we don’t see that anymore. So what does
that mean? When the ice is not coming in with the animals. That means it's not bringing
in food for the Iñupiats, because they always depended on that ice. So that's, that's
something you should look into ... Is there a decrease of seal consumption in Inupiat lifestyle because of that? What's it doing to the polar bears? Is there a decrease in eating polar bears because of that? So those are my recommendations [for future research]” (L1).

In the case of Norway, the vulnerability of the Sámi people’s reindeer herding livelihoods to climate change was described in the background section. In the interviews, negative ecological impacts of climate change, which do not just apply to reindeers but also to other species such as fish, were also brought up by a Sámi leader in Norway:

“It could be where [the fish] swim and all that, but there are lots of things that affect today. Pollution is also affecting the Arctic. I heard some fishermen this year had to go more north to do fishing, and that's also the area where they want to have the oil industry. So, yeah, it's complicated” (S1).

As can be seen in the quote above, it is important to note that impacts primarily attributed to climate change impacts become even more complicated when socio-economic factors such as oil and gas and wind development come into play, creating even more ecological disturbances that threaten wildlife and traditional Indigenous livelihoods. Therefore, climate change has become and should continue to be a bigger focus of Indigenous-related land use governance in Alaska and Norway.

However, climate change also brings about divided views when it comes to land use, especially in Norway where the nation is pushing for a rapid transition from fossil fuels to clean
and renewable energy. The construction of wind farms and turbines is important to the green energy transition, yet it also disrupts reindeer herding livelihoods and consequently deepens the divide between Sámi reindeer herders and non-Indigenous Norwegians:

“[Sámis might say] windmills are threatening our future because they're interfering with reindeer herding and such. Whereas a Norwegian might say, we need to transition, we're seeing climate change is the biggest threat, therefore wind farms and wind energy is a part of the solution for this” (A2).

Such views are quite prevalent in Norway and highlight the dilemma in energy transition related land use as part of the broader climate change discussion. Yet, Sámis indicated that they are not against renewable energy if the industry is not interfering with their traditional livelihoods. The tension related to climate change adaptation and energy transition only occurs when the action of government and industry falls into the pitfall of neocolonialism:

“For example, energy was something that should benefit local community. But the new politics is like it's multinational companies that run them, and people who invest in this new industry, they are not for the local people. They don't care about the people that live there, in a way. Some of them. So it's important that they listen to [the local people] about the new industry and things like that. And of course we want electric cars. So it's a difficult thing. To transition to new energy. And, in a way, Norway is very at the front of development of these renewable energies to change their communities” (S1).
The Sámi leader’s account highlights the fact that energy transition is supported by Sámis as it supports climate change adaptation which is beneficial to everyone, but the way that energy transition is carried out in Norway has posed threats on Sámi livelihoods in an unjust way, with outside companies coming to their land and impose rapid development that may not necessarily benefit the communities, leading to complications, neocolonialism, and environmental injustice in land-use decisions that were originally made to combat climate change but are generating undesired side effects.

2. Socio-economic contexts as determinants in governance structures

Different socio-economic realities in Alaska and Norway entail different levels of urgency in preserving subsistence livelihoods in land use governance decisions, and there is a hidden danger in a low level of urgency to address past and current injustices as well as discrimination against Indigenous Peoples who are already marginalized groups in decision-making processes and society in general.

2.1. Different Arctic realities: socio-economic differences

The arctic realities in Arctic Alaska and Norway are different, due to their different socio-economic context as well as geographical characteristics. The socio-economic differences include the Indigenous Peoples’ socio-economic status, the extent of discrimination and social cleavages, demographics, and colonial history.

In Utqiaġvik, Alaska, due to the remoteness and limited economic resources, it is very difficult for Indigenous Peoples to maintain a good quality of life without subsistence livelihoods. However, in Norway, non-Indigenous and Indigenous Peoples are more well-off
economically compared to other countries, resulting in non-Sámi Norwegians and the government associating a lower level of urgency with reindeer herding livelihoods and instead prioritizing other national initiatives such as green energy transition and industrial development more. This difference is clearly reflected in interviews carried out in these two places, which will be elaborated separately below.

Also, in Utqiaġvik, even with increased job opportunities provided by the oil and gas industry, as well as the development of a cash economy as represented by the presence of the tourism industry, convenience stores, restaurants, and cab services, Iñupiat Peoples did not shift their economy from a subsistence-based to a completely industrialized one. Instead, they strive to preserve and maintain their subsistence skills while maximizing new opportunities for increased income to benefit community development. Two Iñupiat leaders explicitly emphasized the Iñupiat Peoples’ dependence on subsistence livelihoods and the importance of maintaining subsistence skills to preserve their livelihoods and ensure food security:

“Even though there’s a cash economy up here, there’s no way we could live up here without our subsistence food” (L5).

“We're far in the north, and it's hard to live up here. Everything is expensive, western-wise. But if you stick with your culture, you have your food right there in your backyard, you just have to maintain your hunting skills and capabilities to do that, so you can survive ... everybody knows you can't trade your traditional caribou for cow meat. And to have it continuously shipped, you damage the land and the water. We know the importance of sustenance and our cultural foods” (L1).
Norway is a wealthy state with lower disparities. The United States and Norway, despite both being classified as developed countries, still have marked differences in socioeconomic disparities among their citizens, due to factors including but not limited to governance structure (e.g. the degree of centralized vs. regional/self-governance), colonial histories, and Indigenous policies. Shared experiences do exist: Sámi Peoples, the Indigenous Peoples in Norway, have suffered from injustices such as land grabs and loss of culture and languages (Lantto, 2010; Yasar et al., 2024). Yet, compared to Indigenous Peoples in the North Slope of Alaska, who still experience economic challenges such as high costs of living, Sámi Peoples are relatively more affluent and enjoy almost as high of a standard of living as the majority Norwegian population. This affluence and low economic disparity was well demonstrated by an academic in Norway:

“I mean, you could say it also has ensured that at very least, even though there's still considerable divisions in society between say, Norwegian people and Sámi people, or Indigenous and non-Indigenous, the, the overall economic benefits have accrued to both Indigenous and non-Indigenous peoples. So the welfare state has also benefited in the broader spectrum, you see that Norwegian Indigenous peoples actually are quite well off compared to other Indigenous peoples around the world. But within the community here itself, there's still, you know, legal issues and discrimination and stuff like that” (A2).

The academic’s point about economic benefits being distributed to both Sámi and non-Sámis is demonstrated by Broderstad (2011) as well, who pointed out that both groups “benefit from the rights and services provided by an advanced welfare state, be that in education
or healthcare.” A Sámi leader and scholar also recognized Norwegian Sámi’s affluence compared to other Indigenous groups:

“One big difference between the Indigenous people in Norway and maybe other countries in the circumpolar area is that they are more well-off than other Indigenous people. So, uh, and the support from the government is, in a way, better. So the socio-economic status is higher amongst Norwegian Sámi than in other places in the Arctic. So that's a big difference. So they are more well-off. That's one thing that we see” (S1).

The higher level of development, connectivity, and urbanization in Norway – including in Arctic Norway – also adds to the higher level of socio-economic well-being of all residents. For example, Tromsø lies above the Arctic Circle, yet it is able to flourish as a city where traditional livelihoods are not at the center of people’s lives. Arctic Alaska has a drastically different reality, with most communities being small and heavily reliant on subsistence livelihoods. An academic pointed out this difference in the interview conducted in Tromsø:

“This is a small city, but nevertheless it's a city. You don't need to be a hunter or a farmer to live here in Tromso. You can be a very urban person and never have fished anything in your life. I mean, there's so many people here who are not hunters or fishers ... it's a different kind of community than you might find in the Alaskan Arctic, you know, or in the Canadian Arctic, where much smaller communities that may be more driven by traditional economies” (A2).
Because of the lower reliance on subsistence by the majority of residents in Norway, as well as the benefits and advanced welfare system provided by the country to all residents, subsistence and self-determination are less talked about and less of a policy focus in Norway compared to in Arctic Alaska.

2.2. Danger perceived by Sámi reindeer herders

Even though the leaders and researchers quoted above pointed out that people living in Norway generally do not have a high dependence on traditional livelihoods, this fact cannot be misinterpreted as “Sámi reindeer herding livelihoods are not important.” Therefore, my analysis here recognizes that this issue is far more complex, without generalizing the priorities of Sámi reindeer herders whose demands are oftentimes overlooked due to their minority status in the nation. Note that my analysis and interpretation are based on my own knowledge of and sensitivity to the complexity of the interview participants’ narratives.

The significance of reindeer herding livelihoods should not be evaluated based on whether or not Sámi Peoples can physically survive without the livelihoods because of the general support of the Norwegian government to all of its residents, as Indigenous Peoples are entitled to the rights of practicing their livelihoods as their culture and wellbeing are intertwined with their traditional ways of life. Indigenous Peoples’ sense of identity, culture, mental health, and future of youth will all be in danger if mere physical “survival” is the only consideration regarding issues related to the preservation of traditional livelihoods; this also reflects colonialism as well as the injustice in assimilation that many Indigenous groups have experienced for decades. A Sámi Indigenous leader pointed out this danger of the low level of
urgency or importance placed on reindeer herding livelihoods by Norwegians who are not a part of these livelihoods, whether it be Norwegians in the government or the general public:

“And [the people who claim to be Sâmis] are talking about the rights that are connected to reindeer herding. Like in the Fosen case, they want to say that ‘rights’ should not be exclusive to reindeer herding, and that they should belong to all people in those areas. So, in one way, what is now happening in Norway, in the Sâmi parliament, is that everything that the Sâmi people have fought since the 1950s is now starting to become undermined by people claiming to be Sâmis. [It’s] very upsetting to me. Things about language, [them] saying that Norwegian is the new Sâmi language, for example; that’s a statement that is very dangerous. And saying that Sámi culture is nothing special, it's a Norwegian part of these northern areas. So it's a very dangerous path” (S2).

This Sámi leader’s account reflects the colonial legacies deepened by these assimilated Sâmis who do not practice reindeer herding, the danger of downplaying the importance of Sámi reindeer herding livelihoods, and the danger of the ongoing narrative that continues to push for assimilation and industrial development that threaten Sámi land rights and wellbeing. The industrialization of reindeer herding areas especially highlights the danger perceived by the Sámi Peoples that the governance power of local entities would be lost in favor of national agencies and private companies, who will justify land encroachment by the urgency of green energy transitions (Karam & Shokrgozar, 2023). This danger is worsened by the majority-led governance structure with a low level of self-determination and Indigenous engagement in areas where Norwegians are the majority:
“Again, if you look at minority issues. If a municipality can start to control minority issues, like Sámi issues, then of course we know that [in] most communities and or most municipalities in Norway, Sámi are a minority. Then it will become the majority of the municipality to decide if Sámi language should be protected, if Sámi culture should be right. So it's a dangerous pattern” (S2).

The danger of being unable to preserve the Sámi language, culture, and livelihoods is perceived by young people in particular:

“I've been working with young reindeer herders, and they become afraid that more and more land are taken away from them. So they are afraid of whether it's possible to do reindeer herding in the future, because it's a new industry – it's all these turbine parks, in the traditional area. So it's all the time, in a way, conflicts and new installation of industries. They're afraid that, the future will be very difficult to do reindeer herding” (S1).

The anxiety among the Sámi youth regarding the future of their culture reflects the urgency to address injustice arising from controversial land use projects that threaten reindeer herding livelihoods, as the youth will be the ones passing down the traditions to future generations.

On the other hand, a challenge is that many Norwegians along with the assimilated Sámis who do not practice reindeer herding livelihoods may not advocate for cultural preservation,
even if they identify as Sámis. The academic interviewed whose quote is attached below is not Sámi, and therefore helps provide an account of this issue from another perspective, further demonstrating the social cleavage, difference in demographic backgrounds, and gap in perceiving the importance of reindeer herding livelihoods and the urgency of saving it from the “dangers” mentioned above:

“But not necessarily all Sámi hold this position that Sámi livelihoods are in danger. Not all Sámi are reindeer herders. There are coastal Sámis who have never reindeer herded in their life. They're not really interested in reindeer herding. But it is more of a sense that reindeer herding has become the symbol for the preservation of the Sámi type of lifestyle. So it's very interesting how the supporters, but also detractors, function up [for or] against this type of an issue. So it is exactly like you say, it's really complicated. But if there is a balance to be found, which often there isn’t, it's in the south – it's in Oslo at the government” (A2).

Again, the academic implied that Norway’s different governance structure, history, and social context compared to Alaska means achieving self-governance and self-determination is currently challenging, and meeting the interests and addressing the concerns of Sámi reindeer herders in the face of industrial development and energy transition therefore requires concrete action taken by the Norwegian national government in Oslo, who have the most power to steer the paths of development, allocate resources, improve Indigenous engagement in decision-making, and find a balance between preserving traditional livelihoods while pushing for energy transition and sustainable development goals. Note that there are also opportunity areas
for Sámis as well to influence decision-making in Norway, where the national government and its subsidies hold the most power. This point will be demonstrated later in this thesis.

Article 20 of the UNDRIP states that “Indigenous peoples have the right to maintain and develop their political, economic and social systems or institutions, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities,” pointing out the importance of preserving subsistence livelihoods and prioritizing Indigenous priorities through giving them more autonomy in decision-making (Minde et al., 2007; United Nations, 2007). Whether it be in the state of Alaska, the federal government in the US, or the Norwegian government, these Western government agencies shall take this principle above in mind, recognize the colonial legacies in their current decision-making processes and governance framework, and strive for a balance in achieving economic development, keeping up with the currents of climate mitigation and energy transition initiatives, and addressing Indigenous concerns amidst development to meet their interests, preserve their culture and practices that are already in danger due to assimilation, colonization, and discrimination, and help them achieve their own goals.

Especially in Norway, recognizing the importance of preserving Indigenous livelihoods and cultural traditions, addressing environmental injustices, and not marginalizing the demands of minorities are key steps in land use and resource governance that is sustainable in the long run. In this era when Sámi Indigenous Peoples and their language and culture have already been threatened by multiple environmental and social stressors, it is crucial for the Norwegian government to effectively address the concerns of the Sámi Peoples in order for the energy transition to be just.
For the Norwegian government, taking the foundational steps mentioned above is challenging and requires changes in mindset and practices, yet dialogues, equitable collaboration, and improved accessibility with the Indigenous communities can largely facilitate this process.

2.3. Discrimination and social cleavages make engagement difficult

Being included equally at the very beginning of the decision-making processes is an important demand by the Sámi Peoples, as indicated by a Sámi leader:

“I think Sámi people, they want to be a part of the discussion of development very early in the process. That's very important” (S1).

However, This process is challenging, as appropriately integrating Indigenous Knowledge requires decolonization of the Western governance system, as well as mindset and procedural changes in decision-making (Burow et al., 2018; Simpson, 2004; Zanotti et al., 2020). The case of Norway shows how the discrimination and social cleavage between Sámi reindeer herders and Norwegians along with assimilated Sámis create barriers for these reindeer herders to have their demands met and have their subsistence livelihoods protected. This can be seen in a more nuanced additional point related to the Sámi Parliament and voting politics brought up by another Sámi leader, which needs to be noted here as we discuss Sámi representation. As indicated by him, “Sámi Peoples are not a homogenous group of reindeer herders” (S2), and advocating for the preservation of Sámi traditional livelihoods requires not just Sámi representation but specifically representation of Sámi reindeer herders’ priorities. Party politics is brought up by this Sámi leader, who is an expert in Sámi culture, languages, and identity:
“If we are looking at, from the Sámi Parliament’s perspective, there's a party that is in opposition now, but it's a very huge party. I think they have about 40% of the voters. And lots of those voters of the party program, the party is going out and saying, look, we need labor opportunities in the coastal [area]. So they want to have more extractive industries. They want to open up for mining, they want to open up for more oil to bring in offshore oil and gas to land, and develop the area with industry, because they want to have more labor opportunities in that area. And they define themselves as Sea Sámis, but there's an ongoing question about who is [Sámi] – who has the right to claim the ability to vote in the Sámi Parliament. Because they are now seeing that there are a lot of people who are registering themselves as Sámi, and they are often going to this party that wants to open up for more mining, more windmills, more oil and gas” (S2).

Another Sámi leader also provides a similar account of the contrasting stances on industry development and the discrimination that shows in relevant debates, conflicts, and protests:

“And some years ago there was a big demonstration there also. Like the same that was in Oslo, close to the parliament because of the windmill park. So there are lots of conflicts and lots of things that are written in the newspaper. And the local people that run the city, they are against the Sámi” (S1).
An academic indicated that because of the different priorities of Indigenous and non-Indigenous people, specifically when it comes to these different demographic groups’ definition of security and well-being, tensions occur:

“And this is where you get this potential clash where the values of different communities will conflict, because one community says for our livelihood and to consider and to see our security, because security is not like a daily thing, it has to do with the future, and for our security to be maintained into the future ... [Sámis will say] windmills are threatening our future because, um, they're interfering with reindeer herding and such. Whereas a Norwegian might say, we need to transition, we're seeing climate change is the biggest threat. This is one way to mitigate that threat. Wind farms and wind energy is a part of the solution for this” (A2).

It is important to reconcile these conflicts of interest, but the key to achieving a just decision that accounts for different interests would be facilitating communication and dialogues instead of marginalizing minorities in decision-making processes.

Note that within Sámis, there are Sea Sámis and reindeer herding Sámis. Sea Sámis, as a Sámi leader mentioned, “are very assimilated” because where they live are areas “where the assimilation process was very successful” and “most of them have become Norwegian” (S1). Therefore, as our focus is more on Sámi reindeer herding livelihoods, it is important to note there are also varying sub-groups and their respective interests within Sámis themselves, and in order to effectively preserve reindeer herding livelihoods, Sámi reindeer herders in particular need to be more represented in decision-making processes.
Assimilation as a process highly connected to colonialism and discrimination was explained and emphasized by a Sámi leader in the interview. The negative effects of the assimilation process on the preservation of Sámi livelihoods are still rampant today:

“The problem is that, [for] the majority of people, they don't know so much about Sámi culture, because of the very long assimilation process that has been running up to 1980s, or still running in a way, because the institution, they don't know so much about Sámi people, and, and people in the government. I was some weeks ago in the parliament in Oslo, and people have so many strange views of who Sámi are and things like that, so it's like, ‘the knowledge is so poor’ in a way, and people say so many strange things about Sámi people in a way in newspaper. It's like crazy” (S1).

This assimilation exacerbates discrimination, perpetuating stereotypes and misunderstandings, which creates additional burdens for the Sámi Peoples to promote their rights, preserve their traditional livelihoods, and ensure the well-being of the communities. In the United States, colonial legacies are considered more problematic in society, and the colonial past with regard to Native Americans had repercussions larger in scale due to generations of violations of human rights that could be traced back. Such colonial legacies have been recognized and are actively being addressed with documents and initiatives from federal and state governments (through documents like ANCSA, and the more recent advancements like the OSTP document). Compared to Indigenous issues in Alaska, it seems that issues related to Sámis in Norway are not attached as high of a level of urgency as in the United States, despite progress made in this realm earlier in the 21st century such as the Finnmark Act of 2005 that gave Sámi
Peoples immemorial usage rights (Savaşan, 2023). Additionally, there are Sámi communities that live outside Finnmark whose rights are not fully secured by the Finnmark Act. Therefore, though differing from the US in the scale, nature, and impact of its colonial past, it is still urgent for the Norwegian government to actively recognize its colonial past and its contemporary repercussions, and address them in order to support the promotion of Sámi rights and address discrimination perpetuated in Norwegian society.

As emphasized by the Saami Council in the Váhtjer Declaration from its 22nd Saami conference, the keys to breaking down prejudices and combating discrimination include the dissemination of knowledge about the Sámi language and culture, protection of Sápmi which is the foundation on which the Sámi life is built, the preservation of Sámi livelihoods, culture, and identity, and the active recognition of Sámi land rights (Saami Council, 2022). These are essential to minimize harm in land use and resource governance, as environmental injustice where Indigenous communities are disproportionately struggling with the negative impacts is one of the most important gaps to be addressed.
### Table 3. Part II: Status quo of land use governance structure in Alaska and Norway:
emerging themes and key quotes from semi-structured interviews.

This table presents prominent codes that emerged when having discussions related to the status quo of land use
governance structures in Alaska and Norway. The number in the frequency column represents the
total number of times it was brought up in all the interviews. Prominent codes are organized into
distinct emerging themes in the results section.

<table>
<thead>
<tr>
<th>Topic and definition</th>
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<th>Frequency</th>
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<tr>
<td><strong>II. Status quo of land use governance structure in Alaska and Norway (Themes 3–4)</strong></td>
<td>Balance</td>
<td>27</td>
<td>“So we have to find a balance of living in the Western culture and what we've known for thousands of years, traditional living. So I have to find the balance in my home to live both worlds” (L1).</td>
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<tr>
<td></td>
<td>Industry</td>
<td>85</td>
<td>“And they become afraid that more and more land is taken away from them. They are afraid if it's possible to do reindeer herding in the future, because it's a new industry – it's all these turbine parks” (S1).</td>
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<td></td>
<td>Subsistence livelihoods</td>
<td>42</td>
<td>“Even though there's a cash economy up here, there's no way we could afford to live like maybe the conservationists who don't want us to hunt. They have no clue that what they're pushing for is unattainable. There's no way we could live up here without our subsistence food” (L5).</td>
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<td></td>
<td>Stipulations, permitting, and regulations</td>
<td>59</td>
<td>“For our coastal management stipulations to the industry … they are stipulated to engage. And if they don't do that, they can't get the permit” (L1).</td>
</tr>
<tr>
<td></td>
<td>Jobs, employment, and income</td>
<td>42</td>
<td>“Especially when they come from more remote places … they get very poorly qualified jobs only. And they're not that well”</td>
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Covering how different players in land-use governance achieve a balance between industry development and subsistence livelihoods, including the similarities and differences. Here, governance structure and Indigenous engagement in land-use decision-making are analyzed in terms of channels, level of engagement, relevant issues, who is at the center and who is marginalized, etc.
paid and they is not a huge job security. So this sort of employment has temporary and seasonal character. It's also not necessarily compatible with the schedule and reindeer herding” (A1).

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<td>Tax revenue</td>
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“Due to the wisdom of the Borough founding fathers, the things are set up so that the North Slope borough was dependent on property taxes from the oil industry. And that was really smart, because the [property tax] income doesn't go up and down at the price of oil” (B2).

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<td>Impact assessment</td>
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“Sometimes we're partners in reviewing environmental impact assessments (EISs) and developing monitoring programs or creating baseline information or creating stipulations on oil and gas” (L3).

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<td>Negotiation and consultation</td>
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“You're going to have a huge negative impact not only on subsistence, but potentially on just the health of the species. It's these constant negotiations, constant looking at plans and talking it through and trying to envision what could happen” (B1).

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<td>Adaptability</td>
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“I think in general Inupiats are pretty resilient and adaptable, adapting to our environments over the years knowing what's important” (L2).
3. Governance structures influence and limit Indigenous engagement in land use decision-making

We can see from the context discussed in the background section of this thesis that compared to the North Slope Borough in Alaska, the energy governance framework in Norway is highly centralized around Norwegian governmental agencies (Norwegian parliament and the Ministry of Petroleum and Energy) and government-owned energy companies. These entities are in charge of developing projects, and the inclusion of Indigenous-led organizations is rarely mentioned as an integral part of the process. Under this streamlined, top-down structure, it is more difficult for Sámi reindeer herders as a small minority to influence the rapid energy development in Norway, despite them being the only Indigenous group in Norway whose traditions and livelihoods have critical cultural and social significance. As noted by Ravna (2015), even though there are legal frameworks such as the ILO protecting Sámi rights in Norway, they “do not have full participation and co-determination rights when extractive industries, mining operations and other interventions are implemented in their traditional lands,” which indicates that Sámi participation in decision-making may not be adequate in the existing Norwegian governance structure and there is still gap for the Norwegian government to fully realize its legal obligations to Sámi reindeer herders.

However, in Alaska, with the high level of self-determination and self-governance attributed to the efforts of, including but not limited to, the North Slope Borough, Native Corporations, and Indigenous-led organizations like AEWC, as well as the implementation of instrumental acts in history such as ANCSA, Indigenous engagement and consultation has become essential, sometimes mandatory components in decision-making processes for land use
and energy projects, including issuing permits, implementing regulations, subsistence advising, etc.

This clear difference in governance structure in these two countries that differ in country size and level of government centralization (Norway being highly unitary and centralized to the south where the capital is, and Alaska being more regional and state-oriented), were further validated in the interviews:

“In the Norwegian context, a lot of solutions, for lack of a better way of saying it, are top-down. In other words, it's a solution, because also, Norway is a unitary state, contrary to the United States and Canada, right? But here in Norway, it's a unitary government. So, most of the initiatives that take place actually are decided upon in the national government. And then it is implemented through the different counties ... they're not like provinces, or states, where they actually have authority themselves in a broader sense. So the whole political system is different here” (A2).

“And the municipality, it's controlled by the Norwegian government, by the municipality laws. So it's following totally the Norwegian structure” (S2).

Both academics and leaders described the Norwegian governance structure as highly centralized and top-down, with the capital being the decision-making center. The differences in governance structure between Norway and Alaska discussed above are shown further in specific land use governance aspects, such as the licensing, project-approval, and benefit-sharing processes, which are elaborated further below.
3.1. Licensing, impact assessments, & project approvals

When it comes to licensing and permitting processes in particular, the differences were also pointed out by the interviewees. In Norway, the power of issuing permits is held by the central, national government:

“And so the role of the state is very major, and then also obviously in these planning and siting processes, because it's the state who gives out the licenses of whether or not a piece of land can be used for industrial development. And before that, public hearings have to be organized and those obviously are overseen by the state as well” (A1).

Meanwhile, in the North Slope of Alaska, the power related to issuing permits and licenses and implementing stipulations are mainly in the hands of Indigenous-led government agencies, such as the NSB, or Indigenous organizations like the AEWC:

“And for our coastal management stipulations to the industry, we may want to do industrial activity. It states in there, you're gonna have to get a non-objection letter from the Alaska Eskimo Whaling Commission. And you need to sit down with them and talk to them. And tell us, before we give you that permit. So they are stipulated to engage. And if they don't do that, they can't get the permit” (L1).

This quote highlights how the highly Indigenous-led NSB as well as Indigenous organizations such as the AEWC work together to regulate industries and self-determine their permitting processes. Yet in Norway, Sámi reindeer herders are merely “consulted” in the
decision-making processes, with reindeer-herding siidas being involved as “a voluntary partner” in such consultation as “a source of knowledge” in developing impact assessments. As pointed out by Koutouki & Farget (2012), even though there might be legal normativity that “establishes a right to participation in political decision-making for minority and indigenous peoples,” inclusion of minorities may actually be an illusion within democratic societies where the majority group will “confines participation by marginalized groups to the periphery of the system.” There is the pitfall of consultation becoming a performative process, as “participation itself does not necessarily lead to an integration of local knowledge in decision-making” (Delvaux & Schoenaers, 2012; Leino & Peltomaa, 2012; Raymond et al., 2010; Smith-Merry, 2012). Also, the governance processes at local levels are not always based on the goal of balancing interests (Turi, 2016). Therefore, compared to Alaska where Indigenous Peoples are increasingly empowered to take the lead and determine their own goals, Sámi reindeer herders still face the difficulty of engagement due to being a minority in the governance structure and are only consulted for supplementary information and thus not fully engaged equally as decision-making partners. Improving the policy process to allow Indigenous Knowledge to travel through stages of decision-making more easily is key to overcoming existing problems in the Western governance structure, and increasing Indigenous representation is key to facilitating the transmission and integration of Indigenous Knowledge as the Indigenous Peoples are the expert in applying it to specific local contexts and livelihoods.

As such, the level of Indigenous representation in the governance structure seems to be a big determinant of how much Indigenous engagement and knowledge are valued. In Alaska, The Department of Planning and Community Services and the Department of Wildlife Management are both under North Slope Borough and are mostly constituted by Inupiat leaders. In Norway,
energy land use and reindeer herding are under different ministries – one under the Ministry of Petroleum and Energy and the other under the Ministry of Agriculture and Food, both in the national, western, highly “Norwegian” structure indicated by a Sámi leader (S2).

However, there is a lot of potential for more Indigenous engagement that works within the highly centralized Norwegian structure. First, there are built-in mechanisms for Indigenous engagement in developing land-use regulations and influencing decisions at national, regional, and district or local levels, and if these mechanisms can be optimized and if Sámi representation can be increased at all three levels, decisions reached will more likely to meet Sámi reindeer herders’ interests. As pointed out by Josefsen & Saglie (2024), the Sámi Parliament is an institution for Sámi self-determination that aims to enhance Sámi’s political influence through “breaking in” the Norwegian state to indigenize national, regional, and local governments from the inside, integrating Indigenous Knowledge and perspectives into decision-making and reaching formal agreements, a strategy that has seen both setbacks and advances.

There is a great example that demonstrates the importance of working within the existing Norwegian land use governance structure. Even though mining is not a focus of this thesis, the case of the Guovdageaidnu municipality being able to block the Biedjovággi gold mining project from obtaining endorsement of municipal authorities can shed light on a channel through which Sámi Peoples can advocate for their priorities through having more Sámi representation on decision-making board at multiple levels. The key to this decision that put Sámi communities first is the fact that the Guovdageaidnu municipality is one of the few Norwegian municipalities where reindeer herders hold the majority of seats on the municipal board. The majority vote in Guovdageaidnu was against the gold mining project, due to its potential negative impacts on local reindeer herding livelihoods that local people highly depend on (Turi, 2016).
Yet this also indicates that in order to enhance self-determination, Sámi Peoples must hold more seats in municipalities to affect land-use decisions related to extractive industries that may threaten the future of reindeer herding and Sámi traditional livelihoods. This may be challenging due to the nature of Sámi reindeer herders being nomadic and a minority. This challenge is amplified when there still exists the discriminatory attitude against Sámis holding more seats on decision-making boards, as indicated by a Sámi leader:

“The Sámi Parliament of course speaks for the Sámi people and has direct contact with the government in Oslo, so they have a consulate ... every issue that is about Sámi issues goes through the Sámi Parliament, and to the government. But also the land in Finnmark is very special because it’s run by local municipalities ... and on that board there is 50% Sámi – 50% minority people that make decision. And there’s a lot of data about this board that [there] is too many Sámis on the board ... It's the Sámi parliament that, in a way, elect people to this board for land rights in Finnmark” (S1).

The Sámi Parliament’s formal, direct role in working with the national government in the Norwegian structure is evident, and so moving forward, the Sámi Parliament has a lot of potential to play a big role in promoting Sámi representation and self-determination on various decision-making boards and advocating for land-use decision-making that preserve Sámi livelihoods and protect Sámi rights. Since Norway is a unitary state like other Scandinavian countries, national authorities are in charge of law-making while local self-government has no formal, constitutional role (Broderstad, 2011). The Sámi Parliament can also empower smaller Sámi organizations who lack the means and assets to write comments that represent their
interests and have a voice in crucial processes like environmental impact assessments. As an official entity with more resources and channels for negotiation at a higher level, the Sámi Parliament shall organize different Sámi communities’ interests, facilitate the inclusion of Sámi Indigenous Knowledge in EIA processes, speak on Sámi Peoples’ behalf when negotiating with companies, and intervene or even object any project plans that do not align with Sámi interests (Nygaard, 2016).

Therefore, even though self-governance as seen in the North Slope Borough of Alaska is difficult to achieve in Norway due to Norway’s different historical and political context, governance structure, and demographic makeup, the keys to promoting Indigenous priorities include sufficient Sámi representation and the Western government’s recognition of the importance of these priorities for the wellbeing and cultural preservation of these communities. Therefore, in the Norwegian context, both the Sámi Parliament and the Norwegian national government can contribute more in their respective future endeavor, not just at the municipal level, but also at the national level such as on the national reindeer husbandry board through the Sámi Parliament, as many energy transition projects such as wind parks are part of Norwegian national initiatives and important initial decisions are made at a higher level. Increasing Sámi representation at various levels can help Sámi priorities be more integrated in decision-making before large-scale development projects get implemented, so Sámi consultation will not merely just be an “afterthought.”

The phenomenon of Indigenous communities’ opinions and interests only being an “afterthought” reflects the inequality faced by Indigenous Peoples at every stage of the decision-making process, especially at the start. In this case, decision-making will fall into the pitfall of having Indigenous input as a formality, failing to sufficiently account for Indigenous
priorities and address environmental injustice. The importance of this has been pointed out by Turi (2016): “the process of integrating traditional knowledge in governance needs to start already at the policy-formation stage – that is, when traditional knowledge is not part of the policy formation aspect; waiting until policy implementation to include traditional knowledge may be more challenging.”

To increase Sámi representation and engage Sámis at the beginning of project planning, it is important to address the problem of “sectorial fragmentation” in the Norwegian reindeer-herding governance hierarchy mentioned by Turi (2016). Since the governance is highly centralized, the cumulative effects of various land-use projects are difficult to assess and incorporate into decision-making, which also makes it difficult for decisions made to meet the demands of reindeer-herding communities. A very critical juncture is at the regional level, as the regional board does allow for some level of Sámi engagement and self-determination as it can approve self-developed regulations and it can object to projects that harm reindeer herding livelihoods. However, as discussed earlier in this thesis, it is difficult for regional boards to fully account for district-level circumstances due to sectoral fragmentation. If this challenge can be overcome through more dialogues and equitable collaboration between regional boards and districts, Indigenous engagement will be enhanced.

At the national level, the national reindeer husbandry board can also play its role in helping facilitate more Sámi engagement, because there are members appointed by the Sámi Parliament, which represents Sámi interests. Additionally, the industry and private sector can play their part through enhanced corporate social responsibility practices where companies directly engage with local communities to adjust project plans based on community input. Therefore, even given the highly centralized Norwegian structure, Sámis can actively work
within the Norwegian government structure, especially at the regional level, to balance interests and find well-informed, place-based decisions that meet the local priorities and the needs of Sámi reindeer herders.

These possibilities are not limited to the Norwegian context; even with a relatively high level of self-determination, Inuit leaders have indicated that gaps in Indigenous engagement still exist, which require constant efforts in increasing Indigenous representation and facilitating effective collaboration across governance levels. Furthermore, as previously mentioned in the background section, Indigenous Peoples can make use of opportunities at international levels to promote the preservation of their rights in frameworks related to biodiversity, human rights, etc., which puts pressure on Western government agencies to take appropriate action and meet their needs.

3.2. Benefit-sharing, tax scheme, & flow of funds

It is worth mentioning that the centralized governance structure in Norway does not just affect the level of Indigenous engagement in decision-making, but also tax schemes and benefit-sharing. The central Norwegian government decides where the funds flow to. An academic explained how the Norwegian government collects and redistributes taxes, based primarily on what the central government thinks the priorities are for the nation:

“But I think it's worth remembering that in Fennoscandia, all the countries are small. In comparison to the US or to Russia or to Canada, they have a pretty centralized government. So there is no such thing like in the US – the states. And that's why if a company pays taxes, the taxes mostly go to the center, so they end up in the capital, which
is good for the country [as a whole]. And then the state redistributes that money to whatever they think is needed. Um, but there is also a sort of council tax or municipal tax. And the companies pay some of this. But if I am informed correctly, it also depends on where these companies are registered, where they have the headquarters, and when they have their offices, and so on, and usually they do not have their offices in those places where they extract the resources. So they don't pay taxes there” (A1).

Meanwhile, the North Slope Borough, with its high level of self-governance due to the power held by the regional government within the US governance structure, as well as Alaska’s colonial historical context and progress such as the enactment of ANCSA, effectively channels the property tax collected towards the needs of the Indigenous communities, reflecting a highly regional and community-centered governance approach:

“I think the biggest benefit [from having the oil and gas industry] is the tax basis we're able to get, because that provides a hundred million dollars for operating funds for our borough in every one of our villages. And so that's kind of what kept us going in that direction, ensuring we're protecting our food resource, but also bringing in that revenue to be able to have assistance. Because I know, as maybe [the other Iñupiat leaders] told you, we do all public service, we take care of the funding for police, for fire emergency services, water and sewer” (L2).

It is natural that an Indigenous-centered government like the North Slope Borough will direct tax revenues and funds in a way that benefits community initiatives and well-being (in
realms such as education, crucial infrastructure, and public safety), while national governments are more focused on achieving broader initiatives that apply to the entire population, with Indigenous priorities taking a more minimal role.

In Norway, under ILO-69 Article 15 (2), the government is supposed to ensure a benefit-sharing commitment through which the Sámis are empowered to not only be “economically compensated for damage and loss” but should also “partake in the benefit accrued in respect of the profits of the industry” (Ravna, 2015). Yet as seen in the quote earlier, with the pressure to achieve renewable energy development goals due to regional or international agreements (e.g. from the EEA agreement) and the subsequent push for rapid wind energy development, most funds keep flowing towards wind park development, and green colonization problem exacerbates with the voices and resistance of Sámi Indigenous Peoples being marginalized in the strong push towards energy transition, net zero, and climate change mitigation. With the power imbalance and the decision-making authority being centralized in the Norwegian structures, it is fundamentally more difficult to advocate for Sámi Indigenous land rights and make decisions based on Sámi priorities (livelihoods, environmental protection, land rights, cultural preservation, etc.) in the strong currents pushing the entire country towards rapid wind energy development.

Overall, based on the discussions above as well as analysis in other parts of the thesis, the main stakeholders in land use governance and their key interactions are visualized in Fig. 1 for the North Slope of Alaska, and in Fig. 2 for Norway. Generally, the key players are intergovernmental organizations (IGOs), NGOs, government agencies, industry, Indigenous-led institutions and organizations, and community members.
Fig 1. Land use governance structures in the North Slope of Alaska: key stakeholders, relationships, and interactions. Note: This highlights the land use governance structure and processes that emerged in the interviews and literature/document review that are most relevant to Indigenous engagement. As a result, this figure is a simplified representation of the stakeholders and interactions most relevant to this research, and only highlights specific players and governance channels that the interviewees provided insights into. Other stakeholders, such as Indigenous organizations not included in the figure, as well as cities and tribes, also engage in negotiations and multilateral dialogues, but not all will be specified.

Fig 2. Land use governance structures in Norway: key stakeholders, relationships, and interactions. Note: This highlights the land use governance structure and processes that emerged in the interviews and literature/document review that are most relevant to Indigenous engagement. Similar to Fig. 1, this is a simplified representation of the stakeholders and interactions most relevant to this research.
4. Balancing industry development and subsistence livelihoods with land use governance

One important goal of equitable and effective land use governance is to balance industry development and subsistence livelihoods. A leader indicated in one of the preliminary interviews that “balance” is a big topic in the North Slope, and it therefore became a major topic in the interview guides for both Alaska and Norway. More specifically, the term refers to the balance between contemporary development (e.g. oil and gas development, globalization, infrastructure,
income diversification) and protecting traditional subsistence livelihoods and the physical environment, to achieve long-term sustainability of community and environmental well-being.

The effects brought by industrial activities are “not an either-or question” as it has not just negative impacts but also benefits (L3). Therefore, when it comes to achieving a balance, we need to first look at the concerns, current solutions to these concerns, as well as the benefits, then recognize the complexity of industry development and the varied views that Indigenous Peoples have on its pros and cons as relevant to Indigenous livelihoods, and lastly look at how Indigenous Peoples navigate and adapt to such complexity brought by the industry and preserve their livelihoods.

4.1. Concerns on industrial activities

When it comes to oil and gas activities affecting subsistence, concerns may come from restrictions on subsistence created by government and industry, or from the ecological disruptions of the oil and gas exploration and development activities themselves, such as from seismic exploration. We will look at these two aspects separately.

First, restrictions on access to public lands leased for oil and gas exploration or development concern Indigenous communities, as they may lead to residents being denied from accessing subsistence hunting and fishing areas; such a concern was strongly vocalized by a local Inupiat hunter:

“I was seeing the industry come and say they wouldn't touch certain lands. And they say they won't go where they are now and take the land that they have taken. Now our people can't hunt those lands. So I – I pretty much don't approve of anything that they're doing
... our people were happy with feeding our people fish and whatnot. Now we have industry, we can't hunt these lands that's taking off my family's table. I can't go to these bays over here (points on map) and provided my family work. All of this land (points on map) was my grandpa, my grandma's land, they lived in Prudhoe Bay. And the industry said they wouldn't go and take that land and then all of a sudden, somehow it's a white man's land. They took all the Prudhoe Bay and that was my grandma's land back in the day. But they said they wouldn't – wouldn't touch the land” (12).

The hunter’s account reflected the injustice brought by oil and gas development as they faced obstacles in practicing subsistence on their own lands. Ensuring Indigenous Peoples’ access to subsistence areas is therefore urgent and crucial in developing good relationships between government, industry, and community members and improving land use and resource management in the future.

Second, when it comes to the ecological disruptions of exploration and extraction activities themselves, even with the effective structures established by the North Slope Borough to channel oil and gas benefits into community development initiatives, leaders recognized in interviews that there are still concerns and gaps to be addressed and gaps to be filled when it comes to oil and gas development. The North Slope Borough Comprehensive Plan also listed employment, tundra travel and access, and subsistence impacts as example areas of consideration (North Slope Borough, 2019g). When asked about challenges that still need to be addressed, a biologist mentioned:
“There are potential negatives [of oil and gas development] too. The building of roads, the building of pipelines, lights – you know, from these oil drilling complexes, flares, blow, burning off gas. Stuff like that can cause a disturbance. They do a lot of aerial survey work – an aircraft can scare off caribou. They do a lot of seismic exploration, which is where they have these – they do it in the ocean and on land ... they use sound waves, it’s like ultrasound for the earth and they blast really loud sound into the ground or the water tilt, and then it goes up into the ground. And they use that to find where oil pockets there are. And those can be [disruptive], you can imagine how loud that is ... And so that can be really devastating for wildlife and it destroys. We couldn't really screw up hunting opportunities and, and so, you know, there's – it depends on where they’re doing it and when they want to do it” (B1).

The wide range of negative ecological impacts were brought up by the biologist, showing that oil and gas development in Alaska can disturb wildlife species such as the caribou and create difficulties for hunting. In addition to this, an Iñupiat local and oil field worker also mentioned the potential disruptive effects on animals that he was worried about:

“... that's all my fishing. See, I go fishing on this river mainly. And then, so if there's a leaking oil well in here, I don't want them to be drilling anywhere in this vicinity” (I2).

As can be seen in the quote, potential oil spills are a big concern for Indigenous Peoples, as spills can have highly devastating effects on animal well-being and food security. Also, even though the oil and gas industry has been said to create job opportunities and employment for
Indigenous Peoples, the local hunter and oil field worker’s account shows his concern brought by the seasonality of oil and gas employment:

“I was doing two weeks on, two weeks off, and also I would be able to call in any time, any day. And I would be able to go to the oil fields when I wanted to go work, and I'd be able to come home when I wanted to, and I wouldn't be restricted by this two weeks on, two weeks off. I'd go home for six to eight months. And I could go back to the same job a year later. And I'd still have my job. So that's pretty much, that's all, I don't know if I would wanna continue that lifestyle” (I2).

He expressed slight dissatisfaction of the job arrangement and the undesired lifestyle that it entails. In Norway, an academic also mentioned the hidden challenges associated with new jobs brought by industry development, especially for the Sámi reindeer herders due to the incompatibility with herding schedules:

“The municipalities – I think most of them – are positively inclined towards industry, as they bring employment for the locals. And so it is possible that locals work for the wind industry or in construction or something. But usually, the problem is that the education that people have is not a very good match, especially when they come from more remote places, you know, far north villages and so on, they get very poorly qualified jobs only. And they're not that well paid and they is not a huge job security. So this sort of employment has temporary and seasonal character. It's also not necessarily compatible with the schedule and reindeer herding” (A1).
Besides concerns related to jobs and employment, another distinct topic that emerged is the concern related to potential offshore oil and gas development. Offshore oil and gas development is more controversial compared to onshore development, as indicated by both government officials and locals. The North Slope Borough also pointed out in the Comprehensive Plan that industry and government need to demonstrate a high ability to respond to a spill in Arctic waters before any development could proceed, as offshore development brings substantial risks. The risks are currently evaluated to outweigh the potential gains (North Slope Borough, 2019h). The high risks of offshore development and the current focus still being onshore were demonstrated by interviewees with different backgrounds:

“Offshore, it's kind of risky. It is because all our risk, the majority of animals we eat is from the ocean” (I1).

“I think, you know, until they can demonstrate the ability to clean up oil on ice, broken ice conditions, it's not a good idea. It has to be demonstrated, you know, unless somebody can make a convincing argument that an oil release won't be that harmful. But I think it'd be a tough argument to make, especially if it's a major spill. Anyway, and, you know, nearshore islands arguably are safer” (B3).

“I feel like the negative impacts probably outweigh the positive when it comes to offshore drilling” (L2).
On issues related to offshore drilling, the high alignment between local residents and the leaders and scientists from NSB helps the borough achieve a higher level of security and community-centered development that is sustainable in the long term. Overall, most concerns and challenges related to industrial activities are still being actively addressed, and the solutions that have been implemented are discussed below.

4.2. Addressing concerns

When it comes to industrial activities’ impact on wildlife and subsistence, the Iñupiat leaders described in interviews the work that has been done on the mitigation of potential disruptions to livelihoods:

“I know with our permits in general, we have a lot of tundra protection permit stipulations to ensure that they're not hindering any animals specifically like caribou or fish. If there's a water body close to where they're doing actual work and it's maybe a past hunting area and there's specific permanent stipulations, they cannot hunt and they cannot harm. I'm sure you're probably aware of people have told you, if a herd, a caribou is going across the oil and gas industry, they have to stop. They can't do nothing. Literally, people have sat for two hours waiting for a herd to go by. And it's mandatory. And so we make sure we have those permits, stipulations inside, what we issue. To protect the land and our resources and food” (L2).

This leader’s account emphasized the strict rules and stipulations in place to protect animals and subsistence livelihoods from the negative impacts of industrial activities in the
North Slope. Additionally, a biologist’s who talked about the potential negative effects of industry development and oil and gas exploration also emphasized later in the interview the firm stance that has been taken by the NSB to prioritize subsistence and the health of species, and the NSB’s good practice of negotiating with industry to achieve this:

“And we have a lot of conversations about what might this do? And how can we fix it? You know, like [if] they want to do oceanographic seismic work during a time when bowhead whales are migrating, that’s a hard no. We’d say, ‘absolutely not.’ You know, you’re going to have a huge negative impact on, not only on subsistence, but potentially on just the health of the species. So you know, and then the mitigation might be, how about if you wait, go before or after, you know? It’s these constant negotiations, constant looking at plans and talking it through and trying to envision what could happen” (B1).

Also, as pointed out in the North Slope Borough Comprehensive Plans, many stipulations associated with land use authorizations pertain to the protection of lands and animals that subsistence livelihoods depend on. Specifically, it was stipulated that the purpose of Title 19 is to “achieve the goals and objectives and implement the policies of the NSB Comprehensive Plan…and ensure that the future growth and development of the borough is in accord with the values of its residents among other goals” (North Slope Borough, 2019g). NSB’s commitment to meet community interests and achieve sustainable development was demonstrated by an Iñupiat leader in the interview, as she talked about the case of pipeline construction and how concerns related to ecological disruptions were addressed through monitoring and regulations:
“You know, pipeline height is a good one. Because at one point it was, well, five foot minimum. And in some areas because of caribou migration patterns that we recommended through monitoring that was mandatory through the industry, through the Title 19, and through the monitoring program that we learned that seven foot minimum was better. So we adjusted that – and the caribou, moving freely – [we adjusted] the change in the color of the pipeline so it's not reflective but more blended in, so it doesn't [get seen by] caribou or a bear or the geese, that reflection from a shiny, beautiful pipeline, you know, [so] they might not be attracted to go there like in their normal migration pattern” (L4).

The NSB has achieved marked progress in addressing industry-related concerns, yet more work needs to be done in other aspects that Indigenous Peoples are concerned about, such as the importance of addressing the risks associated with oil spills, which was mentioned by the local hunter. The biologist pointed out that this is still a work in progress:

“Of course, spills are a risk, to my knowledge I’ve been spending not a whole lot of [time] on spills up here. I do know that when or if there's a big one we're gonna be in trouble. That's because there's just not enough infrastructure up here to deal with it. So, you know, that's something that's like a mitigation for something that hasn't happened yet, and hopefully never will. But yeah, I really do need to kind of push on, you know, on that. And I think there's, you know, there's movement on that, but it costs money and takes time” (B1).
From his account above, we can see that even though the North Slope Borough has put in efforts into risk mitigation, oil spills still remain a challenge. Therefore, as the biologist mentioned, the NSB and other stakeholders need to put more resources and time into securing natural resources, wildlife, and subsistence livelihoods from risks related to the extractive industry’s activities.

A key to addressing these industry-related concerns is self-governance. In Alaska, the power of the regional government with a high level of self-determination and self-governance was evident in the interviews. Terms such as “we” and “the Borough” that were frequently occurring in interviews reflect a high level of assertion and identity as well as a strong sense of agency, indicating that the Borough and the Indigenous organizations have a big say in decision-making processes:

“In terms of self-determining, I think we've created a basis, you know, with the permitting system, with the stipulations and requirements that we're putting on them that creates at least a baseline of how we [the North Slope Borough] would like to work. And that is kind of the say in self-determining” (L3).

This structure is less likely to be achieved in Norway, except in districts where reindeer herders are the majority and can determine their course of action regarding the preservation of their livelihoods. However, opportunities for improvement still exist – from the industry’s side, public and private companies can play their part in helping increase Sámi engagement through more commitment to corporate social responsibility, which can also benefit them by reconciling future conflicts with local communities that may create complications for their planned projects.
and incur high costs on their side. This can be done by engaging in dialogues and negotiations with communities over project plans, collecting important input and information through listening to the communities, increasing transparency, and reaching solutions that help reach a balance between reindeer herding and industry projects (Turi, 2016).

4.3. Benefits of industrial activities

It is important to note that, despite the challenges and concerns, in the modern setting, subsistence livelihoods are closely connected to industrial activities and can benefit from it, helping achieve an important balance amidst development. Especially in development aid discourse, “good governance” involves capacity building and poverty reduction, which oil and gas development can help achieve through generating revenues and redistributing these benefits to communities in the area (Solli, 2011). Finding a balance can thus help accrue the most benefits to Indigenous communities that are involved in both subsistence livelihoods and industrial activities.

In the North Slope of Alaska, multiple leaders indicated that subsistence activities are costly as they require the purchase of vehicles (e.g. snow machines and ATVs), fuels, tools, etc. Income from dividends and employment, which are oftentimes related to ongoing oil and gas activities, help residents of the North Slope better practice subsistence livelihoods. As indicated in the NSB Comprehensive Plan, when the revenues from oil and gas development decrease, the loss of wage income may “reduce the ability for residents to afford modern hunting equipment” (North Slope Borough, 2019d). It is therefore very important to not go in with a biased conservationist perspective perceiving oil and gas activities as purely negative, as the realities up north may be more challenging compared to the Lower 48:
“I mean, living up here is very expensive, just because of how rural and remote the communities are. And subsisting is not easy either. And it costs a lot to do that. And so I think you've heard from maybe others about the costs of that. And so in a lot of the communities, I don't think the question is ‘either-or.’ So like in Utqiagvik, Kaktovik, there's not any oil and gas activity. Most of it is centralized in the Prudhoe Bay, Nuiqsut area. And so I think for that question you'd have to talk to the people living in and around there. But I think for me, or for a lot of the subsistence hunters, it's understanding and recognizing both [industry and subsistence] and being able to, I think, self-determine and decide as the people of the North Slope, how, what we're going to do and how we're going to conduct it. Whether it's deciding what projects, oil and gas projects are gonna happen and how fast or in what areas, or how we're gonna manage subsistence, and whether it's, you know, like saying, working with the federal government and caribou, or with the state government and how we'd like to manage our caribou hunts, rather than depends on a state government process of permitting” (L3).

As can be seen in the quote above as well as in various official NSB reports and documents, the high level of self-determination and self-governance of the North Slope Borough allows the Borough to put community interests at the forefront and be culturally and environmentally responsible as it participates in leasing and development activities (North Slope Borough, 2019g). Oil and gas income is used to fund public services and infrastructures, including roads, schools, health clinics, and fire departments.
The interviews with a biologist and an Inupiat leader attest to the benefits of having the oil and gas industry on the North Slope, given the structures set up by the North Slope Borough that effectively channel the oil and gas revenues to community development and to enhancing the overall wellbeing of the residents, which was commented by a biologist to be “very smart”:

“But the oil industry, I mean, you know, provides – well, due to the wisdom of the Borough founding fathers, the things are set up so that the North Slope borough was dependent on property taxes from the oil industry. And that was really smart, because the [property tax] income doesn't go up and down at the price of oil. That's always about the same because it's property taxes. But all of that money filters for the North Slope Borough of lots of people who work for the North Slope Borough or, or other – I mean, so it's indirect oil money. So it's not so many people that actually go home working in the oil field. And so lots of people are very dependent on their North Slope Borough job or whatever to provide the income to, you know, get their snow machines and buy their gas and buy their boats and get their four wheelers and, and all that. You know, it's, yeah, Well, like I said, I think people are more and more dependent on these expensive machines stuff for subsistence hunting” (B2).

On a relevant note, not only does oil and gas income aid subsistence, the oil and gas companies themselves also work with Indigenous communities to help with their subsistence activities:
“The oil industry goes to great lengths to help with that whale hunt. So they take the haul equipment and fuel and stuff on the barges out to the island. And then when the whalers catch whales and they butcher them, they cut ’em up and put ’em in these big boxes and you take the boxes and put them on the barge, then they barge it back across. And even at times, this is unbelievable, they've actually loaded up a cargo plane and flown a plane full of whale back to Nuiqsut. So, you know, there's a lot of positives that the oil company is doing” (B1).

From the discussion above, we can see that local hunters recognize the importance of oil and gas to the economy of the North Slope, and also expressed that there is some degree of inconvenience and concern on their side. Note that this difference in attitude and perception is expected and is key, as the local hunters may value individual benefits more, while leaders in governmental institutions also place a big importance on the long-term economic development of the North Slope, such as the property tax that can be collected from the oil and gas industry to benefit community development (constructing roads, improving connectivity, investing in education, etc.). That is a reason why community meetings and constant reporting are important, to make sure communities are aware of the sources and use of the “oil money” and are informed about the benefits they will receive from having industry on their lands.

In Norway, the economic benefits brought by oil and gas, especially the LNG industry in Hammerfest, as manifested through the growth in employment for both locals and new immigrants, are also evident. Employment grew in Finnmark following the construction of the Melkøya plant, due to the direct and indirect employment (through, for example, associated
services) the LNG industry brought (Turi, 2016). An academic pointed out the economic importance of LNG:

“There is a huge consensus in Norway that we need this gas production today, particularly cause it's, uh, It's revenues for income for important for the situation in Europe. Cause of the war in [Ukraine]” (A3).

Another academic also highlighted the importance of oil and gas in securing the economy and the welfare system in Norway:

“So there's economic security and energy security, which are generated by these sorts of natural resource industries, and particularly oil and gas. As you well know, Norway has a very good welfare system, largely based on the wealth of natural gas. ... oil and gas has ensured that our country, with a relatively small, relatively homogenous population, um, managed to build up a welfare state that has made it one of the wealthiest countries in the world. ... But mostly, in the Norwegian case, oil and gas is for export, because our own energy supplies are largely based on hydro” (A2).

In Finnmark, the key area for reindeer herding, industry development is generally viewed with optimism by sedentary locals as they bring economic benefits (Fitjar, 2013). In Hammerfest, a few opportunistic informal interviews were conducted, and they strongly reflect this optimism for economic development brought by the LNG industry, as well as other features of the booming of Hammerfest, such as population growth:
“Hammerfest grew a lot in recent years because of Equinor, Melkøya ... I just moved back three years ago, yes, it brought all these industries, and all these industries improved the economy – there have been improvements of the economy, but there’s more that still needs to be done ... People who work at Equinor, Bilfinger, etc., are from many places all around, like Norway and Poland, not just Hammerfest locals. There are people from Hammerfest that work in industries like Equinor, but different jobs, like working in the office” (H4).

“I work two weeks on, two weeks off at this harbor construction. Yes, a lot of people here are at Melkøya ... gas is so important to life here. and we get paid with money from gas, money from Melkøya. Without the Melkøya money we wouldn’t have this [economic development]” (H1).

“Hammerfest is growing with Melkøya ... a lot of people from other places moved here for Melkøya. They do the two weeks on two weeks off. Some local people work there too ... there are more jobs and income” (H2).

The seasonal nature of oil and gas jobs was pointed out by this local, which is similar to the nature of oil field jobs in the North Slope of Alaska. Similar to other locals (non-Indigenous) in Hammerfest, who do not practice reindeer herding, they generally expressed a more positive and optimistic attitude towards oil and gas development and the jobs and income brought to this boomtown. This positive attitude can also be seen through another informal interview:
“First there was fishery, and the town [of Hammerfest] was big, with a lot of fishermen drinking and partying ... then fishery moved down south, town ‘closed down’ ... but then oil and gas came, and the town grew again ... a lot of people came for oil and gas, and more young people are staying because of Equinor ... it’s good. Before this, a lot of young people were leaving” (H3).

Overall, the benefits of industrial activities need to be fully recognized when looking at ways to balance industrial development and subsistence livelihoods, in order to maximize the positive effects and minimize the harm, in a way that is appropriate to the Indigenous communities and their priorities.

4.4. Indigenous views on industry-related benefits are varied

It is important to note that none of the locals interviewed in Hammerfest were Sámis, as Sámis had not reached Hammerfest at the time of the interview (April) yet with their herding schedule and routes:

“The local Sámis are not there yet. It's too early. Because they are grazing at that moment. So they will come in May to Hammerfest, from grazing. They're on transition” (S1).

Comparing the informal interviews with Hammerfest locals with the concerns indicated by Sámi leaders in Tromsø, the accounts by Hammerfest locals lack consideration of how the
LNG industry affects Sámi traditional livelihoods. More focus is placed on economic development. The attitudes of Hammerfest locals are consistent with the account provided by a Sámi Indigenous scholar, who indicated that Sámi priorities are quite marginalized:

“But in Hammerfest, [there are] lots of conflicts between Sámis and non-Sámis. [Non-Sámi] people there want industry. And [at that place where they want industry] it's also the summer grazing for lots of reindeer herders that are in the main Sámi land in Finnmark, close to the Finnish border. Most of [the Hammerfest residents] are for [industry], I think, also the local people, they, um – there are lots of races in Hammarfest, so it's not easy to talk about reindeer herding and Indigenous rights and things like that. It's one of the cities where you can hear lots of different things ... I also work at the Sámi University College in Kötökeimo, and they have four young Sámi people that travel around, go to different colleges, talk about Sámi culture and things like that, but they can't go to Hammerfest, because they experience lots of discrimination there. And it's also from teachers in college. So, um, yeah, so you should be prepared to hear lots of different stories [in Hammerfest]” (S1).

His account highlights the recurring theme of discrimination against Sámis and social cleavages between Sámi Indigenous Peoples and the majority Norwegians, which were brought up by both Sámi and non-Sámi interviewees no matter the extent to which they indicate the importance of such cleavage was. Such social cleavages affect land-use governance and decision-making related to land-use conflicts and Sámi Indigenous livelihoods, as Norwegians are the majority at decision-making tables, and compared to the United States, not enough
emphasis has been placed on addressing past injustices or meeting the priorities or demands of Sámi communities through accounting for the interests of both Sámi Indigenous Peoples and Sámi Indigenous Peoples in decision-making processes.

Also, these “profitable” developments are concentrated in regional urban centers such as Hammerfest and Alta, and do not necessarily provide job opportunities to the nomadic Sámi reindeer herders. Surely, the revenues generated by oil and gas development benefit all residents in the country, but it is important to take in mind that Sámi reindeer herders may have very different priorities compared to the Norwegian residents. Therefore, enhancing Sámi consultation and self-determination in governance to reconcile conflicting interests and meet distinct Sámi priorities with regard to their cultural well-being and traditional livelihoods is highly crucial.

To sum up, a governance structure that is realistic yet adaptable, prioritizes the interests and well-being of the residents, and ensures effective communication with the residents when changes are going to be made, is sustainable and helps minimize conflicts. It is also important for not just the government to recognize the importance of subsistence livelihoods among development, for the communities to actively negotiate with stakeholders, but also for the industry to be responsible to acknowledge their impacts and take into account the needs and demands of relevant Indigenous communities, and take appropriate steps to minimize conflicts and benefit the communities in ways agreed upon by them. This is not only a solution to their concerns, but also part of good relationship-building and multilateral dialogues that will contribute to sustainable and equitable land use governance.
4.5. Adaptability in land use governance helps achieve a balance

When it comes to modern-day challenges on subsistence governance, such as those brought by oil and gas development and climate change, Inupiat values play an important role in helping people of the North Slope adapt to these changes. For example, Hunting Traditions is one of the twelve core Inupiat values, and so even when there are outside influences, the Inupiat Peoples have maintained their hunting, fishing, gathering, and sharing skills. Knowledge related to subsistence hunting, including on tools, ecosystems and weather variability, harvesting skills, and environmental stewardship, also continues to be passed down by Elders to the youth, helping future generations of Inupiats to stay resilient and adapt to various environmental and social changes (North Slope Borough, 2019d). The resilience and adaptability of Inupiat Peoples, especially when it comes to subsistence hunting and traditions, were highlighted in the interviews by both non-Indigenous biologists and Indigenous leaders:

“The Inupiat people very much want to maintain their traditions. Yeah. And they should be allowed to, but another thing that's really interesting is that they're not like locked into a museum exhibit... one interesting thing about their culture is that it's very adaptable” (B1).

“I think in general Inupiats are pretty resilient and adaptable – adapting to our environments over the years knowing what's important. A lot of our focus is around spirituality. And then just making sure that we can still speak our language, and hunt, and share that with one another” (L2).
With all the challenges and changes in the community created by the entry of industries and the onset of modern industrial development, Iñupiat Peoples have been able to adapt and “live both worlds,” to ensure that subsistence activities will still be at the center of Iñupiat lives and the environmental and land use governance of the North Slope in the centuries to come. The goal is to achieve a balance through practicing land use governance and livelihoods in a way that adheres to the Iñupiat values, which encompass spirituality, respect for nature, hunting traditions, cooperation, and more (Topkok, 2015).

The situation is more challenging in Norway. In Norway, reindeer herders practice a nomadic livelihood as they follow the migration patterns of reindeer from coastal summer pastures to inland winter pastures. However, this nomadic strategy entails its extensive use of land areas, which often conflicts with modern industrial development. These industry projects fragment pastures and alter pasture characteristics. Oil and gas, transportation, wind, and other associated infrastructure development have become more and more incompatible with land requirements for reindeer herding, leading to a loss of traditional lands and cultural practices and leading Sámi reindeer herders to switch to a more sedentary lifestyle, rendering reindeer herding livelihoods increasingly vulnerable (Turi, 2016; United Nations Environment Programme, 2001). Reindeer herders have adapted over time by utilizing trucks, boats, snowmobiles, and ATVs for herding (Turi, 2016). However, even though reindeer herders have adapted by using technology, adaptation is not limitless, and reindeer herding livelihoods may be completely lost if adaptation becomes impossible.
### Table 4. Part III: Policy insights for a better future: increasing Indigenous engagement, sharing successful practices, and paths forward for effective and equitable land-use governance

This table presents prominent codes that emerged when having discussions related to the policy insights and paths forward for Alaska and Norway. The number in the frequency column represents the total number of times it was brought up in all the interviews. Prominent codes are organized into distinct emerging themes in the results section.

<table>
<thead>
<tr>
<th>Topic and definition</th>
<th>Prominent codes</th>
<th>Frequency</th>
<th>Key quote</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>III. Policy insights for a better future: increasing Indigenous engagement, sharing successful practices, and paths forward for effective and equitable land-use governance (Themes 5–9)</strong></td>
<td><strong>Indigenous Knowledge</strong></td>
<td>25</td>
<td>“So we have in our department, subsistence research coordinators, subsistence research assistants on staff. And they work with the biologists directly to develop projects together. Through that, that makes integrating Indigenous Knowledge into our research very much active” (L3).</td>
</tr>
<tr>
<td></td>
<td><strong>Values</strong></td>
<td>8</td>
<td>“A lot of our focus is around spirituality. And then just making sure that we can still speak our language, and hunt, and share that with one another. We, like any entity – or not entity, any city, borough – we struggle in that balance, but I feel like as long as we always think about our Inupiat values in our day-to-day life, that's kinda how we're able to balance” (L2).</td>
</tr>
<tr>
<td></td>
<td><strong>Community</strong></td>
<td>107</td>
<td>“I see our community getting involved by being able to come up. So in every single agenda I've seen is always like public concerns, or public comments. And I've seen that work. Yeah. I've seen where people have come up and talked about solutions” (L4).</td>
</tr>
<tr>
<td></td>
<td><strong>Multilateral meetings</strong></td>
<td>24</td>
<td>“Typically they [the trilaterals] meet together within a</td>
</tr>
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</table>
community, when any new project is coming. And then the planning department actually helps in some manner to facilitate those meetings” (L2).

<table>
<thead>
<tr>
<th>Indigenous priorities and interests</th>
<th>13</th>
<th>“I think that our animals are so important to us. And that is always a priority…” (L6).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring</td>
<td>21</td>
<td>“You have to do the research on the migration of caribou … to monitor that migration throughout the life of that development” (L1).</td>
</tr>
<tr>
<td>Relationships</td>
<td>16</td>
<td>“But the beauty of our department, the Alaska Eskimo Whaling Commission, the different core management groups, and their leadership, is that we built a working relationship with the agencies, whether it's BLM or the offshore, the people who regulate the activities onshore and offshore, that we have a relationship with them, but we also have a relationship with the industry and that we've learned to use our municipal powers to help implement like monitoring programs, recommending research programs to make sure that there is a balance” (L4).</td>
</tr>
<tr>
<td>Co-production of knowledge and collaboration</td>
<td>10</td>
<td>“Our department has proven time and time again that the research that we do, because we're working together with our local hunters, the local knowledge holders, plus very well respected scientists, that it really is the best of both worlds” (L4).</td>
</tr>
</tbody>
</table>
5. Indigenous engagement in land use governance requires community action

In Alaska, community meetings and regular multilateral conversations with high Indigenous engagement help turn Indigenous Knowledge and local voices into community-priority-centered governance practices, specifically the development of effective stipulations, regulations, and permitting processes that put Inuit priorities first and are also sustainable for the community and the ecosystems in the long run.

Meetings, such as “trilaterals” between the native corporation, the city, and the tribe, not only help the industry to inform communities about their plans and engage with them, but also help community members to inform the industry through public comment about any potential harm, which facilitates their action to modify their plans, subsidize communities, or provide other types of compensation.

5.1. Engagement: community meetings to define priorities

Meetings where communities collectively define priorities lead to the most demanded plans being developed and funding getting effectively allocated. In NSB, trilaterals and community meetings in general that involve multiple stakeholders (e.g. residents, industry, and final decision-makers) help direct attention to the most pressing governance issues. This process of defining priorities helps with good decision-making and acquiring funding for these priorities, which is key to good governance and community development.

The high level of Indigenous engagement is translated into community interests and priorities guiding NSB’s directions and future efforts. The North Slope Borough hosted workshops for residents where participants identified issues and concerns, and these were documented in the NSB’s Comprehensive Plan which continues to guide the Borough’s work, as
can be seen at the end of its every chapter where a section named “community input, findings, needs, and challenges” is included. An Iñupiat leader discussed this community-centered process in depth:

“They're called trilaterals. So it's the native corporation, the city entity. And then well the native – that's, it's a native corporation, the city, and then the tribe. With every one of our villages, to see what they feel like is needed most. A lot of them are housing, water, and sewer infrastructure, [which] is kind of failing in some villages. And then the more recent is coastal erosion and permafrost thaw, [where there] is kind of like a lot of studies [that] are happening right now when it comes to the Arctic. So those are brought into our comprehensive plans” (L2).

“Typically they [the trilaterals] meet together within a community, when any new project is coming. And then the planning department actually helps in some manner to facilitate those meetings. So when it comes to our comprehensive plan, we do the SWAT analysis with the communities: strength, weaknesses, opportunities, threats” (L2).

Great progress has been made, yet some gaps still remain to be filled when it comes to the effectiveness of Indigenous engagement in community meetings. It’s important to note that due to the importance of communication and informing residents, ensuring sufficient participation in these meetings is key. Without a high level of equitable participation, there could be misunderstandings, frustrations, and even divides. A local hunter indicated that the
community meetings still have room for improvement in terms of fully engaging Indigenous community members:

“*I'm not really into politics, it puts me to sleep (laughs) ... to me it's like they always have a game plan coming into every meeting. You know, everything's pretty set. Projects ... gifts ... and you can walk away just a little bit happy[ier]”* (I1).

Another local hunter indicated similar barriers in communication and participation during these meetings, and expressed slight frustration, even though he also recognized the income that he could personally obtain from the oil and gas development:

“*I think they already have it all planned out and anything we try to say or do will not help. The only thing we could do is not stop them and actually help them. And get a job off of these people, maybe bring in some revenue for my family. That's all I can see”* (I2).

Therefore, improvements in meeting structure and timeline may be made in a way that community members are involved in even earlier phases of the project, if not already. In the future, guiding community members to participate more effectively, further enhancing the efficiency and access of these meetings, and assuring community members their input is considered on an individual basis, are keys to good governance that places community priorities and concerns at the forefront.

In Norway, as covered in previous sections in this thesis, reindeer-herding governance does not necessarily meet local priorities, and whether Sámi participation in decision-making is
adequate still remains a question. Also, as discussed earlier, a Sámi leader highlights that Sámis seek to be engaged early in the decision-making processes. With the ILO-169 Article 15 (2) emphasizing how the government is required to implement “real consultations” prior to exploitation takes place, more effective dialogues and channels for Sámi consultation and self-determination are key to protecting Sámi rights and livelihoods in ways they deem appropriate (Ravna, 2015). Even though Norway has legal safeguards for Sámi land rights and consultation through the Finnmark Act and the ILO No.169, there still exist barriers to equitable and effective consultation as well as “free, prior, informed consent” in practice, especially considering how “the proposed consultation statute fails to include the Sámi Rights Committee’s proposal” and how the Norwegian Parliament has failed to adopt the consultation bill and sent it back for new negotiations (Ravna, 2020). Closing the gap between legal frameworks and Indigenous consultation in practice is therefore a priority, not just for Norway but also for other countries facing similar issues.

5.2. Engagement: continuous reporting, Indigenous advising, and communication between industry, government, and community members

In the North Slope Borough, continuous reporting between the communities and other stakeholders, including government and oil and gas companies, helps facilitate achieving effective and equitable land use governance that strives for a balance between protecting Indigenous rights and subsistence livelihoods while making progress the development goals of the state and the nation, which is oftentimes demanded by the non-Indigenous majority. This is because balance cannot be achieved by the work done by one party; it is a joint effort that requires constant communication, collaboration, and conflict resolution:
“And [there is] continuous reporting to the government and the residents of the Borough... you have to create that balance, to have that harmony with the residents” (L1).

The “continuous reporting” shows the importance of constant communication between stakeholders involved in land use governance as an essential means to increase transparency and facilitate collaboration. Indigenous advising in the North Slope, where Iñupiat Peoples act as subsistence advisors to the oil and gas companies and inform them about important hunting and harvesting activities, also helps put subsistence first and achieve effective regulations of the industry:

“We don't allow activity during the whaling schedule ... the advisor will tell [the oil companies], whaling's coming up, caribou are migrating right now, and keep them absolutely informed” (L1).

The Iñupiat leader quoted above well explained how subsistence advisors play a big part in regulating industries to mitigate potential harm on the natural environment and wildlife.

5.3. Engagement: developing stipulations

In Alaska, after priorities are defined, stipulations need to be developed to direct on-the-ground implementation to meet these priorities. Multilateral conversations that involve communities, stakeholders, industrial partners, and the government help the voices of community
members get heard when developing stipulations and codes on industrial activities. Both Iñupiat government leaders and local hunters mentioned the importance of these meetings in developing stipulations, permit processes, and regulations:

“We have permits and stipulations to ensure that they're not hindering any animals specifically like caribou or fish” (L2).

“Each village has their own meeting ... and that's when they decide whether they can build [the project] or not” (I1).

Having multiple meetings, and not just having only one as a formality, helps all parties work towards end results where stakeholders understand the context of the Iñupiat ways of life and their traditional areas for hunting and fishing, helping mitigate any potential harm:

“They go through many, many community meetings. A lot of stakeholder engagement. Sometimes it's calm, sometimes it gets heated when they really want to be heard ... we come up with stipulations and our code, in those public meetings with the industrial partners, the residents, the government, together. And it doesn't happen in one meeting” (L1).
6. Indigenous Knowledge and values shape land use governance and decision-making

As mentioned in Theme 4, in contemporary land use governance relevant to industry and Indigenous Peoples, achieving a balance is a key. Although achieving a true balance between modern development and subsistence livelihoods is challenging and is still in progress, Iñupiat Peoples in the North Slope have seen great successes, most of which can be attributed to Iñupiat values and Indigenous Knowledge, as well as the high level of Indigenous engagement in decision-making that is highly associated with the use Indigenous Knowledge and the guidance by Iñupiat values.

In the interviews, leaders and experts shared their experience and views on how Iñupiat Peoples of the North Slope have been striving for effective and equitable land use governance, reflecting the importance of Iñupiat values in governance and daily lives, and showing the Iñupiat Peoples’ deep respect for the environment and the importance they place on their cultural traditions and kinship:

“... making sure that we can still speak our language, and hunt, and share that with one another. We, like any entity – or not entity, any city, borough – we struggle in that balance, but I feel like as long as we always think about our Iñupiat values in our day-to-day life, that's kind of how we're able to balance” (L2).

“I think that the Inupiat people of the North Slope are very blessed, and also with other Alaska native cultures, is that we've been very rooted in our cultural traditions, especially when it comes to the resources, the environment, that's been instilled in us ... And no
matter what society or culture you come from, that you adapt over time. So I don't think that we're unique in that sense. But we have a lot of different factors that come into play with challenges, right? we've got increased shipping, we've got the rapid – the changing climate, and that's always happened before. You've got the oil and gas industry. But our traditions and our knowledge have been with us the whole time. So I wouldn't say that we lost it, because I was born and raised up here. and I was born in the 19 – late 1960s, but through the seventies and through the eighties, up until the present, it's always been – it's been within me on how to take care of and to make sure that we still have access, that the animals and the land are good. These little things that are Iñupiat values and the methods and means, and how we harvest, how we have access, how we respect, are within us.

Yeah. So when a challenge comes, you know, that we're so deeply rooted, I don't think that it's gonna ever go away. Because you watch the next generation of hunters and youth and children inspired to learn and to continue and to participate and to give everything that is surrounded around our Iñupiat values for sustaining our people through the land and, the resources are within us. So I think that we're unique in that sense” (L4).

The following interview excerpt reflects the values of Respect for Nature and Spirituality. This value is the foundation of sound environmental and land use governance:

“Our people have always viewed us as a part of the ecosystem. and we are a part of it. We're an important part of this. Yeah. If you take us away from it, then it's gonna be off balance. And we have an instilled knowledge or a responsibility in us that we have to protect the land and the resources. When I was growing up a young girl out at camp, we
couldn't even dump our wash base Station anywhere close to the river or to the lakes. you know, my grandpa or my, my parents, my parents would say, okay, you need to go dump the water over here, because they didn't want it to go into it, you know what I mean? Yeah. That we're just like that, like I said, it's so deeply rooted in us, and make sure that we're respectful of the land and the resources ... you know, like there's that spiritual tie to it” (L4).

Subsistence, closely linked to Iñupiat values and culture, is central to Indigenous Peoples when making resource use decisions. Leaders emphasized the importance of maintaining traditional subsistence livelihoods and the irreplaceability of subsistence foods in the interviews:

“Well, in our view, it's – you know – the hunting is still the same. You still need our fish and our caribou. Our whales and seals and birds that we depend on. There's no way we could survive here as well as we do without that. Because if we depended on the stores to provide all our meat and food, we couldn't afford it. The prices are way too high to do that. (B2: and the food quality would be way less, you know, the subsistence food is much, much better quality than what you could buy at the store.) So, yeah. And so, even though there's a cash economy up here, there's no way we could afford to live like maybe the conservationists who don't want us to hunt. They have no clue that what they're pushing for is unattainable. There's no way we could live up here without our subsistence food” (L5).
As can be seen above, Iñupiat values are a major reason why Inuit-centered governance and decision-making are also good for animal welfare and the long-term sustainability of the environment. Iñupiat Peoples traditionally believe that humans and the environment are one, and they therefore want to protect the land with their best efforts, as a prerequisite of the well-being of the community is the well-being of the land. This deep care for the environment and all the species it encompasses is deep-rooted and natural. Being good stewards of their land since time immemorial, Iñupiat Peoples have accumulated place-based knowledge and resource management practices to protect the well-being of the environment, the animals, and the people. We can see that this theme is a two-way street: in Alaska, Iñupiat values and knowledge contribute to shaping governance structure and decisions, yet the governance structure itself must include a high level of self-determination to allow for IK to be sufficiently incorporated. This philosophy of integrating IK in decision-making is very prominent in the North Slope Borough, yet in Norway, it is lacking.

The root cause for this difference may be the demographic composition of communities in Alaska and Norway. Alaska has the entire Borough spanning a large area populated primarily by Inupiats practicing traditional livelihoods, yet in Norway Sámi reindeer herders only have selected small communities who are nomadic and move year-round, and they rarely constitute the majority of their governance body’s decision-making board (note that as demonstrated in the background of governance structure, the management of Reindeer Husbandry in Norway is divided into national, regional and local levels, with districts at the local level managing their internal affairs) (International Centre for Reindeer Husbandry, 2024). Even though there are currently still gaps in further enhancing Indigenous self-determination, Alaskan Natives have indeed gone through a long and difficult process in history in terms of fighting for more
Indigenous rights and made substantial progress in this aspect, and it is therefore still easier for Indigenous Peoples in the North Slope to have a high level of self-determination and Indigenous engagement and implement policies that make the best use of Indigenous Knowledge to make sound land use governance decisions.

Moreover, since Sámis are a minority, their experience of seeking influence in decision-making and gaining self-governance is “far from straightforward” as their rights become necessary to counteract “the arbitrariness of political decisions formulated through changing majorities in the state’s democratic institutions,” which requires political and legal reforms in Norway to manage the complex relationship between democracy and Indigenous rights (Broderstad, 2015). Here, democracy is reflected through the decision-making process of Norway as a unitary state, while the Indigenous rights are reflected through the procedures recently added to such process that account for Indigenous rights, such as the requirement to consult Sámis as well as the role of the Sámi Parliament that connects Indigenous entities and the Western government.

Sámi reindeer herders’ participation in decision-making is especially crucial for sound environmental governance and the preservation of traditional livelihoods that hold significant cultural, economic, and nutritional importance. In Norway, the current state governance of reindeer husbandry is still based primarily on simplified indicators and does not incorporate Sámi reindeer herders’ extensive body of knowledge (Horstkotte et al., 2022; Johnsen et al., 2017; Marin & Bjørklund, 2015). Specifically, Horstkotte et al. (2022) highlight that the Norwegian environmental governance system currently “relies on a science-based system that leaves little room for local herders to present their knowledge as legitimate and valid,” with herders indicating that “neither their traditional knowledge of predators nor their daily realities of
living with them is reflected in the national management strategy.” This mismatch between Western science and reindeer herders’ knowledge and observations needs to be reconciled as it impedes finding common ground in developing environmental governance policies most appropriate for the well-being of local reindeer herders.

Even though the 2007 Reindeer Husbandry Act formally acknowledged the Sámi siida system as the foundation for customary rights and allowed siidas to contribute to sustainable reindeer herding husbandry through determining internal rules, grazing patterns, migration times, and number of reindeers to be approved by regional and national boards, inefficiencies still exist when final decisions do not incorporate enough local user participation, Sámi TEK, and full consideration of local circumstances (Turi, 2016). Therefore, in order to achieve a balance, western government and scientists need to make decisions about Sámis with Sámis (related to ICC’s “nothing about us without us” in the EEE protocols) specific to different siidas in an equitable, transparent, and accessible way, and not fall into the traps of neocolonialism, green colonialism, or technocracy (Ellingsen, 2020; Fischer, 2000; Inuit Circumpolar Council, 2022; Normann, 2021). Also, using a relational approach to find common ground between the space of Indigenous autonomy and self-governance and the space of the Norwegian state’s political system is useful to facilitate dialogues, enhance shared understandings, facilitate the reconciliation of different knowledge systems, and empower Indigenous political participation (Broderstad, 2015). These changes, if implemented, can provide great channels for Sámi reindeer herders to contribute to sound decision-making with their rich traditional knowledge and experience, which can help best govern the land with resources (e.g. pastures) that their culture and traditional livelihoods rely on. This analysis also applies to Iñupiat communities in Alaska, even though tangible progress and dialogues are already happening in this realm.
7. Relationship-building helps improve Indigenous engagement in decision-making

The North Slope Borough has improved the effectiveness of its land use and resource governance over time through dedicated relationship-building and communication facilitation efforts with other stakeholders, including federal and state governments, oil and gas industries, other Native organizations, as well as Borough residents. Impacts to subsistence whaling activities have been successfully mitigated by the NSB through conflict avoidance and agreements that brought together developers and subsistence whalers (North Slope Borough, 2019h). An Iñupiat leader highlighted the instrumental role that relationship-building played in mitigating negative impacts on the environment, wildlife, and subsistence activities, here specifically about whaling:

“And I think understanding and having the trust of our current leadership through the AEWC and the different core management groups and the NSB and our tribes, that we learned to play the game to make sure that it was going to be minimal impact” (L4).

Relationship-building also goes beyond whaling, but scientific research and sound environmental governance in general:

“*We go out on the ice and count Bowhead whales, and report that to the International Whaling Commission. Along with health research of the whales. ... So every spring and fall we take samples of whales and collect that and produce really good research on bowhead whales. We also do research on beluga, high seals, oceanographic research*
nearshore, and on fish, whatever our, you know, subsistence communities' needs are across the North Slope. We listen to the communities and produce information that is helpful for them, and helpful for us to communicate how things are to federal partners, state partners, and other organizations” (L3).

“But the beauty of our department, the Alaska Eskimo Whaling Commission, the different core management groups, and their leadership, is that we built a working relationship with the agencies, whether it's BLM or the offshore, the people who regulate the activities onshore and offshore, that we have a relationship with them, but we also have a relationship with the industry and that we've learned to use our municipal powers to help implement like monitoring programs, recommending research programs to make sure that there is a balance” (L4).

From the interview excerpts above, we can see how the North Slope Borough, here the Department of Wildlife Management specifically, ensures effective communication with a wide range of stakeholders to facilitate equitable and collaborative environmental governance. Stakeholders themselves, such as the Alaska Eskimo Whaling Commission (AEWC), also contributed immensely to relationship-building, as relationship-building is a multi-party effort. Here, a biologist commented on the success of AEWC in building long-term relationships with the federal government:
“Well, I think the native organizations have been instrumental. Like the Alaska Eskimo Whaling Commission. Remarkably successful. Finding that balance between traditional activities and dealing with the federal government” (B3).

AEWC’s success in relationship-building and contributing to sound environmental governance can also be seen in its efforts to work with industries to mitigate ecological impacts through a Conflict Avoidance Agreement (CAA). Marine mammals such as bowhead whales are sensitive to noise and shipping traffic and such noise may affect bowhead behavior, which could harm subsistence. The CAA aims to balance the need for industry to conduct work and the availability of marine mammals for subsistence hunters such as through time and area closures until the bowhead quota is filled or a village completes its hunt (Lefevre, 2013; North Slope Borough, 2019e).

From the analysis above, it is evident that multiple Inuit-led organizations and institutions, including AEWC and NSB, have centered their efforts on the interests and priorities of the Iñupiats, which are instrumental in establishing and practicing a land use and resource governance structure that helps maintain the culture, traditions, and livelihoods.

When it comes to relationship-building in Norway, the relationships between siidas and the Norwegian government can be seen from issues related to reindeer herding quota and siidas’ autonomy (Joks et al., 2006; Sara, 2009, 2011). As pointed out by Broderstad (2011), “aspirations for autonomy entail defining relationships with states,” highlighting the importance of relationship-building in promoting Sámi self-determination and participation in decision-making. Also, in Norway, the Sámi Parliament has been increasing its political influence and implementing capacity through direct dialogues with the Norwegian central
authorities. Comparing the efforts of Sámi organizations (including the Sámi Parliament’s political role and the Sámi Council’s special power as an NGO) with the efforts of Inuit organizations such as the AEWC related to bowhead whaling quota and the fight against the IWC whaling moratorium in history can shed light on the different paths and status quo of relationship-building between Indigenous organizations and the national government that follow a western system and governance practices.

8. Indigenous-led research and ecological monitoring and co-production of knowledge help construct good foundation for effective governance

Indigenous Knowledge, Indigenous engagement, and equitable co-production of knowledge between outside researchers, stakeholders, and Indigenous Knowledge holders are essential to good scientific research and ecological monitoring that serve as the foundation for effective policymaking and land use governance.

8.1. Inuit-driven research in Alaska

The North Slope of Alaska provided good lessons learned in this aspect. In NSB, effective stipulations and regulations are based on good research, and Iñupiat leaders highlighted the importance of continuous research and monitoring during industrial development to protect subsistence livelihoods and animal welfare:

“With infrastructure, is it gonna harm migration of caribou? So we stipulate, you have to do the research on the migration of caribou. What effects does it have when you build a
gravel road right here? And to monitor that migration throughout the life of that development. So research during development is never-ending” (L1).

“We also have a relationship with the industry and that we've learned to use our municipal powers to help implement, like, monitoring programs, recommending research programs to make sure that there is a balance. We have a wealth of information to document. And that's why with the monitoring program, if there needs to be a change in the current stipulations to help minimize any potential impacts, we have that authority” (L4).

As shown above, “monitoring” was a prominent theme that emerged in the interviews, especially among Iñupiat leaders in the North Slope of Alaska. Ecological and biological research as well as monitoring focusing on community interests and subsistence needs help contribute to helpful information being generated from such research, leading to effective land use governance especially in the form of subsistence assistance immediately useful to communities. Leaders from the Department of Wildlife Management all mentioned how their Indigenous-centered and community-priority-driven approaches have helped consistently produce good research and contribute to appropriate policymaking. They also indicated that research exclusively conducted by outside researchers without Indigenous engagement, as well as Western land use governance strategies being imposed on Indigenous communities, are likely to be inaccurate and do harm to Indigenous communities. An Iñupiat leader recalled:
“All of a sudden we couldn't hunt because of research that was being done by outside people, with people managing without our consultation” (L4).

In contrast, research that combines the efforts of Indigenous Knowledge holders and Western scientists and follows the principles of true co-production of knowledge is likely to be more successful. A leader from the NSB Department of Wildlife Management eloquently explains their Inuit-centered approach:

“Our mission is to work for the communities, work with the communities, and produce good scientific research that helps answer the questions our communities are asking, but do it in a manner that's of scientific rigor and also ensure that we support our communities in that way ... we listen to the communities and produce information that is helpful for them, and helpful for us to communicate how things are to federal partners, state partners, and other organizations. We have in our department, subsistence research coordinators, subsistence research assistants on staff. And they work with the biologists directly to develop projects together. That makes integrating Indigenous knowledge into our research very much active” (L3).

With the increasing significance of self-determination and self-governance in the North Slope Borough, the efficacy and benefits of promoting Inuit-driven research have become more and more evident in land use governance.
8.2. Co-production of knowledge

Indigenous Knowledge holders can possess more place-based knowledge than Western scientists, and to achieve good governance and true co-production of knowledge, ethical collaboration and equitable co-production of knowledge are essential. The non-Indigenous biologists who were interviewed were very respected individuals who lived and worked in the North Slope for decades and contributed immensely to the communities when it comes to valuable research, and they emphasized the importance of being humble, learning the Inupiat ways, and directing research towards helping the communities:

“Local whaling captains and crews knew a lot more about whales than western scientists too ... our scientists live here and assimilate and learn from the culture that they live with” (B1).

“What am I most proud of? Professionally, I guess it's been helping promote scientific collaboration with the community. Take a year or two to learn the Iñupiat way, and lean it towards what can you do that's actually helpful to the communities” (B3).

An Iñupiat leader also recognized the contributions of non-Indigenous researchers in the North Slope and how the co-production of knowledge results in the most beneficial outcome:

“Because we're working together with our local hunters, knowledge holders, plus very well respected scientists, that really is the best of both worlds” (L3).
The benefits of the co-production of knowledge were highlighted by leaders and scientists in Alaska. However, this topic rarely came up in the interviews conducted in Norway. Therefore, there is potential for knowledge-sharing from Alaska to Norway regarding the success stories of the co-production of knowledge and the collaboration between Western scientists and Indigenous Peoples to achieve more effective and equitable land use governance. Given the changing climate and emerging land use conflicts related to industrial activities, the co-production of knowledge with the Sámi people may improve land use governance related to reindeer herding livelihoods, helping achieve the preservation of culture, the natural environment, and traditional ways of life.

9. Ethical research supports effective land use governance

As mentioned earlier, the leaders, academics, and locals were always asked in every single interview what advice they had for researchers and what Iñupiat Peoples in the North Slope or the Sámi reindeer herders in Norway were interested in. In the interviews, several pieces of advice stood out:

- Be open-minded.
- Indigenous Peoples are interested in knowledge-sharing.
- Be open to adjusting research directions.
- Do not duplicate research. Instead, empower capacity-building.
- Support Indigenous Peoples to lead research and train outside researchers.
- Build trust, learn, and serve community needs.

The advice above shows that following equitable and ethical engagement protocols in all stages of research and adjusting research directions based on community priorities can lead to the
development of more applied research projects that improve land use governance and serve community needs. In Norway, there are fewer discussions of ethical research compared to in Alaska, and there is a lack of formal protocols or guidance from Indigenous Peoples to researchers. This also reflects the lower level of urgency placed on Indigenous rights in Norway, leading to problems related to colonial research practices, research fatigue, or repetitive research, which are problems faced by many Indigenous communities including the Inuits which the ICC EEE protocols (which advocated for ethical, Indigenous-led research) focused on. However, as discussed earlier, relationship-building can help make progress in this aspect, and agencies and organizations such as the Sámi Parliament, the Sámi Council, and the reindeer herding associations can all play a role in pushing this initiative forward.
V. Conclusions

This research, through the thematic analysis of semi-structured interviews, informal interviews, and document review, analyzes the land use governance structures in Alaska and Norway in conjunction with their historical and socio-economic contexts and identifies the determinants of the present states of Indigenous engagement in decision-making processes. In doing so, this thesis highlights recent efforts and advancements in promoting Indigenous engagement in land use governance and provides insights into effective land use governance in the North Slope of Alaska and in Norway.

Previous research has studied land use governance and Indigenous engagement issues in the Arctic, most of which focused on a single country, with several studies using a comparative method, yet there is a gap in comparative studies on Alaska and Norway. Even though there is the challenge of producing insights applicable to both regions given the different socio-economic and historical contexts, this marked distinction in fact helps identify determinants of different levels of Indigenous engagement in land use governance and sheds light on potential paths forward that can be taken by government, industry, and communities in the Arctic region. In doing so, this thesis adds to current understandings of land use governance in the Arctic and encourages more Indigenous engagement and knowledge-sharing of successful practices across communities.

In the case of North Slope, Alaska, Iñupiat Peoples have proven that Indigenous self-determination and self-governance are extremely effective in achieving successful land use governance and sustainable development. Having Iñupiat Peoples as partners leads to great governance outcomes, and more resources from institutions as well as the state and federal
government should go towards empowering this self-determination. Self-determination and self-governance that involve community meetings, constant reporting, and community-centered stipulations not only help decolonize land use governance and address past and present social and environmental injustices, but also facilitate positive relationship-building and ethical collaboration between government, industry, and communities that will ensure the wellbeing of the communities and the lands that they have been good stewards of. The Indigenous experience in the North Slope of Alaska proves that self-determination is the most effective in achieving a balance between preserving traditional subsistence livelihoods and taking advantage of the new economic opportunities brought by modern industrial development.

In Norway, there are structures and legal frameworks that make the government obligated to protect Sámi rights and livelihoods, but these structures are considered by some Sámi reindeer herders as ineffective as they have not achieved a high enough level of self-determination for Sámi reindeer herders to steer policymaking to meet local priorities, even though channels for negotiations, consultation, as well as the development of regulations related to industry land use and reindeer-herding management exist. There is a lot of room for improvement in terms of facilitating effective dialogues and reaching decisions that are appropriate for specific district and local-level contexts. Furthermore, when Sámi Peoples are represented on district-level decision-making boards as well as nationally through the Sámi Parliament, decisions reached may be more helpful to the preservation of traditional reindeer herding livelihoods. One key analysis in this research is that opportunities to improve Sámi engagement exist: given the very different historical and demographic background of Sámis in Norway compared to Iñupiats in Alaska, self-governance is more difficult to be achieved and also needs a different approach based on the distinct Norwegian context, but Sámi organizations and communities can achieve
success through working within the Norwegian structures, increasing representation on decision-making boards at municipal, regional, and national levels, and indigenizing decision-making and meet Sámi priorities.

Overall, even though Alaska and Norway share similar challenges related to climate change and finding a balance between industrialization and the preservation of traditional livelihoods, their very different historical and socio-economic contexts led to different levels of emphasis on Indigenous engagement in their governance structures. These structures are therefore path-dependent, yet there are still plentiful opportunities for knowledge sharing to enhance the integration of Indigenous Knowledge and input in land use governance, helping stakeholders fully utilize “the best of both worlds” and make decisions that minimize conflict, address colonial legacies and injustices, and contribute to the long-term sustainability of lands inhabited by Indigenous Peoples and the wellbeing of Indigenous communities.

There are some limitations to this thesis. First, the comparative analysis is asymmetrical, with a heavier focus on Alaska. In an ideal situation, interview subjects would include more Sámi reindeer herders, Sea Sámis, leaders in Sámi organizations and reindeer herding associations, as well as government officials who are involved in national-level and district-level decision-making related to industry project approval, licensing, and reindeer herding governance. Leaders and locals of these backgrounds were recruited in Alaska, which led to a more comprehensive understanding of the land use governance processes as well as the steps the NSB plans to take to address challenges related to risk mitigation, balancing community and industry interests, as well as communicating with the State and Federal governments about their climate change adaptation and energy transition agenda. Relevant perspectives were shared in interviews conducted in Norway, but the accounts from non-Sámi academics should be considered
second-hand evidence and were more indirect by nature even though they were based on extensive research as well. Future research should aim to fill these gaps, especially in Norway, while taking into account ethical research guidelines and community interests to alleviate research fatigue and produce outcomes that contribute to the needs and priorities of Indigenous communities.

**Additional reflections and remarks**

Through practicing the research paradigm shift where Indigenous Peoples take the lead and help shape research questions in the research process, this thesis also demonstrates the benefits of being open to adjusting research directions based on community needs, interests, and priorities. Asking community members about their interests and expressing the willingness to adjust research directions help build long-term trusting relationships that will benefit future research and co-production of knowledge and learn the most pressing issues in the community that they hope to resolve with the collaboration of outside researchers. The research paradigm shift is a process and joint effort from scientists, researchers, as well as government and funding agencies: scientists are advised to learn about community needs before developing a project, be open to pivoting, and center their research around serving community needs; government and funding agencies are advised to devote more resources directly towards Indigenous-led research and capacity building to minimize the unusability or duplication of research.

As the research paradigm shift is linked to true co-production of knowledge where Indigenous Peoples take the lead, current efforts in promoting the co-production of knowledge shall be advanced; the guidance and proposals provided in the reports and literature by the Office of Science and Technology Policy & Council on Environmental Quality (2022), Ellam Yua et al.
(2022), and many others provide comprehensive guidelines for researchers. For future research and policymaking efforts, what is needed will be more implementation on the ground and more dedicated support from all stakeholders to turn these proposals and guidelines into tangible, positive impacts in Indigenous communities regarding land use governance and scientific research, which may have potential benefits that exceed local scales through cross-community sharing of science, knowledge, and lessons learned.
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Political ecology and decolonial research: Co-production with the Iñupiat in Utqiagvik.

Sun 166
Appendix 1. Informed consent

Appendix 1.1. Informed consent (printed)

DARTMOUTH COLLEGE

Oil and Gas Extraction in Arctic Alaska: Indigenous Communities’ Perspectives on its Impacts

RESEARCH PROJECT INFORMATION SHEET

This research project is being conducted by an undergraduate student, Ningning Sun, and Professor Ross Virginia from the Environmental Studies Department at Dartmouth College, Hanover, NH, USA. It is a study of the various impacts of oil and gas extraction on Arctic Indigenous communities and the Indigenous Peoples’ perspectives on the industry.

Your participation is voluntary. Participation involves a 30-minute semi-structured interview.

You may choose to not answer any or all questions. With your permission, the interview will be audio recorded. You may request that the recording be stopped at any time. The audiotapes will be transcribed and destroyed at the end of the project.

The information collected will be maintained confidentially. Names and other identifying information will not be used in any presentation or paper written about this project unless with your permission.

Questions about this project may be directed to:

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Professor Ross Virginia, Environmental Studies Department at Dartmouth College
Ross.A.Virginia@Dartmouth.EDU
Appendix 1.2. Informed consent (oral)

Obtaining consent at the start of every interview:

- My name is Ningning Sun, a junior at Dartmouth College, and I am a student researcher at Dartmouth College Institute of Arctic Studies. This interview is for a two-year independent research project funded by Dartmouth College and the Stamps Foundation, and I work with Professor Ross Virginia and Professor Melody Burkins. The project aims to learn about perspectives on oil and gas development in the North Slope, including its benefits, impacts, relationship with subsistence lifestyle, etc.
- Your participation is voluntary and you can end the interview or skip certain questions at any time if you wish to do so.
- I will make sure to give you credits and share outputs with you.
- May I know if you would feel comfortable for me to record this interview?
- Do you have any questions before we start?
Appendix 2. Interview guides

Appendix 2.1. Utqiagvik, Alaska

Background Information
1. For leaders / government officials / academics:
   a. I read about the great work done by [your organization], especially when it comes to [give details]. Could you tell me a bit more about your work at [your organization], e.g. projects and initiatives that you spend the most time on?
2. For local hunters / oil field workers:
   a. Could you introduce your background a little bit, and your involvement with subsistence hunting/gathering or oil and gas industry or both?
   b. What does a typical day look like at oil field?
   c. What does a hunting trip look like?
   d. Where do you go hunting, and what seasons?

Impacts of oil and gas development
1. According to your experience in [your organization] and also living here for many years, when it comes to oil and gas development, it brings economic benefits and job opportunities for Indigenous Peoples but also multiple social and environmental impacts. I wonder among all the impacts, whether it be positive or negative or somewhere in the middle, what have been the most prominent impacts?
2. How has people's perspectives changed when it comes to the benefits and impacts brought by the infrastructure?
3. What’s your opinion on offshore development?

Experiences with climate and environmental changes
1. Have you seen environmental changes over time happening over the land and waters?
2. Have you seen changes over time with the behavior of animals you hunt? Do they come at different times now?

Industry’s efforts to mitigate negative impacts
1. How is the oil and gas industry doing regarding environmental monitoring, clean up, and ecosystem protection in general, in order to mitigate negative impacts?
2. What are some monitoring/mitigation efforts that the oil companies are doing that you think are working well? What would be something you think they are not doing enough and should put more efforts to?
3. Are there subsistence advisors for the oil companies?
Government’s efforts to mitigate negative impacts
1. What might be some mitigation efforts that leaders are working on to protect the animals? What are some success stories and examples?
2. How has science and research been contributing to environmental governance?

Balance between industry development and subsistence
1. According to your experience and what you have seen and heard, has Indigenous Peoples’ subsistence and traditional lifestyle got adapted or developed to some extent because of the entry of the oil and gas industry? If so, how?
2. There’s the important consideration about balance, and how do you think communities find a balance between developing infrastructure and generating income for the region, while ensuring minimal impact on plant and animal life and subsistence livelihood? How do you and other leaders at [your organization] help achieve such balance and create a mutually beneficial situation for the Indigenous communities?
3. I've heard some people might work in oil and gas, maybe in Prudhoe Bay for a little bit and then come back and the money can be used to, just as you mentioned, to buy snowmobiles, snow machines. What does it look like? Or what's the split – how do people find a balance in that kind of employment?
4. Different communities may have different priorities, some favoring the income brought by oil and gas and some prioritizing subsistence like Nuiqsut — I wonder on a Borough level, what ideas or initiatives do you think have been more well-accepted or working well in terms of the future development of communities in general? What progress or common ground have been found across different communities?
5. How do you see the future of subsistence livelihoods as well as the oil and gas industry in the North Slope develop at the same time? What do you think has been working well that will carry towards the future, and what do you think can be done more to help achieve a better future?
6. What other kinds of development other than oil and gas do you think are coming to the North Slope and what do you think are the opportunities and changes that they would bring and how would they coexist or complement the already existing and very big oil and gas industry here? What are the developments that people are most interested in?
7. For local hunters / oil field workers:
   a. With the industrial development in the North Slope growing over the years, has hunting become easier with economic benefits, or harder for some reasons?
   b. How has the entry of the oil and gas industry, or industrial development in general, influenced people’s lifestyles? For example, I heard that some people go hunting during harvest season and then go work at oil fields during other times, and the division of labor in the household also changes. I wonder what are some examples or trends you have seen regarding subsistence and wage employment?
Indigenous engagement, community meetings, and multilateral dialogues

1. How do different institutions, like you mentioned Native Corporation, the city, the tribe, and also community members who don't hold positions in these organizations work together and decide on what works the best for the community's way of life and future development? What does the process look like?
2. When it comes to deciding what projects to be approved or implemented, what's the status quo of self-determination like?
3. How has Indigenous Knowledge been integrated into decision-making?
4. For local hunters / oil field workers:
   a. When you have some concerns or opinions about industrial development or oil and gas, or you need some information regarding subsistence, who do you go to? Do you go to village meetings?
   b. What do you think matters the most to you and to the Indigenous community in the North Slope regarding oil and gas extraction, or development and future growth in general?

Relationship-building

1. Over the years, how has the relationship between Indigenous communities in the North Slope and the companies changed or developed over time?

Advice for ethical research

1. Are there questions I have not asked you but you think are important to consider for my study, or any areas that you think Inupiat communities will be more interested in and see more efforts about? I'm willing to modify or expand the direction of the projects to do things that the communities care about or in areas that your communities are interested in.
Appendix 2.2. Norway & Finland

Impact of industry on Indigenous livelihoods and culture
1. When it comes to extractive land use such as wind farms, it brings economic benefits and possibly also job opportunities for local communities such as Sámi reindeer herders, but also multiple social and environmental impacts. I wonder among all the impacts, whether it be positive or negative or somewhere in the middle, what do you think are the biggest impacts that the Sámis talk about and engage in decision-making the most?
2. Is the development of industries in Norway (wind, LNG, mining) posing a threat to Sámi cultures and languages in some ways? What has been some of the work being done regarding this?
3. When it comes to LNG operations in Arctic Norway like in the Hammerfest area, a lot of discussions focus on its impacts on fishing, since it’s offshore. I wonder how the LNG development in Arctic Norway impacted reindeer-herding Sámis, coastal Sámis, and non-Sámis in different ways, and what are the impacts? Are reindeer herders in surrounding areas of Hammerfest impacted by offshore oil and gas development in some ways too, such as transportation or pollution?
4. Could you talk a little bit more about what the impacts of wind energy and natural gas development on Sámi youth, and what has been done to create a better future for them?
5. I wonder how the LNG development in Arctic Norway impacted coastal Sámis, reindeer-herding Sámis, and non-Sámis in different ways (and what are the impacts)? Are reindeer herders in surrounding areas of Hammerfest impacted by offshore oil and gas development in some ways too, such as transportation or pollution?

Balance and controversy regarding energy transition
1. Compared to oil and gas development, is wind energy development less controversial to the Sámi Peoples and other local communities because it’s considered green energy and can help with green energy transition and address climate change? Do you think the question about finding a balance between industry land use and traditional livelihoods will be a bit different and nuanced because of this, compared to the land use of extractive industries like oil and gas? How does the government balance energy transition goals and Sámi reindeer herders’ demands?
2. When it comes to land use in Finland and Norway, there’s the important consideration about balance, and how do you think government, industry, and communities find a balance between extractive land use and generating income for the region, while ensuring minimal negative impact on the environment and Indigenous livelihoods like Sámi reindeer herding? How have the government, industry, and communities been trying to create a mutually beneficial situation for the region and the communities?
3. Could you tell me more about what are some ways or stories where Sámi Peoples have tried to find a balance and adapted to industrial development and new circumstances?
4. How do you see the future of Sámi traditional livelihoods as well as land use and industry in Norway develop at the same time? What do you think the future will look like?

**Industry’s efforts to mitigate negative impacts**
1. With the development of extractive industries such as mining and oil and gas extraction, how well do you think the industry in Fennoscandia is doing regarding environmental monitoring and ecosystem protection in general, in order to mitigate negative impacts? How have science and research been contributing to the improvements?

**Indigenous engagement & governance structure**
1. When it comes to environmental-related concerns like wind farms in Fosen and LNG operations in the Arctic, how do Sámi community members and the Sámi Parliament affect decision-making in real life? What has been some success stories and some challenges of advising the industry and working with the government?
2. How do Sámi community members and the Sámi Parliament influence decision-making?
3. I wonder when it comes to actual implementation, do reindeer herders play a big role in advising the industry? How much power do they have in permitting and stopping potentially problematic projects or initiatives by the industry?
4. What do Sámi Peoples in particular think about the government’s support for them? What do you think are the areas of improvement for the government?
5. What do the power dynamics look like regarding the monitoring and regulation of operations of big projects like LNG plants and wind farms?
6. Do (locals and) Sámi People consider the distribution of economic benefits / tax revenue to the communities as equitable enough, or helpful enough to community development?
7. With the development of extractive industries such as oil and gas extraction and mining and fishing, how well do you think the industries in Norway are doing regarding environmental monitoring and ecosystem protection in general, in order to mitigate negative impacts on the environment and communities? How have Sámis and Sámi knowledge been contributing to industry monitoring/regulations?
8. What are the ways that the industry/government has done well and what are some challenges regarding sustainability and environmental justice for Indigenous Peoples and local communities?

**Relationship-building**
1. Over the years, how has the relationship between Sámi Peoples, local communities in Norway, and the extractive industries changed or developed over time?

**Social cleavages and differences**
1. Do Sámis and non-Indigenous Norwegians have different priorities?
2. For Sámi reindeer herders and commercial fishermen in Norwegian coastal towns like Hammerfest, I am curious what are some similarities in the challenges they face regarding the extractive industries (e.g. wind farms and oil and gas), and what are the differences?