Confronting the Norwegian Paradox

Decomposing socio-territorial conflicts through modern and indigenous worldviews on time and space in Finnmark, Norway.



Boaz Peters
P5 report

Cover photo: inside of Steilneset Memorial, Vardø. Made by author.

Poem: Snyder, G. (1974). For the Children. *Turtle Island*; New York: New Directions.

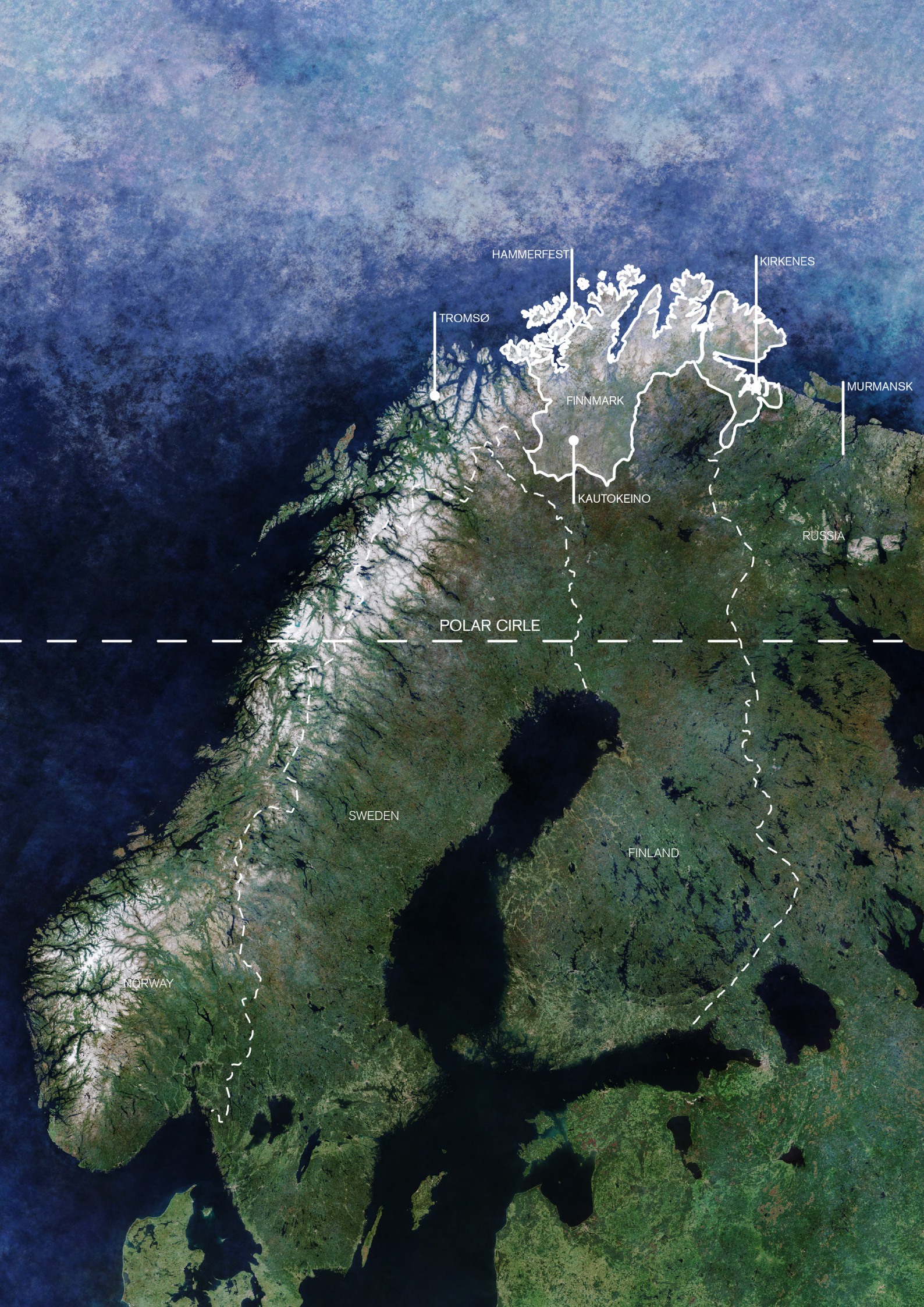
For the children
Poet Gary Snyder

The rising hills, the slopes,
of statistics
lie before us.
The steep climb
of everything, going up,
up, as we all
go down.

In the next century
or the one beyond that,
they say,
are valley, pastures,
we can meet there in peace
if we make it.

To climb these coming crests
one word to you, to
you and your children:

stay together
learn the flowers
go light


HAMMERFEST
KIRKENES
TROMSØ
MURMANSK
FINNMARK
KAUTOKEINO
RUSSIA
POLAR CIRLE
SWEDEN
FINLAND
NORWAY

Transitional Territories Graduation Studio

Department of Urbanism, Faculty of Architecture and the Built Environment
Delft University of Technology

Author:

Boaz A. Peters
boazpeters@gmail.com

Supervisors:

First mentor - Dr. Luisa Maria Calabrese
Second mentor - Dr. Daniele Cannatella

P5 Report
July, 2020
Department of Urbanism, Delft University of Technology
Research Group:
Delta Urbanism

Keywords: oil & gas, industry, territorialization, indigeneity, Hammerfest, Norway

Figures

◀ 1.1 Location of Finnmark on the Fennoscandian Shield.
Modified mosaic of modified Copernicus Sentinel data (2017), processed by Sinergise/ESA.

Abstract

The thesis describes the development of the oil and gas industry in Arctic Norway. This sudden increase in wealth is causing urban developments and strong inequalities across different scales. Furthermore, it is causing friction between indigenous Sámi and non-indigenous worldviews, sustained within the culturally fragile county of Finnmark. The role of the Norwegian state is notably dubious - both historically and presently – by instating policies aimed at development through a modern lens and wealth from oil and gas extraction – especially in the city of Hammerfest. The fixation of space through this concept is disinheriting indigenous people as well as the climate, landscape and socio-economic state of Finnmark. Reindeer herders have a different conceptualization of time and space, accumulated through centuries of observation and adaption to the seasonal cycles, and is highly dependent on the flexibility for their herds. Conflicts arise due to increasing urbanization impeding Sámi movement, creating a socio-territorial paradox. Strong uncertainties arise: will the oil and gas industry continue as planned by the Norwegian state? How does this relate to the vulnerable path-dependent relationship with the fossil industry in the future? Will development on the mainland further impede the ability of traditional practices?

Through an understanding of different temporalities within urban planning and indigenous herding knowledge, the argument of the thesis unfolds over an in-depth spatiotemporal and on-site analysis of the island of Kvaløya. I argue that the triangulation of spatial modeling, research by design, cinematographic strategies and the integration of indigenous knowledge can help in improving the agency of mapping. I argue that the we should look more critically at the role of the modus operandi of urbanists and decision-makers, in their capacity of influencing and shaping the conceptual framework on which decision making is based, especially in the highly uncertain and contested territories.

The thesis then moves towards a possible way forward by integrating the (indigenous) knowledge into scenarios through transtemporal and transscalar mapping and 3d modeling. I end by arguing that the incorporation of both practical and conceptual knowledge of the territory and the ability to share and communicate this knowledge between academics, practitioners and stakeholders is critical to confront this uncertainty. The flexible and adaptive knowledge of indigenous people could therefore help into planning and decision-making processes. This will help to foster trust and build consensus among indigenous and non-indigenous participants for future decision-making. Ultimately it is a tool for (co-)creating awareness, action and allowing space for Sámi agency.

Acknowledgments

During the process of research and writing this thesis I owe my gratitude to a number of people who helped and supported me in overcoming the complexity of graduating. In particular, I would like to thank my two supervisors. Luisa Calabrese, for the inspiring discussions, which were always sharp and thought provoking. I am very grateful for her continued support for my thesis and the making of our documentary. Daniele Cannatella, for the sharp comments and sometimes providing a gentle push. I would like to thank both of them for the combined discussions and always being available for support.

I should also thank Taneha Bacchin, for the inspiring discussions at the start of my thesis and especially for setting up the beautiful Transitional Territories studio that inspired me to explore the complexities of the Arctic. All the organizers of the Transitional Territories studio, who helped to set up the studio, field trip, the various exhibitions and the inspiring lectures throughout the year. My fellow studio members for the interesting discussions and the combined analysis where the inspiration of this project started.

The organization of the Architecture Film Festival in Rotterdam and Budapest Architecture film days, for supporting our documentary and the exiting time at the film festivals. As well as allowing us to expand and introduce our findings to a wider audience. In Norway, I owe a large debt of thanks to Aslak Sokki, Siv Merethe Sara & Per Alf Sara and Atle Staalesen, for the inspiring talks and supportive comments on the documentary which helped greatly to inform the thesis.

The TU Delft and the Faculty of Architecture and the Built Environment, for providing an extensive knowledge infrastructure that I was allowed to explore throughout my bachelors and masters. I believe that an inspiring environment where knowledge is exchanged between academics and students is crucial in confronting issues in the built environment and society itself.

I would like to thanks also Mark Slierings, for conducting the field trip together which changed both our lives, and the continued discussion about both of our theses. All the friends that I've met at the TU Delft, and in particular: Thomas Antony Dillon, Diego Moya and Fransisco Monsalve and the members of the UL week Committee 2018, for the stirring discussions and support in the Urbanism studio.

I owe my greatest gratitude to Janneke Adema, for her continued love, support, patience and faith in me and for her massive help and support throughout the project.

I acknowledge with great thanks the massive support and encouragement that André Peters, Gemma Sanders and all of my friends and family have given me during the whole research project. Lara Peters in particular for proof reading my thesis.

Thanks to all of you to helping me maintain my focus, energizing me and understanding the complex world we live in a little better. Without you all I would have not been able to finish this thesis, a goal that sometimes felt impossible to reach.

Table of contents

01. Introduction 9

- Anthropocene
- Planetary Urbanization
- Petromodernity
- Traditional Knowledge

02. Context 15

- Global trends
- North Sea - *trajectories of change*
- Sea ice recession
- Arctic oil
- Indigenous peoples
- Access and inequity of distribution
- Norway
- Conclusion

03. Methodology 33

- Introduction
- Problem statement
- Research questions
- Research aim
- Sub-research questions
- Methods description
- Research framework

02. The Norwegian Paradoxes 45

- Norwegian climate paradox
- Cultural preservation paradox
- Conclusions

05. Fieldtrip & Documentary 57

- Introduction
- Objective
- Journal setup
- Excerpt of Journal: *Hammerfest*
- Documentary NORTHBOUND
- Conclusions

06. Spatial Analysis 83

- Introduction
- Regional context - *Finnmark*
- Land use and land cover - *Kvaløya island*
- Industrial and urban impact - *Kvaløya island*
- Conclusions

07. Temporal Analysis 101

- Introduction
- Extreme weather seasonality
- Sámi seasonality - *'Jahkodat'*
- Oil temporality - *'Oljeeventyret'*
- Conclusions

06. Spatio-temporal Analysis 115

- Introduction
- Part 1: Reindeer reconstruction - *Kvaløya*
- Part 2: Diachronic analysis - *Hammerfest*
- Conclusions

09. Scenarios 153

- Introduction
- Scenarios set-up
- *More oil*
- *Rejected oil*
- *After oil*
- Scenario assessment and approach
- Strategic actions and tool recommendations
- Conclusions

10. Conclusions 197

- Research outline
- Methods
- Part 1: *Exogenous mechansisms*
- Part 2: *Endogenous mechanisms*
- Part 3: *Deconstruction of the map*
- Part 4: *Reconstruction of the map*
- Outcome
- Recommendations

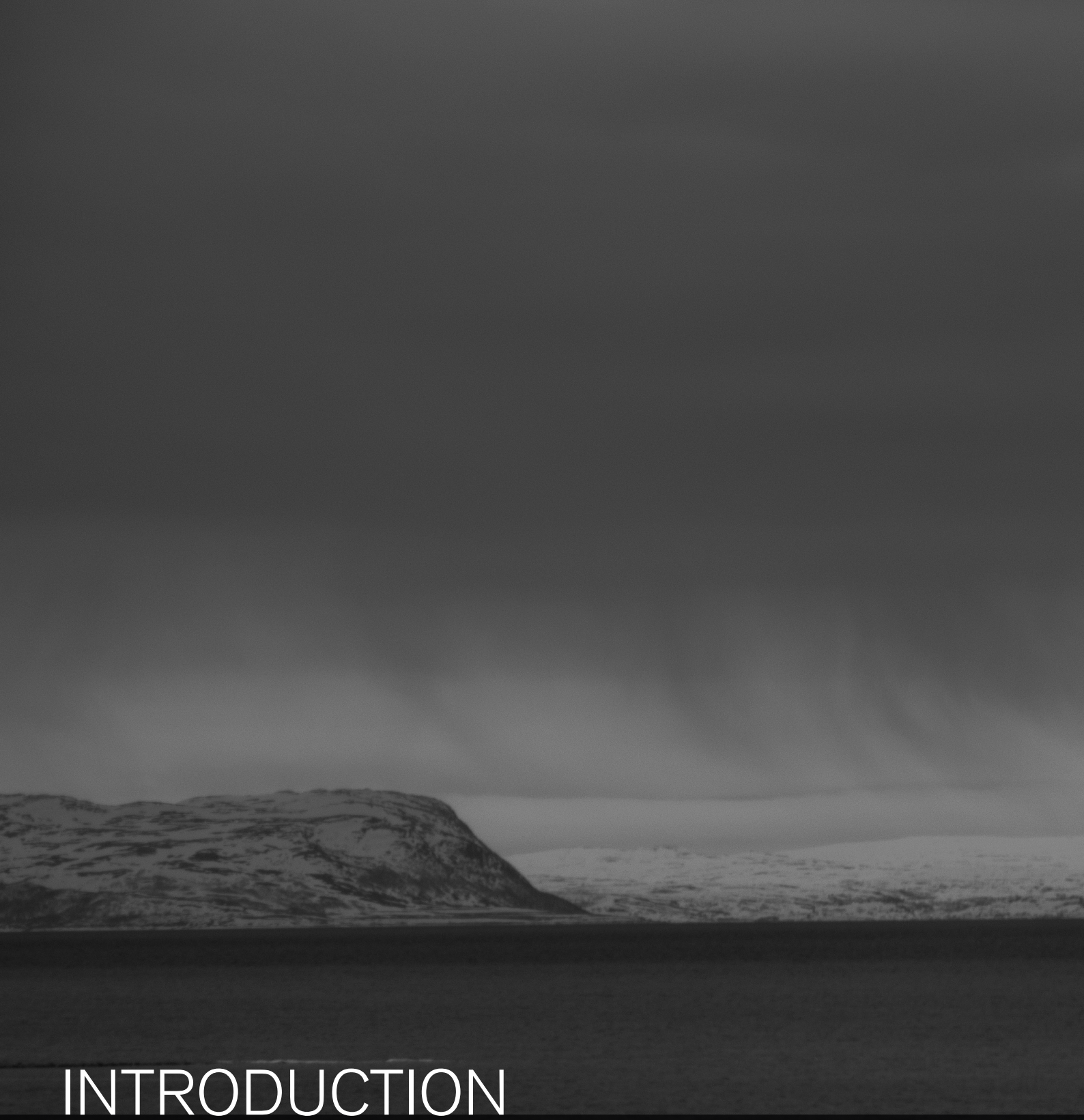
11. Reflection 203

- Research and design
- Research studio topic: *Transitional Territories*
- Scientific relevance
- Ethical issues and considerations
- The role of Urbanism

12. References 209

13. Appendix 225

- Theory: *The Urban Territory of Extraction*
- Field trip & documentary - *Full chapter*
- TT *Symposium*: *Image, model and letter*
- Studio work: *book of tides*



INTRODUCTION

01.



"If we dig precious things from the land, we will invite disaster."

Hopi saying from the motion-picture "Koyaanisqatsi" (Reggio, 1982)

Greenhouse Gas Emissions Accelerate Like a 'Speeding Freight Train' in 2018

Russia and China vie to beat the US in the trillion-dollar race to control the Arctic

Sámi reindeer herders struggle against Arctic oil and gas expansion



Norway's Green Delusions

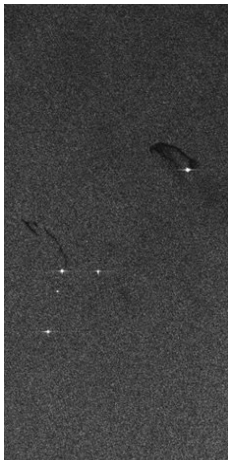
Norway unemployment rate quadrupled over the last two weeks

Report: we have just 12 years to limit devastating global warming

Both Climate Leader and Oil Giant? A Norwegian Paradox

Petroholic Norway steers towards more oil





01. Introduction

> "The Anthropocene is an epoch in Earth's geological history associated with the results of human impact on the environment. [...] Today, we annually consume the equivalent of the animal and plant material that lived on the entire planet for 400 years. Nation states that colonised territories near and far, and modernised themselves have become a metabolic force of the Earth, responsible for material transfers on an unprecedented scale."[1]
>
> Ptak and Wawrzyńczak (2018).

Anthropocene

The Anthropocene has emerged as an interdisciplinary field of research, to analyze and understand the effects of the human race on the earth system. Since it's introduction into modern research paradigms, it's linkages are finally starting to direct contemporary research towards the connections between natural resources below the underground and cultures on the ground. The emergence of the Anthropocene within the field of geoscientists asks for a deepened understanding of formed resources as a result of the processes of the earth, to be strongly interlinked with ideology and culture. Gradients of urbanization becomes a central notion as to enable and maintain access to resources on a planetary scale.

Planetary urbanization

The urban question has long been the center point of debate among researchers. Despite a variety of studies "regarding the role of cities, urbanism, and the urbanization processes in ongoing global transformations"[2], our urban field has been focused too much on the mapping of human settlements. The city has been the primary subject of urbanism, but there are more things to look at. What are these objects of interest and why do urbanists need to concern themselves with them? These are relevant questions at date. Brenner and Schmid note that:

> "We require adventurous, experimental and boundary-exploding methodological strategies to facilitate the empirical investigation of these processes. Whether or not a distinct field of urban studies will persist amidst such theoretical, conceptual and methodological innovations is a question that remains to be explored in the years and decades ahead."[3]

Citations

[1] Ptak and Wawrzyńczak (2018), *Amplifying Nature: The Planetary Imagination of Architecture in the Anthropocene.*

[2] Brenner, N., & Schmid, C. (2017). Planetary urbanization.

[3] Brenner, N. (2014). Implosions/explosions. Towards a Study of Planetary Urbanization.

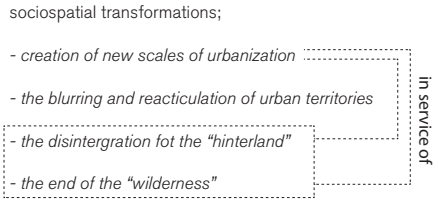
Figures

◀ 1.2 Newspaper headlines.

◀ 1.3 Greta Thunberg at a climate strike with Sami children in Jokkmokk, Sweden. © EFE.

◀ 1.4 Oil platform in the Norwegian Sea. © Jarvin Jarle Vines.

◀ 1.5 Regulated water release from Norwegian oil platforms, containing small amounts of oil substances - yet not enough to violate regulations. © ESA.



Arctic interests

This research focuses on the sociospatial transformations in Arctic. As the interest of extractive industries in Arctic territories is continuously growing - in large part due to the sea ice recession and climate change - governments and countries try to benefit, underestimating the impact of these industries on the landscape and subsequently on local traditional cultures. This thesis researches firstly what the impacts of these industries on actors and systems are and secondly how we can analyze their impact from a more holistic point of view.

The Norwegian paradoxes

Amidst global concerns for the growing amount of carbon dioxide, Norway presents itself actively on the forefront on issues like sustainable energy, deforestation and forest degradation[1]. Paradoxically, export figures of crude petroleum, refined petroleum and petroleum gas account for almost 57% of Norway's total export figures[2]. We're used to thinking of Norway as a wealthy and environmentally friendly country, yet somehow we have more trouble in perceiving Norway as a country that has built this wealth on the basis of the extraction of oil and gas, which in turn helped degrading the environment on a global level.

This dichotomy can be traced all the way down to local decision-making. The town of Hammerfest, in northern Norway, has become the central point for the arrival of a natural gas pipeline, connecting the Snøhvit gas field with the island of Melkøya, just off the coast of Hammerfest. This has initiated a number of industrial developments related to oil and gas extraction and logistics. Meanwhile, the indigenous Sámi that have resided in these areas for many years fear that ongoing industrial developments to achieve governmental goals of extraction will damage the traditional livelihood of the Sámi, and in particular reindeer herding and its traditional ecological knowledge systems.

Traditional ecological knowledge

Different worldviews relating to a different usage and understanding of space and time between indigenous and non-indigenous peoples is creating friction in the area, and impedes the trajectory of equitable decision-making. In this thesis I want to find ways of integrating Sámi perceptions on space and time, in order to analyze the strength of the impacts from possible developments of the oil and gas industry, which could help to understand the damages from the industries to the Sámi of the reindeer herding district Fálá.

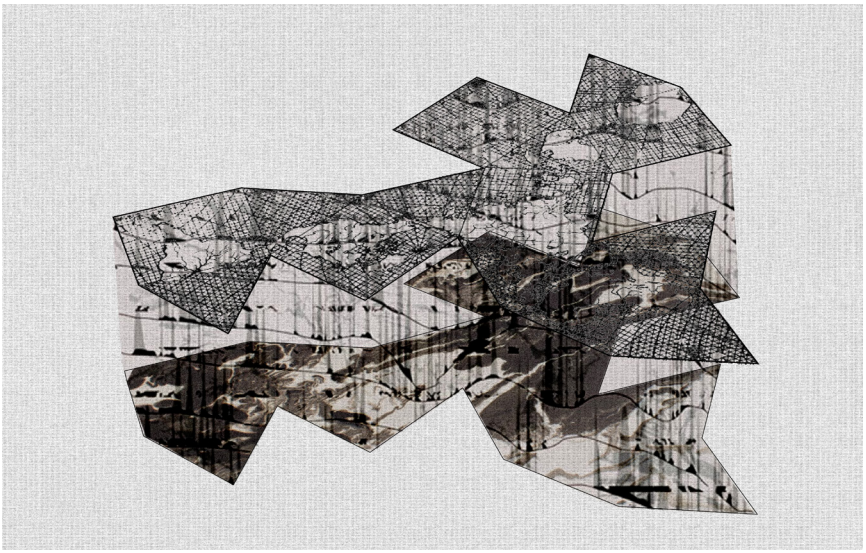
Citations

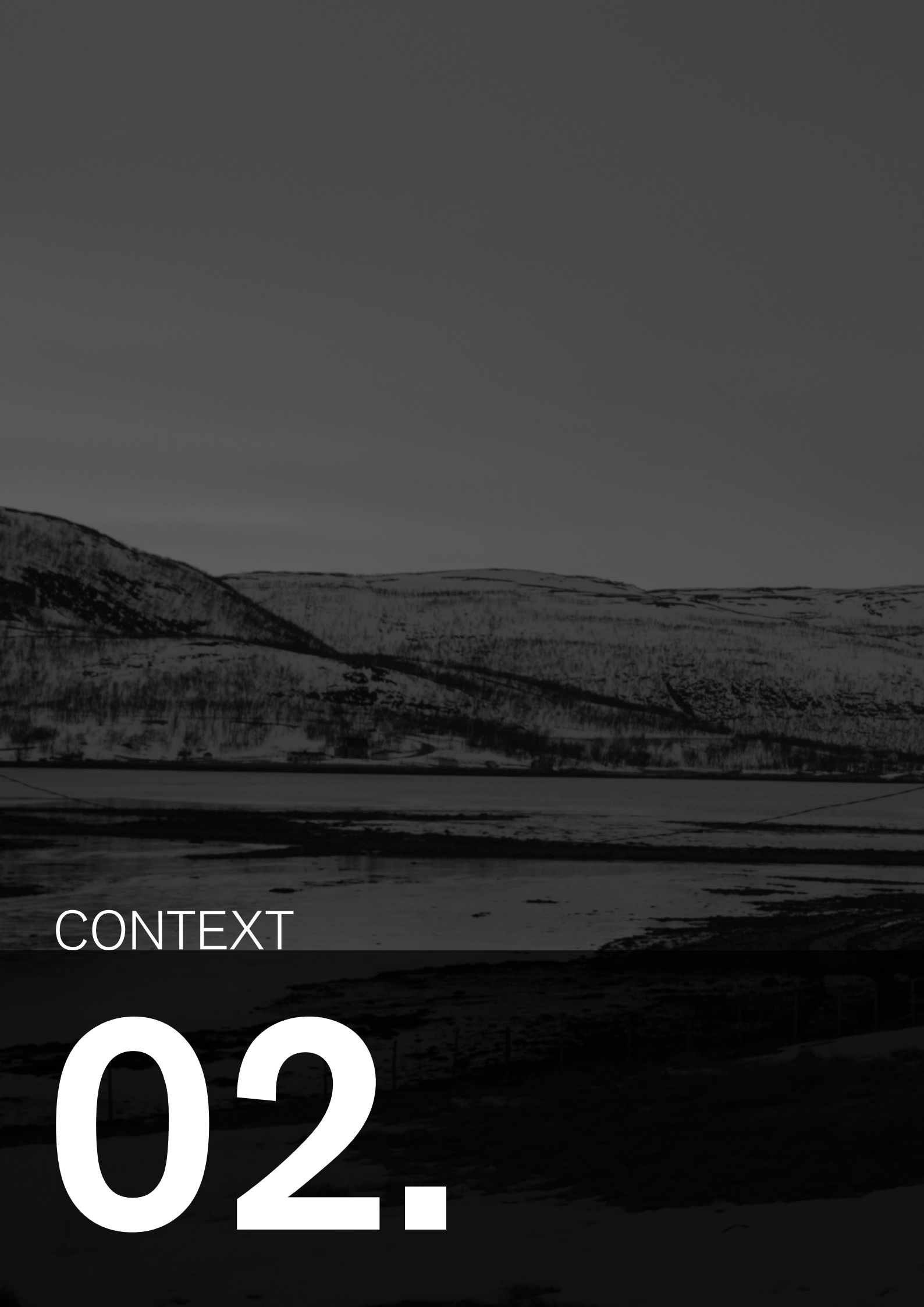
[1] SGI Network. (2019). Norway - Environmental Policies.

[2] OEC. (2017). The Observatory of Economic Complexity.

Figures

◀ 1.6 Territorial projection of oil.
Collage made by author from a collage of images; Felipe Correa, The Section as a Tool: A Regional Framework for Alexander von Humboldt's Avenue of the Volcanoes, 2004.





CONTEXT

02.



"In at least two senses, all cities can be described as colonial: at the local level, the powers that form them organize their hinterland and live off the surplus the non-urban realm provides. At the global level, existing cities organize the surplus both of their own society as well as that of others overseas; the local relationship of town-to-country becomes the metropolis-colony connection on a world scale."

King, A. D. (1990). *Urbanism, Colonialism, and the World-Economy: Cultural and Spatial Foundations of the World Urban System.* Routledge & Kegan Paul.

02. Context

Global trends

We are in a global climate crisis. In order to reach the goal set by Paris Agreement in 2016, the global fuel consumption has to change radically. However, global fossil fuel consumption is still growing as new economies are on the rise. And while environmental concerns regarding the decreasing ice caps are widespread, chances for economic growth increase for countries in the Arctic. Climate change is accelerated in Northern regions – as shown in the figures on the next page - and recent satellite observations suggest that our climate model simulations may even underestimate the melting rate[1,2] However, the opening for the Arctic is economically beneficial for different reasons.

It opens the possibility of the Northern Sea Route between North-East Asia and North-Western Europe, which will present a sizable reduction in shipping distances and a decrease in transportation days by one-third[3].

The Scandinavian countries benefit from a more developed infrastructure. Now that trading routes across the north pole are becoming an option, these countries stand to gain large economic profits, due to better accessibility and a more rapid dispersal of goods.
The growth of ports in Northern Norway and the Murmansk Oblast region of Russia already show that this trend is likely to continue, especially given growing consumption of s and energy globally. An example of this is the interest of Chinese investments into the Arctic Corridor project, which is investing into a new port and train connection in Kirkenes[4]. This economic development present new opportunities for local economies, but at the same time threatens the environment and local indigenous practices.

Petroleum and other extractive industries contribute to increases in economic and job security and therefore in the economic development in Northern countries. Yet, these industries are also heavily subject to fluctuations, as history shows us. Price drops in oil in forced Statoil (now Equinor) and other to cut more than 35,000 jobs since 2014, a mere 2% increase in unemployment in Norway[5]. On top of that, it is expected that oil and gas reserves will quickly deplete with the current energy demand (figure 2.1 on the right).
Since early 20th century, through what can be described as relatively stable politics, in which the social democratic Labor Party (*Arbeiderparti*) has dominated the Norwegian Parliament (*Storting*). Because of this model of social democracy, Norway has always sought to guide the extraction of oil and gas, an make sure that the inhabitants take part in its wealth. This resulted in the sovereign wealth fund also known as the Oil Fund (*Oljefundet*). Today, this fund is worth over 1.150 billion dollar, and is the single most largest sovereign wealth fund in the world. To illustrate that Norway has a moral obligation to act against global inequities (also caused through strong climatic disruptions): the world population is now estimated at almost 7.8 billion people, Norway has less than 5.4 million people, which is about 0.07% of the total population. This 0.07% benefits from the world's largest wealth fund, while around 10% of the world lives in extreme poverty conditions[6].

Citations

[1] Kattsov, V. M., Ryabinin, V. E., Overland, J. E., Serreze, M. C., Visbeck, M., Walsh, J. E., . . . Zhang, X. (2010). Arctic sea-ice change: a grand challenge of climate science.

[2] Rampal, P., Weiss, J., Dubois, C., & Campin, J. M. (2011). IPCC climate models do not capture Arctic sea ice drift acceleration: Consequences in terms of projected sea ice thinning and decline.

[3] Bekkers, E., Francois, J. F., & Rojas-Romagosa, H. (2018). Melting ice caps and the economic impact of opening the Northern Sea Route.

[4] Arctic Corridor. (2019). Growth Through Arctic Resoures - A rising cross-border economic area.

[5] Wilson, E., & Stammler, F. (2016). Beyond extractivism and alternative cosmologies: Arctic communities and extractive industries in uncertain times.

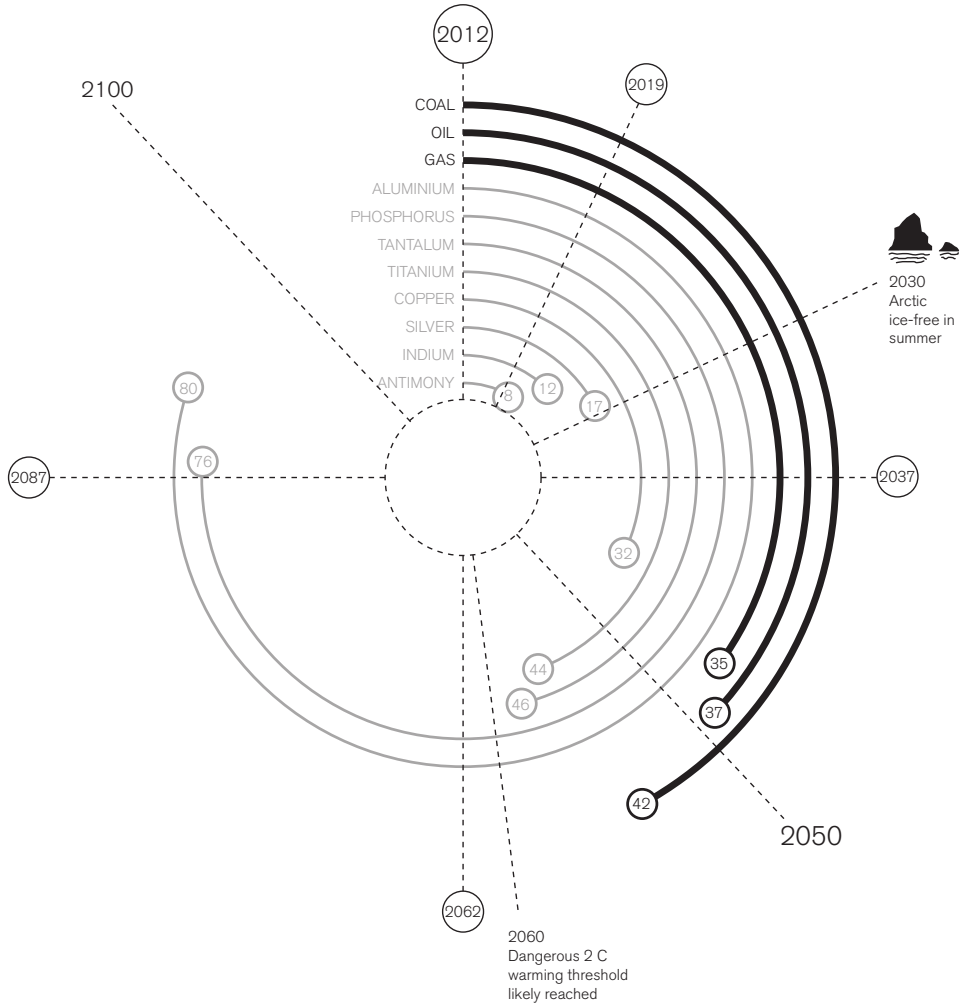
[6] World Bank Group. (2018). Poverty and Shared Prosperity 2018: Piecing Together the Poverty Puzzle.

Figures

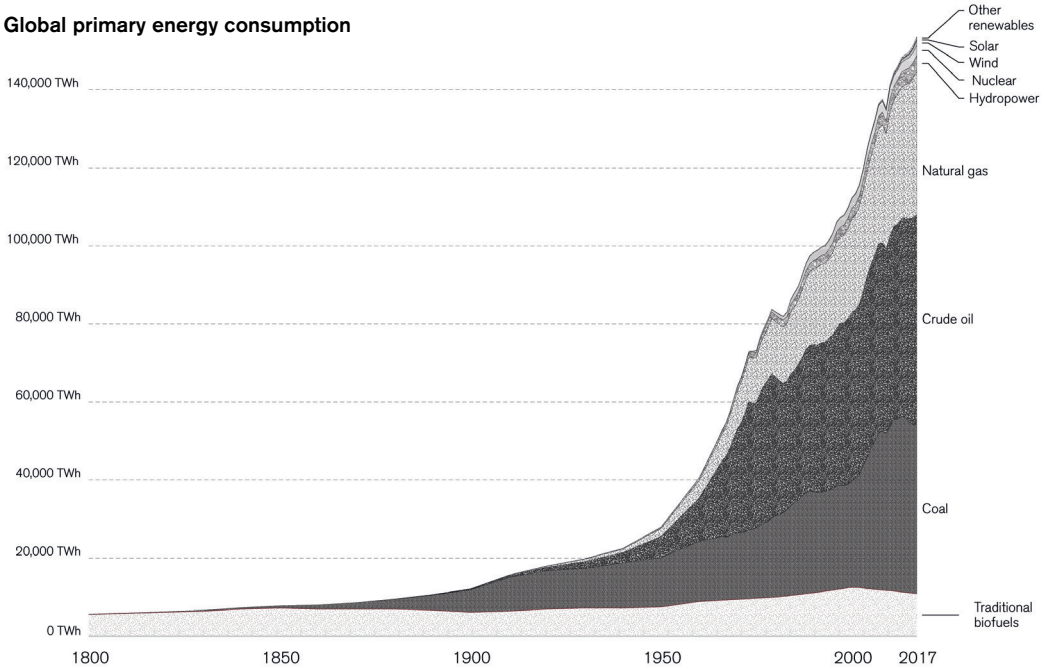
▶ 2.1 Global resources stock
Adapted from BBC (2012).

▶ 2.2 Graphic demonstrating the growth in energy demand and growth in hydrocarbon (carbon-emitting) energy sources since 1800.
Vaclav Smil (2017). *Energy Transitions: Global and National Perspectives.* & BP Statistical Review of World Energy.

Global resources stock



Global primary energy consumption



North Sea - trajectories of change

Following the research line of the Transitional Territories graduation studio, the North Sea has been thoroughly analyzed within its shifting geographical, ecological and economic, states and systems. Particular interest was focused on developing scenarios to understand and translate possible futures for the territory of the North Sea. This is one of the busiest seas on Earth. With its vast and diverse resources, as well as its well situated geography, it is no surprise that the North Sea has borne witness to numerous accounts of political shifts throughout the centuries. The North Sea's economy is defined by the oil and gas under the ocean bed, the marine life in the water and the wind currents in its atmosphere. The countries that border it have been defined by the activities of traders, invaders, fishermen and extractors. Today, the North Sea is home to the busiest shipping corridor in the world, some of the most heavily fished and trawled waters, as well as vast extractions of sand and oil. Rich North Sea countries import heavily and attract populations from all over the world, while financial centers such as London and Frankfurt and production centers such as the Rhine Industrial Region continually increase the flow of raw materials and waste across the North Sea.

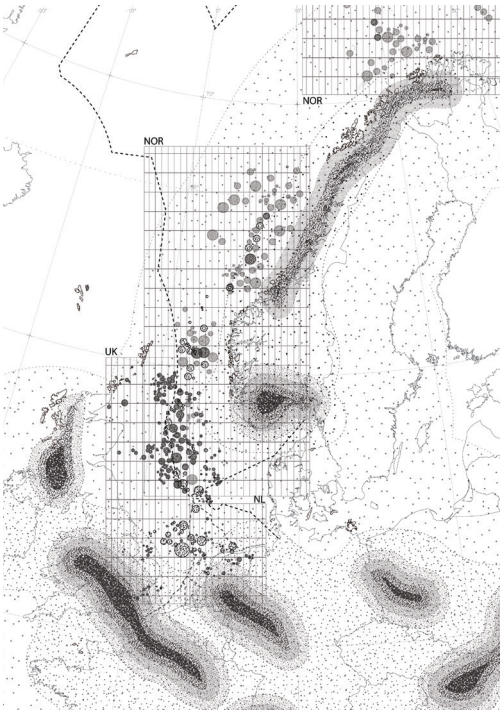
Since the discovery of mineral resources under the seabed in the 1960's, claims to ownership of these resources have been heavily contested. Under the 1964 Continental Shelf Convention, each bordering nation agreed upon specific maritime borders, still enforced today. Because wells in the North Sea are gradually depleting, interest is shifting towards the northern areas, where still large wells remain to be fully investigated. Norway has claims to a large tract of sea on which it can extract enormous amounts of oil and gas.

Simultaneously, as the following pages will explain in further detail, maritime logistics along Norway is expected to go up due to the opening of an enhanced connection with China.

Figures

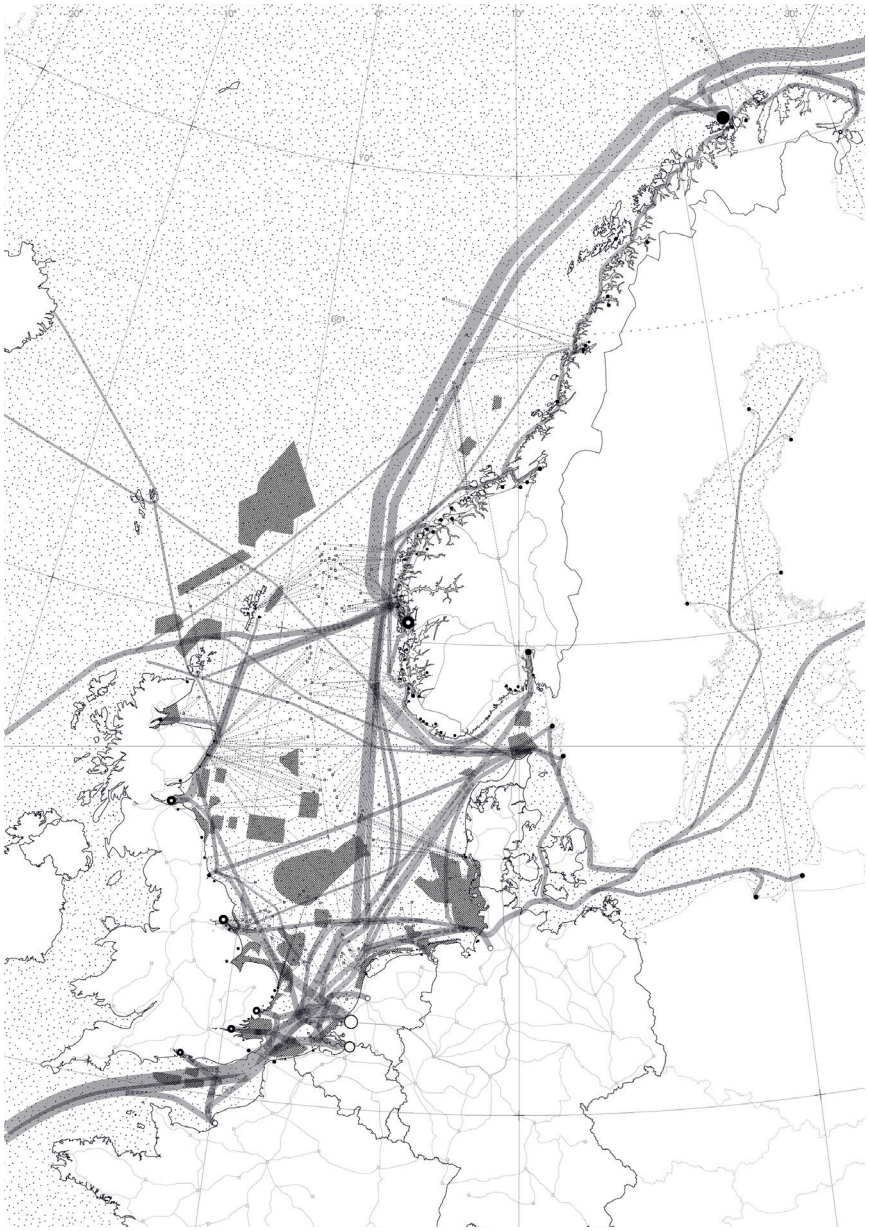
◀ 2.3 CO2 emission concentration 2100.
Made by Transitional Territories Studio (2018). New Geographies, North Sea: Landscapes of Coexistence.

▶ 2.4 Altered Logistics Flow.
Made by author, in Transitional Territories Studio (2018). New Geographies, North Sea: Landscapes of Coexistence.



3.55 E-11 kg m-2 sec -1
2.04 E-12 kg m-2 sec -1
1.18 E-13 kg m-2 sec -1
4.22 E-15 kg m-2 sec -1
44.15 E-15 kg m-2 sec -1
Oil Platforms
Gas Fields
Gas and Oil Fields

CO2 emission concentration 2100 (RCP 8.5)
This map depicts the CO2 emissions concentration (due primarily to industry) in 2100 under the IPCC Relative Concentration Pathway 8.5 scenario. The RCP scenarios are four greenhouse gas concentration pathways based on anthropogenic emissions. The most extreme scenario (RCP 8.5) assumes high population and relatively slow income growth leading in the long term to high energy demand and GHG emissions in absence of climate change policies. This map is under the scenario in which the radiative forcing (the rate of energy change per m2 of area) is 8.5 W/m2.



Altered Logistics Flow

The map shows the projection model for logistic flows in 2150 in the North Sea. Dredging of the major harbors in the South is not feasible anymore. New cargo and vessel transfer ports are now located towards the North in Norway. With the opening of the North Arctic Sea route, new ports were openend into the sea on the edge of the fjords where the waterbed is deep enough for future ships. Due to the hard Brexit, the United Kingdom was forced to increase their port capacities across the island. Most distribution enters from the Norwegian ports.

- harbor growth (fast)
- harbor growth (slow)
- shipping flows - density
- small harbor
- oil/gas platform
- service harbor - platforms
- service routes - platforms
- protected areas
- train infrastructure
- train stations

Sea ice recession

Much uncertainty arises in relation to the sea ice recession of the Arctic, but what is known, is that the ice is receding at a rate much faster than the predicted extend by the International Governmental Panel on Climate Change (IPCC)[1]. Most worrying is the rapid degradation in multiyear ice over the past few years[2], indicating the loss in thickness of the Arctic ice sheet. One of the big boosters of sea ice recession (besides increases in carbon dioxide) is a decrease in albedo through the loss of sea ice. This means effectively that the sea is warming up through radiation, where the whiteness of the ice that was there was initially reflecting the sunlight. Therefore, increases in sea and air temperatures are increasing the loss of sea ice[3]. The cumulative effects of these processes have been termed Arctic warming or Arctic amplification, and explain why the Arctic is warming around twice as fast as lower latitudes.

Citations

[1] Mann, M. E. (2016). "Dire Predictions: Understanding Climate Change" – the Earth101 lecture.

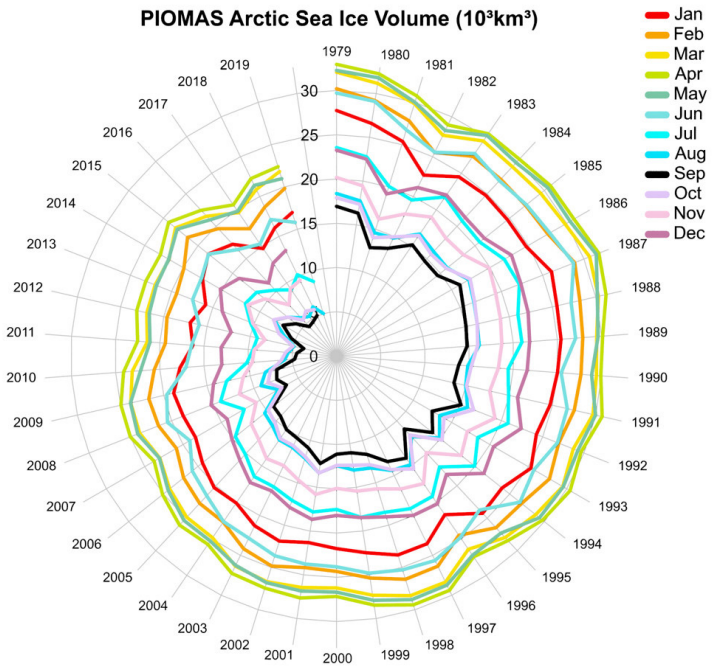
[2] NASA's Scientific Visualization Studio. (2018). Disappearing Ice.

[3] Peng, H. T., Ke, C. Q., Shen, X., Li, M., & Shao, Z. De. (2019). Summer albedo variations in the Arctic Sea ice region from 1982 to 2015.

Figures

◀ 2.5 Arctic Death Spiral.
© Andy Lee Robinson 2019

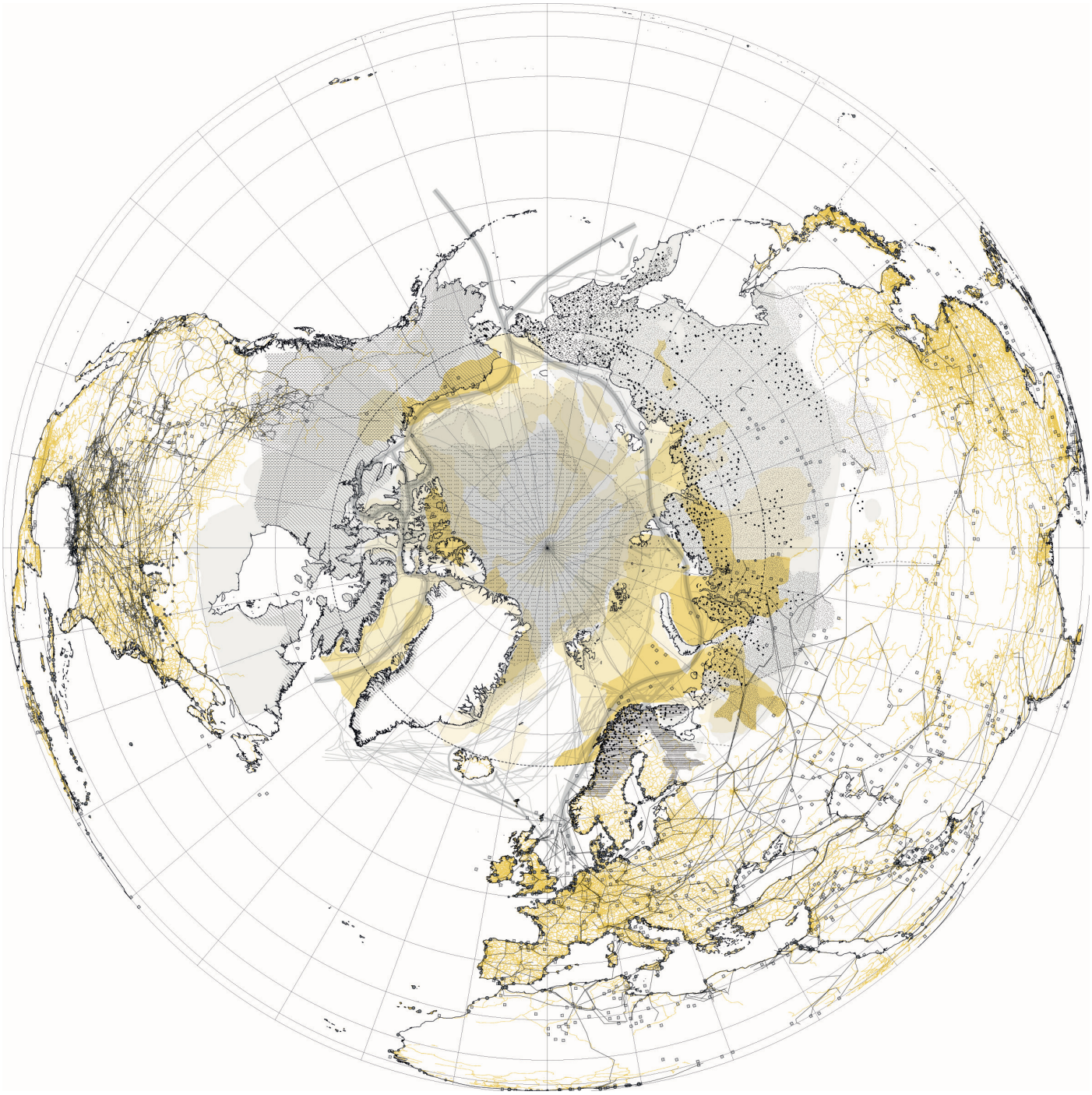
▶ 2.6 Arctic Sea Ice Recession in the Arctic.
Made by author, based and adapted from; Fetterer et al. (2017, updated daily).



▶ Legend

Sea ice extend Sep 2019

Sea ice extend 1979 - 2009



Arctic oil

The Arctic is a highly contested area with big reserves in hydrocarbons and minerals. Even in the light of the energy transition, there will still be a high demand for fossil fuels in the near future. Not just because a switch isn't made in one day, but relative to oil, gas is still a relatively clean energy source. Given the previous trends it is to be expected that Norway is willing to maintain its strong position in the oil and gas industry to ensure future economic growth. The increased accessibility and strategic position related to sea ice recession gives Norway a head start over other countries like the United States, Canada and Russia where large parts are still inaccessible year-round.

Therefore, the warming of the Arctic makes several processes easier and more profitable, including the exploration and extraction of oil and gas. This is making the Arctic the central of geopolitical discussions by Arctic nations. Mainly in the Norwegian and Russian waters, the exploration for oil and gas companies in the Arctic is actively welcomed through national strategies. Plans for the development of new extraction sites are in the first place under interest by Russia's Gazprom, Rosneft, Novatek and Lukoil, and Norway's Equinor, Aker BP and ConocoPhillips, yet other Western companies are also drilling in Norwegian waters[2].

Citations

[1] Paraskova, T. (2020). The Race For Arctic Oil Is Heating Up.

Figures

◀ 2.7 Cape Kamenny, Yamal Peninsula, Russia.
© Yuri Kozyrev 2018

▶ 2.8 Territorialization, indigeity and reindeer Arctic map.
Made by author, based and adapted from; Fetterer et al. (2017, updated daily), Bird et al. (2008).



▶ Legend

Sea ice extend Sep 2019

Sea ice extend 1979 - 2009

Oil and gas potential

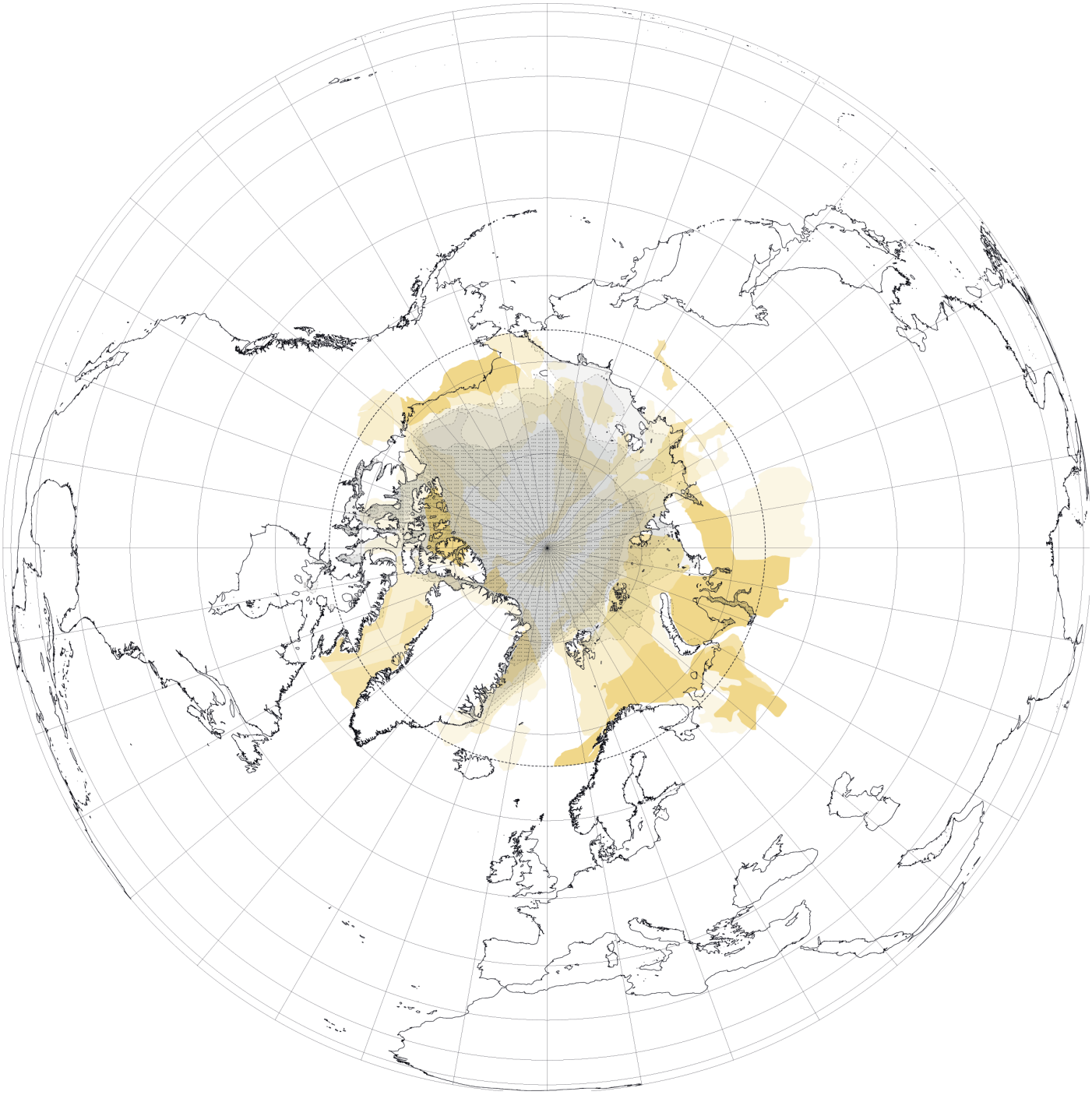
100%

50 - 100%

30 - 50%

10 - 20%

<10%



Indigenous peoples

> "For thousands of years, the Gwich'in people have lived in the Arctic, taking care of the land and animals. We treat caribou and other creatures with reverence, because without them, we would not survive. To my people, wilderness is not a luxury or indulgence; it is a necessity. We feed our families and sustain our culture by living on the land, taking only what we need, and caring for our clean air, clean water, and abundant wildlife."
>
> Traditional Chief Trimble Gilbert in Gwichyaa Zhee, Len Necefer and Balkin (2019).

The lands in the Arctic are inhabited, and have a longstanding cultural history. Along the circumpolar nations, indigenous peoples are living from large tracts of lands with challenging characteristics, enabled through knowledge granted through multigenerational cultural bounds to the landscape. These peoples have over the course of generations learned to blend in with the ecosystems and learned to live in balance with their surroundings[1]. Most prominent indigenous groups are the Inuit, the Sámi, the Nenets, the Yupik, the Evens and the Chukchi, but there are also several other smaller groups.

In large parts of the Arctic, indigenous people are dependent on the herding or hunting of reindeer. As shown on the map on the right, domestic reindeer are particularly herded in the northern parts of Europe and Asia. The traditional livelihood of reindeer herding is a model of sustainable exploitation based on knowledge accumulated over generations, conserved, developed and adapted to the climatic and political-economic systems of the Arctic[2]. However, as explained before, hyper-speculation and increased accesses of resources are threatening to industrialize the north, thereby endangering not only their traditional livelihoods, but also their knowledge on these environments.

Citations

[1] Turi, E. I. (2008). Living with climate variation and change: a comparative study of resilience embedded in the social organization of reindeer pastoralism in Western Finnmark and Yamal Peninsula.

[2] Magga, O. H., Mathiesen, S. D., Corell, R. W., & Oskal, A. (2009). Reindeer herding, traditional knowledge, adaptation to climate change and loss of grazing land.

Figures

◀ 2.9 Yupik woman.
© Brian Adams, Alaska Native Hertiage Center

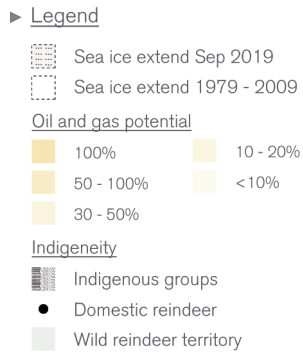
◀ 2.10 Sámi woman reindeer herder.
© Bryan and Cherry Alexander Photography

◀ 2.11 Chucki People.
Source unknown

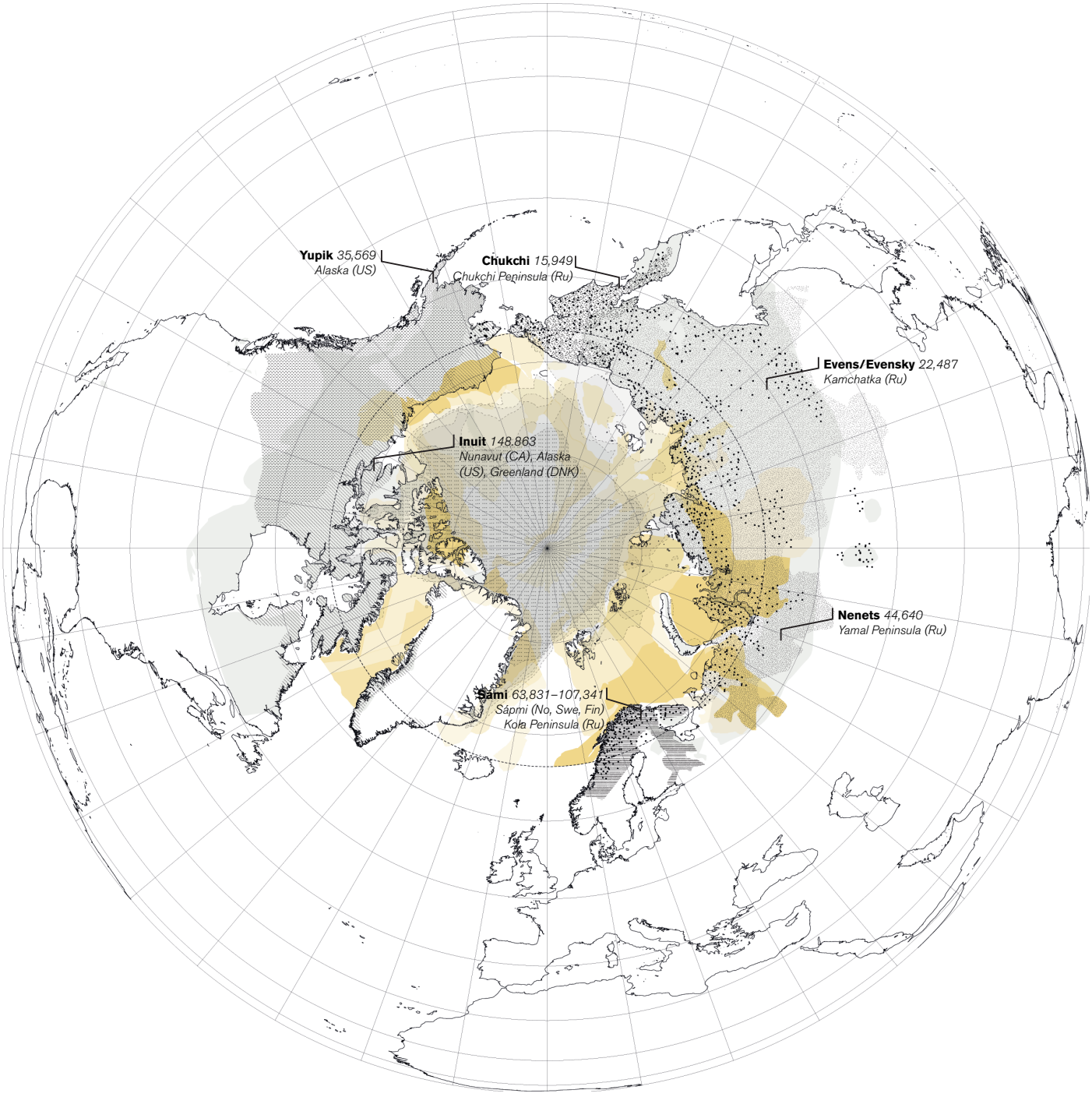
◀ 2.12 Nenet woman.
Source unknown

◀ 2.13 Inuit woman.
© Ansgar Walk





▶ 2.14 Territorialization, indigeneity and reindeer Arctic map.
Made by author, adapted from; Fetterer et al. (2017, updated daily), Bird et al. (2008), Arctic Biodiversity Assessment (CAFF, 2013), Arctic Council (2001).


Yupik *35,569*
Alaska (US)
Chukchi *15,949*
Chukchi Peninsula (Ru)
Evens/Evensky *22,487*
Kamchatka (Ru)
Inuit *148.863*
Nunavut (CA), Alaska (US), Greenland (DNK)
Nenets *44,640*
Yamal Peninsula (Ru)
Sámi *63,831–107,341*
Sápmi (No, Swe, Fin)
Kola Peninsula (Ru)

Access and inequity of distribution

The profitability of oil and gas resources is defined by the ability for the product to be extracted and transported. It requires people to work on the platforms, people working on boats and people working on the mainland. In the case of oil and gas in the Arctic, pipelines are often used to transport the commodities to lower latitudes. As is for example the case with large gas pipelines on Nenets lands in Russia, and a multitude of pipelines crossing Canada on their way to reach the United States. In Norway, the recent developments of the pipeline connecting the natural gas field of Snøhvit to the gas facility of Melkøya, show that both the start and the end of the pipeline are places of interest, where through the extraction high amounts of money can be made. On the Russian, Canadian and United States lands these pipelines physically cut through indigenous lands, severely altering livelihoods there. High profitability in this sense comes together with what Bélanger has termed "infrastructural apartheid"[1]. Pipelines physically divide worlds and serve the benefit of the few at the receiving end of the line.

When looking at Scandinavia, infrastructural development has already reached much higher latitudes than other Arctic regions. It is therefore no surprise, that the Kola Peninsula (Scandinavia and the Russian part) is in fact the most populous area of the Arctic, with dispersed settlements all along. The good connection with the European market, including the well-developed oil refining facilities of Rotterdam, furthermore actively drives the export figures of Norwegian oil and gas enterprises.

Norwegian development policies, as framed in the High North visions and strategies (Nordområdesatsingen), show the strategy to develop the Barents Sea into an energy province, while at the same time "provide a basis for developing industry and services in North Norway"[2]. In this sense the contested process of extraction of oil and gas, has through the policing of the Norwegian state, become a near-future imaginary of wealth and development for struggling coastal settlements.

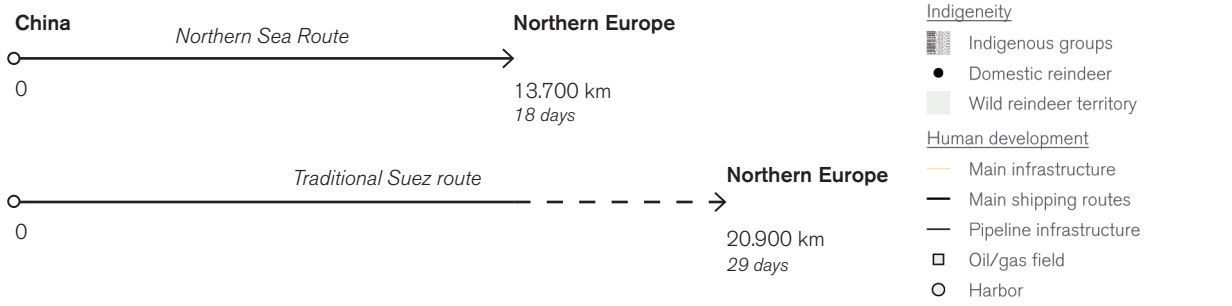
Citations

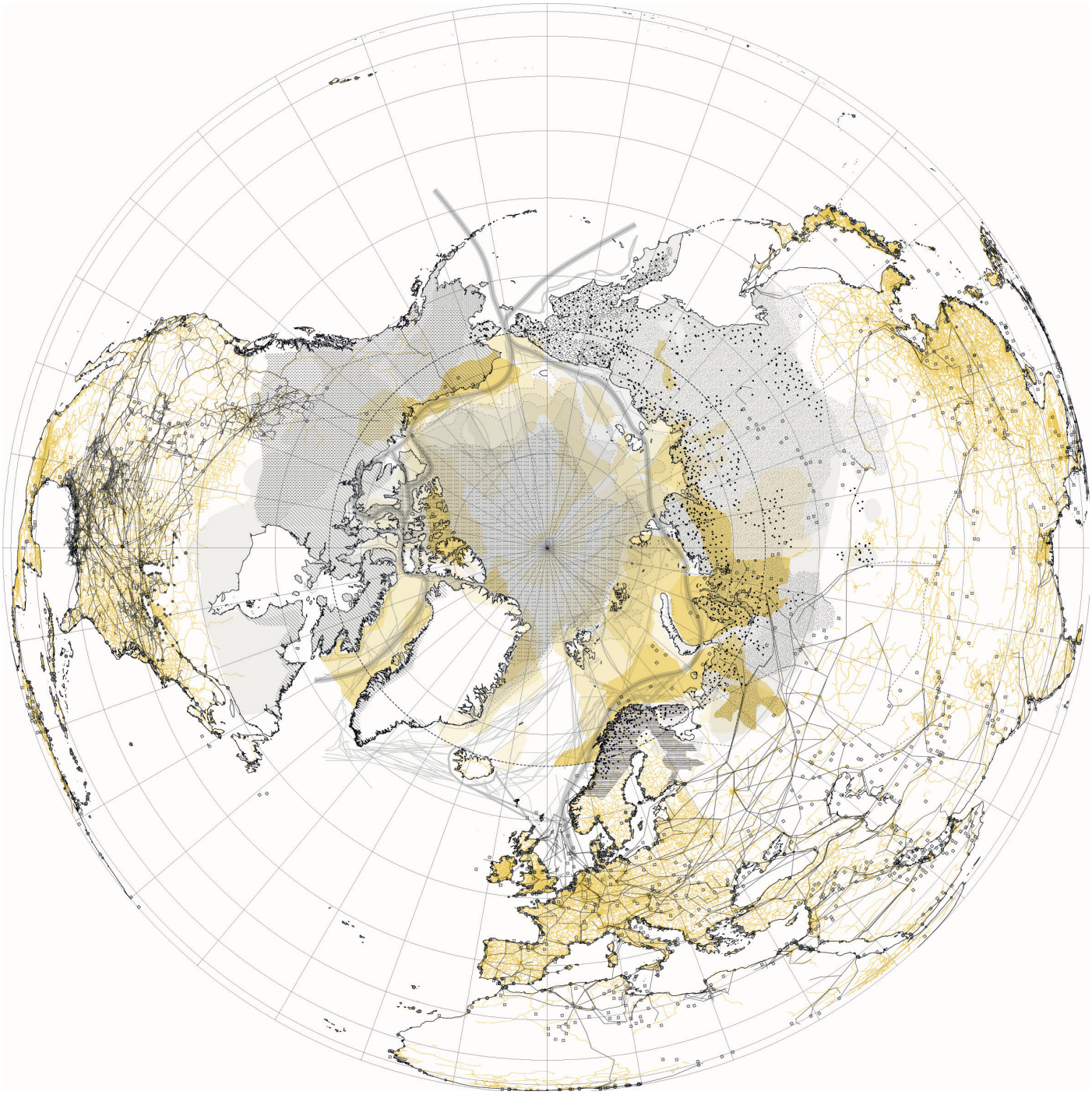
[1] Bélanger, P. (2013). *Landscape infrastructure : urbanism beyond engineering.*

[2] Norwegian Government. (2011). The High North, Visions and Strategies.

Figures

▶ 2.15 Territorialization, indigeneity and reindeer Arctic map.
Made by author, adapted from; Fetterer et al. (2017, updated daily), Bird et al. (2008), Arctic Biodiversity Assessment (CAFF, 2013), Arctic Council (2001), Center for International Earth Science Information Network - CIESIN - Columbia University & Information Technology Outreach Services - ITOS - University of Georgia (2013), Lujala et al. (2007), Harvard Worldmap (n.d.).





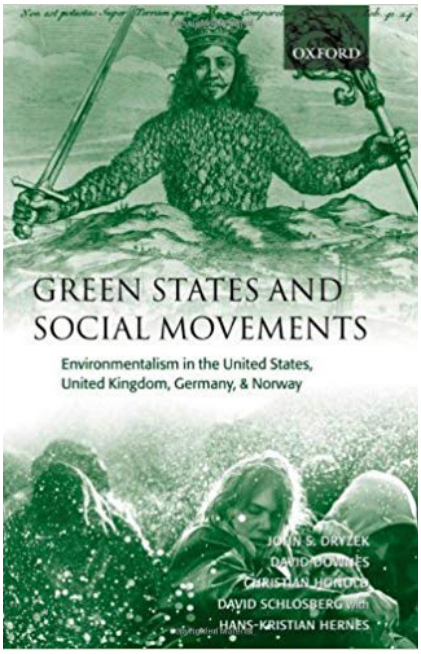
Norway

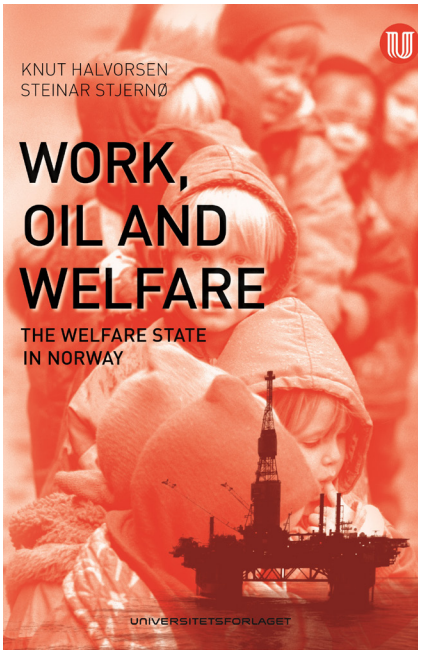
The rapid changes all over the Arctic have substantial impact on the environment and are effecting fragile ecosystems. Countries are seeking quick economic gain even though Arctic inhabitants have repeatedly highlighted the problematic impacts of industrial activity on their territories, which can lead to economic, social, cultural, linguistic, religious and environmental problems particularly among indigenous northerners[1]. As shown in pages before, this is no different for the Norwegian case, where the indigenous Sámi are highly affected by the new developed infrastructure, initiated by the extraction industries.

The dubious role of the Norwegian state furthermore needs to be highlighted. Norway is the Arctic leader in off-land oil and gas extraction, which is often used as promotion material for foreign investors, rather than admitted with a form of guilt related to current global issues of global carbon emissions. The estimated big oil reserves in the Barents Sea seem to initiate a "new industrial age in the High North"[2]. This new age is through Norwegian governance premised to help economic development and job creation in northern Norway. This initiates further urban developments, which disregards the longstanding existence of the indigenous practice of reindeer herding in this area. Furthermore, as shall be highlighted later, Norway still has a responsibility to take in the long history of cultural assimilation, racism and stigmatization directed towards the indigenous Sámi.

Hammerfest is one of the places which is already profiting from the new industrial age in the North. Recent developments - including the opening of new oil and gas fields in the Barents Sea - have made the small municipality rich.







Citations

[1] Arctic Centre. (n.d.). People and the Arctic Extractive Industries: UArctic thematic network.

[2] Norwegian Government. (2011). The High North, Visions and Strategies.

Figures

▲ 2.16 Stamp of North Sea oil platform.

▶ 2.17 Territorialization, indigeneity and reindeer Arctic map.
Made by author, adapted from: see bibliography or 2.15.

▶ Legend

- Sea ice extend Sep 2019
- Sea ice extend 1979 - 2009

Oil and gas potential

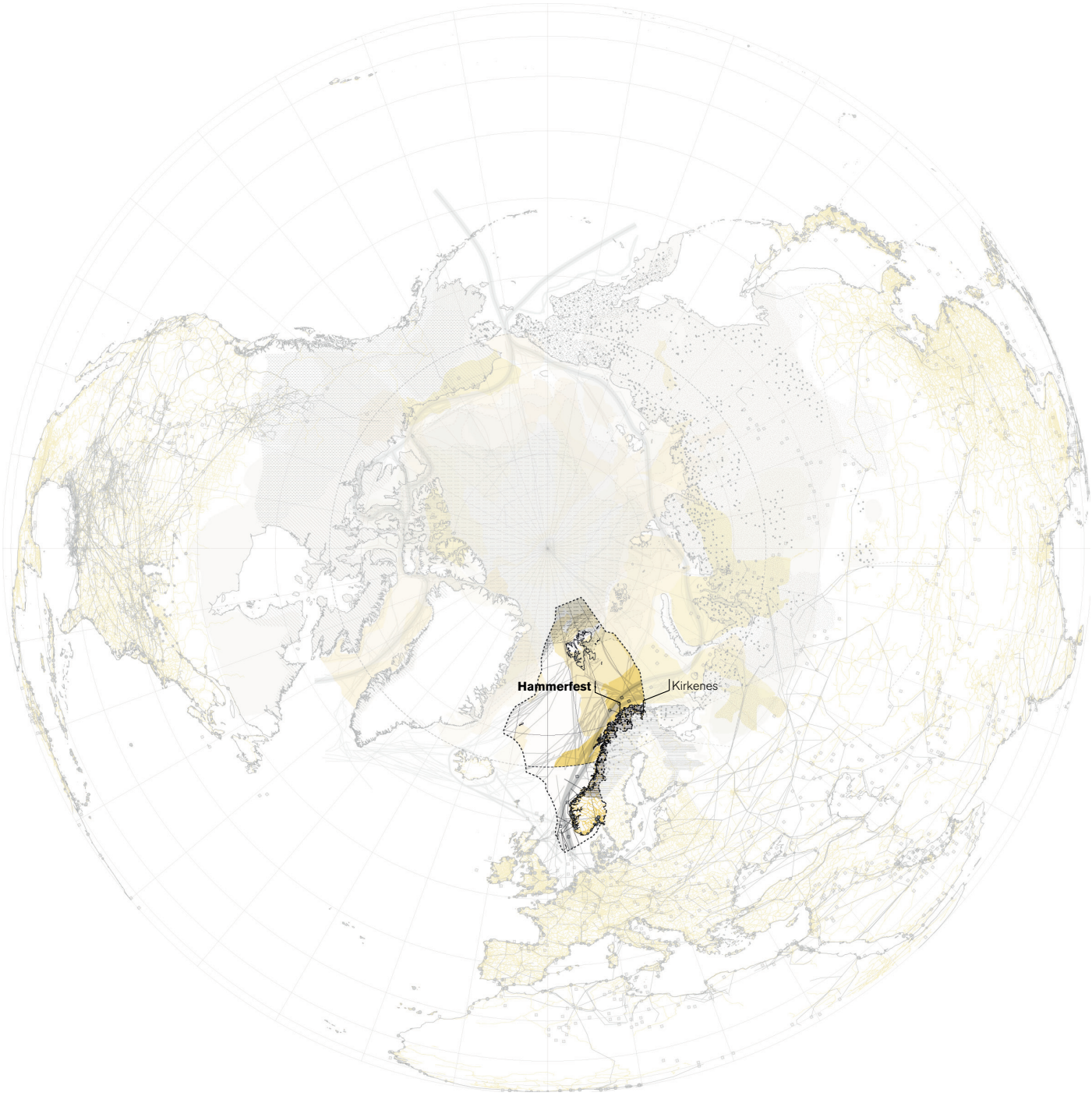
- 100%
- 50 - 100%
- 30 - 50%
- 10 - 20%
- <10%

Indigeneity

- Indigenous groups
- Domestic reindeer
- Wild reindeer territory

Human development

- Main infrastructure
- Main shipping routes
- Pipeline infrastructure
- Oil/gas field
- Harbor


Hammerfest
Kirkenes





Conclusion

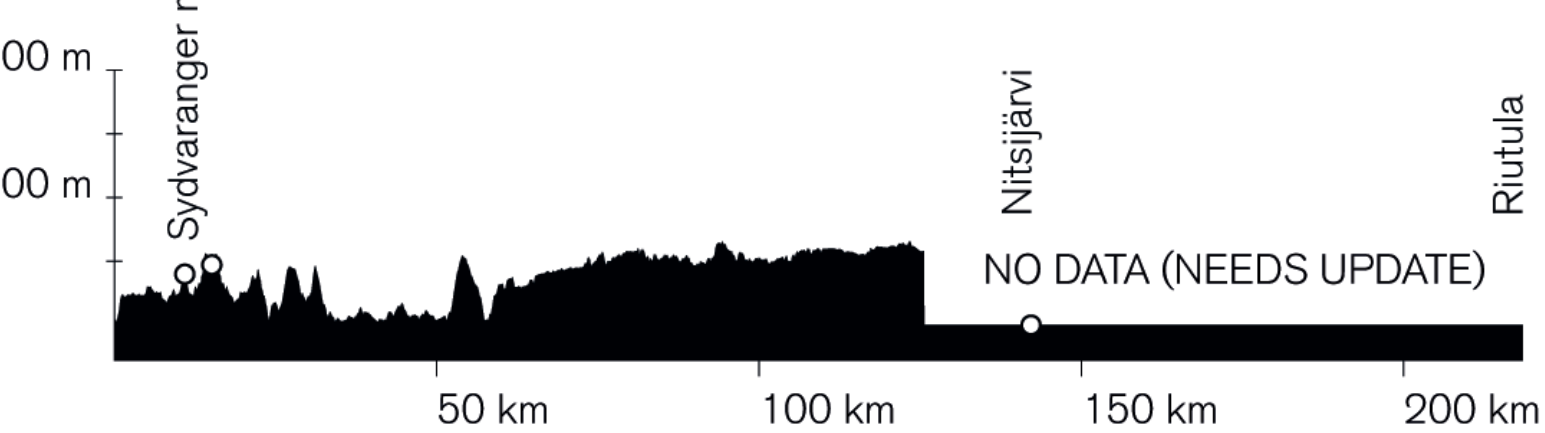
In several projective maps, Norway comes into the picture as a promising agent in the future. As energy availability is highest in Norway - which has deep reserves of oil increasingly exposed from melting polar ice, and an established network of hydroelectric plants - the Transitional Territories Graduation studio predicted an economic shift to the North. This would result in a greater attraction of investment and expertise to Norway, with the possibility of increasing capital flows, production and jobs, possibly having a knock-on effect on economic migration and refugees.

But this shift to Norway is not only part of a European shift; globally the interest towards the Arctic is increasing. Recent examples of Russia planting a flag on the bottom of the Arctic and the United States president Donald Trump's interest in Greenland are just the tip of the iceberg. The consequences that all these industrial shifts in the North entails for landscape, culture and economy in the future needs to be further scrutinized. In the Arctic, conflicting worldviews between indigenous and non-indigenous peoples causes directly opposed views to the development of extractive industries. These differences revolve around different understandings of time and space.

Figures

◀ 2.18 Reclaimed Power.
Altered painting of Peder Balke by author.

◀ 2.19 Landscape from Finnmark with Sámi and Reindeer, around 1850.
Painting by Peder Balke,
© Northern Norway Art Museum; Maria Dorothea Schrattenholz


00 m
00 m
Sydvaranger
Nitsijärvi
Riutula
NO DATA (NEEDS UPDATE)
50 km
100 km
150 km
200 km

03.

"Extractivism is a nonreciprocal, dominance-based relationship with the earth, one purely of taking. It is the opposite of stewardship, which involves taking but also taking care that regeneration and future life continue."

Klein, N. (2015). *This changes everything: Capitalism vs. the climate.*

03. Methodology

Introduction

Conflicting worldviews

The indigenous practice of reindeer herding is based on local knowledge, accumulated through centuries of observations of and adaptations to natural and seasonal cycles of the land[1]. This is acquired within the "laboratory of survival"[2] context of indigenous lands, specifically the Arctic and Subarctic territories. Living in such close contact with the land has provided these indigenous people with unique worldviews; the passage of time and their position in space is perceived differently from those of Western cultures.

These differences in worldviews create friction. Western ontology separates nature from culture and experiences time as an outside force which helps organizing human lives and livelihood[3,4]. Indigenous people, however, regard the natural environment as an entity that "constitutes their territory and includes earth beings who must be respected"[5]. The people belong to the land, instead of the land belonging to the people[6]. The differences in worldviews has led to differing bodies of knowledge and methods. As Berkes (2012) notes: "Indigenous knowledge pursues holism by considering a large number of variables qualitatively, while Western science tends to concentrate on a small number of variables quantitatively"[2]. Furthermore, Blaser (2009) points out that western ontology is based on the idea of universalism and built on the presumption that there is only one reality, or one truth[6]. Therefore, other views on reality are easily marginalized;

> "Ours is a culture of disavowal, of simultaneously knowing and not knowing—the illusion of proximity coupled with the reality of distance is the trick perfected by the fossil-fueled global market. So we both know and don't know who makes our goods, who cleans up after us, where our waste disappears to—whether it's our sewage or electronics or our carbon emissions. But [...] there is no middle of nowhere, nowhere that doesn't "count"—and that nothing ever truly disappears. On some level we all know this, that we are part of a swirling web of connections. Yet we are trapped in linear narratives that tell us the opposite: that we can expand infinitely, that there will always be more space to absorb our waste, more resources to fuel our wants, more people to abuse."[7]

Linear narratives, Klein (2015) argues, are the main drivers behind extractivist practices and highlight the main differences between the two worldviews; the concept of time. This difference in concept has led to a difference in use of land, where the imbalance of sovereignty is in favor of modernist approaches towards spatial policies, planning and design. In the Western discourse, planning and design are used to fixate space and time in order to exploit nature for the benefits of humans, while indigenous people live off the landscape in a natural way - challenged by flexible use of space due to the scarcity of the landscape.

The contemporary modus operandi of urbanism is determined by this linear concept of time. Inherently, the fixation of space through this linear concept - without compressively acknowledging and incorporating the indigenous worldviews into this process – can therefore disinherit indigenous people as well as the climate and landscape. Therefore a different concept of time is needed.

Considering how landscapes are often mapped according to their function, and thereby reduced to their function only[8], there lies a challenge for urbanism to adapt the approach to mapping to better represent the values within the mapped area. By what is essentially an exercise in translating indigenous understanding, this mapping could, instead of facilitating exploitation, help in the emancipation of the natural world. The accumulation of knowledge only through quantitative analyses is therefore enhancing one worldview over the other. Mapping is a political process, where challenges of power between indigenous groups versus governments, developers

Citations

[1] Turi, E. I. (2016). *State steering and traditional ecological knowledge in reindeer-herding governance: Cases from western Finnmark, Norway and Yamal, Russia.*

[2] Berkes, F. (2012). *Sacred Ecology.*

[3] Johnsen, K. I. (2018). Conflicting knowledges, competing worldviews: Norwegian governance of Sámi reindeer husbandry in West Finnmark, Norway.

[4] Weinstock, J. (2009). What Goes Around Comes Around–Sámi Time and the Question of Indigeneity.

[5] Acuña, R. M. (2015). The politics of extractive governance: Indigenous peoples and socio-environmental conflicts.

[6] Blaser, M. (2009). Political ontology: cultural studies without 'cultures'?

[7] Klein, N. (2015). *This changes everything: Capitalism vs. the climate.*

[8] Bélanger, P. (2017). *Extraction Empire: Undermining the Systems, States, and Scales of Canada's Global Resource Empire.*

[9] Fox, J. (1998). Mapping the commons: the social context of spatial information technologies.

[10] Little Bear, L. (2000). Jagged worldviews colliding.

[11] Eva (Stephanie Redding). (2015). Sámi Culture: The Sámi Concept of Time.

[12] Kääpä, P. (2016). Cyclical Conceptualizations of Time: Ecocritical Perspectives on Sámi Film Culture.

[13] Lefebvre, H. (1992/2004). *Rhythmanalysis: Space, time and everyday life* (S. Elden & G. Moore, Trans.): Continuum.

[14] Reid, G., & Sieber, R. (2016). *Comparing Geospatial Ontologies with Indigenous Conceptualizations of Time.*

Figures

▶ 3.1 Diagram showing relations between space and linear and cyclical concept of time. Made by author, oil rifting adapted from Norsk Petroleum (2019).

and conventional resource management scientist (e.g. also geologists) play a central role[2]. And since "many of the examples of empowerment deal with the land use mapping and land claims"[9] urbanism could help counter the imbalance. Urbanism manifests itself through research of both qualitative and quantitative analyses and the building of narratives through mapping, but is as argued before, built on the modernist approach. It therefore rises the main question of this methodology chapter: if planning and design are fixated through a linear concept of time, what methods and tools can be used to incorporate the traditional ecological concept of time, thereby understanding urbanism through a more holistic view?

Research approach: conceptualizations of time through modernity and indigeneity

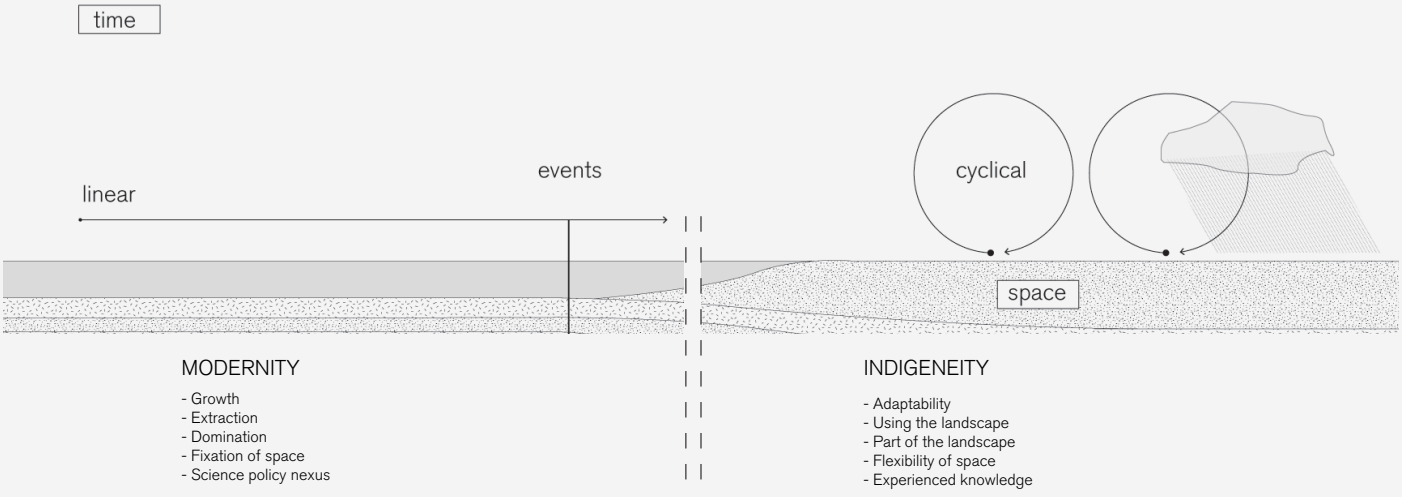
> "The idea of all things being in constant motion or flux leads to a holistic and cyclical view of the world. It results in a concept of time that is dynamic but without motion. Time is part of the constant flux, but goes nowhere. Time just is"[10].

As Little Bear (2000) explains, time is a cyclical concept which is in constant flux[10]. This concept can be found in various indigenous groups across the world, and reveals a certain rhythmic perception of (natural) processes around us. These perspectives were created out of fear of disturbing the balance of nature, which prompted them to leave no trace of their presence[11]. Hence, it can be directly linked to sustainable use of the environment. However;

> In contrast to such cyclical perspectives, hegemonic cultures [...] emphasize linear conceptions of time where renewability is not a priority so much as ensuring that renewable sources are maximized. A linear mode of time is anthropocentric, primarily seeing value in increasing human production and consumption[12].

The linear concept comes from social practice, based on human imposed structures: the monotony of actions and movements[13]. It therefore distinguishes time and motion, although they remain related, according to Aristotle. This notion has had profound consequences in training minds and worldviews in western culture, by enhancing logical, linear functions of the mind[11]. This perspective fails to acknowledge indigenous notions including that: 1. Time is not linear; 2. Nothing is completely fixed in time; 3. Time has agency; and 4. Time should be viewed social instead of temporal[14]. As Lefebvre (1992/2004) explains, "time and space, the cyclical and the linear, exert a reciprocal action; […] everything is cyclical repetition through linear repetitions"[13], and therefore;

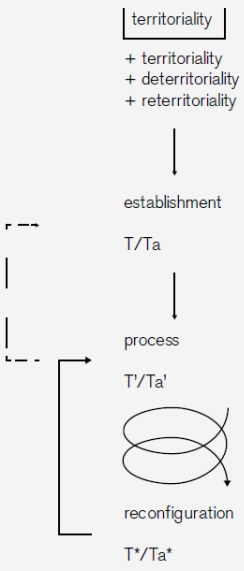
> Everywhere where there is interaction between a place, a time and an expenditure of energy, there is rhythm. Therefore:
> a) repetition (of movements, gestures, action, situations, differences);
> b} interferences of linear processes and cyclical processes;
> c) birth, growth, peak, then decline and end[13].



To be able to deconstruct the current territorialities it is needed to understand which factors play a role in the process of territoriality;

> Territoriality is a set of relations that finds its origins in a three-dimensional social space-time system and corresponds to the actions of several social system agents in a certain geographical area and historical moment. In these relations are included the processes linked to the sphere of production and cultural elements, such as linguistics, morality, ethics and religion, all the set of behaviour standards given by beliefs, as well as spiritual and material values[1].

The territorialization - as noted by influential spatial thinkers Henri Lefebvre and Claud Raffestin - is moved by rhythms; thus an interplay between space, different concepts of time and reacted on by energy[2,3,4].



Hypothesis

Therefore, I suggest that to understand space - and the processes that play on this - we need to broaden modern notion of time complemented by an indigenous understanding. This is critical to deal with high levels of uncertainty in the fragile socio-economic environment of the Arctic. The ability to share and communicate knowledge between academics, practitioners and stakeholders is critical to confront this uncertainty. The flexible and adaptive knowledge of indigenous people could therefore help "to foster trust and to build consensus among the participants"[5].



Problem statement

The - green and progressive - sociodemocratic state of Norway is actively modernizing struggling northern coastal areas. These developments are made possible by money generated through oil and gas extraction and cause encroachment - and loss of traditional ecological knowledge - of traditionally owned Sámi land. Conflicts arise around differences in usage and understanding of landscape. This is primarily caused by different worldviews on the conceptualizations of time and space. These issues converge in recent oil and gas developments in Hammerfest on the island of Kvaløya. The path-dependent relationship with the oil industry, renders the economy vulnerable for global variations within the fossil industry while the developments are impediment to Sámi indigeneity, as well. The modus operandi of decision makers and urbanists, have a tendency to prioritize one worldview over others; the modern, non-holistic point of view. Because of this, the indigenous people have lack of agency to influence decision-making. As the state repetitiously tries to improve Sámi indigeneity, it simultaneously keeps advancing the oil industry in the North. In order to facilitate this, the landscape gets increasingly urbanized, impeding Sámi movement, thus creating a socio-territorial paradox.

Research question

Primary:
How can the perceptions of **space** and **time**, as utilized by Sámi reindeer herders, equip the urban planner with a more **holistic understanding** of **territorializing processes**?

Secondary:
What potential lies in the urbanists engagement in overall decision-making processes by **reading of the territory** through the indigenous knowledge of **space** and **time**?

Research aim

The main aim of this research is to understand the challenges related to indigenous sovereignty in light of developments in local territorialization, propelled by macroeconomic developments. It challenges the status quo related to the further expansion of the oil and gas industry, and losses of indigenous sovereignty within northern Norway. In addition, the research also looks into problems surrounding the public opinion on the issues. This project addresses two important groups.

Academics and practitioners
The research aims to show the urgency of the incorporation of flexibility, as utilized by indigenous practices, to confront the current climate crisis. Furthermore, it attempts to demonstrate how political economic processes change over time, how they territorialize space and how urbanists can respond to the advantage of social equality. Ultimately, the research aims at creating a methodological framework which allows to incorporate flexibility by integrating and creating awareness for those cultures embracing nature. Urbanists have a role in giving them a voice in decision-making in an increasingly modernizing world. We have the ability to share and communicate this knowledge.

Decision makers
This research aims to show the role socio-territorial developments and differences in worldview play in shaping Finnmarks future, as they have done in the past. A critical reading of these processes will help Norwegian decision makers to understand what the implications of the current discourse are. Ultimately, the research will provide a model for cooperation, suggest a tool for the indigenous people to exert influence on decision-making processes and confront the socio-economic uncertainty of the region.

Citations

[1] Marques, H. (2011). Local development at a human scale.

[2] Lefebvre, H. (1992/2004). *Rhythmanalysis: Space, time and everyday life.*

[3] Lefebvre, H., & Nicholson-Smith, D. (1991). The production of space.

[4] Raffestin, C. (2012). *Space, territory, and territoriality.*

[5] Kato, S., & Ahern, J. (2008). 'Learning by doing': adaptive planning as a strategy to address uncertainty in planning.

Figures

◀ 3.2 Process of territoriality. Made by author, based on Raffestin (2012), see Appendix page 231, theory paper: *The urban territory of extraction.*

◀◀ 3.3 Melkøya island, Hammerfest. © Joakim Aleksander Mathisen

◀ 3.4 Picture from the series Reinflytting minutt for minutt, Pulk (2017).

Research questions

The main research questions are as follows:

Primary:
How can the perceptions of **space** and **time**, as utilized by Sámi reindeer herders, equip the urban planner with a more **holistic understanding** of **territorializing processes**?

Secondary:
What potential lies in the urbanists engagement in overall decision-making processes by **reading of the territory** through the indigenous knowledge of **space** and **time**?

Sub questions

Part 1: Exogenous mechanisms

a. How are development of the oil and gas industries and preservation of cultural values in conflict within Finnmark?

Research design

Part 2: Endogenous mechanisms

b. How can a field trip, journal and documentary broaden our knowledge for our theses and scientific knowledge of indigenous issues?

Part 3: Deconstruction of the map

c. Through a modern approach, how can we understand the impact of the oil and gas industry on the reindeer herders by comparing the urban and indigenous use of the landscape on the island of Kvaløya?

d. To what extend can we understand temporality in the practice of reindeer herding and how can we define temporality in the oil industry?

e. How does this define the land-use?

f. Based on the temporality, to what extend can we understand and project the seasonal reindeer movement on the island of Kvaløya?

g. What impact did the oil and gas industry have on the development of Hammerfest and how does this relate to land use by reindeer herders?

h. Can an indigenous approach towards the use of time and space become part of the planning process?

Part 4: Reconstruction of the map

i. What potential lies in scenarios in integrating indigenous readings of time?

j. Can this help to get to a more holistic discussion about development on the long-term?

Reflection

k. What is the role of Urbanism in – seemingly non-urban – areas related to the topic of extraction?

l. What potential lies in the profession of Urbanism to mediate socio-territorial conflicts?

Methods	Outcome
Literature review, governance frameworks.	**Documentation** of a deeper understanding of how the Norwegian state operates on the territory, and how this has lead to the Norwegian paradoxes on hydrocarbon development and reindeer herding.
Research design	*Research design*
Cinematography, photography, interviews, documenting.	A **documentary** and a **journal** of the field trip, contributing to a knowledge database of the place.
Regional mapping, local topography, land use and land cover mapping, spatial modeling, literature review.	A **set of maps** representing land cover and land uses on Kvaløya, indicatively revealing the impact of urbanization on reindeer herding.
Data analysis seasonality, literature review.	**Documentation** and a **set of diagrams** representing the cyclical use and understanding of the landscape by the Sámi.
Literature review.	**Documentation** and a **set of diagrams** representing the linear use of time in the oil industry.
Local scale mapping, literature review.	A **set of maps** depicting the movement of reindeer on the island of Kvaløya throughout 5 seasons.
Diachronic analysis Hammerfest: mapping, literature review, development and trend analysis.	A **set of maps** and **timelines** deducting the growing impact of industrial development on Hammerfest and reindeer herding in Finnmark.
Deconstruction of the map: conclusions.	A **conclusion text** on how indigenous knowledge on temporalities can become part of decision making processes.
Construction of a scenario matrix, to visualize several possible scenarios for the future.	A **visualization of possible scenarios** from macro to meso scale including different temporalities and interests of various actors, systems and the environment.
Evaluation of scenarios to assess impact and synergies in future development in the region.	A **methodological framework** capable of adapting to changing circumstances through the integrating indigenous temporalities and interests.

Kvaløya case study

Methods description

Introduction

The research in this thesis consists of mixed methods. In order to attempt to bridge the gaps between western and indigenous knowledge and worldviews the methods consist of both qualitative and quantitative analyses[1]. Links between purely quantitative and qualitative entities will be set to explore alternative methods of mapping of indigenous uses of the territory. This is done in order to find systemic and spatial pressure point, to test how certain trends are interlinked and how they might develop in future decision-making. The analysis is done through four themes.

Part 1: Exogenous mechanisms

Problem analysis

The first part consists of an exogenous understanding through qualitative analysis on socio-territorial conflicts in Finnmark. The analysis is a first attempt at understanding what level of autonomy the Sámi have under the modernization and industrialization policies of the Norwegian state.

Part 2: Endogenous mechanisms

On-site analysis

Photographic journal

The journal is meant as a tool to build a database of knowledge of the territory. This is done to understand the territory from a more holistic approach. The idea is that through the writings and images the reader can place him/herself easier within the territory, than by reading a map. As many scholars now acknowledge, the map doesn't represent effectively anymore the territory[2,3,4], new media need to be utilized.

Documentary

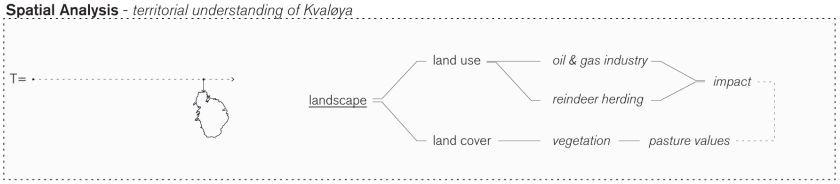
Also not generally utilized in academic research, yet the capacities of the tool as qualitative empirical research should not be underestimated, especially in research related to place identity or the genius loci. The overall advantages of utilizing a documentary as research expresses itself in its unique possibility to tell a story about real life: '[d]ocumentaries are always grounded in real life, and make a claim to tell us something worth knowing about'[5]. In other words, a tool to understand and translate a more holistic approach.

Part 3: Deconstruction of the map

The third part consists of three analyses; a spatial analysis to understand the distribution of land cover and land use in Finnmark and Kvaløya; a temporal analysis on modern and indigenous conceptualizations of time; and an accumulation of both onto space in the spatio-temporal analysis. The three parts are visualized in figure 3.5 on the right.

Spatial analysis

The spatial analysis will consist of a compact analysis on the regional scale and analysis of the land-cover and land-use on the island of Kvaløya. Through a modern (quantitative) approach, the goal is to understand how the landscape is used. An additional literature review will aid in understanding how conflicting situations arise between spatial actors and systems on the island.



Citations

[1] Berkes, F. (2012). *Sacred Ecology.*

[2] Bélanger, P. (2018). *Extraction Empire.*

[3] Harley, J. B. (2009). Maps, knowledge, and power.

[4] Elden, S. (2013). *The Birth of Territory.*

[5] Aufderheide, P. (2007). Documentary Film: A Very Short Introduction.

[6] Østerberg, D. (1998). *Arkitektur og sosiologi i Oslo: en sosio-materiell fortolkning.*

[7] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6.

Figures

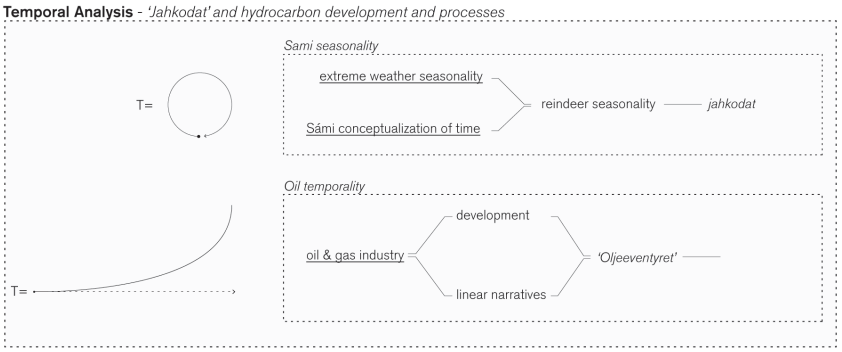
◀ 3.5 Explanatory framework of the spatial analysis.
Made by author.

▶ 3.6 Explanatory framework of the temporal analysis.
Made by author.

▶ 3.7 Explanatory framework of the spatio-temporal analysis.
Made by author.

Temporal analyses

The temporal analysis consists of qualitative understanding of the linear and cyclical conceptualizations of time. A cyclical understanding of time is analyzed by conducting a literature review on the weather seasonality and how this has shaped the reindeer herding cycles of the Sámi. The temporal analysis of the oil industry focuses on its imperatives of growth conceptualized through its linear understanding of time.



Spatio-temporal analyses

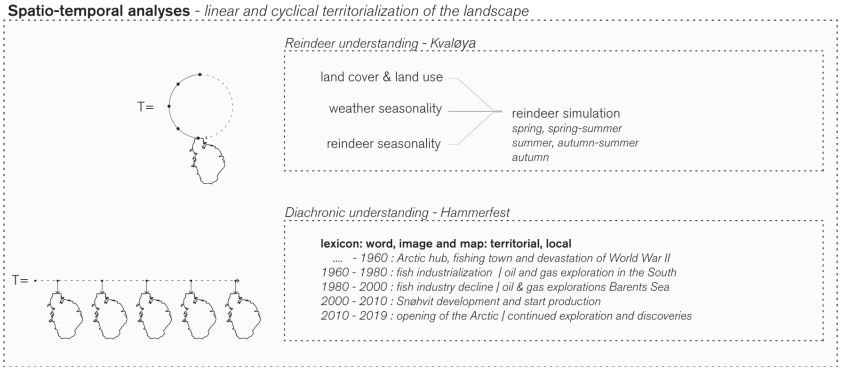
The final part of the deconstruction of the map is composed of the cyclical and linear reflection of the concepts of time onto space. It therefore consists of two parts: a reindeer reconstruction on the island of Kvaløya and a diachronic understanding of the urbanization of Hammerfest.

Reindeer reconstruction

The reindeer reconstruction is an mapping exercise, and will be conducted through the reflection of the acquainted spatial and indigenous knowledge onto the map. As mentioned in the Introduction, the technique of mapping landscapes has been misuses in the past. This analysis, however, is aimed at empowering indigenous uses of the territory by combining modern spatial modeling with indigenous knowledge.

Diachronic analysis

The diachronic analysis is done in an attempt to understand how political economic processes over time have influenced decision making in modernizing the high north. The analysis is made according to the five periods as theorized by Østberg (1998); a short historical language, a language of production and resettlement, a language of industrialization and modernization, a layer of democratic welfare policies and a language of globalized production and marked liberal economy[6,7]. The objective is to establish connections between stakeholders, urban developments and exogenous dynamics. The outcome consists of several timelines and urban growth maps in relation to reindeer herders.



Part 4: Reconstruction of the map

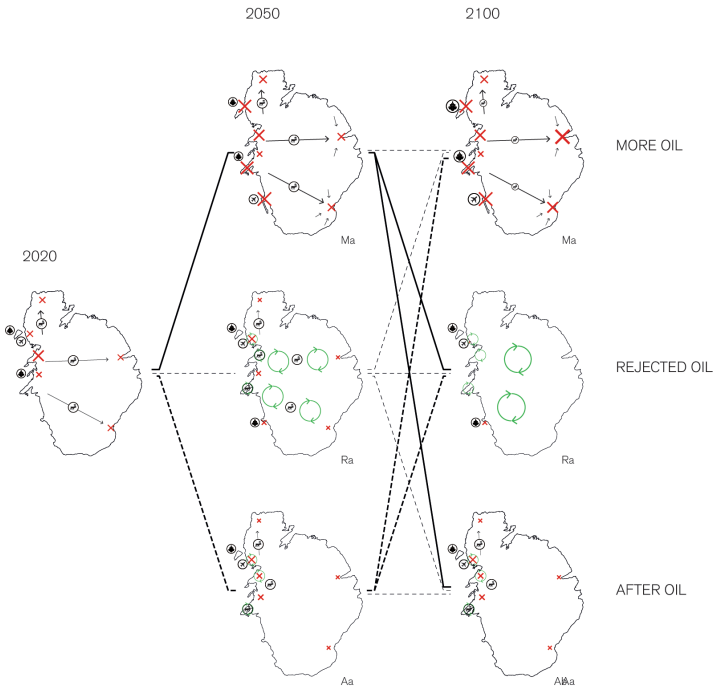
Scenarios

In the conclusive part of the thesis I will synchronize and reflect the acquainted knowledge on the modern and indigenous readings of time and space into future scenario's. In doing so, the goal is to find a new approach for a more participative way of planning processes and decision-making. In each scenario the actors, systems and environment are examined and the interaction between them evaluated. Subsequently, the scenarios will be assessed, compared and put in sequence of probable future development. The scenario method used is not to test what the possible future developments could be, but a way to understand the possible developments over time. And therefore make strategic choices for the coming years.

Figures

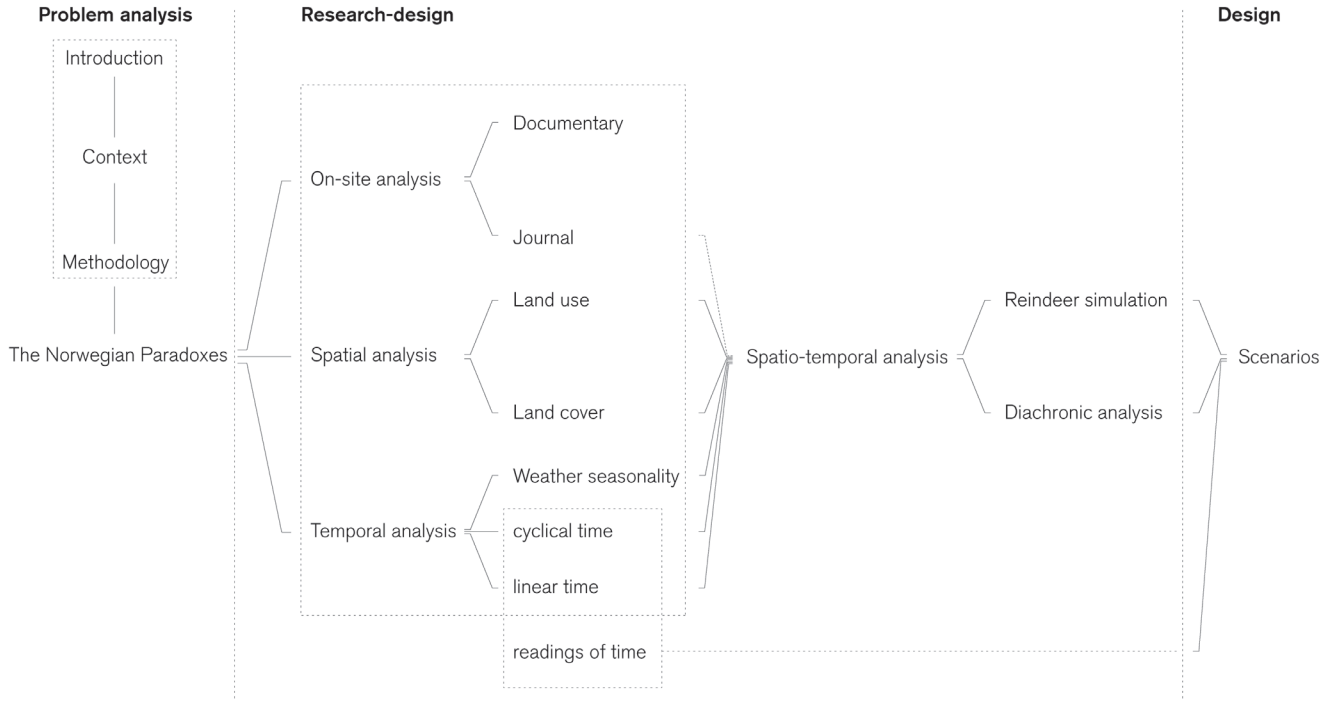
◀ 3.8 Diagram explaining linear set-up for the scenarios
Made by author.

▶ 3.9 Research framework.
Made by author.



Research framework

The research is divided into three main parts. The first part consists of the problematization and a first understanding of the socio-territorial conflicts in Finnmark. The second part is the main part, consisting of an in depth analysis of the different components of space and time from modern and indigenous perspectives. Because the map is not sufficient to understand the territory anymore, and therefore the conflicts that play on it, different readings of the territory are proposed: an on site, spatial and temporal reading. Ultimately synchronized into the spatio-temporal analysis, where the conflicts between different worldviews are analyzed throughout time. All of these contribute to a the creation of a new database on the readings of space and time. The third part consists of a experimental synchronization into different scenarios, testing both conceptualizations of time. The goal is to create a methodological framework for assessing future possible development.





EXOGENOUS MECHANISMS

THE NORWEGIAN PARADOXES

04.



Northern Scandinavia and parts of Russia are examples of areas where the current growth of infrastructure related to transportation, oil, gas, and mineral extraction is increasingly incompatible with land requirements for reindeer husbandry. In these areas, infrastructure growth is associated with the loss of traditional lands, and conditions forcing indigenous people to abandon nomadic herding patterns for more sedentary lifestyles.

Nellemann, C., Kullerud, L., Vistnes, I., & Forbes, B. (2001). *GLOBIO global methodology for mapping human impacts on the biosphere: the Arctic 2050 scenario and global application. UNEP.* DEWA Technical Report 3.

04. The Norwegian Paradoxes

The Norwegian climate paradox

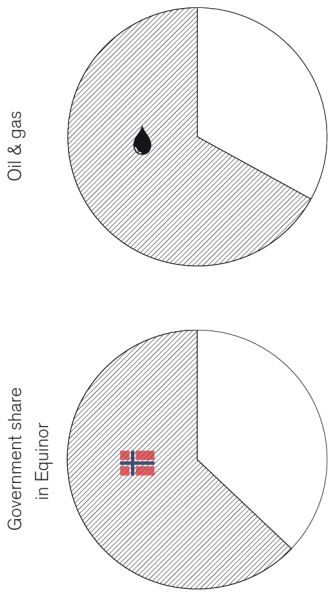
Norway has a strong historical record when it comes to the environmental protection of its vast fjord landscapes. With electricity predominantly free of emissions and the highest share of electrical cars sales, Norway seems well under way to meet the climate goals set at the COP24 Conference in Katowice, 2018[1,2]. It can even be considered that "Norway is at the forefront of the global transition to a fossil-fuel free future"[2]. But these investments do not come from thin air; Norway is one of the wealthiest nations in the world, with an average income of $81,807 and the biggest government sovereign fund of around $ 1.1 trillion[3]. The fund is primarily built on taxes gained from the discovery of oil and gas in the North Sea in 1969. Oil and gas production is accounting for 22% of its GDP and two thirds of its exports[4], which clearly visible in the diagrams on the next page and the economic graph on the next page. In 2012 the government came up with a new Climate Policy Plan in which they propose the following measures;

- Implementing climate and technology investment, funded through the yield from a new fund for climate, renewable energy and energy restructuring.
- Phasing out fossil heating oil.
- Stricter energy requirements for the building sector.
- Continuing to increase climate research.
- Maintaining or increasing the carbon stores in the forest.
- Contributing to developing biogas in Norway.
- Strengthening the role of the railway in the transport system[5].
- etc.

These measures are promising, but they are already outdated and very similar to other countries. Eckersley (2013) critically analyzed Norway's take on climate change and concluded that; "Norway's climate policy discourses are profoundly shaped by a widely shared conception of Norway as a "benevolent state" dispensing a "regime of goodness" in foreign policy and diplomacy". She stresses the considerable influence political leaders have in the discussion on taking responsibility for climate change, and underlines the role fossil fuels play[6].

As previously mentioned, given the aforementioned global trends, Norway is now directing its petroleum interests towards the Arctic, since oil and gas fields are slowly running out in the North Sea. Licensing areas are open for discovery in the Barents Sea and big infrastructural projects are planned. The minister for Foreign Affairs, Espen Bart Eide, noted this reality in his speech to the 2013 Arctic Frontiers that "we are not rejoicing the fact that ice is retracting. The Arctic is not a source of climate change, but it is an area where climate change can be seen." And this, he noted, "opens new opportunities for growth"[7]. The government aims for economic growth in the short term. While it is known that the industry is increasingly becoming more uncertain in the future. That concludes the climate. The oil industry is also known for its extensive spatial impact on land. Especially infrastructural developments in the North are considered a menace for the indigenous Sámi, to whom the reindeer practice is an important source of income. In this regard developed states should demonstrate leadership by prohibiting further exploration for additional fossil fuels (especially in vulnerable areas like the Arctic or deep-water extraction) and rejecting any other expansion of fossil fuel infrastructure[2].

The Norwegian Climate Paradox:
On the one hand Norway set out to be a global leader in climate action and has made good efforts to reduce the demands within the country itself, while, on the other hand, the continued expansion of oil and gas production could eclipse the benefits of Norway's domestic emission reduction efforts[1]. Norway contradicts itself when it comes to the topic of climate change: It is the



Citations

[1] McGrath, M. (2018). Katowice: COP24 Climate change deal to bring pact to life.

[2] Boyd, D. R. (2019). Norway End of Mission Statement.

[3] Norges Bank. (2019). The fund's market value.

[4] European Commission. (2018). European Commission Directorate-General for Trade: Norway.

[5] Miljøverndepartement, D. K. (2012). Norsk klimapolitikk (Meld. St. 21).

[6] Eckersley, R. (2013). Poles apart?: the social construction of responsibility for climate change in Australia and Norway.

[7] Ylsman, T. (2015). The Shifting Polar Paradox: As the Arctic Meltdown Continues, Will the Arctic Oil Rush Go On?

Figures

▲ 4.1 Export Norway.
Based on European Commission (2018).

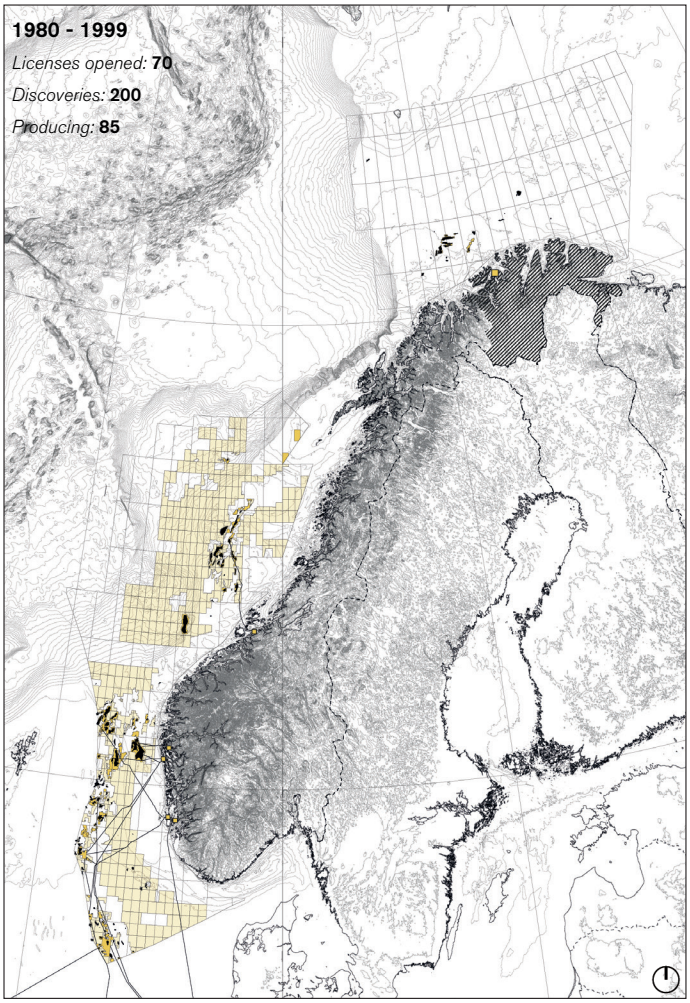
▲ 4.2 Equinor shareholders.
Based on Equinor (2019).

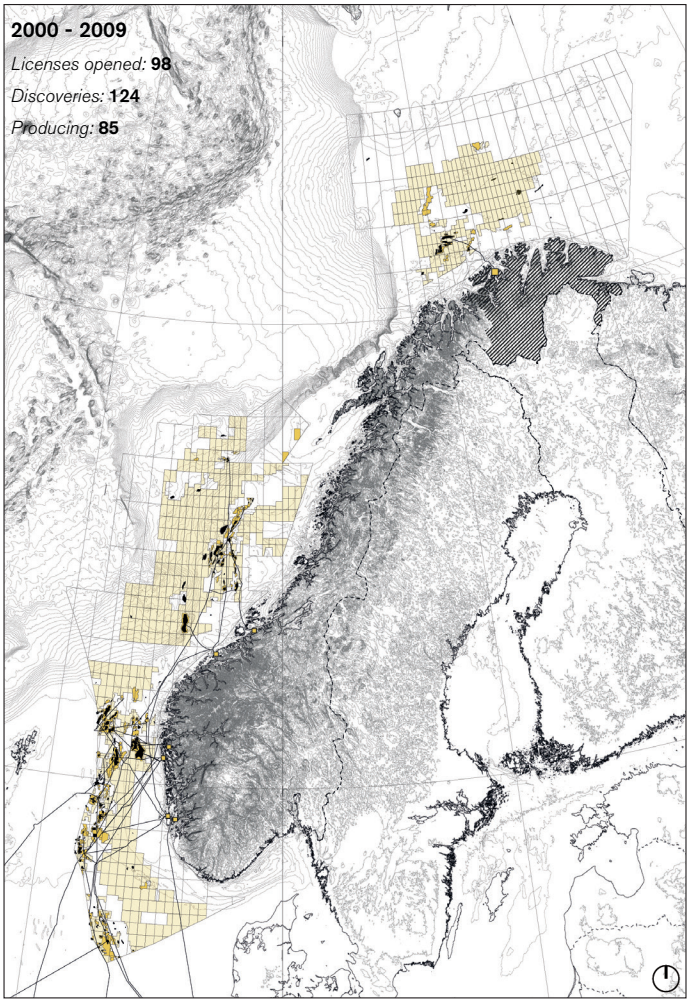
▶ 4.3 Area status Norwegian Continental Shelf from 1960 - 2020.
Compiled with data from Norwegian Petroleum Directorate (2019).

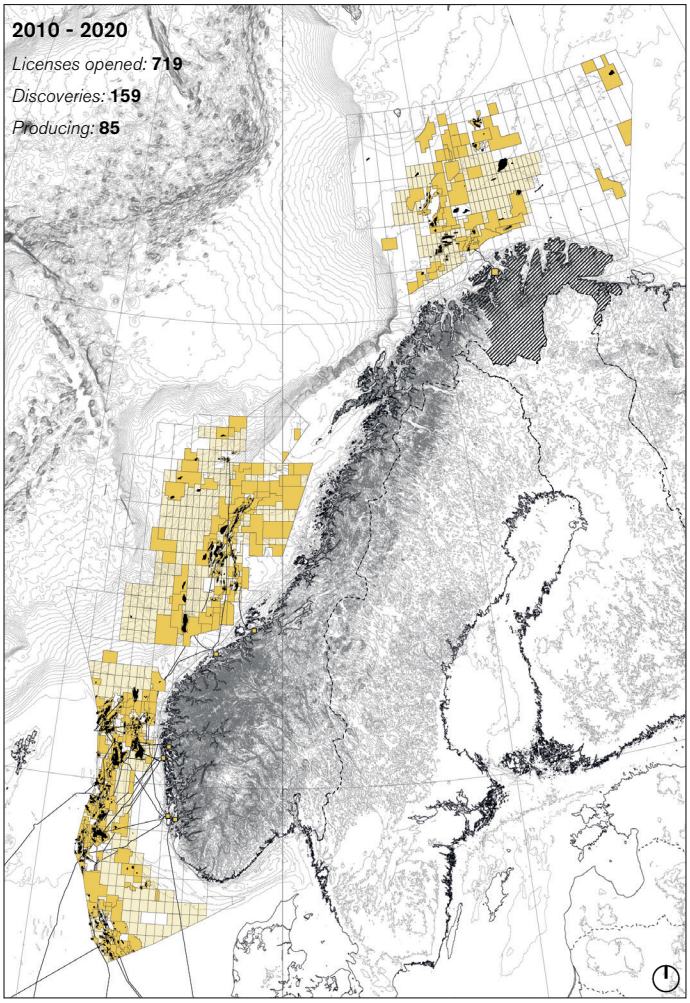
▶ Legend

Block
Open block
License
Discovery
Facility
Pipeline


1960 - 1979
Licenses opened: 59
Discoveries: 50
Producing: 31


1980 - 1999
Licenses opened: 70
Discoveries: 200
Producing: 85


2000 - 2009
Licenses opened: 98
Discoveries: 124
Producing: 85


2010 - 2020
Licenses opened: 719
Discoveries: 159
Producing: 85

14th country in producing oil and 3rd in exporting gas[2]. The Norwegian Petroleum Directorate (NPD) even states that it is possible to "maintain production from the [petroleum] sector at a very high level for decades to come"[1].

In Hammerfest, the wealth and jobs generated through the extraction of gas has adversely effected culture in and around the city. Local support for the extraction businesses is firmly rooted in these benefits, which overthrows any concerns for a changing climate[3]. Furthermore the extraction businesses try to gain ground through advocating the offshore petroleum industry as heroic Arctic adventures closely resembling evolved versions of whaling and polar expeditions. In Hammerfest another Norwegian paradox converges as well; that of the cultural preservation paradox.

Cultural preservation paradox

The Sámi – the only officially recognized indigenous group of Europe – live on the land called Sápmi, which spreads across the northern parts of Norway, Sweden, Finland and the Kola Peninsula in Russia. As many indigenous groups in the Arctic, their culture dates back thousands of years. Despite the harsh living conditions, rock carvings - displaying the hunt for reindeer and other animals - date back as far as 5000 B.C. (in Alta) and can be found all across the Fennoscandian Peninsula[4].

Cultural Assimilation

For the past centuries the Sámi culture has been the victim of colonizing forces from the South. This trend was persistent for indigenous groups throughout all the circumpolar states like Alaska, Canada, Greenland, Norway, Sweden Finland and Russia. Agricultural and commercial cultures moved north from the 18th century on and started to dominate and push the nomadic cultures to more marginal areas[5]. Related to this movement north, a large part of the Sámi has been assimilated into the mainstream Norwegian, Swedish, Finnish and Russian cultures[4]. In Norway this was stimulated with the *fornorsking*, or "Norwegianization" policy; an attempt to create a culturally homogeneous society across the nation[6,7]. What it came down to was "a program of cultural eradication directed by the Norwegian state against the indigenous Sámi minority from the late 1800s until the 1980s"[8]. Complete assimilation was considered to be the only hope for the Sámi people within the modern Norwegian society. The colonization was effective along the coast, but due to the remoteness of some groups, the inland Sámi managed to survive. Despite the cultural assimilation, the policy was therefore ultimately ineffective. Nevertheless, the consequences have been immense and complex, and keep resonating to this day[6]. Particularly the nomadic practice of reindeer herding is considered as a vital part of culture and was able to survive the ongoing processes of colonization. As a result reindeer herding has become one of main surviving cultural activities of the Sámi and is therefore considered an essential part of culture.

In recent decades the Government of Norway has begun to respect the indigenous rights of the Sámi people[9]. Article 110a of the constitution was added in 1987 and recalls that; "it is the responsibility of the authorities of the State to create conditions enabling the Sámi people to preserve and develop its language, culture and way of life"[10]. However, as we will see, this is constitution is still not fully followed, as the UN Special Rapporteur on human rights Boyd (2019), stresses that there are still serious concerns related to the human rights and environment in Norway[7].

Citations

[1] Down, A., & Erickson, P. (2017). Norwegian Oil Production and Keeping Global Warming Well Below 2 C.

[2] Norsk Petroleum. (2018). Exports of Oil and Gas.

[3] Loe, J. S. P., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway.

[4] Unesco World Heritage. (2004). Rock Art of Alta.

[5] Sandberg, A. (2008). Collective rights in a modernizing North–on institutionalizing Sámi and local rights to land and water in northern Norway.

[6] Eriksen, K. E., & Niemi, E. (1981). Den finske fare.

[7] Sollid, H., Conzett, P., & Johansen, Å. M. (2014). Gender and noun inflection: The fate of ' vulnerable ' categories in Northern Norwegian.

[8] Reinert, H. (2019). The Midwife and the Poet: Bioaccumulation and Retroactive Shock. Environmental Humanities, 11(1), 137-151.

[9] Boyd, D. R. (2019). Norway End of Mission Statement.

[10] Stortinget. (2014). The Constitution – Complete text.

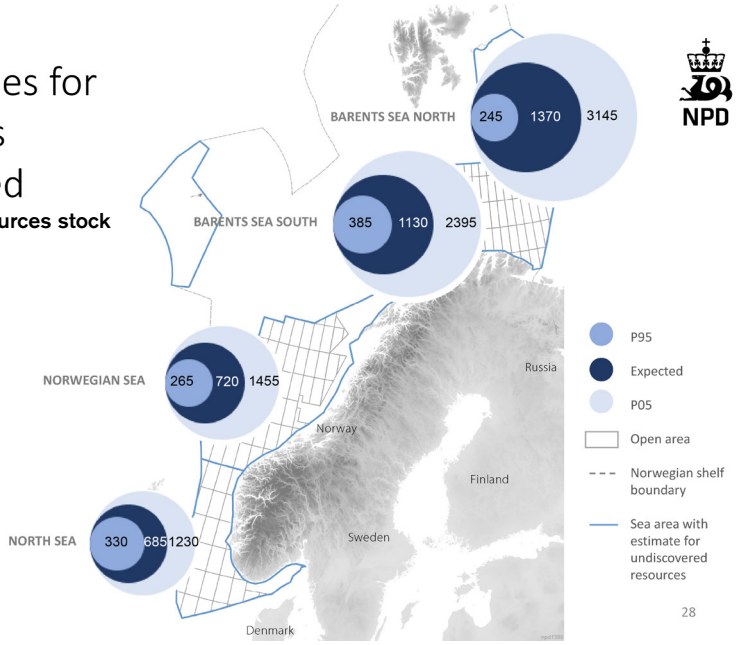
Figures

▶ 4.4 Slide of presentation 'The Shelf in 2019' from the Norwegian Petroleum Directorate.
Sølvberg, I. (2020). The Shelf in 2019.

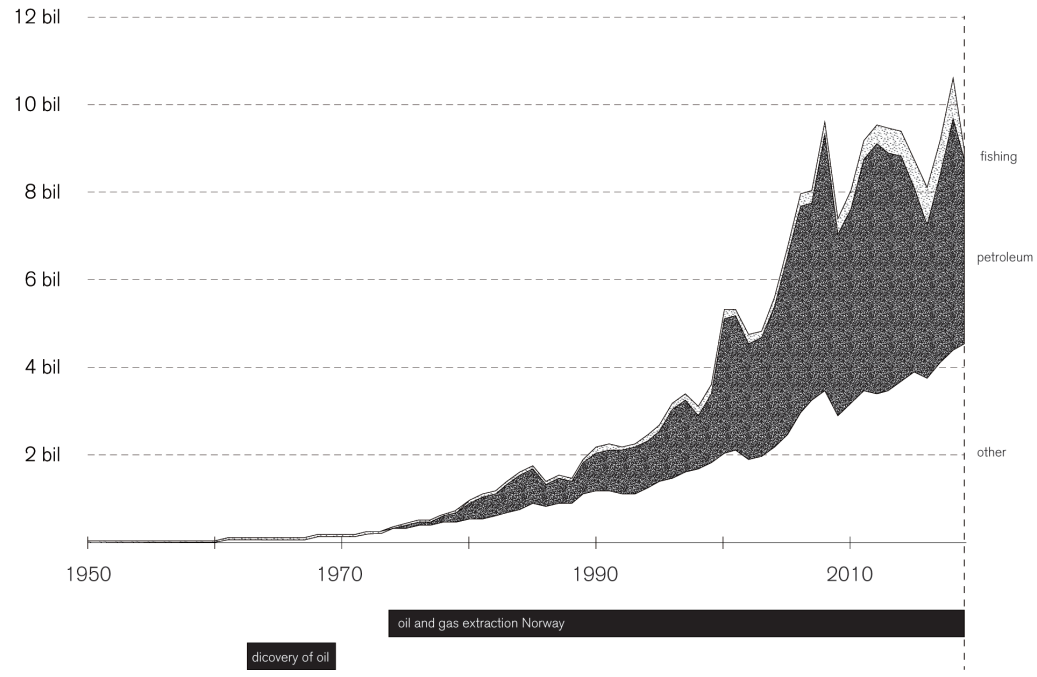
▶ 4.5 Export commodities from 1960 - 2019, Norway.
Based and compiled from Statistik sentralbyrå. (2019). Export data Oil & Gas, Fisheries (traditional and cages).

Good opportunities for substantial values from undiscovered resources

Global resources stock



Export commodities 1960-2019



Nevertheless, Norway has taken actions to unsettle its damaging cultural practices of the past. In 1989, it was the first nation, and still the only Arctic nation, to ratify International Labour Organization (ILO) convention 169 on tribal and indigenous peoples, committing it to the article 14.1:

> The rights of ownership and possession of the peoples concerned over the lands which they traditionally occupy shall be recognized. In addition, measures shall be taken in appropriate cases to safeguard the right of the peoples concerned to use lands not exclusively occupied by them, but to which they have traditionally had access for their subsistence and traditional activities. Particular attention shall be paid to the situation of nomadic peoples and shifting cultivators in this respect[1].

In addition to ILO-169, the state installed the Sámi Parliament, a political body to promote Sámi interests, elected by Sámi people and fulfill an advisory role in policing that affect Sámi lands. Furthermore, in response to the ratification of ILO-169, in 2005 the state transferred 95% of land rights of the county of Finnmark to Finnmarkseiendommen Finnmárkkuopmodat (FeFo). FeFo consists of a board of three persons appointed by the Sámi Parliament and three persons appointed by the County Council of Finnmark. Its primary tasks include the management of natural resources in the area. This, however, doesn't include ownership rights below ground, as natural resources below ground still belong to the Norwegian state.

Norway has come a long way into recognizing the rights of indigenous peoples, especially in comparison to the other Arctic nations. However, as Ravna notes, Norway still has many steps to go in order to fulfill the obligations set out by the commitments of ILO-169[2,3,4,5,6].

Herding

Reindeer husbandry has been a major part of the Sámi culture for centuries. The nomadic practice moved from hunting of reindeer to the herding some 500 years ago. Because of the extreme climate in the Arctic, weather conditions may vary from year to year. Therefore the practice is dependent on vast tracks of land and is following the natural seasonal migration of reindeer. In Norway, herds are moving between inland winter and coastal summer pastures, as can be seen on the images on the right. These seasonal migrations bring herders in periodic contact with a wide range of other actors, particularly agriculture, tourism and infrastructure development (of which extraction industries are mostly the primary enablers)[7].

Healthy and productive environments are essential for both the herders and the reindeer. Both Sámi reindeer herders and Sámi organizations expressed deep worries about threats to the sustainability of reindeer husbandry caused by the encroachment, fragmentation, and cumulative impact of existing and proposed developments including mines, wind farms, hydroelectric power plants, powerlines, railways, cabins, tourism activities, and the infrastructure associated with these developments, especially roads. As the Special Rapporteur on the rights of indigenous peoples observed in 2011, these "activities have resulted in loss and fragmentation of pasture lands, with detrimental effects on reindeer" and proposed "natural resource extraction and development projects threaten to diminish areas available for grazing"[8].

Citations

[1] International Labour Organization (ILO). (1989). Indigenous and Tribal Peoples Convention, C169.

[2] Ravna, Ø. (2011). The Process of Identifying Land Rights in parts of Northern Norway: Does the Finnmark Act Prescribe an Adequate Procedure within the National Law?

[3] Ravna, Ø. (2012). The protection of Sámi People's language, culture and way of life in Norwegian Constitution and other legislation.

[4] Ravna, Ø. (2014). The fulfilment of Norway's international legal obligations to the Sámi - Assessed by the protection of rights to lands, waters and natural resources.

[5] Ravna, Ø. (2015). Sámi Rights to Natural Resources and Lands in Norway.

[6] Ravna, Ø. (2017). Links between Lands, Territories, Environment and Cultural Heritage – The Recognition of Sámi Lands in Norway.

[7] Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

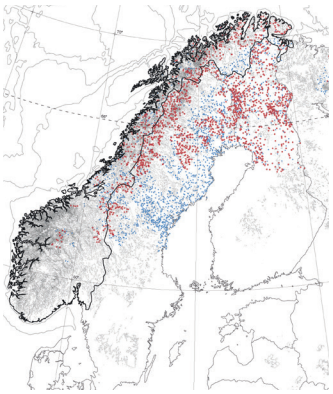
[8] Boyd, D. R. (2019). Norway End of Mission Statement.

Figures

▶ 4.6 Summer (red) and Winter (blue) reindeer density map, 1 dot equals 100 reindeer. Adapted from: Nemkova and Fita (2016).

▶ 4.7 Alta rock carvings. © Thomas Kieselbachf

▶ 4.8 Reindeer herding pen. Made by author.



In essence we can see that there are (spatial) conflicts on three levels;

1. There is the general public and political opinion that overstocking of pastures is causing environmental degradation in the North, which is fed by misinterpretation of scientific evidence. National policies are limiting the practice of reindeer herding under the framework of a supposed ecological equilibrium, addressing the questionable limited carrying capacity of the landscape[7].

2. Industrial development is considered to have a low physical impact on the direct surroundings and therefore it is presumed that there is already a basis of the coexistence between more industrial development and a continuation of reindeer herding.

3. Reindeer herders have little say into local and national political decisions, where often assessment is done without or with little regard of herders, resulting in decision in favor of industrial development, regardless of protest and scientific opposition.



How the Sámi rely on the landscape and consequently view new industrial developments is often misconceived. Along the coastal municipalities inhabitants view the Sámi generally as an obstacle to reaching their ambitions of economic prosperity and job growth. Through these views generally the herders use of land is misunderstood. Seemingly, the low amount of space that is necessary for developments onshore, as compared to the large tract of land that's still available to the herder after the developments, lead to misjudgments on the real impacts to the reindeer herding practice. The hefty defending of land by the Sámi is in turn received with antagonism by the non-indigenous. The state on the other hand is clueless on how to make the assessments of land more equitable, as is reflected in the recent Jovsset Ánte Sara 'overstocking' case. In 2013 the Ministry of Food and Agriculture (under which herding falls), took a decision to forcefully reduce Sámi reindeer herds. Sara, then 21 years of age, had to cut down his herd to 75 - far below the minimum required to continue reindeer herding, had no choice but to take the matters to court. After winning the case twice, the Norwegian state pushed the case towards the Supreme Court in 2017, which finally ruled against Sara. Normally around 200 reindeer are necessary for the herd to be economically viable. Smaller herds also mean fragile and less resilient herds to reductions induced by bad climatic years and predators. The forced reduction policies are in breach with several international commitments by the state and complicates the



future recruitment of young Sámi willing to take up the practice of reindeer herding[1]. As Reinert (2019b) describes the developments concisely;

> The image of a reindeer excess has haunted the edges of the State in Norway for almost two centuries now: a fevered, imaginal swarm always threatening to overspill the borders, invade cities, eating the land bare. Arguments and narratives have shifted over the years but the underlying impulse has persisted: a will to contain the herds, to control them, reduce them-and through this, to control and reduce a segment of the indigenous Sámi population that in conspicuous ways has resisted normalization, simply by dint of their nomadic livelihood[1].

The story of ecological degradation is one of recent decades. There is a consensus that large population of reindeer are principal drivers of a series of problems, including ecological deterioration, land-use conflicts, and economic inefficiency[2]. As Benjaminsen et al. (2015) describe the scientific evidence provided by researchers is often based on the presumption that the environment in the Arctic can reach an equilibrium, despite the fact that herders and other researchers argue that the Arctic is a non-equilibrium environment. This has to do with the fact that the climate in the Arctic can change drastically each year.

The discussion is taken further through artwork shown on the right by artist, activist and sister of Jovvset Ánte Sara, Máret Anne Sara;

> "I am making the installation to visualize the dramatic abuse that is happening, but I am struck by the gust of an ice-cold wind. A disquieting parallel appears. A dark history of colonization from North America in the 1800s. I collect the reindeer heads as images of buffalo heads appear. Millions of buffalo heads, piled into great mountains of trophies. A cold wind blows here in Sápmi as I read on about the buffaloes. About Europeans who almost exterminated the buffalo herd of 50 million animals. The chill deepens. It was a deliberate strategy, ordained from the top. They, the colonists, wanted the land, Regina, as it was to be called—but it was inhabited. The buffalo people stood in the way. The order, the strategy, was simple but effective. Eliminate what the people live off and the people will disappear. The buffalo, bang! Pile o'Bones. I stand here with my reindeer skulls and I shiver with cold. It is no secret that reindeer herders fight a hard battle to protect their pastures against the state's ongoing push for industry. I try to tie my scarf tighter but I know we are in the way. They want the land, Sápmi as we call it. The reindeer we live from are stacked before me. The state is forcibly reducing the herds, with a model that cuts the throat of future recruitment to herding. The chill is inescapable. Pile o'Sápmi."[1]

Despite heavy protests by local residents, herders, Sámi and researchers, most developments will become part of a process of weighing of benefits and risks only to eventually be accepted by the legislative organs. As the recent approval of the Kvalsund mine shows, in the end industries are favored[3,4].



Citations

[1] Reinert, H. (2019). The Skulls and the Dancing Pig: Notes on Apocalyptic Violence.

[2] Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

[3] Dannevig, H., & Dale, B. (2018). The Nussir Case and the Battle for Legitimacy: Scientific Assessments, Defining Power and Political Contestation.

[4] Reinert, H. (2018). Notes from a Projected Sacrifice Zone. 17(2), 597–617.

Figures

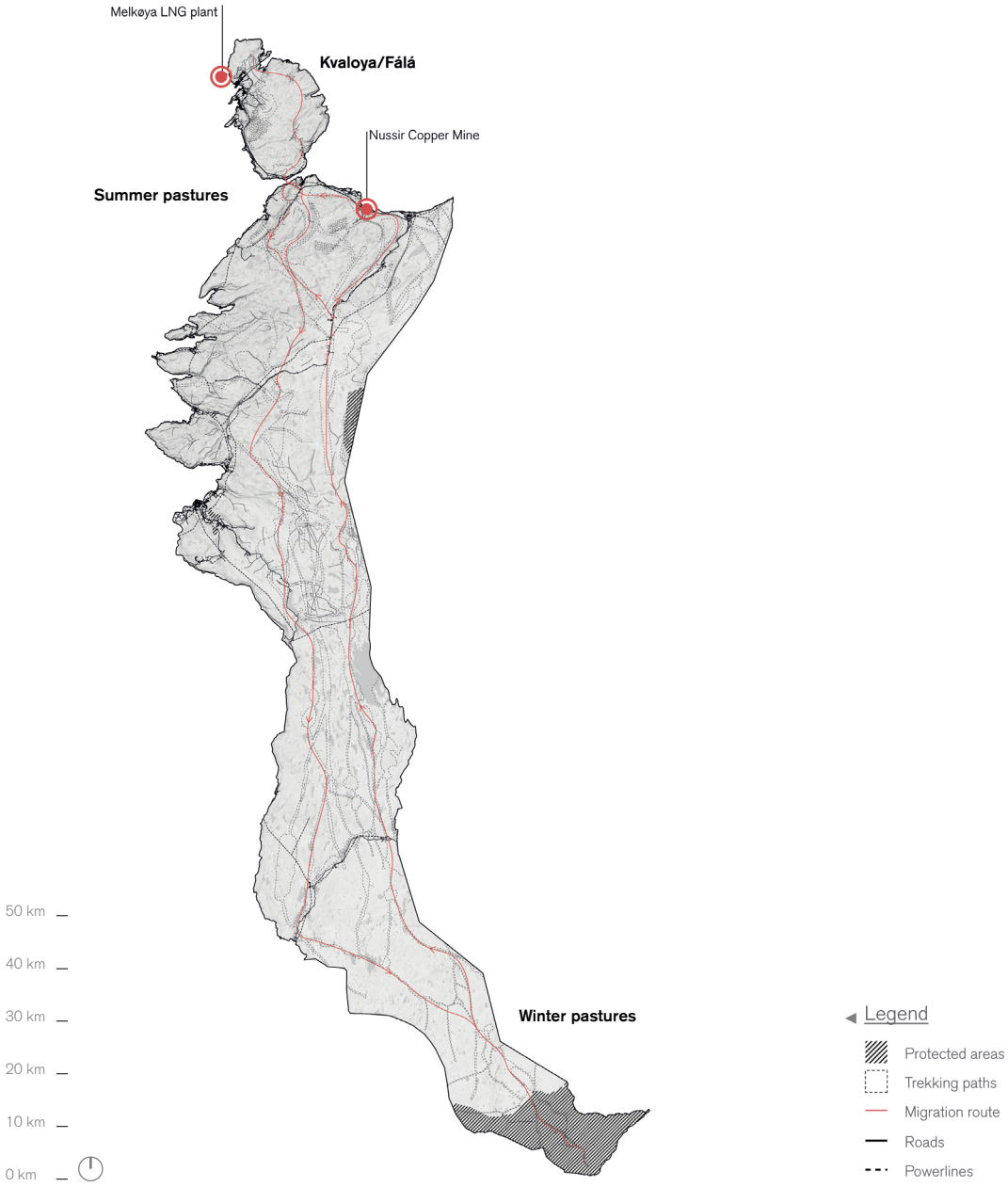
◀ 4.9 Reindeer wandering on the roads around Hammerfest.
© Helle Østvik

▶ 4.10 Reindeer heads stacked upon each other.
© Pile o'Sápmi 2019

The Norwegian Cultural Preservation Paradox:

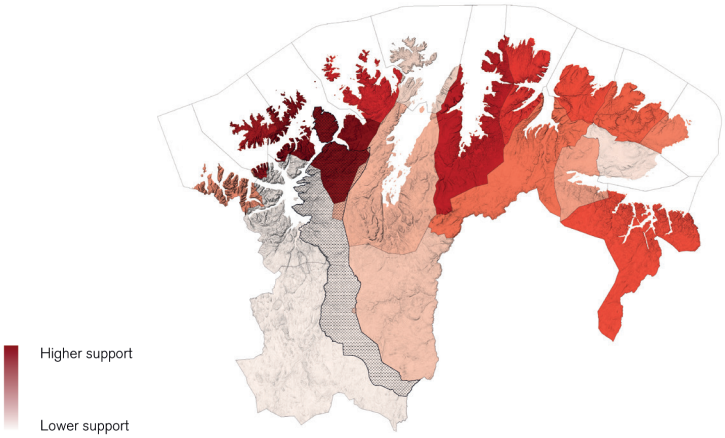
On the one hand, Norway has taken more measures to help strengthen the Sámi culture than any Arctic nation. It has ratified ILO Convention 169 on Indigenous and Tribal Peoples, installed the Sámi Parliament and issued the Finnmark Act. On the other hand, through its policing it favors the development of industries over indigenous practices, and continuously fails to accomplish its legal transnational policy commitments of ILO-169. Furthermore, it fails to acknowledge that its policing of the reindeer herding practice, consists of measures of control that work counterproductive to strengthening Sámi indigeneity. As further analysis will show, in Hammerfest and on the island of Kvaløya the paradox can be traced into the framework of conflicts of ideology and land. Developments in the gas industry have caused a boom in the urban development of Hammerfest. The impact that this decision-making has on reindeer herding is scrutinized in depth further in this thesis.





Political mismatch

The map below shows the political support for the Labor party (Arbeiderspartiet) in the county elections of 2019. Despite overall loss of the Labor party, it still remains the biggest party in coastal cities like Hammerfest and Kirkenes. It is clear that there is a political friction between the coastal areas and the inner - more Sámi populated - areas where the agrarian centrist Center Party (Senterpartiet) has gained strong support[1]. The seasons therefore, brings herders in periodic contact with municipalities that favor industry over herding, thereby negatively influencing the already existing contradictions.



Conclusions

The research questions was:
a. How are development of the oil and gas industries and preservation of cultural values in conflict within Finnmark?

Modernization, industrialization and the question of autonomy
In this chapter an in depth literature review on governance frameworks on hydrocarbon developments and herding in Finnmark was conducted. This was done in order to understand how modernization and industrialization policies are in conflict with governmental measures to strengthen Sami indigeneity and reach climate goals. Because of differences in worldviews and ideologies there are conflicts and misconceptions on the use of the territory on both a conceptual and practical level. This causes problems on several levels in Finnmark.

On the governmental level, the development of the oil industry and continuous strive towards economic growth are in stark contrast with the supposed green attitude of Norway. These are supported by linear narratives of heroic adventures in the high North. On a regional level and in towns like Hammerfest and Kvalsund, the importance of wealth and job creation are deemed more important than a changing climate and the uncertain future of the oil industry. Therefore, the focus is on the development of extractive industries, causing encroachment of important reindeer pastures in Finnmark.

Herders that move between summer and winter pastures and come into periodic contact with coastal areas, where they have little autonomy on developments on the territories they use. On top of this, there is a misinterpretation of presumed overstocking, caused by a lack of knowledge of both seasonal variations of the territory and industrial, infrastructural and urban impact. One of the core areas where these conflicts converge is in the reindeer district of Fálá, where both mining and oil development have an impact on migration paths and summer pastures. In the development of these areas there is a lack of interest for indigenous knowledge of the Sámi reindeer herders. Currently, the conceptual and practical knowledge is not well present and assessed in planning and decision making processes.

The outcome of this analysis highlights the importance to understand how both indigenous and non-indigenous people use time and space. The differences between these conceptual understandings of time and the practical and conceptual use of the territory are therefore further scrutinized in chapter 5, 6, 7 and 8.

Citations
[1] Staalesen, A. (2019). Political earthquake shakes up Northern Norway.

Figures
◀ 4.11 Seasonal migration route for the Fálá district, passing through shared districts and industrial development sites.
Made by author 2019, based on data from Landbruksdirektoratet (2019).

▲ 4.12 Finnmark, political friction between coastal labour driven (Arbeiderspartiet) municipalities and seasonal reindeer herder districts in 2019.
Adapted by author, from Valgdirektoratet (2019).



ENDOGENOUS MECHANISMS

FIELD TRIP & DOCUMENTARY

05.



"You see, gentlemen, reason is an excellent thing, there's no disputing that, but reason is nothing but reason and satisfies only the rational side of man's nature, while will is a manifestation of the whole life, that is, of the whole human life including reason and all the impulses. And although our life, in this manifestation of it, is often worthless, yet it is life and not simply extracting square roots."

Dostoevsky , F. (1864). Notes from Underground.


WEST HERCULES
PANAMA
IMO 8768763
ANTHROPOCENE


PEOPLE


LANDSCAPE

** This chapter is an excerpt of the whole journal and is focused on Hammerfest. The complete chapter is included in the Appendix.*

Introduction

Thorough research on site is a crucial aspect for every project. Preliminary analyses has shown gaps between western and indigenous perspectives which have caused conflicting situations. In order to bridge these gaps, we (Boaz Peters and Mark Slierings) conducted a two week field trip to northern Norway and Scandinavia. The main purpose is to understand the perspectives of the local residents on the incoming industries. By means of a journal we ground our experiences through cinematography, photography, interviews and literature in order to get a more holistic socio-territorial perspective.

The first part will explain the objective of the field trip and what types of documentation were used. The second part consists of a summary of the day to day journal. This documentation explains the foundations for the construction of our documentary.

As outcome we proudly present our documentary 'Northbound' which has been selected for the Architecture Film Festival Rotterdam 2019 and the Budapest Architecture Film Days 2020. Main narrative lines of the documentary were build under the notions of anthropocene, people and landscape. The field trip has aided in the further creation of the theses, and the documentary and journal are the instruments to translate in real life as possible. We suggest that a project in contested landscapes like this is incomplete without the first person perspective, and we build this argument throughout this chapter.

Figures

◀ 5.1 West-Hercules, Rypefjord, Hammerfest.
Made by authors 2019.

◀ 5.2 Winning act of Sámi Grand Prix, Kautokeino.
Made by authors 2019.

◀ 5.3 Håja island, Hammerfest.
Made by authors 2019.

Objective

"Both in the selectivity of their content and in the signs and styles of representation maps are a way of conceiving, articulating and structuring the human world which is biased towards, promoted by, and exerts influence upon particular sets of social relations."

J. Brian Harley, "Maps, Knowledge and Power" (1988)

If the map doesn't present itself as a truthful representation for the territory anymore, then new modes of representation should be considered to broaden the academic scope. During the field trip our goal has been to investigate and communicate the social, environmental, cultural and political dynamics in Finnmark.

We chose documentary making as a tool to translate these problems. Objective and subjective gaps between Western and indigenous perspectives are causing conflicts in Finnmark. One of the primary problems is that a Western perspective - often based on a more objective, third person knowledge - fails to understand and translate local knowledge and perception into its research. According to the Stanford Encyclopedia of Philosophy, this objectivism is effectively based on the assumption "that an objective description of what exists can be complete; that there are no aspects of reality which can only be understood by having experiences of a specific type"[1]. But as the philosophical Knowledge Argument reveals; "no objective description of what exist can be complete"[1].

The Knowledge Argument "rests on the idea that someone who has complete physical knowledge about another conscious being might yet lack knowledge about how it feels to have the experiences of that being"[1]. This is exactly where documentary making can be seen as an effective tool. Our goal is to combine and test our pre-gathered research and hypotheses with the first person experience through filming, photography and interviewing and translating this to reach a wider audience.

There are multiple methods to gain a holistic view in regard of first person perspective/ knowledge (interviewing, studies in humanities etc.). We chose to focus on film making as it provided us with a tool which is visually and emotionally strong. Furthermore, it is quite quickly mastered with little experience or study.

Western- and indigenous knowledge perspectives

Knowledge based indigenous science has been gathered over centuries by place-based natural-history observations: in lexicon, calendars, place names, maps and other practices of indigenous resource managers. We will use the field trip, journal and documentary as aides for opening up this knowledge to us, in order to elaborate on the findings of our theses. And as Sarah Pink explains; "first person perspective recordings might be engaged and made analytically meaningful in disciplines where naturalistic and observation visual recording is uncommon". She argues that these technologies can be used for wider possibilities in ethnographic research both beyond their existing uses and for interdisciplinary research where the images they produce might be analyzed from more than one perspective[2].

We will use the journal and documentation through documentary making to combine our (Western) research with the *traditional ecological knowledge*[3]. Traditional ecological knowledge is "knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings, including humans, with one another and with their environment"[4].

Citations

[1] Nida-Rümelin & O Conaill, (2019), Qualia: The Knowledge Argument.

[2] Pink, S. (2015). Going forward through the world: Thinking theoretically about first person perspective digital ethnography.

[3] Wilder, O'Meara, Monti, & Nabhan, (2016), The importance of indigenous knowledge in curbing the loss of language and biodiversity.

[4] Berkes, F. (2012). Sacred Ecology.

[5] Nisbet, M. C., Hixon, M. A., Moore, K. D., & Nelson, M. (2010). Four cultures: New synergies for engaging society on climate change.

Figures

▶ 5.4 Diagram showing relations between western knowledge and traditional ecological knowledge and their respective perspectives.
Made by authors.

▶ 5.5 Table comparing features of Western science and TEK.
Based and adapted from Wilder, O'Meara, Monti, & Nabhan 2016.

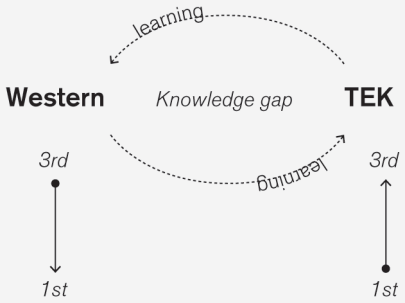
The diagram and table below explain the main differences between Western knowledge and traditional ecological knowledge (TEK). As the digram shows, traditional ecological knowledge enriches Western science, but can also benefit from it. This cooperation will eventually enable researchers working in these environments to help engage diverse constituencies in addressing the biological, cultural and economic consequences that global externalities have on these territories. This should therefore be of interest to those scholars working to bridge the environmental sciences with social sciences, art an religion[5].

Ultimately we will try answer the following question:

> *How can the field trip, journal and documentary broaden our knowledge for our theses and scientific knowledge of indigenous issues?*

The journal can be found on the following pages. For each location we stopped, we will couple our personal experience with scientific literature and news articles. On the days of the interviews, a summary of the interview will be given. Concurrently, we will explain which stories, conclusions and images ended up in the documentary. By providing a journal, we hope to be transparent in our motivations and intentions.

Western and indigenous perspectives



Goals	Seeking universals and testing theories through experiments, the analyses of data and models	Usually offering data and pattern analyses specific to or bounded by a culturally defined space and time
Participants	academically trained professionals & technicians	Largely done by “proto-professional” naturalists: foragers, hunters, fishers, farmers and shamans
Communication	Primarily through written works, graphs and formal oral presentations	Primarily transmitted orally in indigenous language and through songs, story, maps and art.
Framework	Done by individuals, small teams, or cybernetworks for universal benefit	Done in multigenerational communities primarily for the community

Journal setup

Day 1 - 3: Tromsø | page
Arctic University of Norway
Grøtsund Fort Harbor
Tomsø Arctic Reindeer
Nordnorsk Kunstmuseum

Day 3 -4: Hammerfest | page
Snøhvit: oil & gas industry
Museum of Reconstruction
Local perspectives

Day 4 - 5: Forsøl - Børselv | page
Fish industry
Strømsnes: future industrial development
Repparfjod: re-opening copper mine

Day 5 - 6: Børselv - Vardø | page
Interview: Siv and Per - social geographer and reindeer herders
Fjord landscapes : fishing towns
Varangerfjorden

Day 6 - 7: Vardø - Kirkenes | page
Radar surveillance stations
Interview: Torbjørn
Steilneset Memorial: Sámi and Kven evictions
17th century

Day 7: Kirkenes - Russia | page
Nikel: nikel mines and smelters
Zapolyarny: mines and industry

Day 7 - 8: Inari - Leppäjärvi | page
Siida museum
Arctic Corridor
Sámi Parliament

Day 8 - 10: Kautokeino | page
Sámi University
Interview: Aslak Sokki - owner Sokki Adventures and reindeer herder
Sámi Grandprix

Day 10 - 11: Leppäjärvi - Alta | page
Alta Rock Carvings Center
Alta Canyon: Alta protests against Alta dam

Day 12 - Alta - Hammerfest - Tromsø | page
Kåfjord: old copper mine and 2nd world war
Repparfjord
Rypefjord: Polar Base harbor

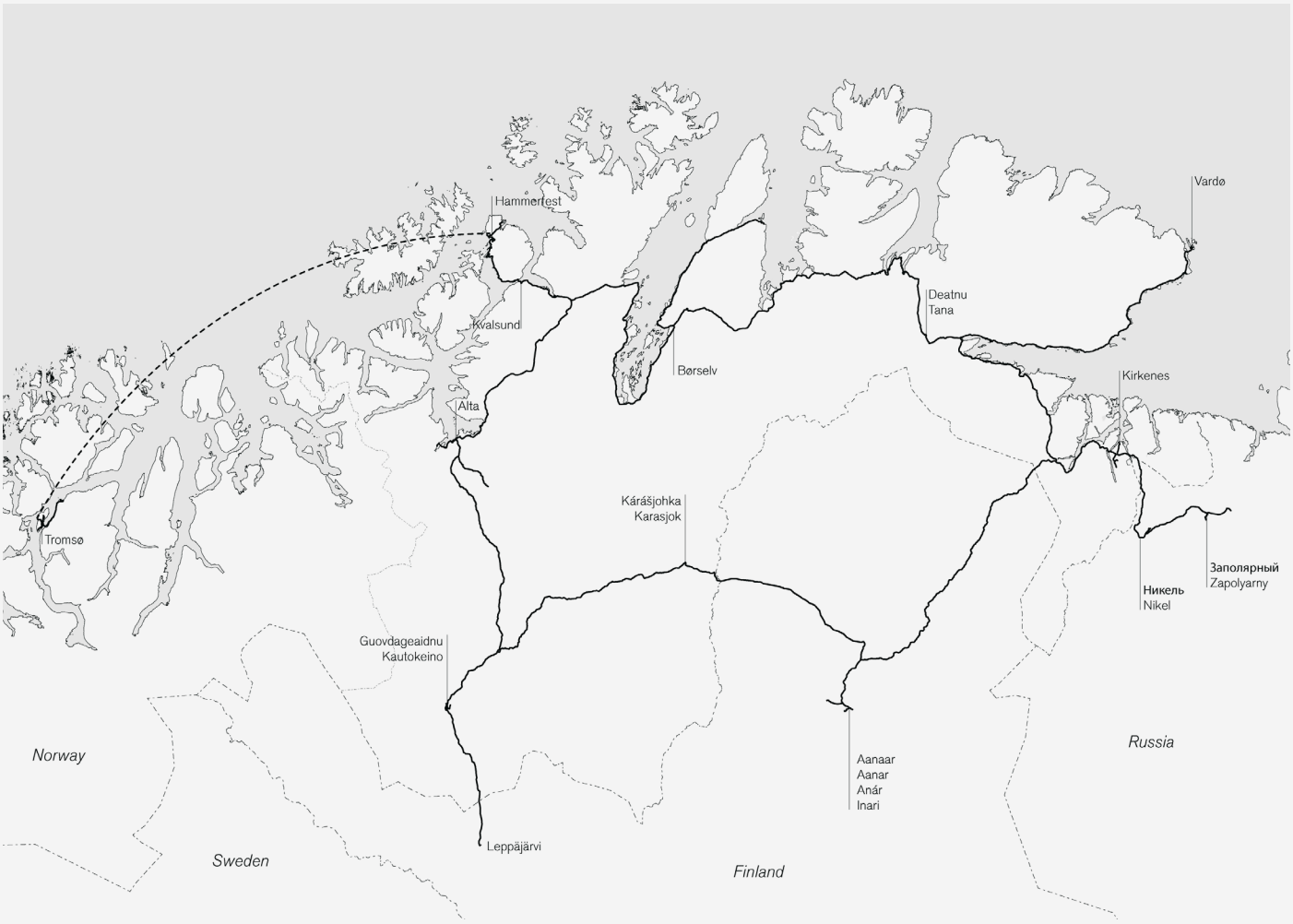
Day 12 - 14: Tromsø | page
Norgen Arktiske Universitetsmuseum
Polar Museum

Figures

▶ 5.6 Twilight lasting hours seen from the car.
Made by authors 2019.

▶ 5.7 Map of traversed route through Norway, Russia and Finland.
Made by authors 2019, based on height data from Kartverket 2019.




Hammerfest
Vardø
Deatnu
Tana
Kvalsund
Børselv
Kirkenes
Alta
Kárášjohka
Karasjok
Tromsø
Заполярный
Zapolyarny
Никель
Nikel
Guovdageaidnu
Kautokeino
Norway
Russia
Aanaar
Aanar
Anár
Inari
Leppäjärvi
Sweden
Finland

Hammerfest

Sunday April 14th, 2019 | 15:00

The easiest way to reach Hammerfest is by plane, we board a small propeller plane and are condemned to a turbulent 45 minute flight to Hammerfest. The first meeting with Hammerfest is a rough one, with strong tail winds, the landing was a shaky experience. Being in close connection with open sea Hammerfest is prone to higher winds, making a turbulent landing not an uncommon experience. Descending through the clouds, the flaming chimney of the Melkøya gas plant is one of the first sights. The city embraces the sea, with its harbors situated on headlands and the residential areas on the slopes behind that. Arriving at the airport, a sign is welcoming us in *the northernmost town of the world.*

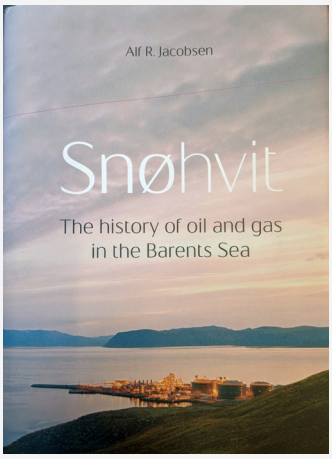
> In the arrival hall there is a depiction of a polar bear with a crown on its head, the Hammerfest city coat of arms. Strange, [...] because there are no polar bears in Norway. It is symbolic of what this place stands for: the gateway to the Barents Sea adjacent to the Northern Ice Sea, the most productive sea in the world, full of expensive fish such as salmon, cod and halibut. Hammerfest means "Fixed anchor" in Old Norwegian, a name from the time that fishermen on the turbulent Barents Sea faced an uncertain adventure[1].

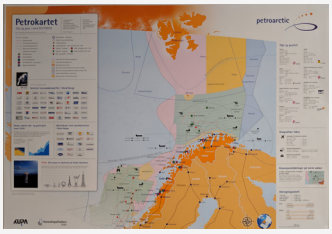
Where in Tromsø it still feels everywhere that you're in a city or a small village, in Hammerfest the remoteness of Arctic Norway can be felt strongly. The strong winds and inclemency of the sea give rise to a chilling almost melancholic feeling. Being there, we're reminded of paintings by Knud Baade and Peder Balke, that in many works tried to show this side of the Norwegian landscape.

19:00

The importance of the sea is adequately portrayed in a book we encounter at a prominent place in the hotel lobby. The book is titled 'Snøhvit' (Snow White) named after the gas field and project that gave rise to the gas plant developments on Melkøya island. The local author Alf K. Jacobsen describes the developments of the gas plant with great pride.

> For Hammerfest and the surrounding area the arrival of the petroleum industry has been a revolution. Development has been phenomenal. From being the centre capital of a region marked by pessimism and stagnation, the town is now full of optimism and is positive - based on the income and the opportunity that the gas has brought.
>
> [2] Alf K. Jacobsen, "Snøhvit, The history of oil and gas in the Barents Sea"







Citations

[1] translated from Noteboom, B. (2018). *Arctica - Mijn biografie van de noordpool.*

[2] Jacobsen, A.K. (2009), *Snøhvit, The history of oil and gas in the Barents Sea.*

Figures

▲ 5.8 Snøhvit book on display in hotel lobby. Made by authors 2019.

▲ 5.9 Petroleum maps, visible in many hotel lobbies and governmental buildings. Made by authors 2019.

◀ 5.10 Håja island, prominently visible from all over Hammerfest. Made by authors 2019.

▶ 5.11 Headland with Skansen Fortress (front), Melkøya gas-plant facility island (back). made by authors 2019.



20:00

In the evening there is time to see the city in a different light, we walk around town and get a good view of Melkøya from the Skansen Fortress (figure 5.11on previous page). Under a seemingly excessive amount of lights, a boat is docked and being loaded (figure 5.16 next page).

Monday April 15th, 2019 | 11:00

On the second day we try to get a better feeling of what it would be like to live in Hammerfest. Probably because Easter is around the corner, the amount of people we encounter on the streets in Hammerfest is quite low, only when a Hurtigruten boat docks the activity around the harbor was higher. There are a few snack-bars, some restaurants and a big supermarket with some more activity, but at the same time it is clear that we are there at a time with low activity.

12:00

We learn that Hammerfest (and all of Finnmark due to a scorched-earth policy) has been rebuilt completely after the Second World War. The Museum of Reconstruction focuses on the dramatic events around WWII: the forced evacuation, the conflagration and the reconstruction. Societies in the fjord areas before the war were shaped by three northern cultures meeting; (sea and nomadic) Sámi, Kvens and Norwegians. The forced evacuation and destruction at the end of the war made 75.000 people homeless and many of them hid in caves or in turf huts. Although some Sámi houses were saved, the museum hints that the scorched-earth policy basically finished the authorities ideas of equalization - or "Norwegianization" - during the reconstruction period. This was because the reconstruction was influenced by standardized and modernized ideas, and therefore the uniqueness and traditions failed to show in the new settlements. This was particularly felt the hardest by the Sea Sámi[1]. Reinert explains this as following:

> After the war, when the government in the south undertook the grand project of reconstruction, aiming to modernize and reform the north, many of the returning villagers saw this as an opportunity: a chance to join the opulent southern modernity they had glimpsed in the evacuation, a world of wealth and abundance—of wide roads and grand structures, electricity, markets, libraries. And that world, of course, was Norwegian. Unsurprising, then, that in town after town along the coast, in the first census after the war, townships that registered a Sámi majority before the war suddenly "switched," en masse, to becoming predominantly Norwegian[2].

In the new modernized world older generations were sometimes ashamed of their culture and therefore "many children ha[d] to live without grandma and grandpa's soft words because grandma and grandpa d[idn't] want to nurture them with a strange language"[3].





Citations

[1] Based on texts from the Reconstruction Museum, Hammerfest.

[2] Reinert, H. (2019a). The Midwife and the Poet: Bioaccumulation and Retroactive Shock.

[3] Rauni Magga Lukkari, quote from Reconstruction museum, Hammerfest.

Figures

▲ 5.12 Hammerfest in 1945 after the scorched earth burning.
© Hammerfest Museum of Reconstruction

◀ 5.13 View on the coastal Hammerfest. Made by authors 2019

▶ 5.14 Hammerfest seen from the view point on top of Salen, with Melkøya on the background.
Made by authors 2019

▶ 5.15 Main street of Hammerfest, empty.
Made by authors 2019









5.16 Melkøya at night.

Walking around town, the modernization trend is still clearly visible. Large parts of the city consist of a relatively modern, but generic appearance. After another period of decline in the 80s and 90s - due to the decline of the fish industry - the city welcomed the arrival of the oil industry with open arms in 2001. From that moment on, new buildings have emerged and facades refurbished, but some doubt the success of this; "Never have we had more money, and never has it been uglier around us"[1]. Compared to other places in Norway, Hammerfest seems to have lost its typical Norwegian character for good.

18:00

We plan on having an interview in Hammerfest, but aside from some tourists brought in by the cruise-ship, the town is empty. The only activity seems to be the fueling of the gigantic Arctic Princess, docked at Melkøya island. When filming from an empty parking lot, next to the entrance of the tunnel - leading to the island - we feel slight uncomfortable, as being watched over. The kind of misplaced feeling is underlined by the perspectives most people here have on external parties opposing petroleum developments. As Loe & Kelman explain, based on interviews, most people assumed that "the petroleum adventure (or fairy tale, since the Norwegian word "eventyr" means both) would last decades and obviates any need to worry about the future, such questions of scale, either spatial or temporal, were effectively absent from the interviewees' consciousness"[2]. Local people who do worry, are often confronted or silenced by (un)written rules. As the following interviewees' show:

> "I am pissed off at academics and people sitting in cafés in Grünerløkka in Oslo [a trendy neighborhood in Norway's capital] arguing against petroleum. They have their things—so why should they begrudge us to have something as well"[2].

> "People care more about status, [material] things and expensive cars. People talk about buying new snow scooters and where they are planning to travel. The petroleum industry has created an illusion that having much money is happiness. It was different before. Calmer"[2].

> Interviewee 12, a young female cultural worker, explained that environmental concerns would typically be met with comments such as "If you care so much about the environment, then why are you living here and reaping all the benefits from oil and gas?"[2].



Citations

[1] From "Mitt hus er din utsikt", Anna Elisa Tryti, leader of the Public Committe on Building Tradition - 1996-2000, quote in the Museum of Reconstruction.

2 Loe, J. S., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway.

Figures

◀ 5.17 Stormy weather along the coast of Hammerfest.
Made by authors 2019.

▶ 5.18 Documentary stills.
Made by authors 2019.

"For us, it has not been a question of environmental risk but of survival and having a place to work· · ·Our nature and culture in this region [where fisheries used to dominate] is to survive, and we know there is a risk in all activities. Furthermore, we have grown up here, and don't see the nature surrounding us as so unique"[2].

It is of course hard to disagree with the desire of the people to - finally - have a stable, wealthy future, but at the same time it feels wrong, knowing climate change and Sámi are both victim of these kind of industries.

"Hammerfest has become one of the richest small places in Finnmark because of Equinor, because of the gas developments."

Atle Staalesen, Barents Observer.

Documentary

Hammerfest is portrayed in the documentary as a town that is subject to inclemency, that embraces the sea both spatially and economically. It has known a long sordid history with its reconstruction and fluctuating economy after the second world war. The industrial developments, and particularly the ones aimed at developing off-shore oil and gas, can relate to Hammerfest as a successful example. The town has already claimed its share in the Arctic oil and gas developments. Therefore Hammerfest has a central role in the documentary.

Hammerfest is *the* foremost example where the Northern industrial transition has already triumphed. The message we wanted to portray is why coastal towns advocate in favor of industry, but also explain that this could leave the city vulnerable in the future.



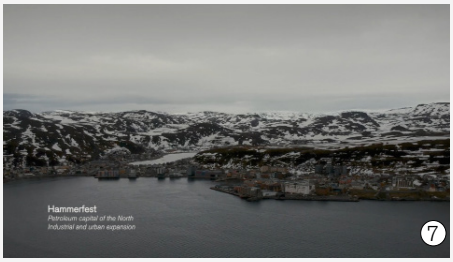






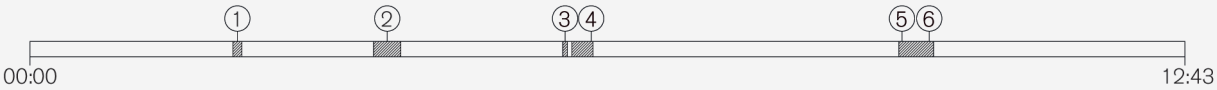












Forsøl - Repparfjord - Børselv

Monday April 15th, 2019 | 18:00

After receiving the rental car we drive to the small village of Forsøl on the east side of Kvaløya island. What particularly catches our eye are the fishing racks residing in the calm waters. The salmon held here is the kind of fish we can find in our supermarkets. Browsing Google maps, these kind of structures can be found all along the coast in Norway and it is therefore no surprise that Lars Lerup argued - in his keynote lecture - that this industry has been the driver behind the Norwegian economical succes[1]. The same modernization policies - visible in Hammerfest - have industrialized the fishing industry in the 50s, when freezers were introduced in every household in America. Combined with cheaper transportation - and the older generations selling their quotas to companies - it has slowly pushed out traditional fisheries[2]. Knowing that, we observed this phenomenon along the whole coast of Finnmark. Aside from the cheap production, these fish farms are also known to spread diseases in the fjords[2], thereby altering the local ecosystems. Villages - like Forsøl - seem to slowly decay as younger generations move to bigger cities in the region and the south. It is one of the reasons as to why people are turning towards industrial development to ensure a higher availability of jobs.

"The fisheries have undergone major changes over the last decades. There is big industrial ships doing lots of processing offshore for example, there is not so much fish going to the ports as before."

Atle Staalesen, Barents Observer.

Citations

[1] from keynote lecture at the Transitional Territories symposium - Territory as a Project.

[2] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen.

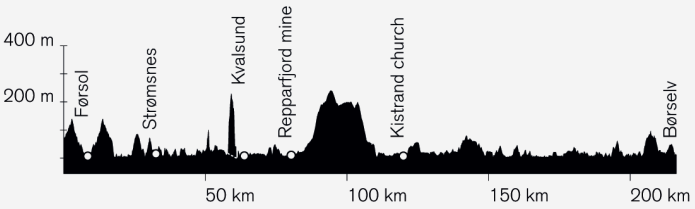
Figures

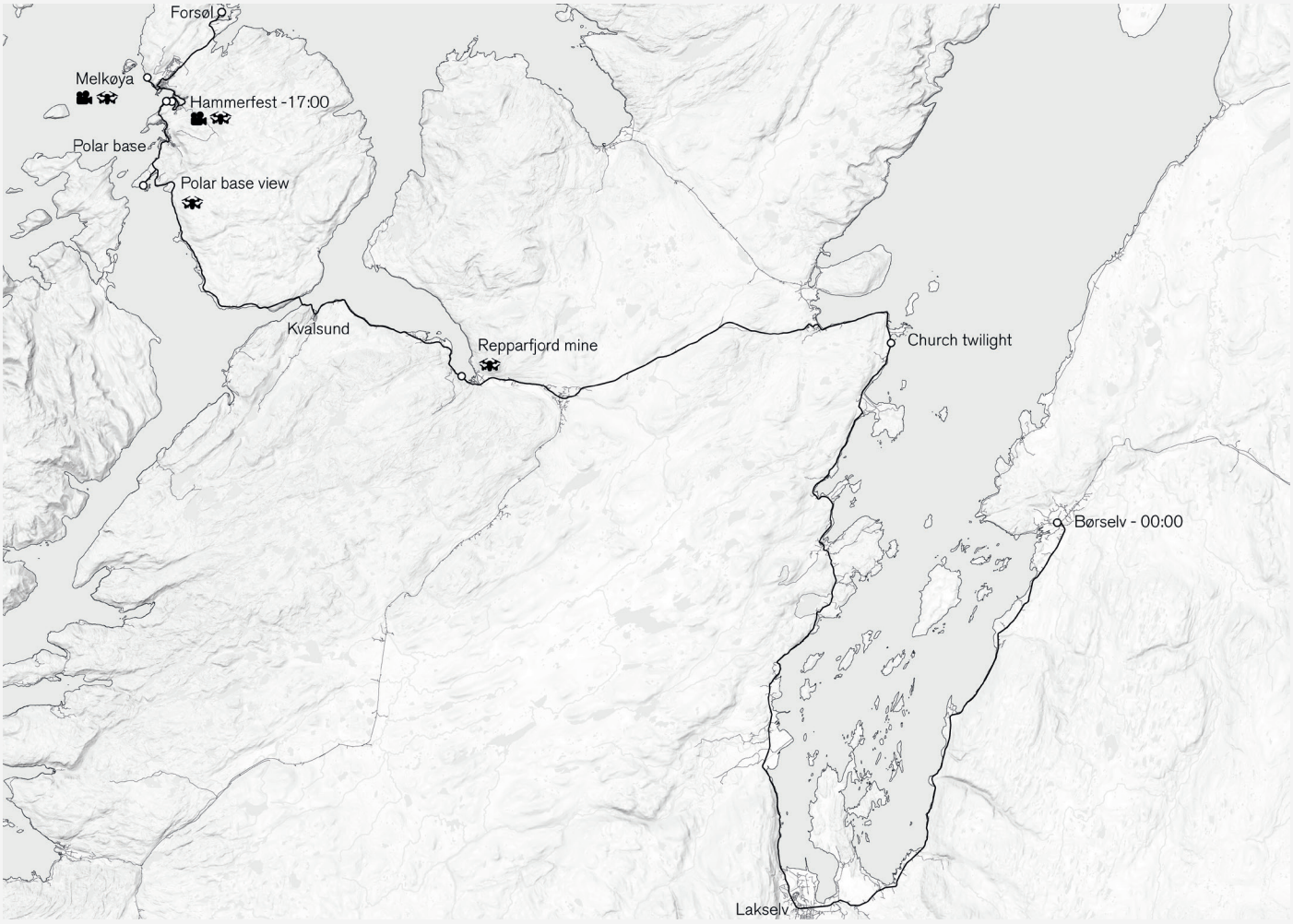
◀ 5.19 Section of traversed route. Made by authors 2019, based on height data from Kartverket 2019

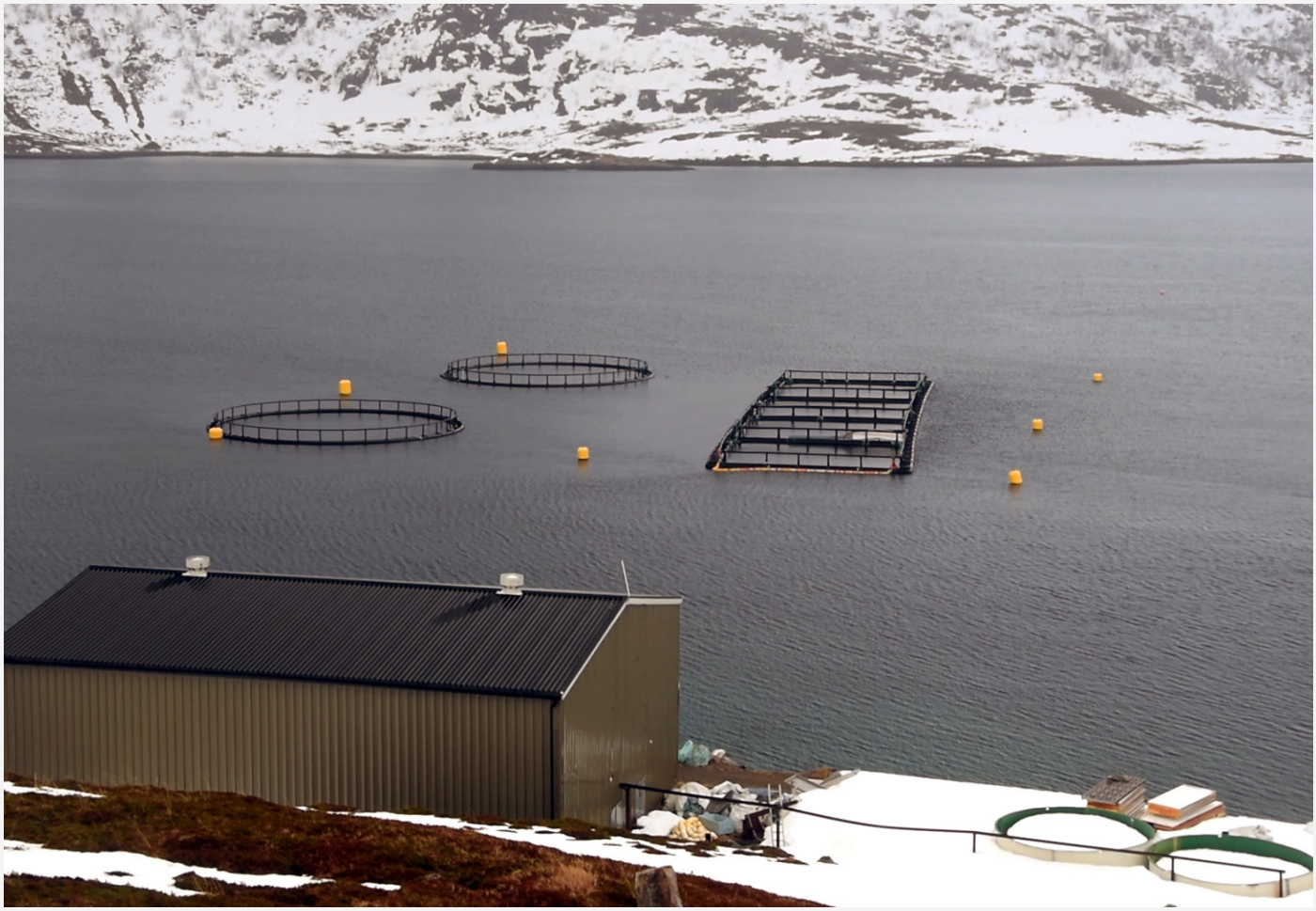
▼ 5.20 Traversed route from Forsøl to Børselv. Made by authors 2019, based on height data from Kartverket 2019

▶ 5.21 Salmon fishing farms calmly residing behind the mountains near Forsøl. Made by authors 2019

▶ 5.22 Small harbor in Sandbukta bay, Forsøl. Made by authors 2019













20:00

Driving out of Hammerfest we pass Rypefjord - which is nowadays considered a suburb of Hammerfest. The village is home to a major harbor, consisting of a fish factory and Polar Base AS - an oil and gas supply base. When preparing the trip we contacted the company for an interview, unfortunately without response. The harbor has been extended since the 80s when oil was first discovered in the Barents Sea. We are surprised and overwhelmed by the sight of a gigantic oil rig in the harbor and turn into the first road to get a better look with the drone (figure 5.24). As we hypothesized upfront, the Norwegians are - perhaps unconsciously - quite good at hiding the industry from most main roads. It strikes us that from one point of view we witness the beautiful docking of a ferry to Seiland, while looking the other way reveals the other face of Norway. As we later discover there are plans to turn the whole peninsula of Strømsnes into a new industrial area - a not so modest 1.000.000m^2 - which will significantly impact on the Sámi reindeer herders on the island. Again an accompanying movie - advertising the industry in a heroic way - is used to attract investors and people to Hammerfest[1]. But more on that in Boaz' project.

The Barents Observer



Repparfjord is near Norway's northernmost point. Photo: Thomas Nilsen

Norway greenlights copper mine with tailings to be dumped in Arctic fjord

21:00

This is not the only controversial industrial development plans which we pass today. About an hour drive from Polar Base, we pass the bridge connecting Hammerfest to Kvalsund, municipality that is home to the Repparfjord. Here the biggest known copper deposit of Norway is situated a few hundred meters below the ground. Mining company Nussir has received a license to operate from the Norwegian government, despite strong opposition from the Sámi Parliament, the Fishing Union and Environmental groups. The issues revolve around two issues. First, the dumping of waste material in the nearby fjord - destroying live for several years in a National Salmon Fjord with possibly broader consequences. Second, the encroachment on important calving grounds and migration routes for the Fiettar and Fálá reindeer districts. The mine has been the center of a national debate revolving around the damaging practices of Norwegian mining, both on environment as on indigenous livelihood.

> Kvalsund is an old coastal Sámi community. Then-Mayor of Kvalsund estimated that while 90% of the population were Sámi descendants, only 15% speaks or understands Sámi language today. Fishing combined with agriculture and reindeer husbandry were traditional livelihoods within the municipality, but these livelihoods were weakened after the Second World War. Between 1950 and 2004, the population declined by 43% – a decline related to the decrease in employment in fisheries[2].

When we arrive, we're surprised to see a construction vehicle in operation. Although the mine received a license to start operating in February, the decision was appealed to the King-in-Council (highest form of appeal), limiting the operation possibilities of Nussir. We assume that operations now involve the preparation for mining developments to start. The only parts of the mine that are visible at this time are the processing plant in the red building, some barracks for workers and a part of an open pit which was used for the extraction of gravel. The Ulveryggen open pit which was in operation in the seventies is higher up and is only accessible on foot, but a thick layer of snow impedes our possibilities to reach it.

Citations

[1] Hammerfest Kommune (2013). *Hammerfest -- The gateway to the Barents Sea* [Youtube video]. Retrieved January 2020 from: https://www.youtube.com/watch?v=IKDs0alwYnE&t=226s.

[2] Johnsen, K. I. (2016). 'Land-use conflicts between reindeer husbandry and mineral extraction in Finnmark, Norway: Contested rationalities and the politics of belonging'.

Figures

◀ 5.23 Strømsnes ferry to Seiland national park at Akkarfjord.
Made by authors 2019

◀ 5.24 Strømsnes peninsula with on the background the West-Hercules oil rig in Rypefjord.
Made by authors 2019

▲ 5.25 News cover of November 30th, 2019 in the Barents Observer.





22:00

In the next two hours we drive towards Børselv. The inland areas are seemingly empty of any human intervention. The twilight - lasting for hours - deeply impacts both of us. When descending from the mountain range we see a small church. We decide to have a look. The Porsangerfjord - the 4th longest fjord of Norway and longest of Finnmark - stretches out before us. The silence and emptiness has a calming effect. Hours seem to go slower here, and we start imagining how it is to live of the land here. Words - and even photography and film - seem insufficient to cover the experience.

Documentary

Depicting and explaining the developments around the oil and mining industry is one of the central goals of the documentary. The main footage used of today is about the Repparfjord and Strømsnes peninsula. Though there is no time in the documentary to thoroughly explain both developments, we have tried to communicate these problems through powerful imagery and narration. It is a good exercise in how to translate these problems to a wider audience.

Figures

◀ 5.26 Repparfjord mine.
Made by authors 2019

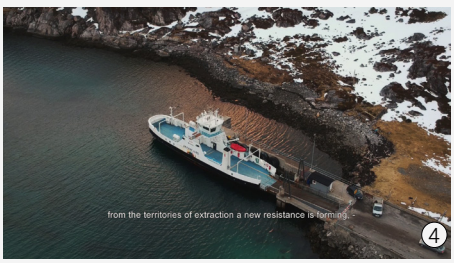
◀ 5.27 Kistrand Church in deep green-blue twilight.
Made by authors 2019

▼ 5.28 Documentary stills.
Made by authors 2019







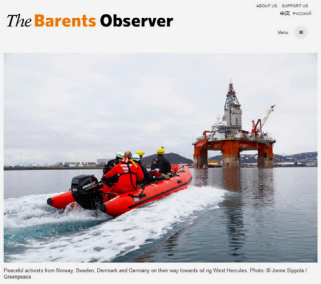








Alta - Hammerfest



Activists advanced on Arctic oil rig

Monday April 22st | 15:00

On the way to Hammerfest, we discover that the West-Hercules is still docked at Polar Base in Hammerfest. Returning from the trip, the grand gesture of this structure is invoking overwhelming emotions. As we later discover, the rig will explore new licenses for Equinor in the northern parts of the Barents Sea. Later that week, activists from Greenpeace enter the rig, demanding a stop on drilling in the Arctic - of course without result. But as locals have expressed in interviews, they don't like the southerners coming in and demanding a stop on these important economic activities for Hammerfest.

Documentary

> *"Norway is a very petroholic country. The government in Norway has a strong interest in developing mineral resources and oil and gas. And also the biggest political opposition groups has the same, but there is at the same time a growing discourse, both locally and on the national level on how to handle these issues. Like climate change issues, indigenous peoples, and so on."*
>
> Atle Staalesen, Barents Observer.

From the opening shot to complementary footage under the narration of the documentary. We wanted to highlight - how insignificant it may seem in the vast landscapes - that industrial development invokes controversial problems both for local indigenous groups, as well as what they leave behind when the industrial activities stop.

Figures

◀ 5.29 Local working on his boat, Rypefjord.
Made by authors 2019

◀ 5.30 West-Hercules oil rig, docked at Polar Base.
Made by authors 2019

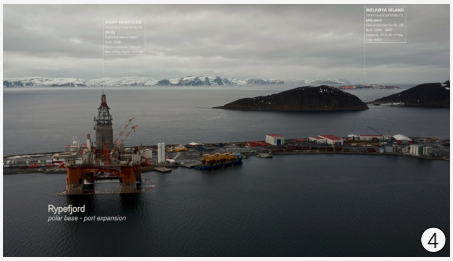
▲ 5.31 News cover of April 29th, 2019 in the Barents Observer.

▼ 5.32 Documentary stills.
Made by authors 2019



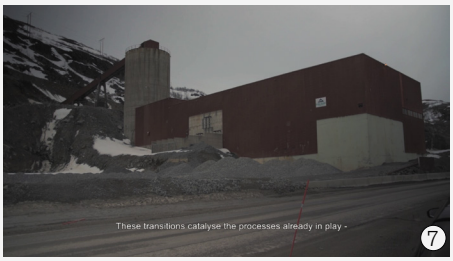


















Documentary NORTHBOUND

"This documentary is about the most northern state of Europe, Finnmark. If this state would be a city it would rank 6th on the list of biggest cities in Norway in terms of inhabitants, yet the people are stretched out over an area slightly bigger than Denmark. The ground houses a lot of mineral riches, and it is the primary landing place for new oil and gas explorations in the Barents Sea. Sea ice recession in the Arctic furthermore greatly increases trade possibilities with China, cutting down the traditional Suez route by several days. A new projected railway line through Finland connects the in Finnmark situated harbor town Kirkenes to the Baltic States and further down to Central Europe. But what will this rapid industrial transition and economic expansion mean for local culture? How will the indigenous Sámi, the only remaining officially recognized indigenous peoples of Europe and their inseparable connection with herding reindeer, cope under this transition? Will Finnmark thrive under the coming industries or subdue under its destruction? Already the issuing of permits (like one in the Repparfjord in the municipality of Kvalsund) is causing the inhabitants to be divided over whether to choose for preservation of a natural condition, or exploit the landscape for economic growth and job development.

With this in mind we left to make a documentary along the several small villages, and the majestic stretched out landscape of Finnmark. Along the road trip we documented people's perspectives on the industries and life in Northern Norway, many fascinating fjords, large numbers of reindeer and already existing industries. We were struck by the amount of processes which are going on, but which don't meet the eye at first glance. Locals in general seem to be extremely divided, invoking either anger or hope, when talking about industries. What helps for the industries is that the greatly stretched out landscape morphology, allows them to operate in a more covert way. Globalization is pervasive, and it is profoundly affecting local cultural livelihoods."

https://vimeo.com/339203320

Conclusions

The research questions was:
b. How can the field trip, journal and documentary broaden our knowledge for our theses and scientific knowledge of indigenous issues?

As part of the research for this thesis a field trip was conducted in order to understand territory from the ground. During the field trip several tools were used to get a more holistic understanding of the territory and socio-economic state of Finnmark. If indigenous issues cannot merely be understood through general scientific knowledge it requires conversation and it requires the urbanist to be there in order to understand the place. Therefore, several interviews were conducted, that particularly made clear that future of Finnmark depends largely – if not fundamentally – on new improved ways of communication and a re-evaluation of the most important values. Through cinematography, photography, this understanding was translated into a documentary and journal. The outcome aided us in translating the problem to a wider audience and into further research in this thesis.

The documentary making, we argue, is a counter narrative to existing structures of storytelling in the north. The combined experience of the climate, landscape and first hand conversation with local people has helped us with building a knowledge database in the form of a journal. Documentary making is therefore, if combined with research, a strong tool that can help to create awareness on the Sámi issues.

From the field trip it can be concluded that the impact of the oil industry on Hammerfest and reindeer practice is profound. From the interviews it became evident that the Sámi herders are a strong agent, with the capacity to live of the land in a sustainable way. As a cultural group, they want to contribute and take part Norwegian society, because this also has its benefits. However, as an agency, they have little influence on the decision making processes.

With the holistic knowledge of the field trip it became evident that the importance to safeguard both indigenous and non-indigenous actors should be balanced equally. This will be done by analyzing time and space, through mapping, separately in chapter 6 and 7.

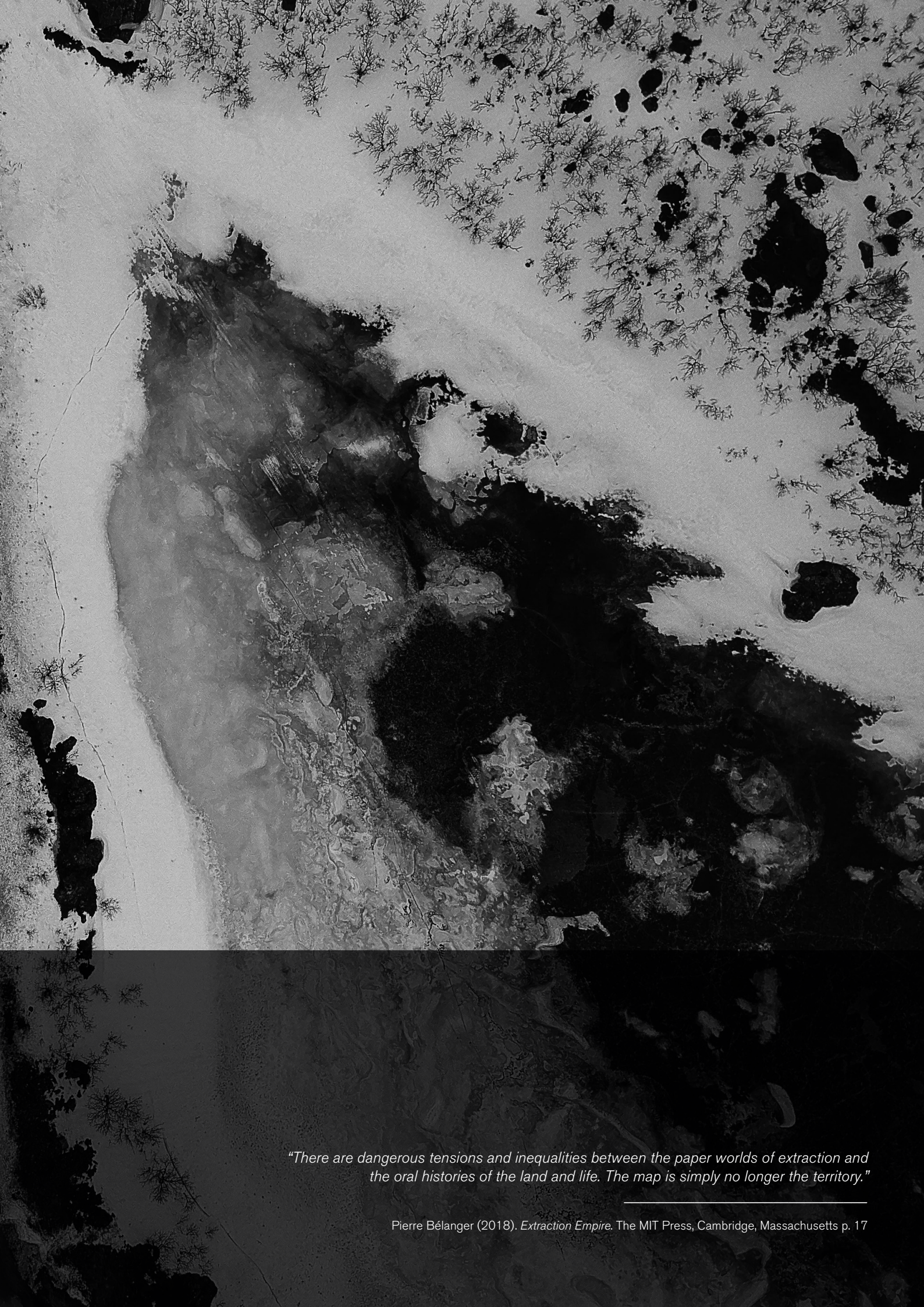




DECONSTRUCTION OF THE MAP

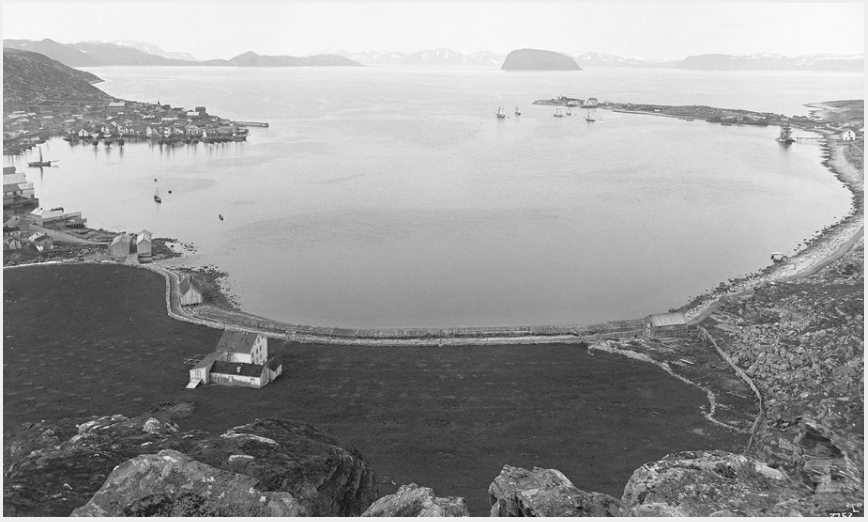
SPATIAL ANALYSIS

06.



"There are dangerous tensions and inequalities between the paper worlds of extraction and the oral histories of the land and life. The map is simply no longer the territory."

Pierre Bélanger (2018). *Extraction Empire.* The MIT Press, Cambridge, Massachusetts p. 17





06. Spatial analysis

Deconstruction of the map - introduction

Deconstruction of the map is a method of critical analysis with the intent to break the map into separate parts, and thereby trying to understand the territory differently than was previously understood[1]. Essentially, this type of analysis is what the core of what urbanism should be. Quite often environments are primarily understood from the map, by analyzing data, actors and literature. Although this often results in a recomposition of the layers and elements present, it hardly ever presents new information.

Territorial conflicts in the Arctic are not new, but the complexity in which these conflicts presents themselves nowadays are unseen. Exacerbated by conflicting perspective of locals and rapidly increasing climate change, fragile ecosystems and livelihoods that depend on these territories, lay victim to increases in industrial activities and unresolved questions of autonomy. As seen on the images on the left, territories have been altered profoundly, and a diachronic understanding of how conflicts evolved over the years is hard to come by.

The following chapters of the research will focus on the analyses and implementation of both modern and indigenous conceptualizations of time and space. A case study on conflicts between industrial development and reindeer herding on the island of Kvaløya will help to understand how friction between worldviews has generated conflicts on the island in chapter 6. In chapter 7 and 8, a linear and cyclical understanding of both industrial development and reindeer herding will illustrate that the impact of the oil and gas industry is far worse than understood. The analytical framework consists of both spatial and temporal analyses, as explained in the methodology.

Citations

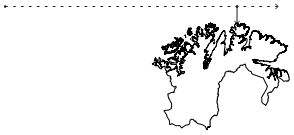
[1] Cambridge Dictionary (2019).

Figures

◀ 6.1 Hammerfest in 1889.
© Axel Lindahl / Norsk Folkemuseum (1889)

◀ 6.2 Hammerfest in 2004.
© Oskar Puschman / Norwegian Forest en Landscape Institute (2004)

Finnmark



As shown before, the island of Kvaløya - on which Hammerfest is situated - is located in the north-western area of Finnmark. To understand the social and natural distribution and circulation of people and reindeer, an analysis of the topography and natural conditions within Finnmark is needed.

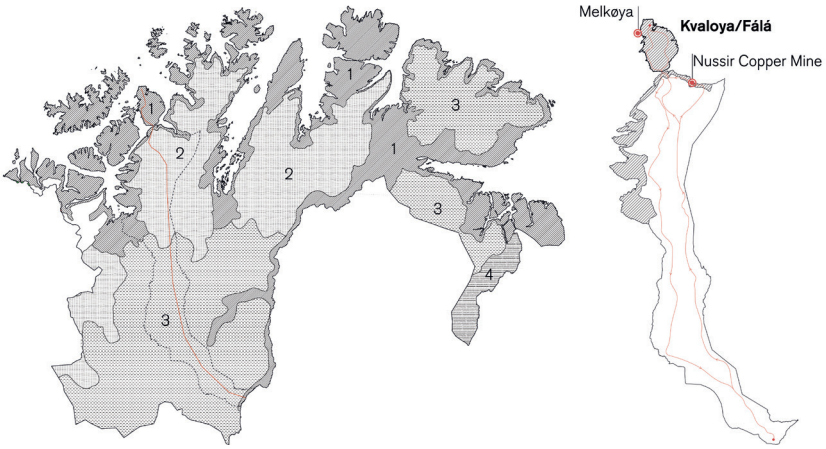
Topography and natural diversity

The landscape of Finnmark can be divided into four natural regions; coastal fjords and valley areas (1), mountainous areas (2), the relatively flat Finnmark plateau (3) and the boreal Pasvik area (4). There are large climatic differences between the regions in Finnmark. Reindeer naturally move between the Finnmark plateau - in the winter - and the coastal fjords in the summer. The mountains in the northwest protect the inner regions from harsh weather conditions and are therefore favored during this season (see section on the right)[1].

Despite the harsh environment, the region is characterized by a high diversity in nature. The remoteness of the inner regions have protected it from large scale human interventions in the past. The inland and valleys are characterized by forests while coastal regions feature more sparsely vegetated areas. The dispersed natural setting has supplied the conditions for different occupations for the people in the region.

Dispersed settlements

The favorable quality of the topography and natural conditions of the land and sea interface (related to fishing and whaling) have resulted in the Norwegians mainly settling along the coastal areas (1). The fertile grounds and easy access from the sea allowed settlements to establish small fishing and agricultural production, goods which could easily be traded with eastern cultures like the Pomors (see field trip chapter). Before the settlement of the southerners, the Sámi - by then primarily characterized by the distinction between sea/coast Sámi and the inland pastoralists - used to occupy most of the landscape of Finnmark. However, as explained in the field trip chapter, the sea Sámi have been mostly norwegianized in these regions. The pastoralists are therefore widely regarded as the main cultural survivors. These people most of the time reside in their primary homes in the inland parts, in Kautokeino and Karasjok (3). However, they also spend a large part of the time in second homes or in caravans on summer pastures[2,3] (1). Up until today, most (industrial) developments still emerges in the dispersed coastal settlements. Therefore, the analysis focuses on the island of Kvaløya/Fálá - as this is one of the areas where development surrounding oil industry directly impacts pastoralists.



Citations

[1] Dalfest, Terje & Thorsnæs, Geir & Askheim, Svein. (2019). Finnmarks natur.

[2] Johnsen, K. I. (2018). Conflicting knowledges, competing worldviews: Norwegian governance of Sámi reindeer husbandry in West Finnmark, Norway.

[3] Johnsen, K. I., & Benjaminsen, T. A. (2017). The art of governing and everyday resistance: "rationalization" of Sámi reindeer husbandry in Norway since the 1970s.

Figures

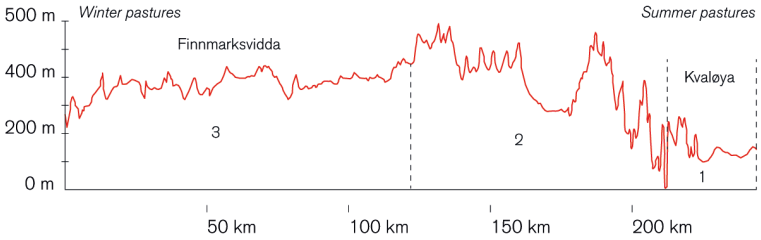
◀ 6.3 Landscape categorizations.
Based and adapted from Kartverket (2019).

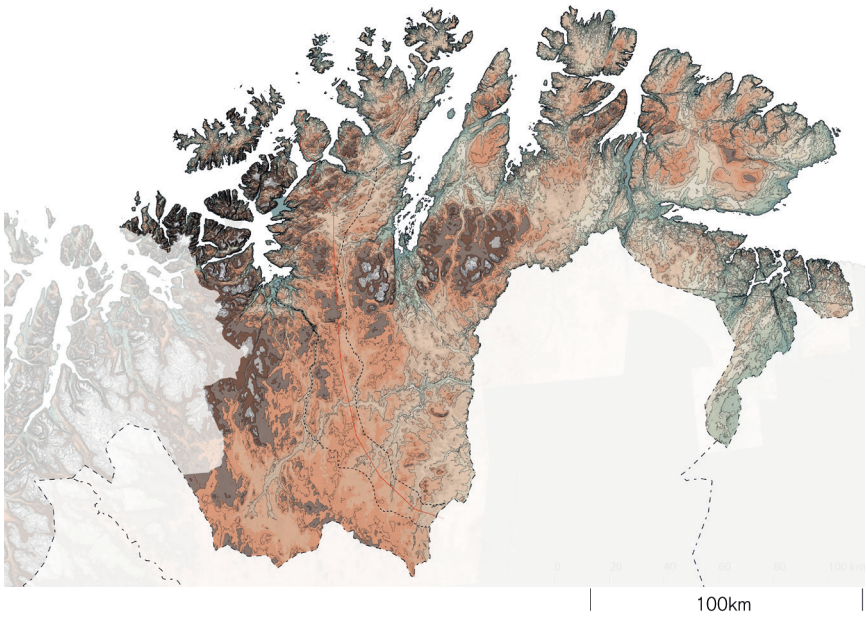
▶ 6.4 Section migration route.
Made by author, based on Kartverket (2019).

▶ 6.5 Topography.
Adapted by author from Kartverket (2019).

▶ 6.6 Land cover.
Based and adapted from CORINE (2019).

Section migration rout Fálá district





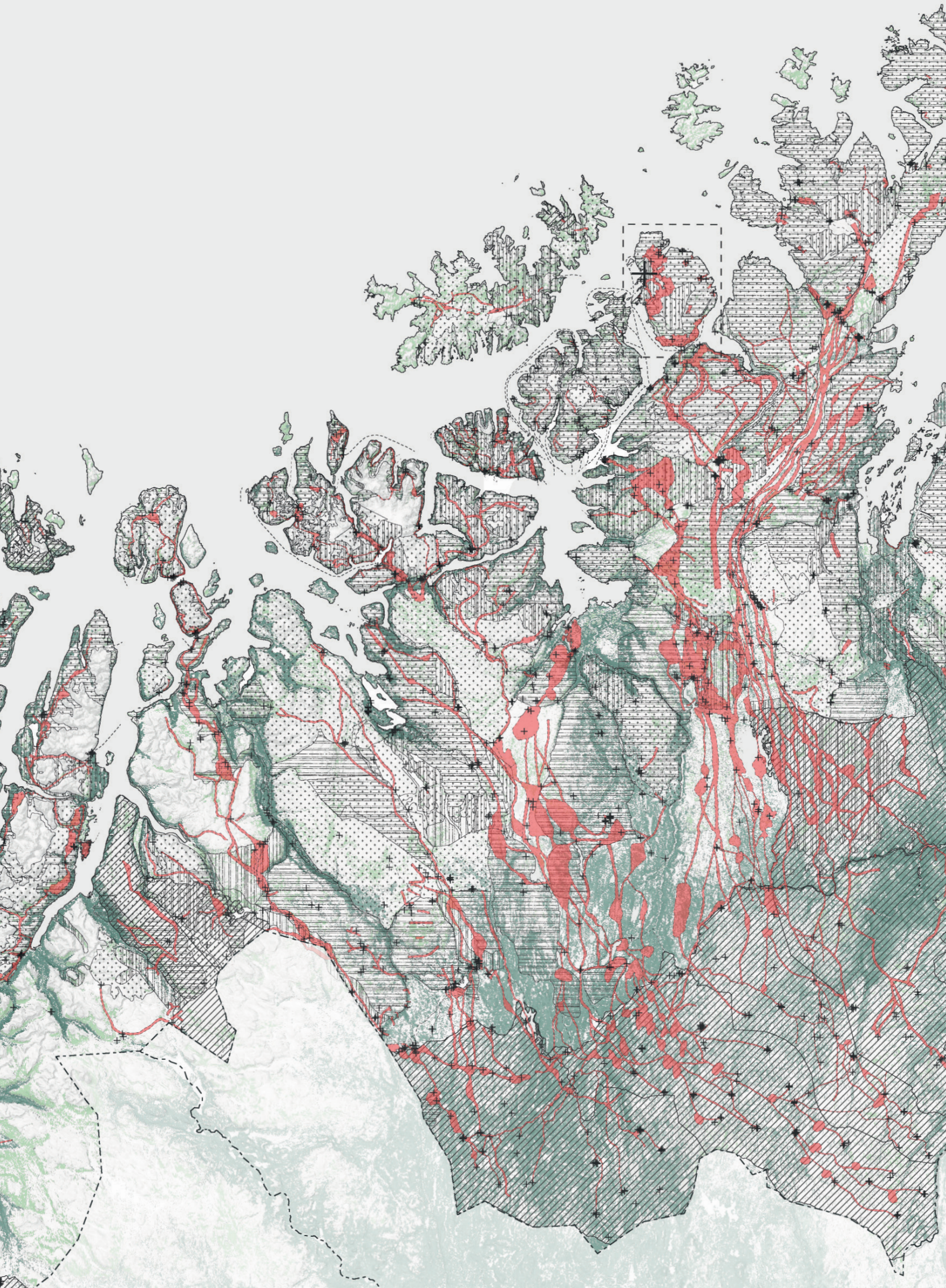
▶ Elevation

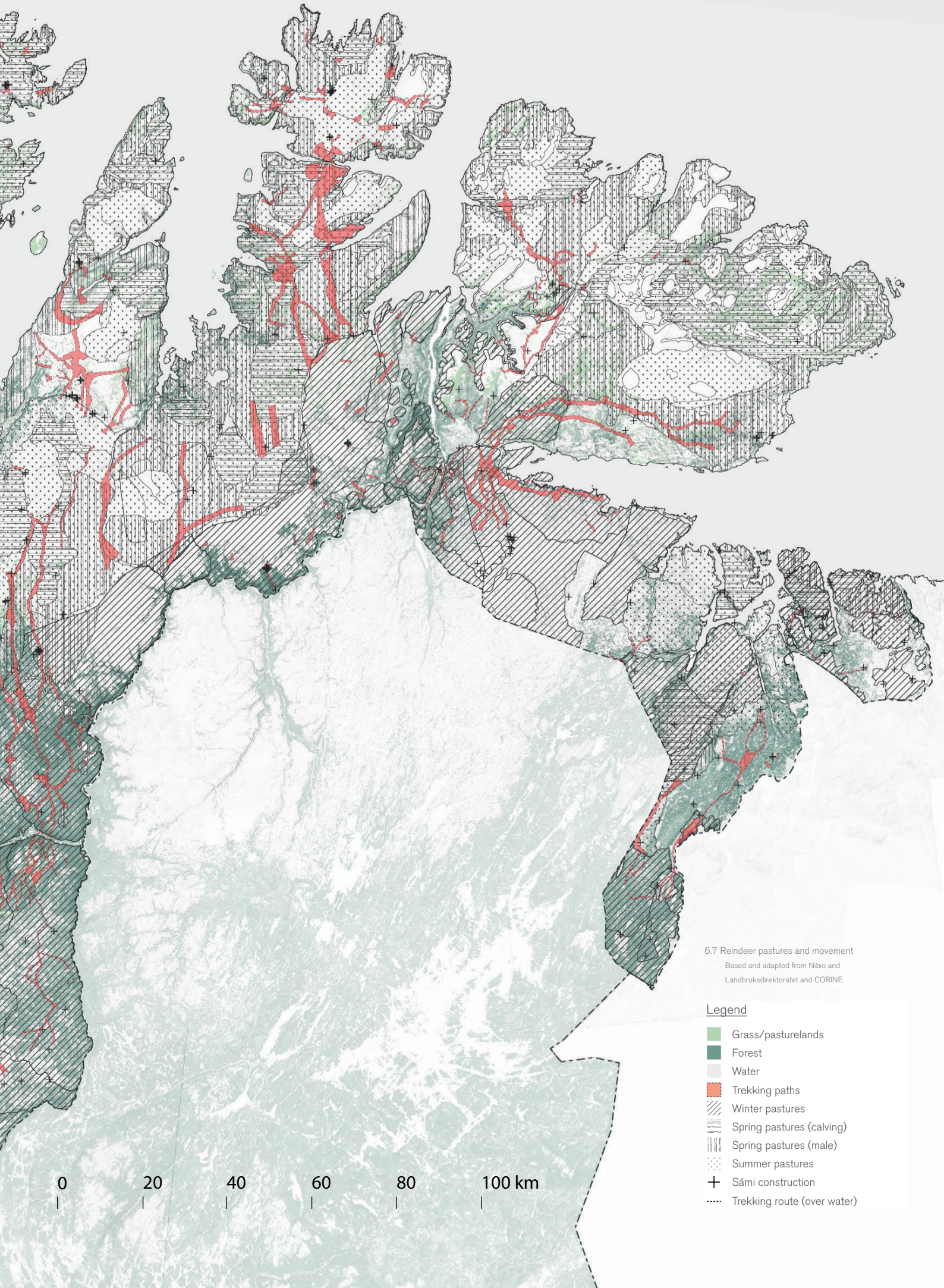
- 0 - 25 m
- 25 - 50 m
- 50 - 100m
- 100 - 150 m
- 200 - 250 m
- 250 - 350 m
- 350 - 400 m
- 400 - 500 m
- 500 - 600 m
- 600 - 700 m
- 800 - 900 m
- 900 - 1000 m
- 1000 - 1100 m
- > 1100 m



▶ Land cover

- Coniferous forest
- Mixed forest
- Broad-leaved forest
- Natural grassland
- Moors & heathland
- Transitional woodland-scrub
- Water or lakes
- Bare rock
- Sparsely vegetated areas
- Glaciers & perpetual snow
- Inland marshes
- Peat bogs
- Urban/roads
- Mineral extraction





6.7 Reindeer pastures and movement

Based and adapted from Nibio and Landbruksdirektoratet and CORINE.

Kvaløya island



Topography and occupation

Kvaløya - or Fálá in northern Sámi - consists mostly of rounded, forestless mountains. The name - literally translated Whale Island - comes from the fact that the island has a whale-like profile seen from the sea. The island consists of the northern (Mylingen/Millet) mountains and the southern rock formations - surrounding Svartfjellet/Muvrášša mountains. The western side of the island (aside from Førsol) consists of flatter lower lying areas while the eastern side is typified by steep fjords. In the west, peninsula's have created natural bays such as Hammerfest, Rypefjorden and Akkarfjorden, which act like natural harbors that are characterized by relatively calm water during polar storms.

The topographic conditions have resulted in the location of the settlements along the western and northern parts of the island, as these areas acted as natural harbors for early settlers. High diversity in the landscape has resulted in a vegetation typified by higher rock formations and the lower valleys. The vegetation has been analyzed to understand how this topography has influenced the growing conditions on the island.

Figures

◀◀6.8 Waterways and lakes on Kvaløya.
Based on Nibio (2019).

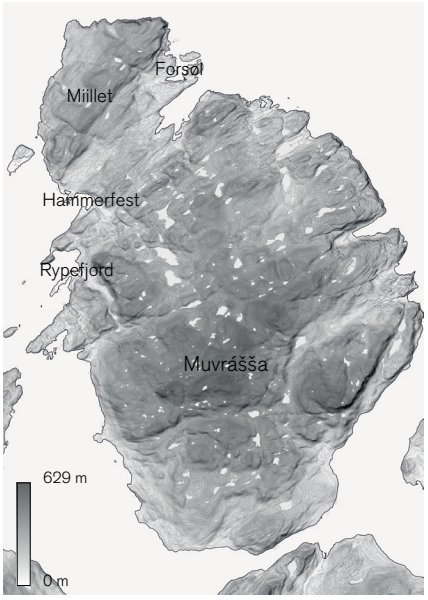
◀ 6.9 Topography of Kvaløya.
Adapted by author from Kartverket (2019).

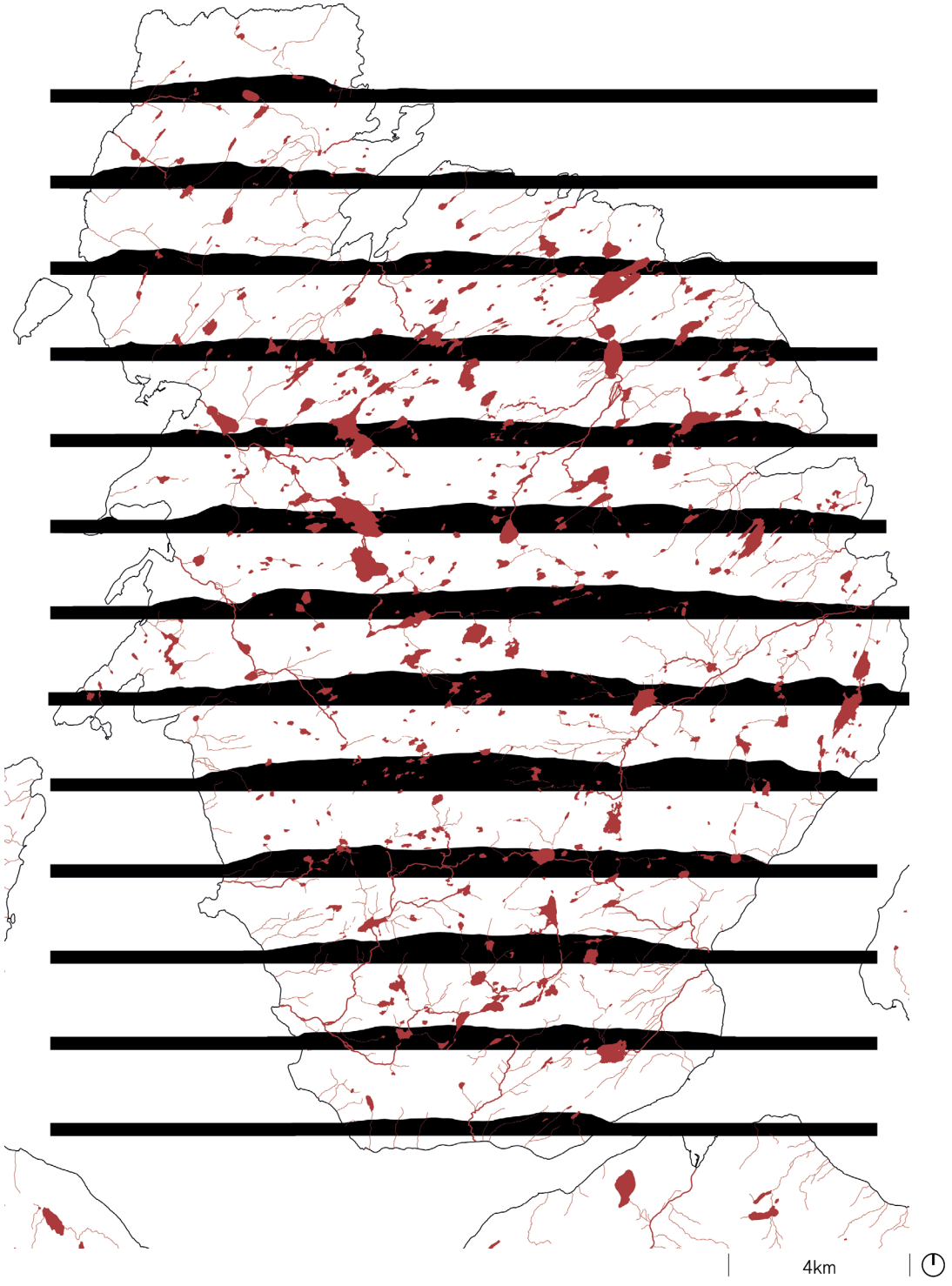
▶ 6.10 Paired sectional drawings displaying the river system, highlighted in red, and the topographical relief of Kvaløya.
Made by author 2019.

Water



Topography

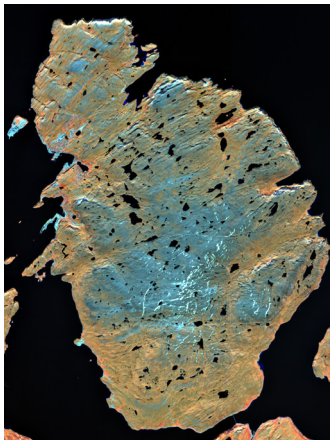



4km

Land cover - vegetation

In this paragraph, the vegetation types on the island are analyzed from a scientific perspective, through classification of satellite images. The analysis is similar to the vegetation analysis by Johansen, Karlsen, and Uhlig (2007), which has been utilized to analyze the erosion of pastures by reindeer grazing on the island[1]. The analysis has been made with Sentinel data from 3 August 2019, and is therefore a summer analysis of the vegetation types on the island. A general classification is used and is based on the same classification nomenclature as the one of CORINE Land cover. Through the creation of Regions of Interest (ROI) in the band configuration 7-5-3, the image on the right was generated with the Semi-Automatic Classification Plugin for Qgis[2]. Buildings, marshes and trees are added from Nibio (2019) and Open Street Map (2019) to get a more complete picture of the island, as shading areas distort the result.



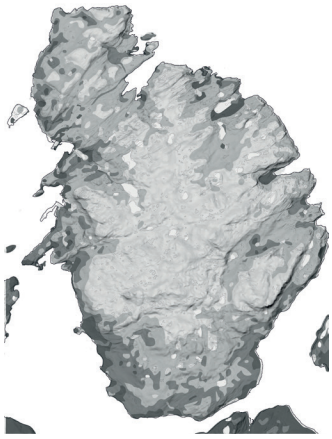


Sparse vegetation

As a result it becomes clear that the island consists of mainly bare rock (29%) , sparsely vegetated areas (46%) and moors (17%). The higher mountain areas consists of bare rocks and small water bodies. Aside from three valleys in the east, the main moors & heathland vegetation is situated in the south and western parts of the island. The areas in between are for the most part sparsely vegetated. Small grass and birch forest protrude in areas where the wind is largely absent for the most parts of the year; in valleys and around the urban areas in the west. Inland marshes are dispersed across the island.

Low productivity

In a regional context, the Kvaløya/Fála district is typified as medium to poor pasture conditions and a low harvest weight for reindeer[1]. As seen in the image 6.12 on the right, most highly valuable pastures are in the lower areas along the coast and around grass-birch forests. On the next pages I will shortly elaborate the land use of the reindeer from acquired spatial data and compare these with the urban land-use.

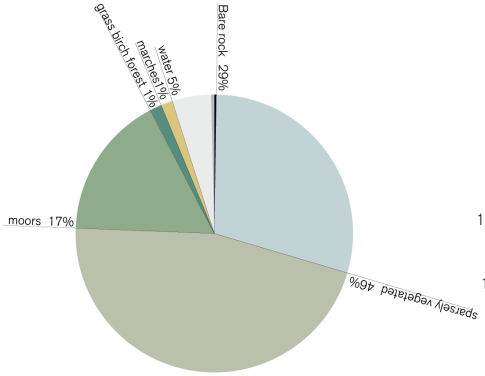


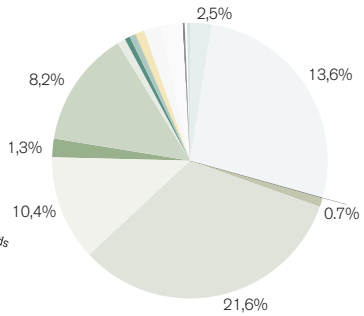
Vegetation distribution

Impediment/bare rock	99.34 km²
Impediment industrial areas	1.22 km²
Built environment	0.77 km²
Grass and birch forest	4.49 km²
Moors & heathland	56.84 km²
Sparsely vegetated	155.80 km²
Snow (in August)	0.81 km²
Inland marshes	3.63 km²

Pasture values (figure 6.12)

Good quality	4.4%
Medium quality	51.4%
Low quality	44.2%





Citations

[1] Johansen, B., Karlsen, S. R., & Uhlig, C. (2007). Kartlegging av vegetasjon, reinbeiter og erosjon - Kvaløya i Hammerfest kommune.

[2] Congedo, L. (2017). Semi-Automatic Classification Plugin Documentation.

Figures

▲ 6.11 Satellite image Kvaløya, August 2019. Based on satellite image from Copernicus Sentinel data 2019, processed by ESA (03-08-2019). Band configuration: 7-5-3.

▲ 6.12 Pasture values. Adapted from Johansen et al. (2007).

▶ 6.13 Kvaløya Island vegetation types. Based on ROI creation of satellite images from Copernicus Sentinel data 2019, processed by ESA.


Land cover
Grass birch forest
Sparsely vegetated
Moors & heathland
Inland marshes
Bare rock
Snow
Impediment
Built
4km

Land use - a comparison

Reindeer herding

From spring till the beginning of the winter, reindeer venture on the island summer pastures of Kvaløya/Fálá district. The map on the right is compiled of data of the Landbruksdirektoratet and particularly highlights four distinct features; gathering areas, driving areas, pulling areas and the calving grounds of the island. The total amount of reindeer in the district fluctuates around 2300 and is sometimes divided into 3 siida's[1,2]. The calving grounds on the east are of particular importance in the spring, but recent literature suggests that calving nowadays happens all over the island[1]. Although the map suggests movement of reindeer, it is still hard to grasp how the reindeer move throughout the six months they reside on Kvaløya.

Oil industry and urbanization

As explained before, Hammerfest and Rypefjord are situated on the western side of the island because of the natural harbors and relatively flat areas. Urban development is therefore situated on this part of the island, as can be seen on the map on the right. The oil and gas industry has developed on the island of Melkøya and the artificial peninsula of Rypefjord (1), while urbanization and related infrastructure have a larger footprint inland (2).

When comparing both maps, it could suggest the idea that there is little friction between both land uses. But further analysis into the impact of infrastructure on the next pages reveal a different narrative.



Citations

[1] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

[2] Landbruksdirektoratet.

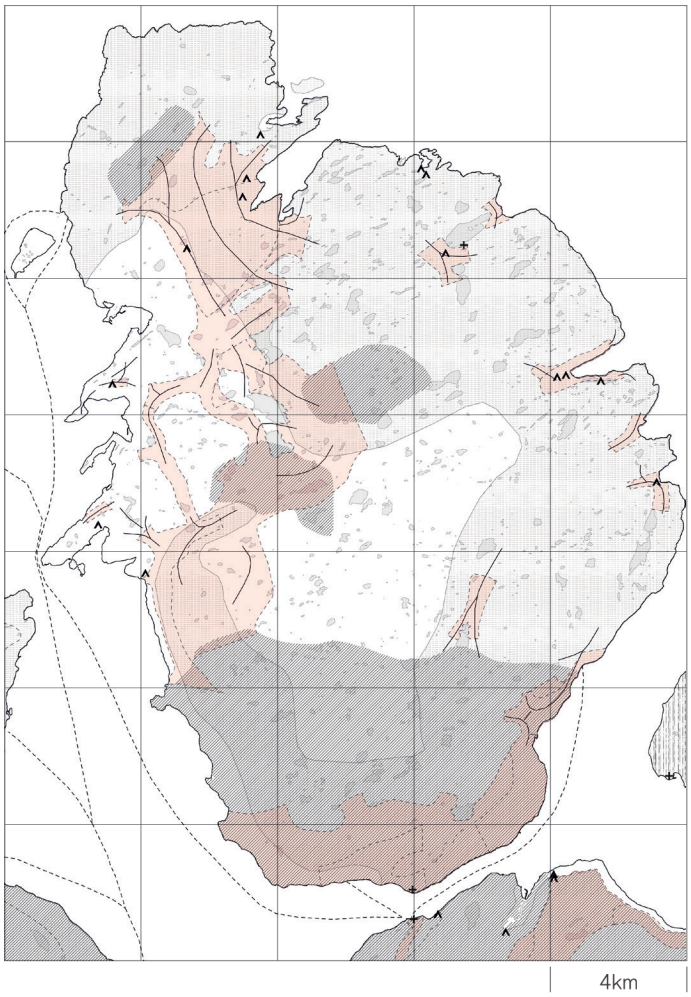
Figures

◀ 6.14 Reindeer grazing with Hammerfest on the background.
Photo by Evgeniy Metyolkin, licensed under CC BY-SA 3.0.

▶ 6.15 Spring, summer and fall data on reindeer activity on Kvaløya.
Adapted from Landbruksdirektoratet.

▶ 6.16 Industrial, urban and infrastructural land-use.
Adapted from Open Street Maps (2019), Nibio (2019).

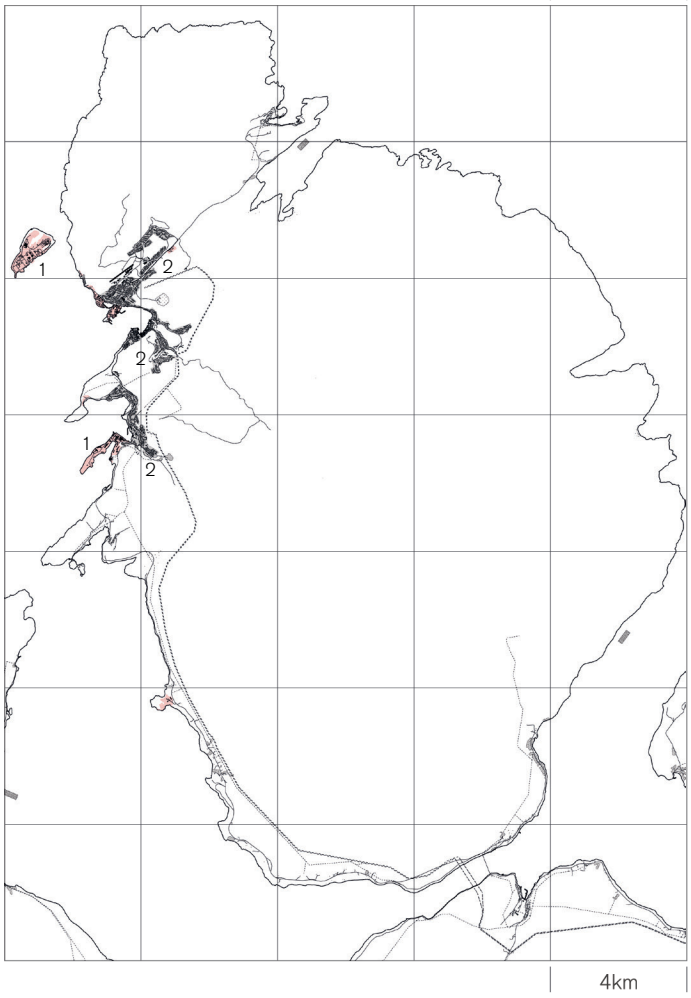




4km

▸ Reindeer herding (Nibio)

- Gathering areas
- Sámi structure
- Calving grounds
- Temporal Sámi construction
- Sámi construction
- Pulling areas



4km

▸ Urban and industrial land use

- Buildings
- Industrial
- Residential
- Extraction
- Farmland
- Military
- Fish farms
- Roads
- Powerlines

Land use - impact of industry and urbanization



Physical loss

In general, the physical loss of land due to paving, buildings, fencing are in most cases very limited. As a generally accepted assumption, less than 1% of the total land area is physically lost as a result of major development projects[1,2]. This assumption holds true for the island of Kvaløya, as the land cover analysis revealed; only 1.5% of the total land cover are buildings or industrial areas. The physical loss could therefore be regarded of little importance for reindeer herding. However, as the physical loss might seem small, some barriers do limit the movement of reindeer especially in the direct surrounding of urban areas. As of 2007 Hammerfest built a fence as a barrier to keep reindeer out of the city, which was built with (direct or indirect) money from Statoil (now Equinor)[3]. Grazing deer damaged parks and gardens, which fueled conflicts between herders and landowners[4]. Image 6.20 on the right shows how the reindeer fence is blocking the access for most reindeer on the more urbanized - and generally highly nutritious - areas of Kvaløya[5]. Even though the physical loss is small, it does not mean that consequence of the development is small for reindeer herding.

Infrastructural impact

Even though the physical loss is small, it does not mean that consequences of the development are small for reindeer. Continuous interference and permanent interventions such as roads, power lines, buildings and pipelines can lead to long-term avoidance by reindeer. This means that the reindeer reduce their use of areas close to encroachment and disruption to avoid stressful situations or face disruption[1,2,6]. Although studies on avoidance vary widely, it appears to be in the range of 1-4 km - depending on the type of intervention, terrain and annual time[1]. Recently, Skarin and Åhman (2014) summarized and reviewed several studies on disturbance due to human activity and infrastructure. In order to understand the avoidance spatially, the average results have been calculated and summarized in the table below.

Flight disturbance

Although there has not been any conclusive research on flight disturbance on reindeer yet, several local behavior studies note that prolonged disruption, due to overflight or repeated disturbances on the ground, disrupt reindeer in such a way that they use more energy and move more than animals in undisturbed areas[1,7,8,9]. Especially reindeer that have spring and summer grazing along the coast are vulnerable to disturbance during the calving period, when their condition is critically low and pastures are limited due to snow cover[10].

Impact and disturbance

The impact of direct and indirect development on land is generally assumed to be low. This analysis reveals something different. The physical and infrastructural impact have been mapped according to the table below, after which they have been overlaid over the pasture values. The extent of both the physical (direct) and infrastructural (indirect) impact has been calculated. The outcome is shown in the maps to the right. The graphs are an outcome of the calculation of the effected areas over the pasture values from figure 6.12. Although the outcome is profound, it must be noted that this analysis is indicative, however it can be assumed that the actual impact is much higher than first assumed.

impact/disturbance/avoidance	distance	moderate impact	high impact	very high impact	visualization and comments
ROADS					
main roads	1-1,5 km	1500m	1000m	500m	primarily impact on females and calves
secondary roads	750 m	750m	500m	250m	
POWER LINES					
< 66kV	little disturbance				
>132kV	0 - 2,5km	1250	833	416	especially females and calves
FLIGHTS					
Airport - take-off, landing	unknown				noise impact, based on average between 2013 and 2025 (Granøien & Vennerød, 2015).
Helicopter	unknown				

Citations

[1] Vistnes, I., Nellemann, C., & Strøm Bull, K. (2004). Inngrep i reinbeiteland Biologi, jus og strategier i utbyggingssaker.

[2] Vistnes, I., & Nellemann, C. (2007). Impacts of human activity on reindeer and caribou: The matter. Rangifer, 47-56.

[3] iFinnmark.

[4] Severinsen, T. K. H. (2008). *Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune.*

[5] Johansen, B., Karlsen, S. R., & Uhlig, C. (2007). Kartlegging av vegetasjon, reinbeiter og erosjon - Kvaløya i Hammerfest kommune.

[6] Skarin, A., & Åhman, B. (2014). Do human activity and infrastructure disturb domesticated reindeer? The need for the reindeer's perspective.

[7] Bradshaw, C. J., Boutin, S., & Hebert, D. M. (1998). Energetic implications of disturbance caused by petroleum exploration to woodland caribou.

[8] Luick, B., Kitchens, J., White, R., & Murphy, S. (1996). Modeling energy and reproductive costs in caribou exposed to low flying military jet aircraft.

[9] Maier, J. A., Murphy, S. M., White, R. G., & Smith, M. D. (1998). Responses of caribou to overflights by low-altitude jet aircraft.

[10] Granøien, I. L. N., & Vennerød, J. (2015). Oppdaterte beregninger av flystøy for Hammerfest lufthavn.

Figures

▶ 6.17 Flight movements on Kvaløya.
Modified from Granøien & Vennerød (2015).

▶ 6.18 Shipping movements.
AIS data between 01-01-2019 and 01-04-2019 modified from Kystverket, Åsheim (2019).

▶▶ 6.19 Physical impact map.
Made by author.

▶▶ 6.20 Infrastructure impact.
Made by author.

▶ Physical impact

- Built
- Fenced off area
- Steep natural barrier
- Road
- Powerline pole

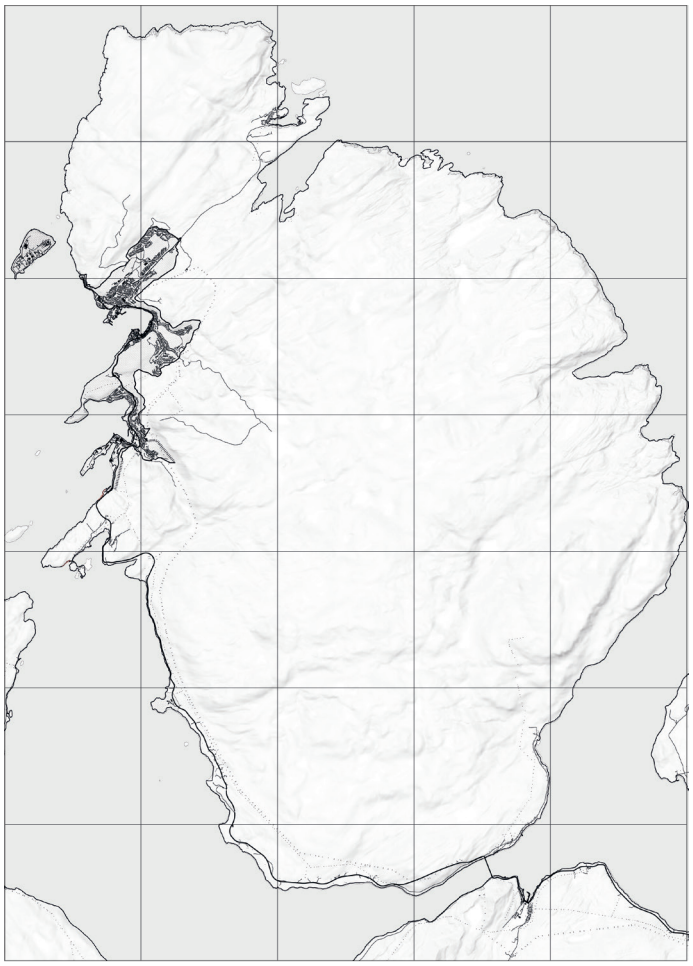
▼ Infrastructure impact

- Ship movements
- Flight movements
- Flight movements
- Roads
- Powerlines

Impact/disturbance

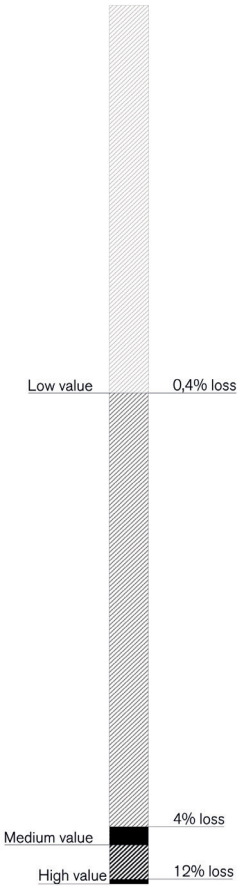
Flights
Roads
Powerlines

Very high High Moderate



4km

Physical loss

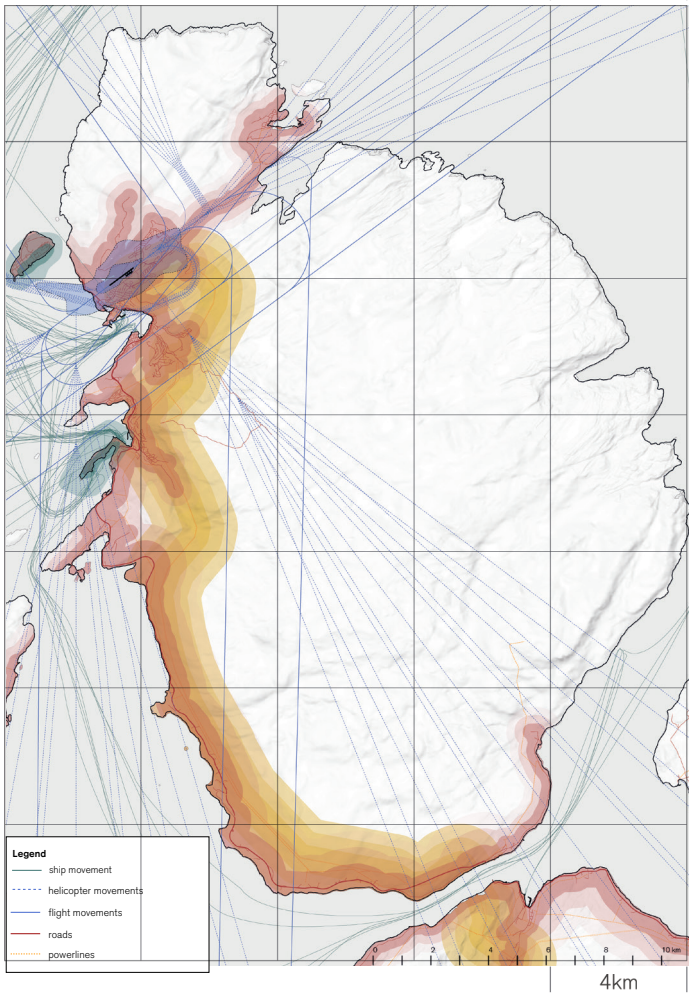


Flight movements



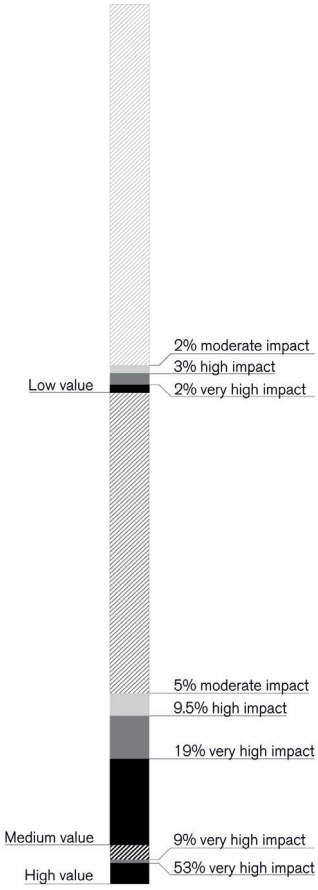
Shipping movements





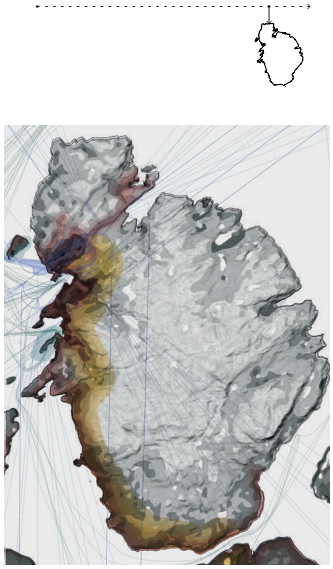
4km

Infrastructure impact



A non-stable landscape

The map on the right gives a clear impression on the overall distribution of vegetation types across the island and the different land uses. Although this is an important step into understanding the characteristics of the landscape and the related social conflicts, it must be noted that only analyzing the landscape through remote sensing images gives an incomplete impression of the distribution and variation of the vegetation throughout the year.



Weather and climatic conditions are quite prone to changes throughout the year in the Arctic and can even vary distinctively from year to year. Therefore the danger of an approach that is too scientific can lead to the presumption that nature in the Arctic can reach a equilibrium. As explained earlier, Benjaminsen et al. (2015) explain how the misreading of the Arctic environment leads to conflicts as the presumption of overstocking pastures is used to argue that herders should reduce their herds. Reindeer herders and other scientists argue that this is oversimplified, because of the non-equilibrium environment[1].

Conclusions

The research question was:

c. Through a modern approach, how can we understand the impact of the oil and gas industry on the reindeer herders by comparing the urban and indigenous use of the landscape on the island of Kvaløya?

In this chapter I delineated the spatial distribution of oil and gas related development versus reindeer herding on the island of Kvaløya. The goal was to understand and compare the urban and indigenous uses of the landscape and how conflicting situations arise. From a modern perspective three tools were used on a regional and local scale: a land-cover and land-use data analysis, GIS remote sensing analysis and impact analysis through a quantification of a literature review. Topographic and natural conditions were mapped to eventually indicatively map the impact of the developments on the island.

'Coexistence'

Topographic conditions have resulted in strategic settlements by mainly Norwegians in natural bays along the western and northern side of the island. Hammerfest and Rypefjord have become the main places where industrial development occurred. Despite the distribution on the island of Melkøya and the artificial peninsula of Polar Base, the related urbanization has a larger footprint inland. When strictly looking at the land uses by both urbanization and reindeer herding it seems that both land-uses seem to coexist on the island.

Conflicts

The outcome of the impact analysis shows how industrial and urban patterns overlap with nutritious pastures and have a direct impact on the reindeer herders. Indirect impact is assumed to be much higher, as reindeer avoid areas with road and powerline infrastructure.

The outcome of the modern approach is a necessary step to quantify and understand the land-use and land-cover situation by providing maps that can be used as a basis for further analysis on the seasonal land-use in chapter 8 and 9. Additionally, the method and tools are fixed in time. Therefore it is necessary to understand the temporal use of the landscape by both indigenous and industrial actors. The temporal dimension is analyzed in the following chapter.

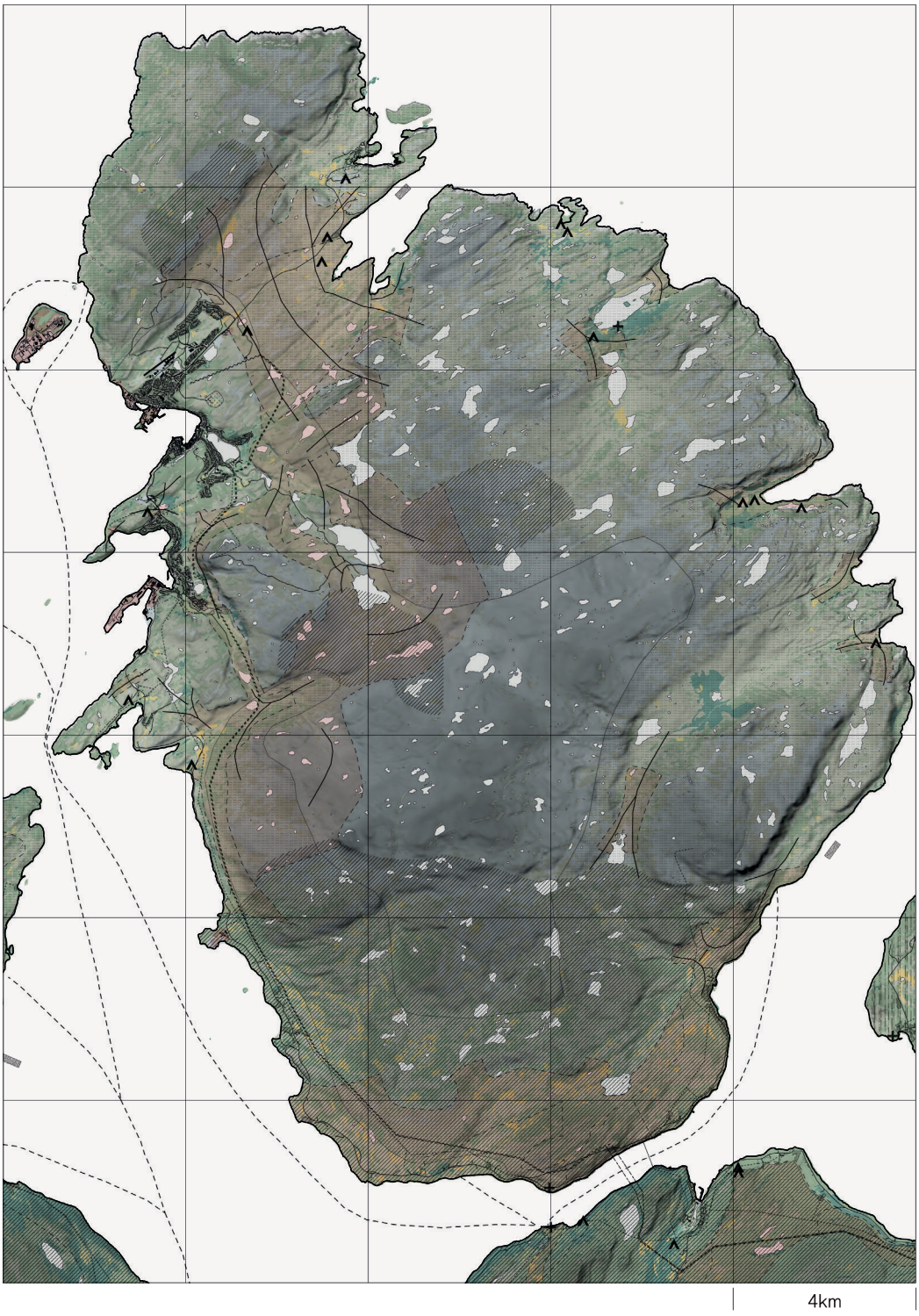
Citations

[1] Benjaminsen et al. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

Figures

▲ 6.21 Physical and infrastructural impact on pasture values.
Made by author.

▶ 6.22 Land cover and land use overlaid.
Made by author.



Land cover

- Grass birch forest
- Sparsely vegetated
- Moors & heathland
- Inland marshes
- Bare rock
- Snow
- Impediment
- Built

Reindeer herding (Nibio)

- Gathering areas
- Sámi structure
- Calving grounds
- Temporal Sámi construction
- Sámi construction
- Pulling areas

Urban and industrial land use

- Buildings
- Industrial
- Residential
- Extraction
- Farmland
- Military
- Fish farms
- Roads
- Powerlines



DECONSTRUCTION OF THE MAP

TEMPORAL ANALYSIS

07.



the young birch doesn't ask the time
it has a sea of time.

the tree asks the time
and estimates
when its sap will lose its sweet taste

the dead pine doesn't ask for the time
it has a sea of time

Inger-Mari Aikio (1996). Gaski: 274.

07. Temporal analysis

Introduction

> *"Every society has many deep-rooted and implicit assumptions about what life and reality are all about. These assumptions are the guidelines for interpreting laws, rules, customs, and actions. It is deep-rooted and implicit assumptions upon which attitudes are based and that make a person say "This is the way it is." It is these assumptions that make it hard for a person to appreciate an alternative way of thinking and behaving."*
>
> Little Bear, L. (2000). Jagged worldviews colliding.

As Little Bear (2000) exemplifies, every society has its different assumptions on life and reality, and therefore a different worldview including conceptualizations on time[1]. As hypothesized in chapter 3, the friction between modern and indigenous worldviews create conflicts in Norway. Since the Sámi time is nowadays much closer to the typical Western linear time[2] - as the "Norwegianization" policies forced many of them into modern thinking - the main focus will be on a broader understanding of time from their cyclical perspective. In contrast to this, the temporal analysis of the oil industry focuses on its imperatives of growth conceptualized through its linear understanding of time.

The first part consists of a short analysis on the extreme weather seasonality after which I will explain the Sámi conceptualizations on time and how this relates to the cyclical reindeer herding practice. This is done in order to ultimately understand how the weather seasonality has forced the Sámi to adapt to the natural conditions throughout the year.

The second part consists of an analysis on the temporality of the oil industry, and how political-economic incentives on linear growth have enabled the development of the oil industry. This can be traced to the Norwegian Petroleum Directorate, the primary organ of the Norwegian state regulating the licensing. Eventually this leads to an understanding of how the modern, linear conceptualization of time enhances the (non-)physical political-economic processes in Norway.

Citations

[1] Little Bear, L. (2000). Jagged worldviews colliding.

[2] Weinstock, J. (2009). What Goes Around Comes Around: Sámi Time and the Question of Indigeneity.

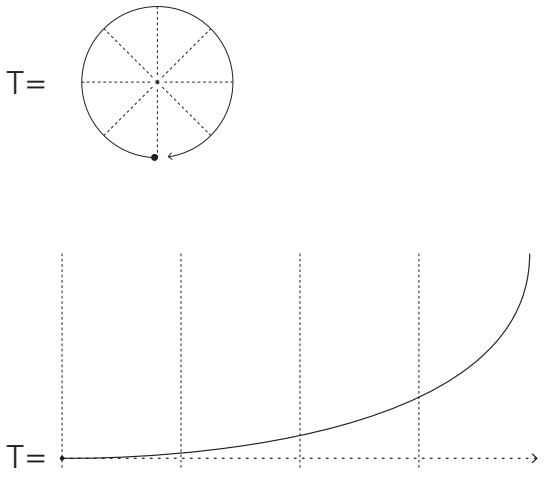
[3] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

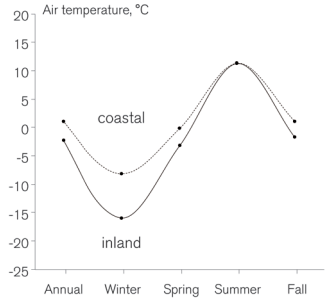
Figures

▶ 7.1 Annual and seasonal mean temperatures in coastal Finnmark, Norway (Nordreisa, dotted), inland Finnmark, Norway (Karasjok, continuous).
Adapted from Arctic Monitoring and Assessment Programme (AMAP), 2017.

▶ 7.2 Sun graph, snow depth and temperature for Hammerfest.
Adapted by author from: yr.no (2019), timeanddate.com (2019) and snow depth 2009 -2019 based on data from eklima.no (2019).

▶ 7.3 Satellite images of Kvaløya in the winter, spring, summer and fall.
Based on satellite images from Copernicus Sentinel data 2019, processed by ESA (reps. 24-02-2018; 15-05-2018; 03-08-2019; 17-10-2019). Band configuration: 4-3-2.





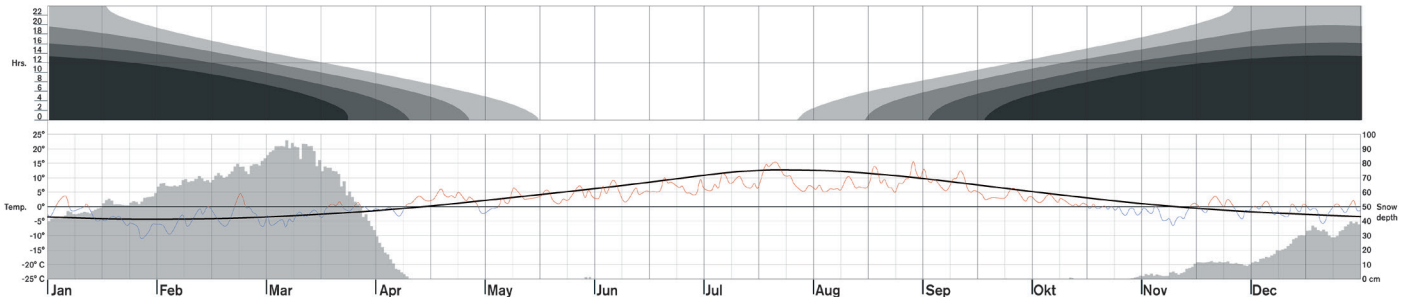
Extreme weather seasonality

The climate in Finnmark is characterized by extreme variations. In the diagrams on the right these variations are shown. During the summer the sun doesn't set and in the winter the sun does not rise above twilight. As mentioned before, Finnmark's topography created large climatic differences between the coastal and inland areas (see figure 7.1 on the left). The average temperature is around 15°C in the summer while it can drop to -15°C in the winter, with peaks even as far as -30°C inland. For about five years a month the ground is covered in a thick layer of snow of approximately 50cm inland and 90cm along the coast.

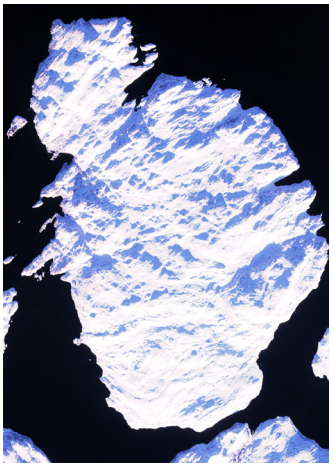
The island on Kvaløya is typified by a coastal climate with heavy storms in the winter. Short, cool and cloudy summers are interspersed with long, snowy and windy winters. In the winter the island is sometimes cut off from the mainland due to snowy conditions on the road, and is therefore only accessible by boat or by plane.

Versatility

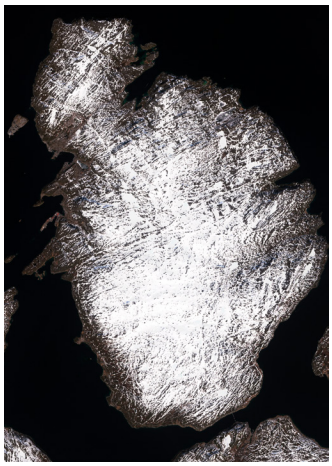
Due to the high variety in both climate and environment local people have adapted their lifestyles accordingly. The Sámi reindeer herders have specialized into working with season variables and generally follow the traces of the reindeer throughout the year. In this context the reindeer husbandry focuses on the different types of landscapes, seasons, weather and varieties of the years[3].



Winter



Spring



Summer



Fall



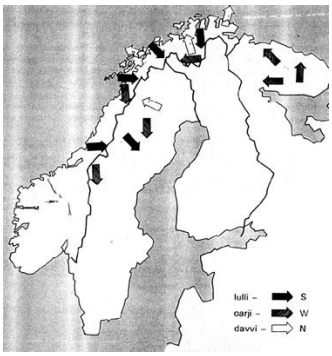
Sámi seasonality

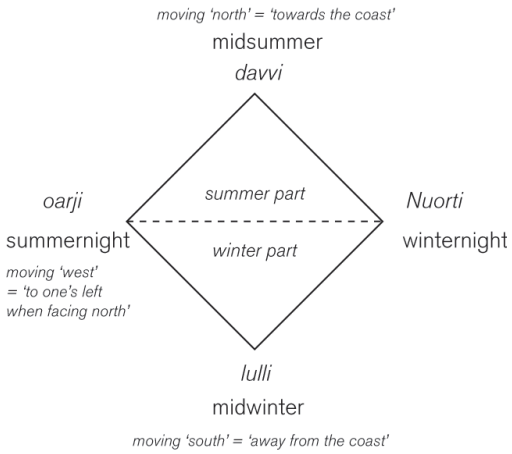
Sámi conceptualization of time

T=

The cyclical understanding of time has been used by many civilizations in history. The origins of cyclical time probably derive from the external observation of the three most important cycles in nature; the circadian, derived from the 24-hour succession of day and night, circ-annual, the yearly movement from the sun from north to south and back , and circa-lunar, the monthly cycles of the moon[1]. All time was therefore in the beginning periodic rhythmic and "as life evolved, the external cycles became internalized and took on lives of their own"[2]. For the Sámi, whose lives completely depend on nature, particularly the yearly cycle of the sun is of great importance, as reindeer and other natural cycles change throughout the year[1,2,3]. For them, knowing when reindeer migrate and when the salmon spawn is of higher importance than knowing the exact time of a particular moment.

The diagram below symbolizes the solar year with summer solstice, fall equinox, winter solstice and spring equinox. This also divides the year into the summer and winter months. Based on the visible sun cycle the reindeer move a certain direction and therefore each solstice or equinox presents a directional indication. This way, the herder knows where to move throughout the year, although directions are relative to the coast[2,3] (see figure 7.4 on the right).





Ecological seasons

The diagram above explains the distinction into four stages throughout the year. However, as Sara (1999) notes, the annual breakdown is based on the amount of daylight, and therefore does not explain the delay in the ecological seasonal changes in comparison to the cosmic seasonal changes. For example; snow settles long after the fall equinox and the temperature rises long after midsummer. Therefore the Sámi distinguish 8 seasons instead of 4, as shown in figure 7.6 on the right. However, the ecological seasons can vary widely from year to year, for example, "winter may come late or early and it might be mild or harsh, or both"[4]: spring grazing conditions can occur in early April or late May[1]. This part (the dotted line in the figure 7.6) can therefore move and this is what Sara explains as "jahkodat"; the varieties of the pasture.

Citations

[1] Weinstock, J. (2009). What Goes Around Comes Around: Sámi Time and the Question of Indigeneity.

[2] Hall, E. T. (1984). The dance of life: The other dimension of time: Anchor.

[3] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[4] Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

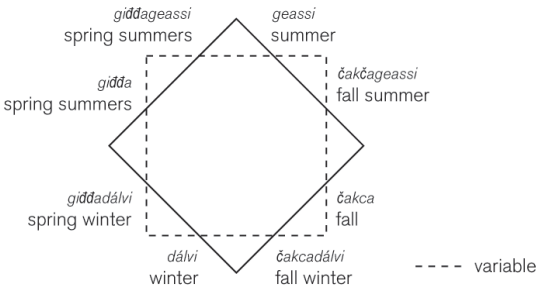
Figures

▲ 7.4 Map of Sámi Directions
Map from Davvin 3. (1993) Folkets Brevskole: 97.

◀ 7.5 A rhombus-shaped sun cross (Beaivi).
Adapted from Sarah, M. N. (1999) Praktisk reinbeitebruk-tradisjonelle kunnskaper.

▶ 7.6 The 8 seasons of the Sámi.
Adapted from Sarah, M. N. (1999) Praktisk reinbeitebruk-tradisjonelle kunnskaper.

▶ 7.7 Sámi months calendar.
From: http://www.itv.se/boreale/Sámieng.htm



It is this precise understanding that allowed the Sámi to adapt to the extremely varying seasons. At the same time, these climatic and environmental factors determine the survival and conditions of the reindeer. Therefore they see a year not as a "mutually interchangeable unit of time, but as a particular and unique succession of specific conditions, with variable and cumulative effects"[4]. Or as Per Alf Sara explained in the field trip chapter; some years, "they're not brothers".

Although the Sámi today are mainly on linear time, the cyclical time remains part of the mental landscape through verbal structures, storytelling, Yoiks, but above all the reindeer herding cycle. The knowledge on reindeer herding is visible in different knowledge structures[1] such as the Sámi months, exemplified below. Based on the lunar cycles these often were characterized with references to annual changes in nature, such as the reindeer's hair change[3]. Despite not employed any more they still hold knowledge on reindeer cycles in particular months.



Month	Sámi	Meaning
January	ođđajagemánnu	New year month
February	guovvamánnu	Unknown
March	njukčamánnu	Swan month
April	cuoŋománnu	*Snow Crust month*
May	miessemánnu	*Reindeer Calf month*
June	geassemánnu	Summer month
July	suiodnemánnu	*Hay/grass month*
August	borgemánnu	*Molt month*
September	čakčamánnu	*Reindeer month*
October	golggotmánnu	*Rut month*
November	skábmamánnu	Dark-period month
December	juovlamánnu	Yule month

Reindeer seasonality

Sámi reindeer are considered to be semi-domesticated. Semi-domestication of reindeer means that it is regarded as a free, mobile and independent being that cannot be fully controlled by human beings. The herder assists through observing and monitoring the conditions of the reindeer, grazing mass, the topography, weather and climate of the areas and all the relationships between these factors. The key is for the reindeer to find good pastures while keeping the herd as a continuous unit. Therefore, the herder must have a comprehensive understanding of the situation and has to make decisions in the field. Space and time aspects are therefore central aspects included in the observation and assessment of the situation[1].

In this paragraph, I will shortly explain the reindeer cycle and how this is intrinsically connected with the climatic en environmental variability. I will do this by generally describing their movement according to the diagram on the right.

T=

Fall-summer

All pastures are available for grazing and the reindeer move a lot in search for their favorite diet; fungi. The reindeer preferably move into the direction of the wind and they go towards lower terrain where they start to scrub and sweep the horns[1]. The herder begins to prepare the herd for the harsh winter by deciding which bulls are ready for slaughter. If it was a good summer the reindeer will be large enough to make it through the winter. If not, the herders have to slaughter more reindeer in order to survive[2].

Fall

The pasture conditions are similar to the fall-summer and the reindeer move to lower terrain by river beds and on mountain sides. Lichen (*lav*) are added to the diet and the herders prepare for the winter migration[1]. The reindeer mate before returning on the winter pastures inland[2].

Fall-winter

When mating ends, the temperature drops and streams and rivers freeze over. The obstacles for reindeer are gone and the first snow makes it easier to track the reindeer[1]. The herders and reindeer adhere to lower wooded areas in thickets and dense forests where herbs, lichen and fungi can still be found. Most pastures are still available for grazing when moving south[1].

Winter

When winter begins, most siida's have moved into their inland winter pastures. It is dark almost 24-hours a day and the reindeer reside in thickets and low-growth, relatively dense woodland. Herders usually only keep contact with the edge of the herd, disturbing them as little as possible. Around this time of the year the time is turning; snow settles and hopes up, and so less land is available for grazing[1]. This period varies from year to year and the herder keeps track of pastures with limited snow and decides where and when the flock should move.

Spring-winter

At this time there is a lot of snow and the reindeer will not move much. The animals move faster on a thick layer of snow, because the snow evens out irregularities like rocks on the track. However, during this season the old layer of snow cannot carry them anymore. The reindeer herder needs to disturb the herd as little as possible and keep track of weak annual calves. The herder monitors conditions in the tree-free higher areas, and if the snow conditions are well packed move the herd towards higher available pastures on high ridges[1]. Depending on the conditions, females will slowly start to move 'north' (see figure 7.8 on the right) towards calving grounds at the end of spring winter.

Spring

In the spring the herds will migrate towards the summer pastures. Temperatures rise and as the snow begins to melt and it is important that the herd migrates at the right time. As pointed out before, the reindeer need snow to move. If the herds wait too long, the track will be harder to migrate across. Thick snow still covers large parts of summer pastures, but strong winds carry away snow on top of high ridges and along the coast. Bare spots are protruding from the snow and are crucial for the reindeer's survival after the exhausting migration[1]. Especially pregnant mothers are weak in this period.

Citations

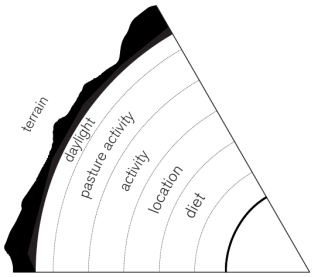
[1] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[2] Eva (Stephanie Redding). (2015). Sámi Culture: The Sámi Concept of Time.

[3] Landbruksdirektoratet (2019). Beitebruken gjennom året.

Figures

▶ 7.8 Sámi cyclical calendar.
Made by author, based on: Sara (1999), Weinstock (2009), Nemkova & Fyta (2016), Curry (2013), yr.o (2019), timeanddate.com (2019) and snow depth 2009 -2019 based on data from eklima.no (2019).

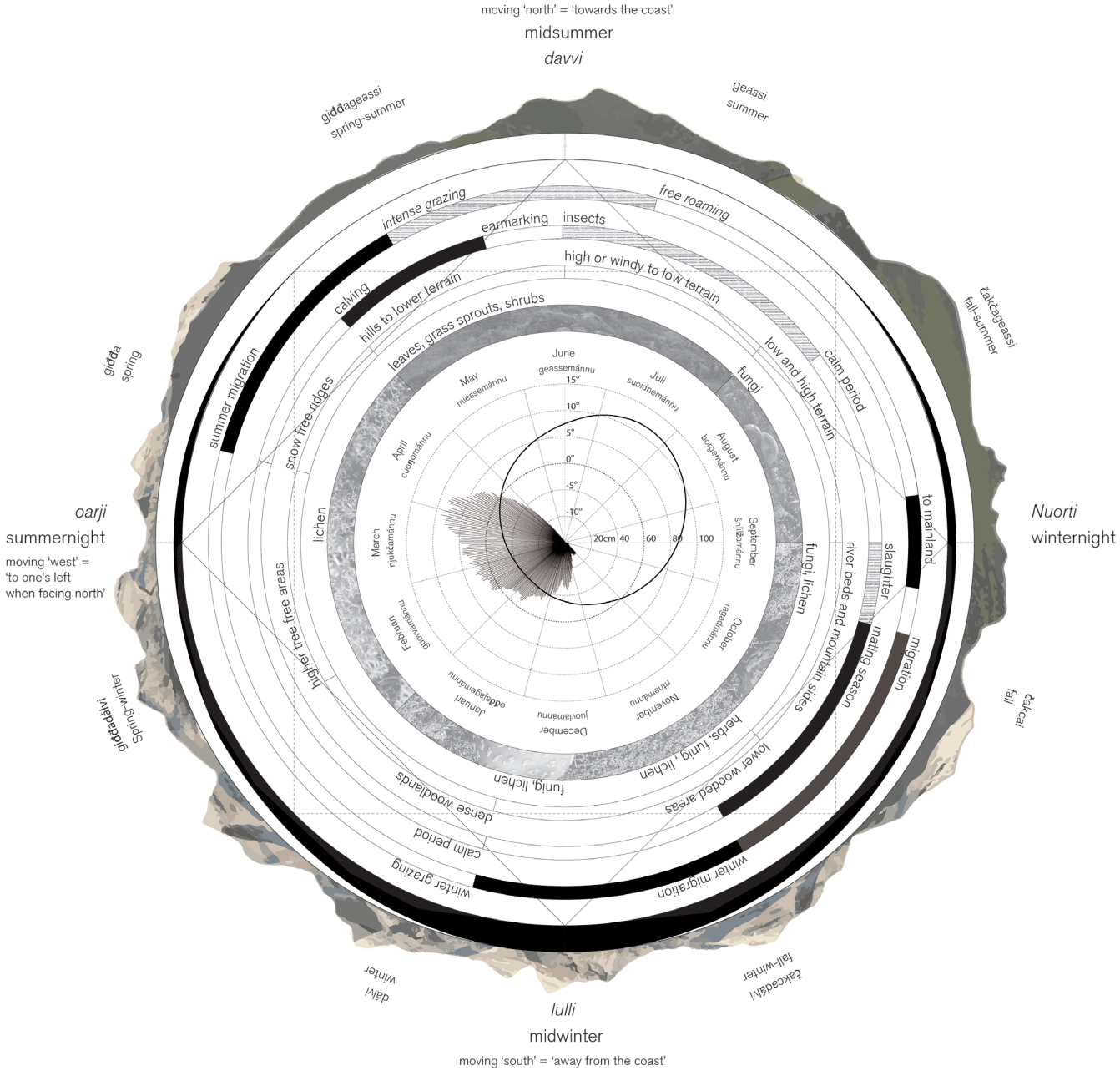


Spring-summer

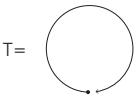
Females and males are separated during calving. Females have usually fixed calving grounds to which they naturally return every year. Calving occurs in small groups preferably in a hilly environment without rivers and steep cliffs[3]. The grazing conditions improve since leaf buds and fresh grass sprouts become available. Therefore, the reindeer will move to lower terrains. If the snow melts too fast, the transition to lower terrain can take its toll on weak animals. Moreover, insects will emerge sooner, and start to plague the reindeer. The herd will try to flee from them, leaving little time to strengthen[1].

Summer

In the beginning of the summer the earmarking takes place. All the calves must be marked to denote ownership between siida's[2]. The insects drive reindeer to higher ground with snow patches or windy areas along the coast. At the same time fresh grass sprouts in the lower terrain. Pastures are abundant during this season, however as explained above, insects limit the reindeer in their options despite good grazing conditions[1].



Jahkodat



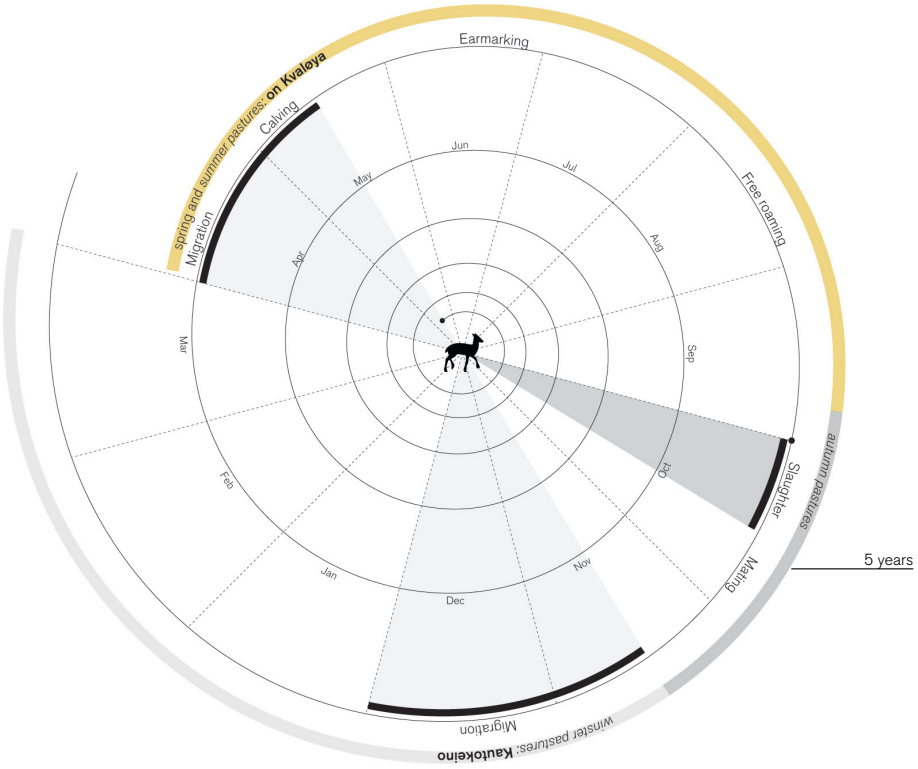
The rhythmic alterations of the seasons and years are, as briefly explained before, what the Sámi call jahkodat. The duration of the seasons and the transition between them can be either good or bad for the reindeer and their herders. The variations can be extreme, but most of the negative effects of one season can be eliminated by the following season. The biological production, dependent on the outcome of a total year, determines the condition of the reindeer and the percentage of calves. "*Jahkodat*" is not a fixed calendar year or one cycle but the aggregation of season after season, ultimately affecting the fluctuation of herds and changes in biomass[1].

Therefore, the Sámi understanding of time is crucial in – both physical and non-physical - decision making. As Siv Merethe explained in chapter 5; "they're having their own methods and ways to see how the world is, […] so they don't take the knowledge from people who work out in the fields". Western science is preoccupied with trying to understand the Arctic as one closed system. "Reindeer herding is about flexibility and mobility. That's how [this tradition] has survived and [how it] follows to changing conditions."

Therefore, as Benjaminsen et al. (2015) underline, the non-equilibrium understanding is needed to get a holistic view on the Arctic environment and conditions[2]. Moreover, a coherent cyclical understanding is essential in order to preserve a semblance of the indigenous identity[3].

The reindeer cycle

The diagram below represents the cyclical life of a reindeer from birth to death throughout the seasons and years. Combined with the traditional knowledge on *jahkodat* it becomes clear that a negative interference from bad seasons will affect the biological condition of a reindeer and ultimately the herd. While often bad seasons followed up by good seasons could counteract this effect, fixed interference on pasture areas negatively affect this cycle, as will become clear in the next chapters.



Citations

[1] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[2] Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

[3] Weinstock, J. (2009). What Goes Around Comes Around: Sámi Time and the Question of Indigeneity.

Figures

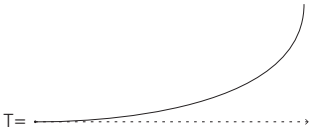
◀ 7.9 *Jahkodat* and the reindeer cycle combined. Reindeer cycle adapted from Curry, T. (2013). Herding on Thin Ice. (Master Thesis).

▶ 7.10 Reindeer near Neiden- og Munkefjord. Made by author.



Oil temporality

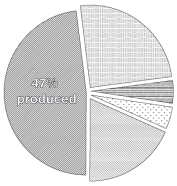
> State management and control of the industry is ensured through an extensive legislation that requires companies to obtain licences and approval from the competent authorities for all phases of petroleum activities[1].



As argued before, the Western (linear) concepts of time - and culture - are based upon controlling and regulating natural resources[2,3]. This is no different in Norway; as the quote above already reveals, the Norwegian state controls - through the Norwegian Petroleum Directorate - the licensing areas on the sea. In this paragraph I will shortly explain the imperatives of the Norwegian government to support the oil industry. How the licensing process works and how this initiates (non-)physical territorialization processes of the oil companies.

Political-economic imperatives

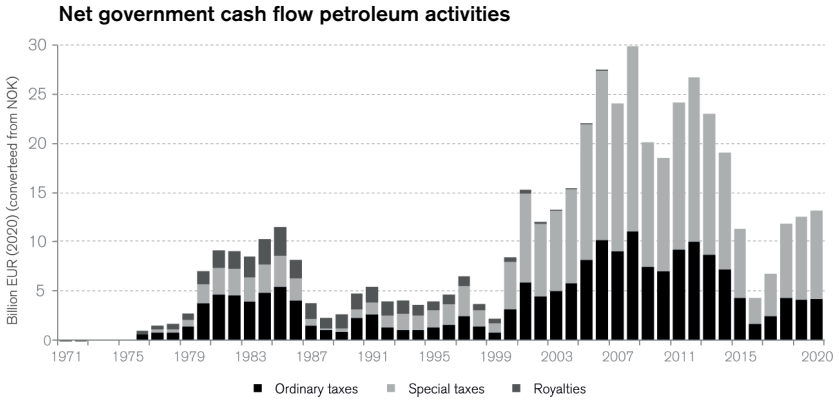
With the discovery of oil in the 1960s the Norwegian government decided to set up the oil fund "to ensure responsible and long-term management of revenue from Norway's oil and gas resources so that both current and future generations get to benefit from the oil wealth"[4]. These political-economic attitude reveals a linear way of thinking, which consists of first birth, then growth, then peak, then decline and end[5]. It seems that this linear perception of time enhances the actions and thought of the Norwegian government because it is wary that these process will decline and end, and with them economic growth. The government wants to control and ensure future wealth and enhances the thought:



"We have produced 48 per cent of the resources on the shelf. This means that more than half remain to be discovered and produced. Of course, it is impossible to say exactly how much is yet to be discovered, but our analyses indicate that it can be 25 per cent of the total. "**Therefore, it is important to explore in all the sea areas**"[6].

Director General Ingrid Sølvberg (2020).

The fragility, as well as the extreme revenues of the industry are well illustrated in the tax revenue graph below. The oil price crash of 2014 was followed up by record high in the licensing of new areas in the Barents Sea[7].



Citations

[1] Norsk Petroleum. (2020). The Petroleum Act and the licensing system.

[2] Klein, N. (2015). This changes everything: Capitalism vs. the climate.

[3] Weinstock, J. (2009). What Goes Around Comes Around–Sámi Time and the Question of Indigeneity.

[4] Norges Bank. (2019). About the fund.

[5] Lefebvre, H. (1992/2004). *Rhythmanalysis: Space, time and everyday life* (S. Elden & G. Moore, Trans.).

[6] Sølvberg, I. (2020). Barerly halfway. Retrieved from https://www.npd.no/en/

[7] Norwegian Petroleum Directorate. (2019). Record licence awards in APA 2018.

Figures

◀ 7.11 The net government cash flow from petroleum activities, 1971-2020. Adapted from Ministry of Finance, (2020), The net government cash flow from petroleum activities.

▶ 7.12 Linear licensing and exploration phases. Made by author, based and adapted from Norsk Petroleum (2020), Equinor. (2019).

Licensing

Phase 1: opening new areas for petroleum activities

The Ministry of Petroleum and Energy carry out an impact assessment including an evaluation of the possible economic, social and environmental impacts of the activities. The general public and affected parties are given an opportunity to put forward their views. A resource assessment is also made. Final decision to open new areas for petroleum activity are made by the Norwegian parliament[1].

Phase 2: award of production licenses

In licensing rounds the Ministry announces the opening for production licenses in certain geographical areas (blocks). On the basis of the applications received, production licenses are awarded to groups of companies. A production license grants exclusive rights to exploration drilling and production of petroleum in the area as well as other regulation regarding the rights and duties of the licensees vis-à-vis the Norwegian state[1].

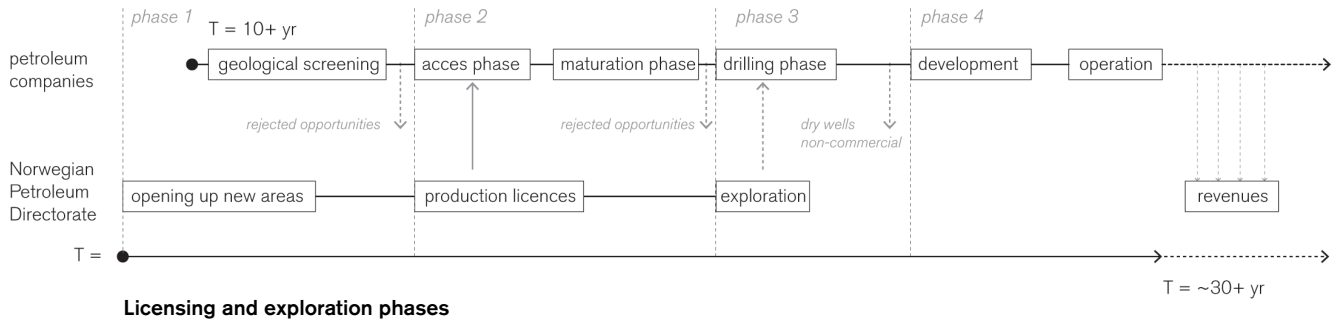
Phase 3: exploration

The obtained production license is valid for an initial period of up to ten years, and is reserved for exploration activities. The license includes deadlines for carrying out different activities, to ensure that the area is explored properly. This process may include geological and/or geophysical activities and exploration drilling. Once they have completed the obligatory work, licensees may relinquish the production license. These can later be obtained by other licensee groups[1].

Phase 4: development and operation

If a discovery is made, the licensees are entitled to extend the period of the license. The duration is determined by the Ministry of Petroleum and Energy and is in most cases 30 years. If the licensees wish to develop a field, they are obliged to do this in a responsible way. The licensees must submit a plan for development (PDO), if development also includes pipelines or onshore terminals, they have to file a separate plan for installation and operation. A PDI/PIO consists of a development plan and an impact assessment. Likely impact on the environment, fisheries and society are included and is sent to all those who may be affected by the project. This process should ensure that all relevant arguments for and against are known before a final decision is made[1].

The actions taken by the companies that receive a license can be seen in the figure below. The phase can take up to ten years.

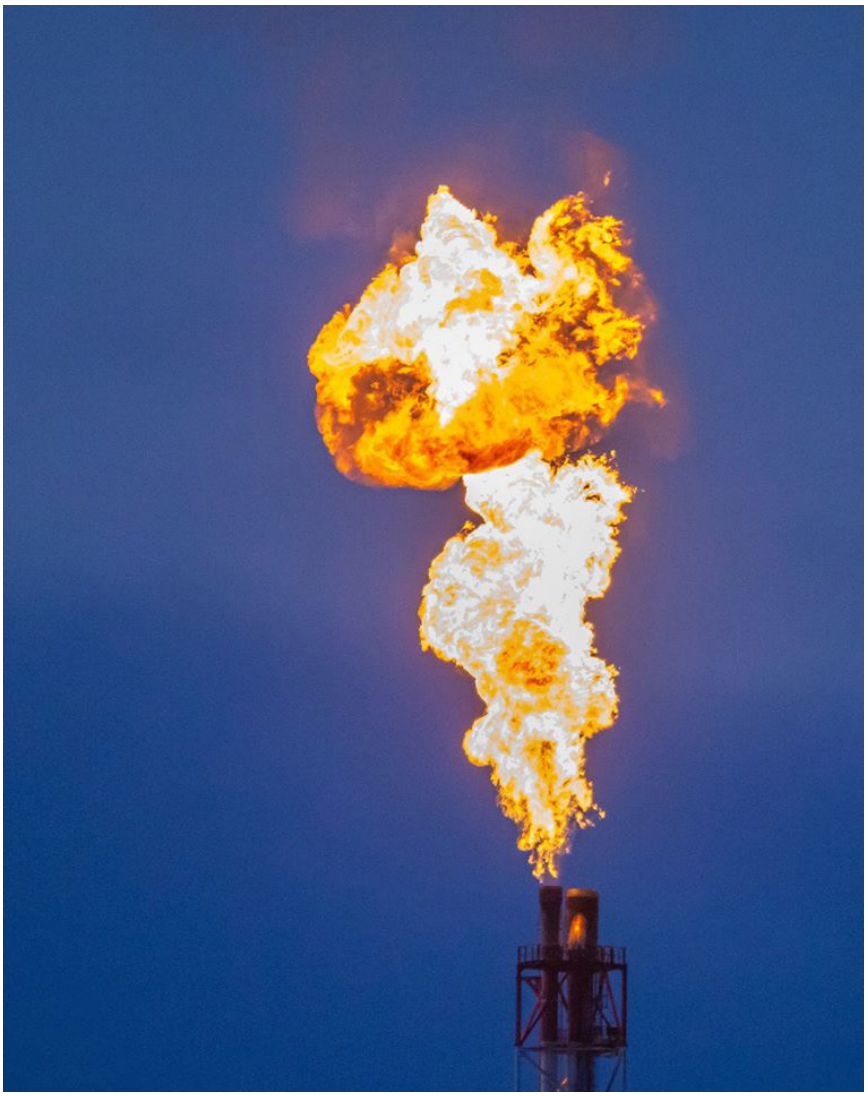


Licensing and exploration phases

'Oljeeventyret' (oil adventures/fairy tales)

The Norwegian government is actively creating and supporting linear narratives on growth under the guise of creating wealth for future generations. Licensing is done by the Norwegian Petroleum Directorate (NPD) which has to "ensure that the petroleum resources yield the maximum possible value for society"[1]. Therefore, the governmental organ stimulates oil companies to maximize their effort in exploring the licensing areas they hand out. The companies in return exemplify the need for growth for the growing global market, which is reinforced by adventurous fairy tales on oil adventures that made modern life possible and companies are "always exploring–never satisfied"[2]. Once processes have been initiated and an goal has set, there is no point of return anymore.

T=



Conclusions

The research questions were:
d. To what extend can we understand temporality in the practice of reindeer herding and how can we define temporality in the oil industry?
e. How does this define the land-use?

In this chapter I sought to unravel the cyclical and linear conceptualizations of time. The goal was to learn how the Sámi use nature and what kind of linear narratives and structures shape and define the oil industry. From an indigenous perspective a literature review was conducted on the cyclical processes of reindeer herding throughout the year. A literature review on temporality in the oil industry was done by analyzing the political-economic imperatives which reveal how the industry is built on a more linear notion of time.

Natural cyclicality

A literate review on the Sámi conceptualization of time reveal show they distinct eight seasons instead of the four we know in the West. These seasons largely derive from accumulation of knowledge by living and experiencing the Arctic context for centuries. This knowledge has enabled the Sami to adapt to the unpredictable characteristics of the Arctic environment. Decisions are therefore made last-minute which makes them flexible. Indigenous knowledge on temporality, territory, seasons and vegetation is crucial to understand the flexible use of the landscape and is summarized in a cyclical diagram. This diagram is used in chapter 8 to reconstruct the movement on Kvaløya.

Petromodernity

The Western concept is based on reaching a goal in the future; growth and wealth. Where the Sámi 'use' nature in order to survive, the oil industry 'consumes' nature through extraction of energy, necessary to initiate modernization of a global society. The government of Norway has been actively supporting narratives of wealth creation by advocating that maximizing industrial growth is necessary for future economic growth. It does this consciously, knowing that the petromodernity will eventually end. Therefore it is advocating for as much exploration and extraction today. Ultimately ending in reserving and fixating space to facilitate these growths. Decisions are therefore made according to this, far in the future, and have a big impact on urban and infrastructural policy making.

Spatial fixation

In conclusion, the two conceptualizations result in a very different practical use of territory and therefore creates an unbalanced situation. Modern (industrial) imperatives reserve and fixate space on which to develop. While the Sami are used to have enough room to move around in their natural surroundings. This gives them the freedom to be flexible and able to adapt to new situations. Ultimately, in the current political environment, this results in less space for the reindeer herders.

Because of their substantial knowledge of the territory and the seasons, the herders always adapt to new situations and therefore the magnitude of the conflicting realities easily remains hidden at first glance. Therefore, the two conceptualizations are simulated onto space in chapter 8 in the spatio-temporal analysis to further scrutinize their uses.

Citations

[1] Norwegian Petroleum Directorate. (2017). The NPD's role.

[2] Gjellstad, M. (2015). Creating New Fairytales: Statoil, Snøhvit, and Petroleum Exploration in the Arctic.

Figures

◀ 7.13 Melkøya flame in the dark.
© Knud Pedersen



DECONSTRUCTION OF THE MAP

SPATIO-TEMPORAL ANALYSIS

08.

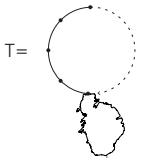


"Reindeer herders have controlled vast areas of the Arctic for centuries and only recently has the petroleum sector become interested in these regions. Oil and gas has appeared and it will disappear, but the reindeer will be there forever. Take care of our reindeer! "

Dimitry O. Khorolya in Magga et al. (2009). Reindeer herding, traditional knowledge, adaptation to climate change and loss of grazing land.

Part 1: Reindeer reconstruction

Introduction



As argued before, mapping is often considered a political tool that supports a modernists approach towards claiming land and land use. This has been apparent in the past, but is still to some extent true today. If combined with the political narratives of necessary growth in the oil industry, it could therefore be easily misused. However, "consistent with the cultural importance of indigenous peoples' attachment to land, many of the examples of empowerment deal with land use mapping and land claims"[1].

> It is also one of the most innovative and dynamic areas in traditional knowledge research because mapping has stimulated the development of techniques using modern technology such as GIS and remote sensing, and the development of participatory, cross-cultural approaches to the research process itself.[2]

As mapping is one of the primary tool of the urbanist, the challenge is to find alternative methods to translate the indigenous knowledge onto the map in order to counteract the modern approach and help in the emancipation of the Sámi reindeer herders. This analysis therefore attempts to combine modern spatial modeling methods with the previously acquainted indigenous knowledge on the reindeer herding. As became apparent in the spatial analysis, the current data of reindeer husbandry is not enough to understand and visualize spatial conflicts throughout the seasons. Therefore the data gathered in the spatial analysis is complimented with a further in depth literature review on the Fálá reindeer district. The goal is to indicatively map the reindeer movement on the island of Kvaløya and understand how the reindeer move according to topographical, vegetation and seasonal weather conditions. This information can then be used in further research and the construction and assessment of the scenarios.

Method

The primary method used is the research by design method which allows the composer to directly translate and test information on the map. This is done through several steps. The first step is combines the previously gathered information on the vegetation and general land-use data of the reindeer herders. The second steps then adds the qualitative information of the temporal analysis. Combining the qualitative and quantitative information through mapping of general movement revealed how the reindeer move throughout every season. After this step, another layer of information was applied with another literature review on the Fálá reindeer district, after which 3D transects of specific locations were created to illustrate more specific movement patterns. As a last step a scientific translation was conducted by separating different elements to indicatively select the most vulnerable and important pastures on the island.

Scientific translation

After the reindeer simulation a translation of the specific conditions and important elements for the reindeer is made in order to compare conditions between seasons and eventually draw conclusions. Therefore layers have been flattened and weighed against each other in gradients of black as shown in the diagram below. The table below has been constructed after the analysis.

action	impact on what?	little value	moderate value	high value	visualization and comments
collection areas	autum-summer, autumn			X	
calving lands + hills	spring-summer			X	calving areas + suitable hills
groves (for calves)	summer			X	grass-birch areas
insect free areas (on hills)	summer		X		less valuable because of less insects along the coast
move and pull rents	spring, spring-summer			X	
seasonally changeable areas					
insect free areas (wind)	summer			X	
snow patches (for cooling)	summer		X		
mushrooms	autumn-summer, autumn			X	highly variable each year, therefore vulrenable
difficult to acces areas (due to snow conditions)	spring, spring-summer				
slowly changeable					
highly nutritious pastures	all seasons			X	From Granøien & Vennerød (2015).
moderate nutritious pastures	all seasons		X		From Granøien & Vennerød (2015).
low nutritious pastures	all seasons	X			From Granøien & Vennerød (2015).

[1] Fox, J. (1998). Mapping the commons: the social context of spatial information technologies.

[2] Berkes, F. (2012). *Sacred Ecology.*

Figures

▼ 8.8 Pasture values
Made by author.

▶ 8.9 Seasonal migration Fálá district. The reindeer and herders reside on the island from spring to fall (3, 4, 5, 6, 7 on the map).
Adapted from Landbruksdirektoratet.

Summer pastures on Kvaløya

The main objective of the summer pastures is to get the deer in the best possible shape for the winter and to move back to the winter pasture. With reindeer in good shape the slaughter weight will increase, and this will also improve production and hopefully lead to increased revenue for the reindeer herder. To achieve this goal it is important that the reindeer get peace in the pasture, and the reindeer are grazing most scattered within the district[1]. The Sámi herders use Kvaløya/ Fála roughly from 1 May to 15-30 September as spring, summer and autumn pastures. Therefore the analysis will focus on the five seasons they reside on the island, as summarized below.

Summary of important seasons

In **spring**, the western parts of the island are crucial because snow is blown away here and reveals vital grazing areas for the weakened reindeer after their migration from the winter pastures.

During **spring-summer** the Northern and Eastern areas are the most important as these are the main calving grounds on the island. The areas are less disturbed as the cows tend to stay away from human activity and other dangers. After calving, intense grazing starts.

In the **summer** the reindeer are disturbed and encouraged to move to other pastures on the island, to make sure the full potential grazing areas are used. Small packs are formed in order distress the impact on the landscape. In late summer, the calves move north-west to new pastures and groves where they can hide from predators.

In **autumn-summer** all lands are available for grazing and packs of herds are scattered on particularly the west- and northern parts of the island. Mushrooms, that grow in lower areas, are particularly important because they hold high nutrients . From September on the reindeer are herded towards the fixed gathering island across the island.

At the beginning of the **autumn**, the reindeer migrate to the southern gathering areas where they swim back to the mainland. Once they arrive here, slaughtering and earmarking starts before moving to the winter pastures.





Giđđa
Spring

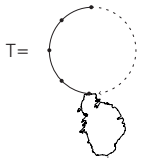
Spring

During the spring, temperature rises and when the snow begins to melt it is important that the herd migrates at the right time. The reindeer need the right amount of snow to migrate and continuous coordination between the siida's is necessary to not interfere with other herds[2]. Usually spring migration is in the last two weeks of April, but it varies between the beginning of April and half May depending on the weather conditions. If the family waits too long, the tracks will be difficult to migrate across. During the spring migration the herd will migrate from the winter pastures around Kautokeino towards the summer pastures on Kvaløya. Once the herd reaches the coast near Kvalsund, the herder decides when the herd should cross the water either by swimming or by ferry as shown on the map on the right.

The migration is very exhausting for the reindeer and especially pregnant mothers are very weak[3]. Therefore it is vital that the reindeer find nutritious food when they arrive on the island. Thick snow still covers large parts on the island. But strong winds carry away snow on top of ridges along the coast. Therefore, the reindeer move towards the bare spots and pebbles that protrude from the snow on the western side of the island[3,4,5]. During the spring period it is important that the reindeer are disturbed as little as possible.

Conflicts

During the spring there are various conflicts with urban structures on the island. The reindeer are driven along roads and powerlines. These structures are very stressful for them and takes its toll on the energy. Along the coast there is a big road which they have to cross to get to Strømsnes peninsula, one of the richest areas on the island. Bare spots with nutritious pastures are also blocked, because of the reindeer fence that is built around Hammerfest.



Citations

[1] Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløya og Hammerfest kommune. *Master thesis,* University of Oslo.

[2] Reinflytting minutt for minutt, Pulk (2017).

[3] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[4] Johansen, B., Karlsen, S. R., & Uhlig, C. (2007). Kartlegging av vegetasjon, reinbeiter og erosjon - *Kvaløya i Hammerfest kommune.*

[5] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

Figures

◀ 8.10 Important elements in the spring.
Adapted from Johansen, Karlsen, and Uhlig (2007).

◀ 8.11 Spring snow cover and main wind direction.
Based on satellite image from Copernicus Sentinel data 2019, processed by ESA (18-04-2019).

◀ 8.12 Reachable zones of importance in the spring.
Made by author.

◀ 8.13 General reindeer movement in the spring.
Based on reindeer simulation.

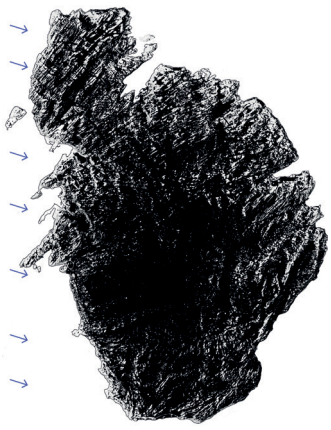
▶ 8.14 Reindeer simulation spring.
Made by author, based on research by design method, accumulated through previous analyses.

▶ 8.15 3D transect of Strømsnes peninsula, displaying detailed elements for the spring season.
Made by author.

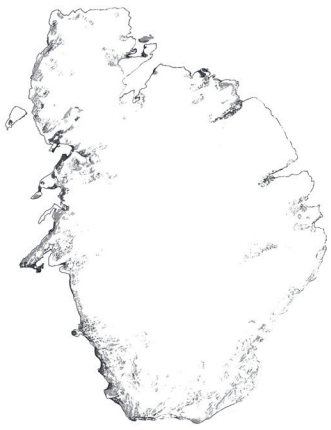
Very good and good pastures



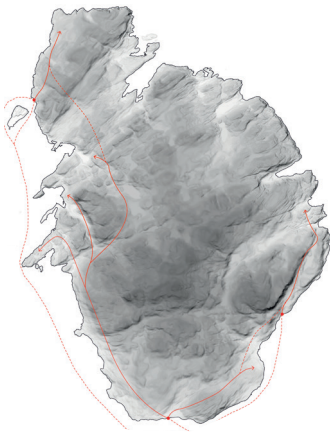
Snow-cover and main wind direction



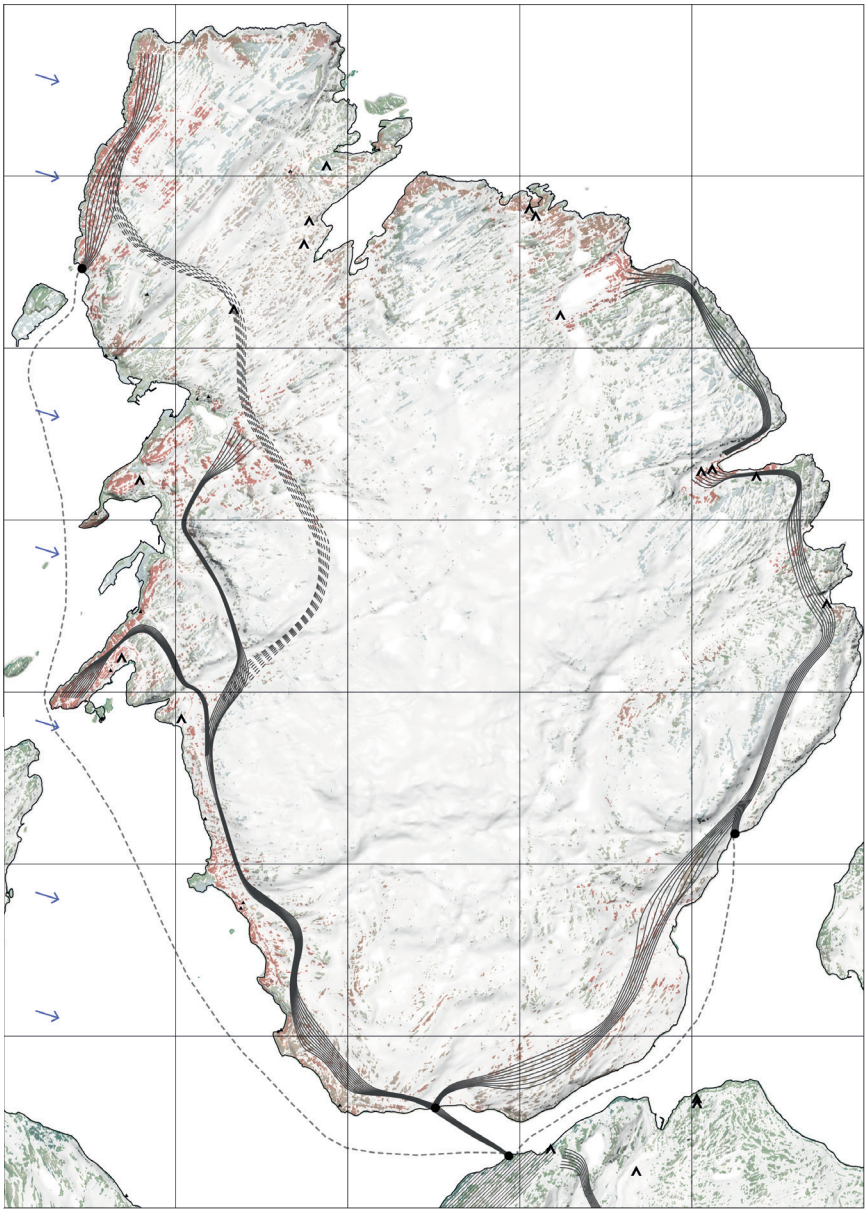
Reachable zones of importance



General movement reindeer







▸ Legend

Reindeer flows

Sámi structure

Pastures

Highly nutritous

Less nutritious

Seasonal conditions

Dominant wind direction

Reindeer ferry route

Reported lichen locations

Vegetation

Grass birch forest

Sparsely vegetated

Moors & heathland

Bare rock

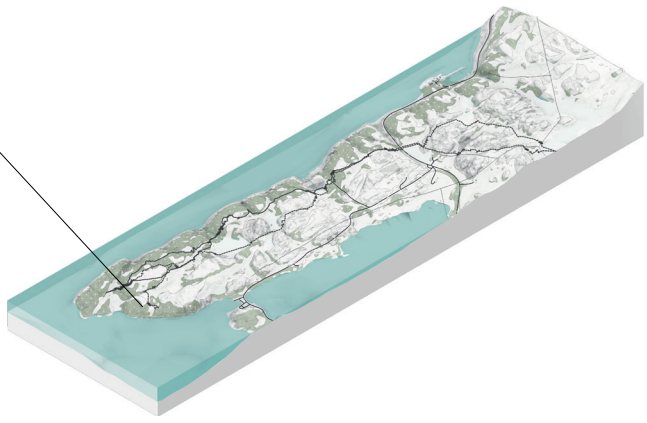
Inland marshes

Snow

Snow free ridges

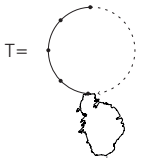
Reindeer search for nutritious lichen protruding from bare spots.





Giđđageassi

Spring-summer



The spring-summer is the period in which the calves are born. Calving occurs mainly between May 20 and June 15. The females and males are separated during calving. The females have usually fixed calving areas to which they naturally return every year on the eastern side of the island and the Strømsnes peninsula. Females with calves are usually more shy and will graze further way from interference of the city. This has probably grown over time due to increasing urban development. Calving occurs in small groups preferably in a hilly environment without rivers and steep cliffs[1,2]. The herders are primarily assisting the cows with the birth of new calves. The males are wandering in disturbed areas in the West and higher environments[3].

During this period pasture conditions improve and the diet of the reindeer changes from lichen to leaf bud and fresh sprouts[1]. Therefore, the reindeer will adhere to lower areas. However, this transition can be very quick if the snow smelts too fast. If this happens, it can take its toll on weak animals and especially young calves. Moreover, the insects will emerge sooner in the lower areas. The herd will try to flee from the insects, leaving little time to strengthen. These transitions have become more apparent and less predictable with the increasing climate change. This was for instance the case in 2017 and 2018.

Conflicts

In the summer, especially the regions around Hammerfest city are attractive for male reindeer. Good grazing conditions in areas around gardens and parks are especially attractive. Grazing deer have caused damage in parks and gardens, and conflicts have arisen between herders and landowners. It has happened that these conflicts have ended in court[4]. These conflicts have been primary object of discussion within Hammerfest and have resulted in the construction of the reindeer fence around the city, thereby not only blocking access to the city, but also surrounding areas. Even with the reindeer fence in place, reindeer herders are often confronted with the fact that males are still trespassing the fence. However, as explained above the herders are often occupied with calving and are thus unable to monitor the reindeer at all times.

Citations

[1] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[2] Landbruksdirektoratet. (2019). Beitebruken gjennom året - Sommeren.

[3] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

[4] Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune. *Master thesis,* University of Oslo.

◀ Figures

8.16 Important elements in the spring-summer. Adapted Landbruksdirektoratet and Nibio (2019).

◀ 8.17 Spring-summer snow cover. Based on satellite image from Copernicus Sentinel data 2019, processed by ESA (20-05-2019) and eklima.met.no (2019). Date chosen by analyzing (average) snow cover from 2015-2019 on eklima.met.no.

◀ 8.18 Reachable zones of importance in the spring-summer. Made by author.

◀ 8.19 General reindeer movement in the spring-summer. Based on reindeer simulation.

▶ 8.20 Reindeer simulation spring-summer. Based on research by design method, accumulated through previous analyses.

Calving grounds and hills



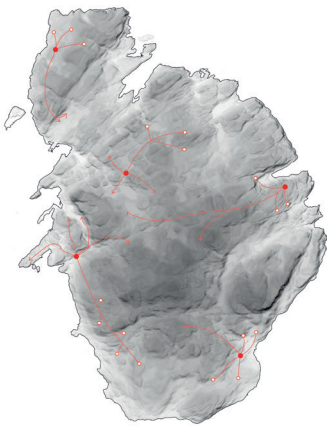
Snow-cover



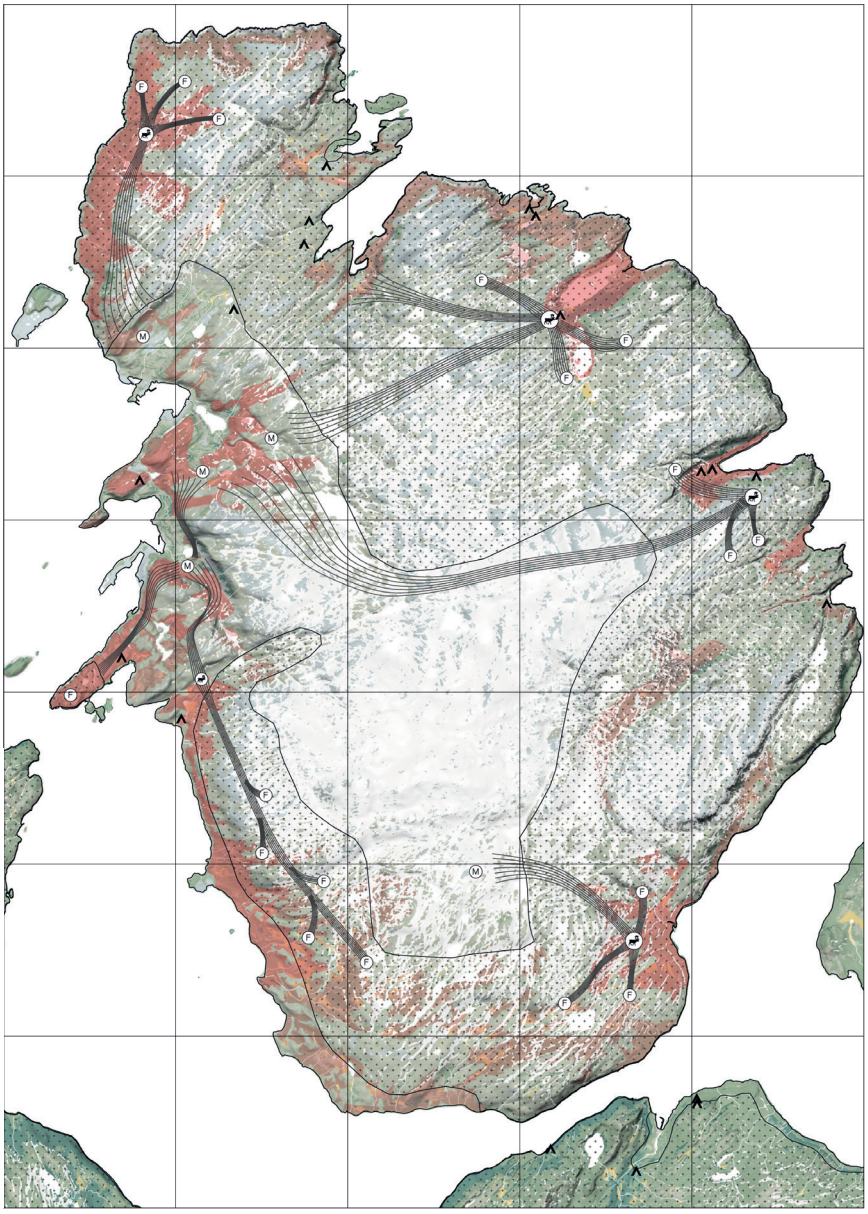
Zones of importance



General movement reindeer







▸ Legend

Reindeer flows

Sámi structure

Pastures

Highly nutritous

Less nutritious

Seasonal conditions

Calving grounds

(M) Male

(F) Calving

Vegetation

Grass birch forest

Sparsely vegetated

Moors & heathland

Bare rock

Inland marshes

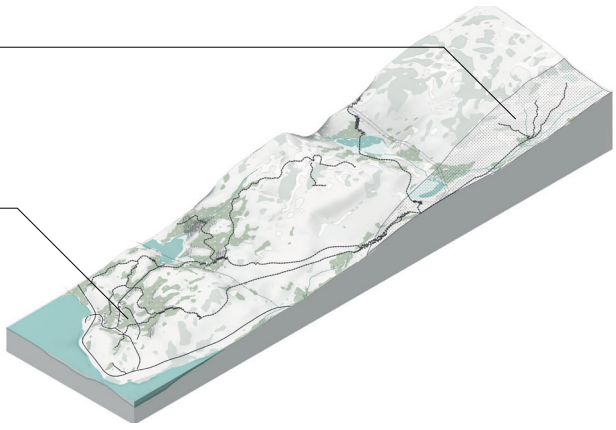
Snow

(F) **Females**

Calve in mountainous regions away from steep hills and big rivers.

(M) **Males**

Wander in disturbed areas near urban and infrastructure areas



Geassi
Summer

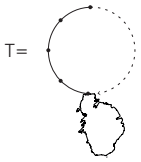
In the beginning of the summer earmarking of the calves takes place. Throughout the warmer periods and in the summer blood-sucking insects are active. These often spread parasitic diseases among reindeer and make poor reindeer unable to rest during their mass attacks. The insects, mosquitoes, black flies and others are particularly common in inland areas, and thus reindeer seek areas on higher latitudes or coastal regions to flee. One particular insects that disturbs the reindeer is the warble-fly. They force reindeer to make quick defense movements and cause constant disturbance, making the reindeer nervous and exited[1]. The reindeer seek higher ground on Kvaløya, however these regions solely consists bare rocks, making them less nutritious. Kvaløya island has the advantage of strong winds along the western coast, so these areas are good places for reindeer to hide from the insects. At the same time fresh grass starts to sprout in lower terrain along rivers, valleys and lakes. On warm summer days, the reindeer will cool near snow patches in mountainous terrain[2].

Pastures are abundant during and the reindeer are calm. To fully utilize all pastures on the island, the reindeer herder needs to disturb the herd and will encourage the reindeer to graze in packs to avoid too much pressure on one area[2]. When the calves have grown bigger, they will migrate in groups to join the males on the westerns pastures of the island[3]. During this period groves are of particular importance for the calves, because the small birch trees protect them from predators. However, these regions are not that widespread across the island, and are often found near urban areas.

Conflicts

During the summer it is important to achieve the highest possible condition of the reindeer. For this to be achieved, it is important that the reindeer rest in the pasture, and the reindeer graze most scattered throughout the island. The insects therefore pose a big problem on the island, because large regions that are insect free and nutritious coincide with developed areas on the westerns side of the island.

There are less direct conflicts with urban developments and infrastructure. However, in this season a lot of tourists visit the island which often hike towards cabins all over the island. The obstruction of cabins built in inner parts of the island, have not been accounted in the past, and are sometimes built along migration paths of the reindeer[4]. Especially the insufficient access to the groves poses challenges for young calves for their survival.



Citations

[2] Skjenneberg, S., & Slagsvold, L. (1979). *Reindeer husbandry and its ecological principles* [Reindriften og dens Naturgrunnlag].

[2] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[3] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

[4] Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune. *Master thesis,* University of Oslo.

Figures

◀ 8.21 Important elements in the summer.
Compiled using data from Copernicus Sentinel data 2019, processed by ESA and Open Streetmaps (2019).

◀ 8.22 Summer snow cover and main wind direction.
Based on satellite image from Copernicus Sentinel data 2019, processed by ESA (07-07-2019) and eklima.met.no (2019). Date chosen by analyzing (average) snow cover from 2015-2019 on eklima.met.no.

◀ 8.23 Reachable zones of importance in the summer.
Made by author.

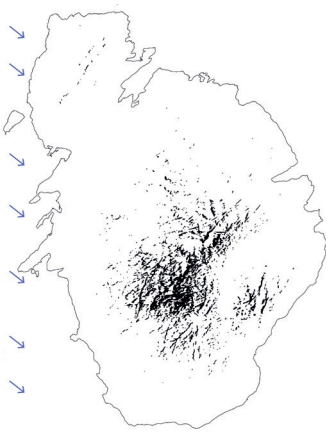
◀ 8.24 General reindeer movement in the summer.
Based on reindeer simulation.

▶ 8.25 Reindeer simulation summer.
Based on research by design method, accumulated through previous analyses.

Groves and insect free areas



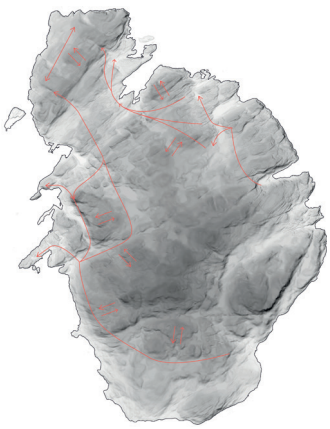
Snow-cover and main wind direction



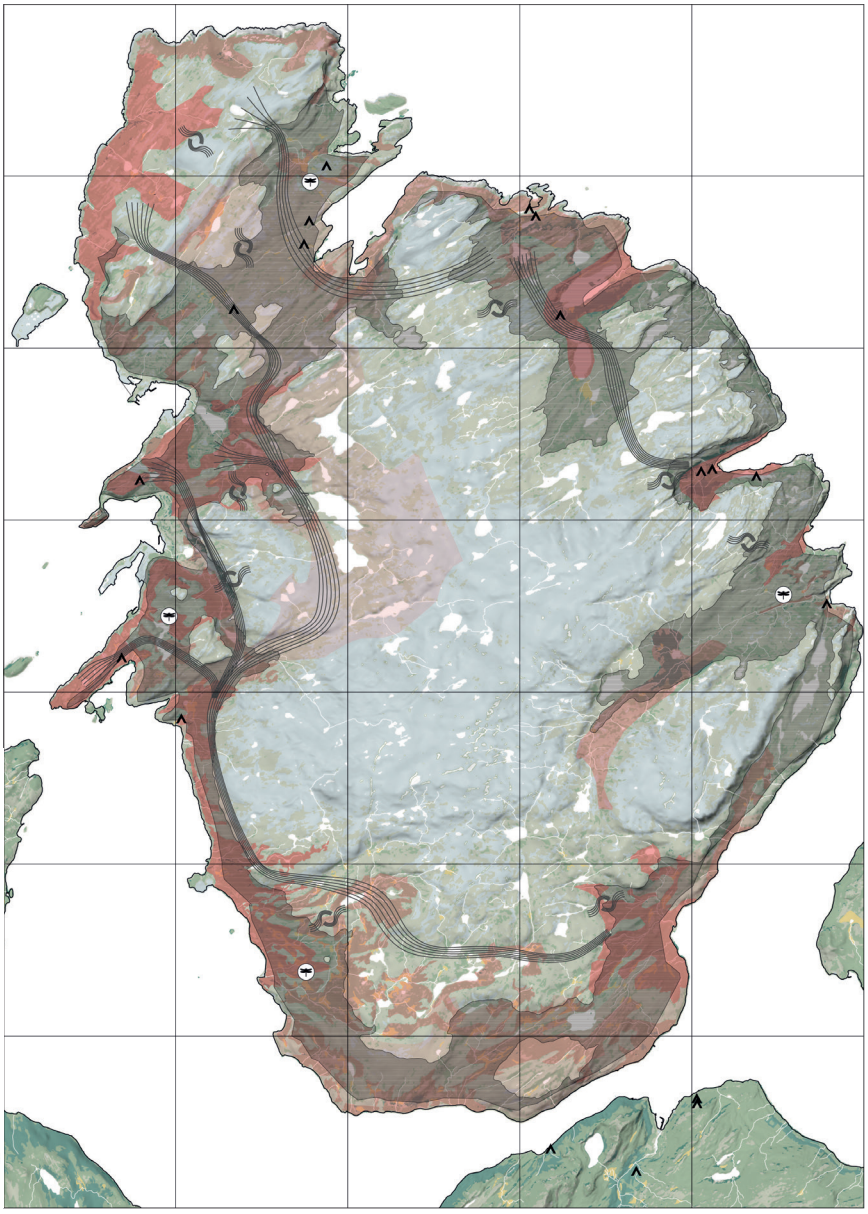
Zones of importance



General movement reindeer







▸ Legend

Reindeer flows

Sámi structure

Pastures

Highly nutritous

Less nutritious

Seasonal conditions

Insect plagued regions

Vegetation

Grass birch forest

Sparsely vegetated

Moors & heathland

Bare rock

Inland marshes

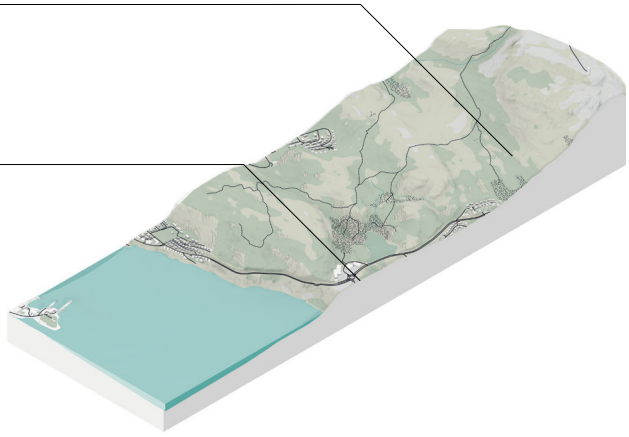
Snow

Westward migration

Females and calves migrate to the riches pastures on the west and towards groves.

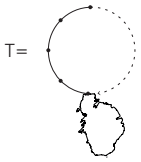
Grass birch forests

Often near urban areas and vital sources of leaf buds and green sprouts. The groves also protect the calves from predators.



Čakčageassi

Fall-summer



In the fall-summer all pastures and plants are available for grazing and the reindeer go after their first grazing choice. Around this time the mushrooms come up, one of their favorite diets. But the amount and time they sprout is highly variable each year. The fungi grow particularly in areas with a rich plant growth and thus in western and southern parts of the island[1]. The wind direction is important in this season. The reindeer often move into the direction of the wind. If this is southerly, they will start to move upon the migration routes towards the winter pastures. Combined with the abundance of food in lower terrain along rivers, lakes and valleys, they will go towards lower terrain where they will also start to scrub and sweep the horns[2]. All these conditions make the reindeer very roaming during the fall-summer.

Migration

In the beginning of September, the collection and migration takes place in three stages. Herders gather the reindeer into the designated gathering areas in preparation for the migration towards the southern part of the island[3,4]. The district has essentially three catchment areas. The reindeer near Mylingen are gathered around Storfjell. The reindeer naturally stop around this mountain because it is a quiet and flat area. When all the reindeer are collected and fully fed, the flock moves to lower latitudes and cross the road to Førsol[3]. The reindeer then move to two other collecting areas in the center of the island. After this, the main collection begins.

The herds migrate along two routes along the western and eastern side of the island, following the natural topographic conditions towards the area south of Muvrarášša mountain. The relocation process normally takes one week. The herds move into the southern gathering area from the East and the West around natural locations.

Conflicts

The migration in fall-summer is a vulnerable period for the reindeer. The collection areas are currently poorly protected against interference. The herd has to cross over the Førsol road and are frightened in the western migration path along the roads and powerline infrastructure. If the reindeer are frightened, they will pull north towards Mylingen and then it is very difficult to return immediately. The often leads to a one week delay. Putting the herder in a more difficult situation for the winter migration to southern pastures[4].

Citations

[1] Skjenneberg, S., & Slagsvold, L. (1979). Reindeer husbandry and its ecological principles

[2] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[3] Granøien, I. L. N., & Vennerød, J. (2015). Oppdaterte beregninger av flystøy for Hammerfest lufthavn.

[4] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

Figures

◀ 8.26 Important elements in the fall-summer.
Adapted from Landbruksdirektoratet.

◀ 8.27 Fall-summer snow cover and main wind direction.
No snow in fall-summer.

◀ 8.28 Reachable zones of importance in the fall-summer.
Made by author.

◀ 8.29 General reindeer movement in the fall-summer.
Based on reindeer simulation.

▶ 8.30 Reindeer simulation fall-summer.
Based on research by design method, accumulated through previous analyses.

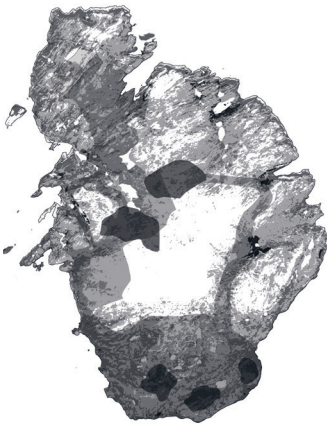
Gathering areas



Snow-cover and main wind direction



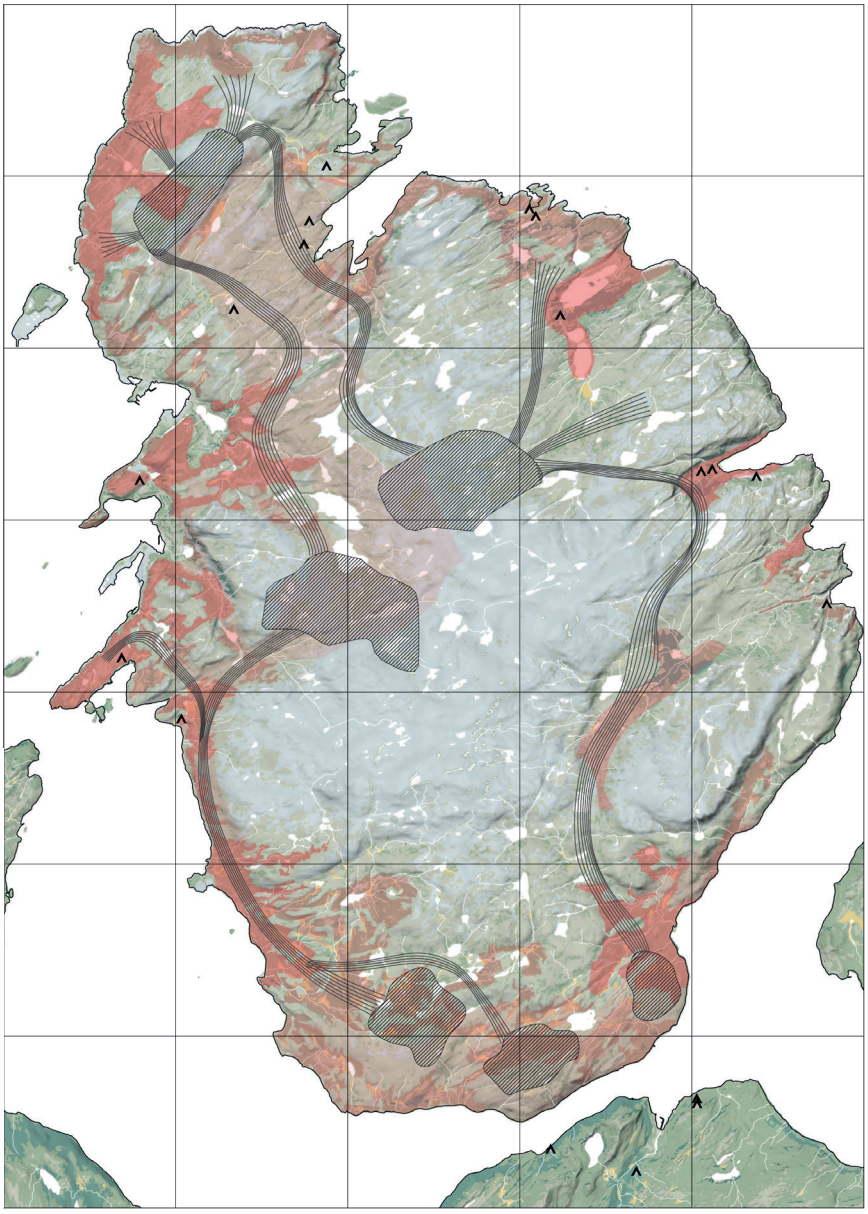
Zones of importance



General movement reindeer







▸ Legend

Reindeer flows

Sámi structure

Pastures

Highly nutritous

Less nutritious

Seasonal conditions

Gathering areas

Vegetation

Grass birch forest

Sparsely vegetated

Moors & heathland

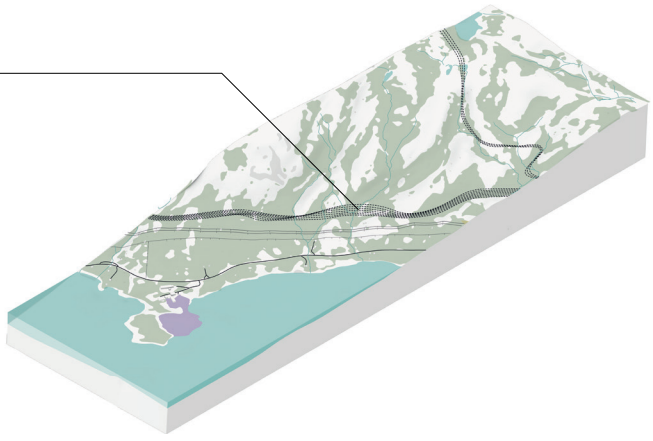
Bare rock

Inland marshes

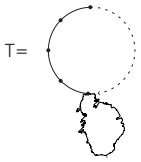
Snow

Migration

The reindeer pass infrastructure when migrating south, which disturbes them and sometimes cause them to return north.



čakcai
fall



During the fall the grazing conditions are similar to the fall-summer and the reindeer are gathered in the areas South of Muvrarášša. Lichen are added to the diet, next to the fungi around lower marsh areas[1]. Herders prepare the herd for the swim to the gathering area on the mainland. Good weather and current conditions are important for a successful relocation to Kvalsundet. The herd crosses the strait in groups. The collection and migration towards the shore is a complicated operation. The reindeer have to descent along a steep and narrow track, after which they have to cross highway 94. All traffic needs to be halted by the police and spectators cause big disturbance to the reindeer[2]. It may take a long time before all the deer are down near the water.

On the mainland, the reindeer are gathered in a collection area where fall slaughter and veal labeling is carried out immediately after the herds arrive. This is usually around 10 September. The labeling and slaughter period is approximately 1 to 2 weeks until the end of September. After this the reindeer move East of Kvalsund before paring takes place. From this location the herd will migrate to the winter pastures in the South.

Conflicts

During the fall the gathering and relocation causes a lot of stress to the reindeer, especially because they have to cross the busy highway to Kvalsund. After the slaughter the reindeer migrate towards pastures near the Repparfjord. The re-opening of the Repparfjord copper mine will cause a lot of disturbance in the future.

Citations

[1] Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper.

[2] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

[3] Granøien, I. L. N., & Vennerød, J. (2015). Oppdaterte beregninger av flystøy for Hammerfest lufthavn.

Figures

◀ 8.31 Important elements in the fall-summer.
Adapted from Landbruksdirektoratet.

◀ 8.32 Fall-summer snow cover and main wind direction.
No snow in fall-summer.

◀ 8.33 Reachable zones of importance in the fall-summer.
Made by author.

◀ 8.34 General reindeer movement in the fall-summer.
Based on reindeer simulation.

▶ 8.35 Reindeer simulation fall-summer.
Based on research by design method, accumulated through previous analyses.

Gathering areas



Snow-cover and main wind direction

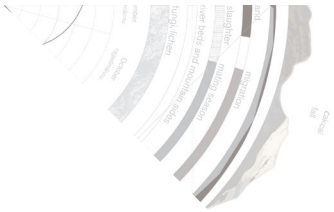


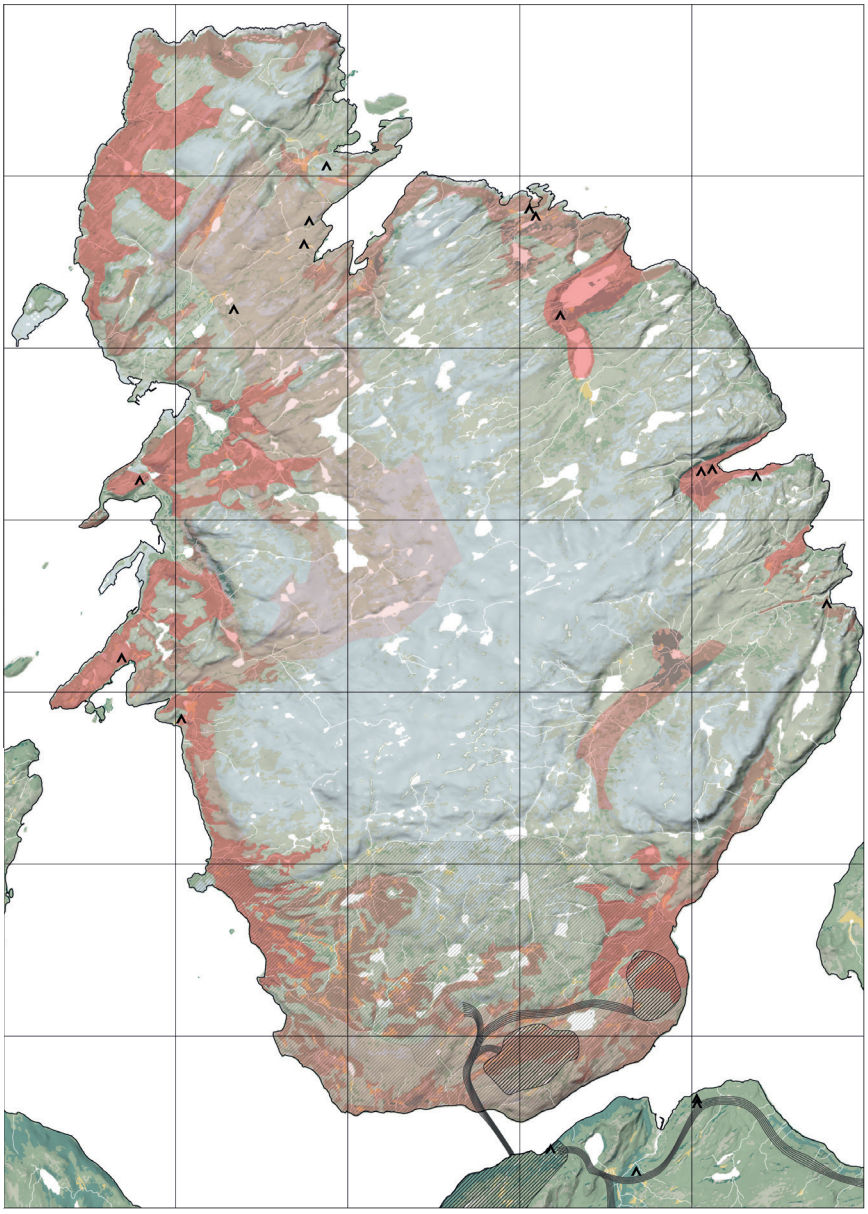
Zones of importance



General movement reindeer







▸ Legend

Reindeer flows

Sámi structure

Pastures

Highly nutritous

Less nutritious

Seasonal conditions

Gathering areas

Vegetation

Grass birch forest

Sparsely vegetated

Moors & heathland

Bare rock

Inland marshes

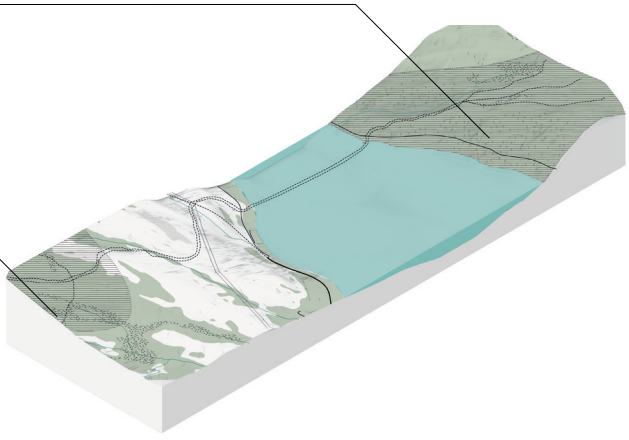
Snow

Labeling and slaughter

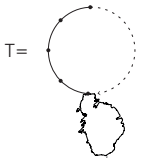
The reindeer are gathered in a designated area where they are selected for slaughter before migrating South.

Kvaløya gathering areas

The reindeer are gathered around nutritious pastures with abundant fungi before migrating in groups to the mainland.



Conclusion



The research question was:
f. Based on the temporality, up till what extend can we understand and project the seasonal reindeer movement on the island of Kvaløya?

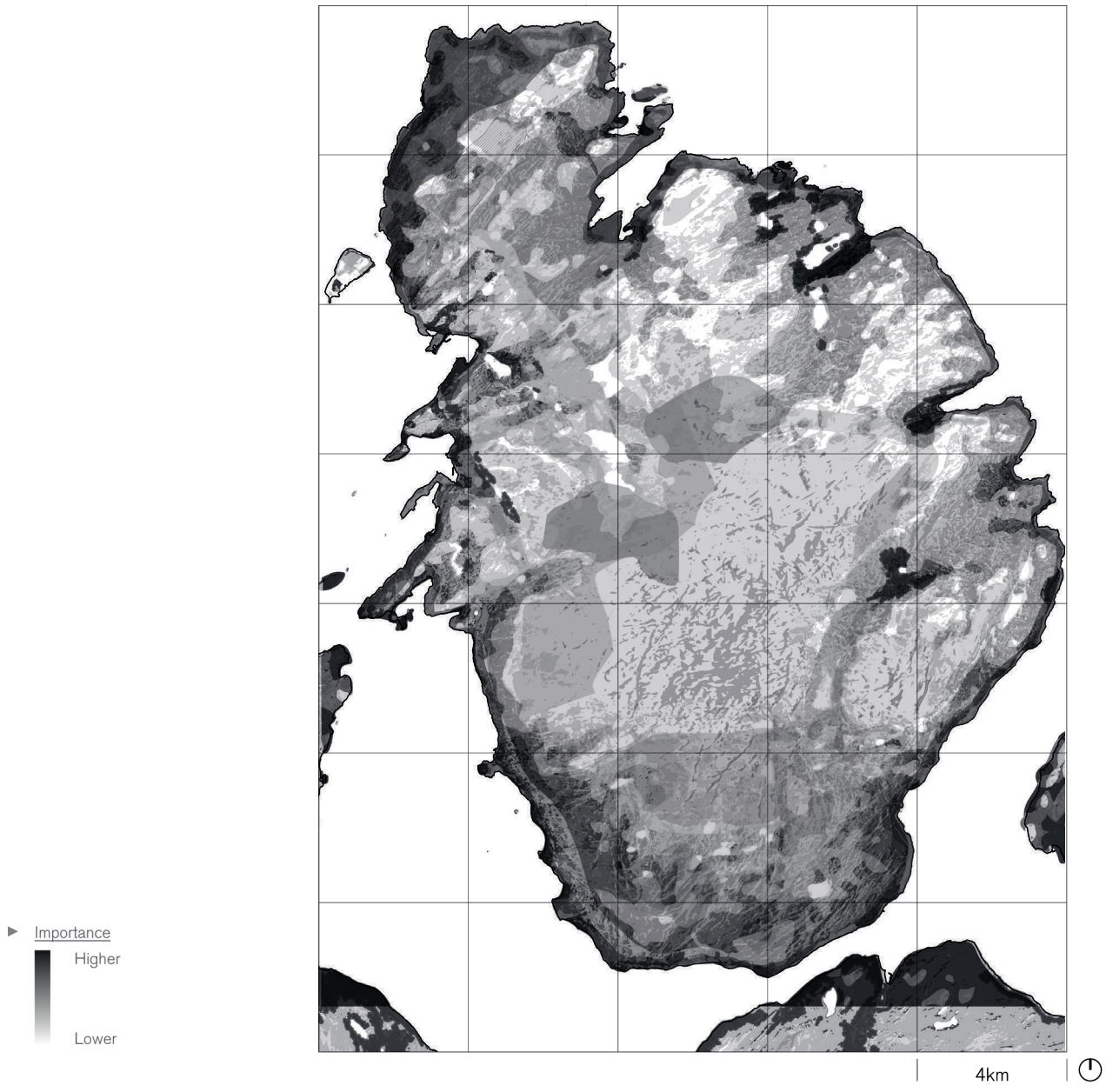
In part 1 of this chapter I tried to reflect the cyclical Sámi (reindeer) conceptualizations of time onto space. The goal was to understand how the reindeer move according to topographical, vegetational and seasonal weather conditions on the island of Kvaløya. I did this by reflecting the earlier accumulated traditional ecological knowledge on the yearly reindeer cycle onto the space - as analyzed in chapter 6. Additionally, more information was gathered in a literature review on the reindeer herding district 20 (Fálá).

Fála: a vulnerable district
A combination of spatial modeling and research by design was used to reconstruct the movement of the reindeer throughout the five seasons they reside on the island of Kvaløya. Complemented with additional literature on the district and the temporal analysis, these helped to understand how the conditions on the island changes in every Sami season. On the basis of this analysis general migration and vegetation patterns were distinguished and translated to a set of maps and 3D diagrams for the spring, spring-summer, summer, fall-summer and fall.

The final outcome is a conclusive map, a result by overlaying the zones of importance for each season. The western side of the island holds the most valuable pastures, particularly in the early summer. Although there are some hot spots on the eastern side, these pastures are primarily used during calving and are more prone to be plagued by insects during the summer. This map indicatively depicts the most vulnerable and important pastures on the island and can be used as a first assessing tool for future development. Additionally, it became apparent in which seasons conflicts have an impact on the reindeer herders.

A combination of the results and knowledge from the 3D diagrams and reindeer reconstruction maps, can be further used and developed in more detailed impact analysis and decision making, as done in chapter 10. To improve the input for this methods it is recommended to further develop maps and diagrams according to additional traditional ecological knowledge, gathered through participatory, cross-cultural meetings or tools.

Figures
▶ 8.36 Conclusion map; overlay of all zones of importance for each season on Kvaløya.
Made by author.

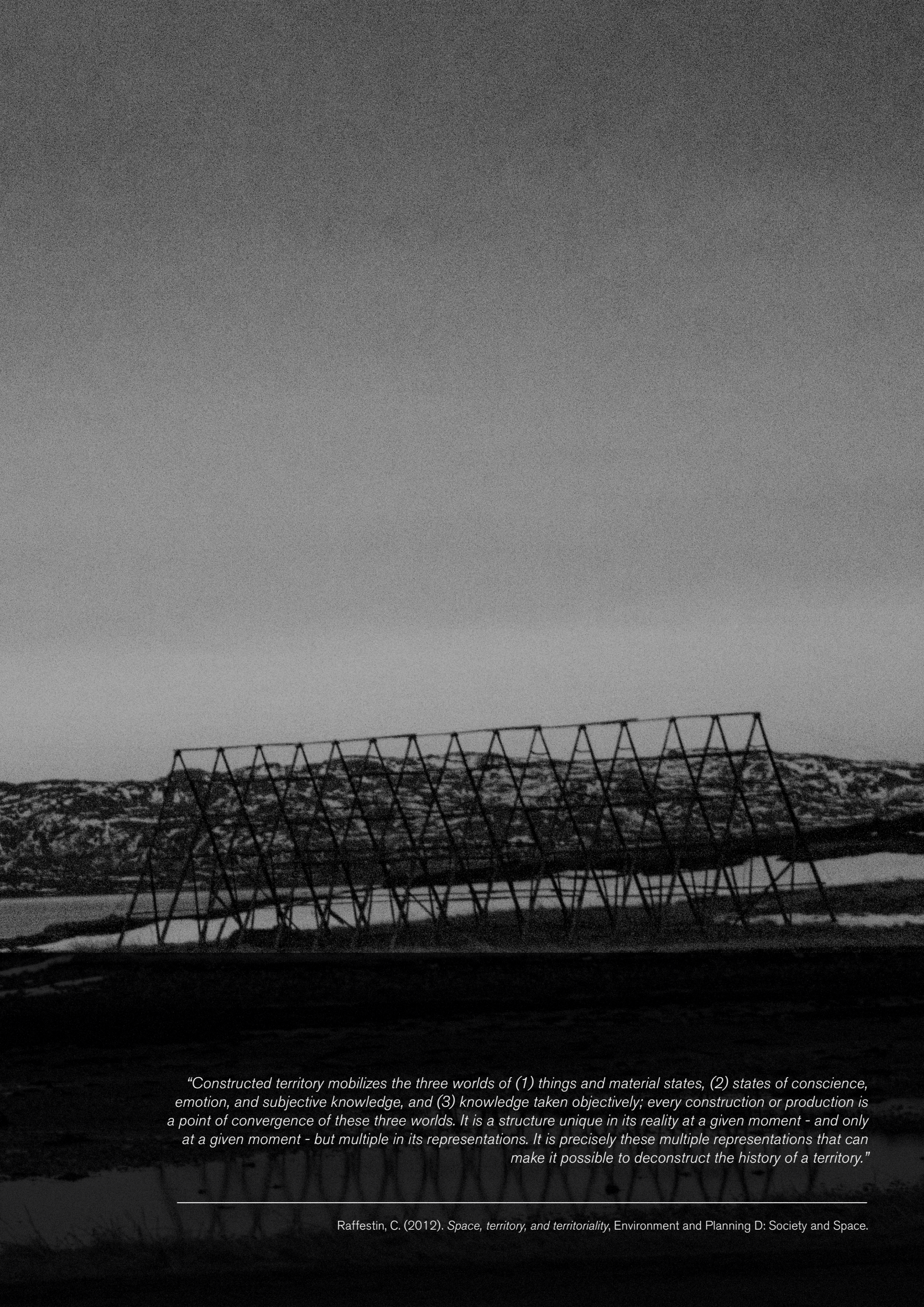

Importance
Higher
Lower
4km



DECONSTRUCTION OF THE MAP

SPATIO-TEMPORAL ANALYSIS

08.

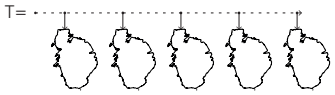


"Constructed territory mobilizes the three worlds of (1) things and material states, (2) states of conscience, emotion, and subjective knowledge, and (3) knowledge taken objectively; every construction or production is a point of convergence of these three worlds. It is a structure unique in its reality at a given moment - and only at a given moment - but multiple in its representations. It is precisely these multiple representations that can make it possible to deconstruct the history of a territory."

Raffestin, C. (2012). *Space, territory, and territoriality*, Environment and Planning D: Society and Space.

Part 2: Diachronic analysis

Ethnographic territorialization



The connections that the different ethnicities have formed with the territory is complex. This part of the spatio-temporal analysis attempts to explain the links between the linear developments in Hammerfest and those on a larger scale, in order to attempt to distinguish the gradual territorialization in this area. As stated before, several cities – mainly along the coast – have been subject to policies of forced "Norwegianization" in the 19th and 20th century. Although Norway has recently made efforts to provide more autonomy to the Sámi – for example by way of the Sámi Parliament and the Finnmark act – the disputes over land are still persistent.

By reading the territory through a historical language it will become apparent what kind of narratives initiated development, how the impact grew over time and how this initiated different cultural reactions. The analysis is done according to the notion of five socio-material layers, as theorized by Østerberg (1998). These five layers roughly represent the different historical periods a large number of Norwegian towns experienced[1,2].

In order to analyze the spatiality of these policies and developments we have to start in the 19th century. The map of the Hammerfest on the right area portrays the ethnographic studies of this time conducted by Jens Andreas Friis. This map gives a detailed account of where the Norwegians, Kven and Sámi families lived and which languages they spoke as well as which languages were not spoken. These were also the main residual places for the Sámi, from where they traditionally have taken part into fishing, trading and transportation[3]. The making of the maps was financed by the Norwegian state. They later proved to be useful in the goals of the Norwegian state to eradicate the Sámi language, which was most successful along the coast.

The distinction between different ethnicities and the influence of global and national trends and policies on the different communities are the object of this analysis. These trends and policies have affected decision-making in the area and helped to shape Hammerfest to what it is today: a region where industrial developments are heroed due to the economic growth and wealth they have brought to the area. Furthermore, it will become apparent how the oil industry has been used as a political tool in modernization and industrialization of the high north.

Pre 1900

At the beginning of the 19th century the ethnic composition on the island of Kvaløya consisted of Sámi, Kven and Norwegians. The Norwegians mainly occupy Hammerfest while the Sámi and Kven inhabited both Hammerfest, Rypefjord and coastal areas in the region. The Sámi had significant control over who could settle in their areas on both the mainland and the inland areas of Kvaløya[3]. However, the relationships between the ethnic groups changed vastly during the 19th century. A combination of "Norwegianization" policies and a strong population increase all over Finnmark, resulted in an active monitoring and occupation of coastal areas by Norwegians throughout the century - see figure 8.38 on the right. In combination with good fishing and market opportunities the number of Norwegians nearly quadrupled[4].

Along the coast, settlements comprised mainly of fishermen and their families of southern and central Norwegian descent. Hammerfest is a small fishing town, that served as a basis for polar explorations, fishing and whaling in the Barents Sea. In the city two whaling companies were established around 1839[5]. Modernization of the fleet at the end of the century greatly increased fishing productivity and trade for the Norwegians.

The Sámi can be divided into two main groups in coastal Finnmark; the Sea Sámi and the Mountain Sámi which use the coastal areas in the summer for their reindeer husbandry. Around 1888 around 6 families herd ca. 5000 reindeer on the island (see map on the right). The Pomor trade, which dates back to the 16th century, is of particular importance. The Sea Sámi traded fish for flour with old traditional methods. While the Mountain Sámi traded valuable goods over land[6].

Citations

[1] Østerberg, D. (1998). *Arkitektur og sosiologi i Oslo: en sosio-materiell fortolkning.*

[2] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6.

[3] Sollid, H., Conzett, P., & Johansen, Å. M. (2014). Gender and noun inflection: The fate of ' vulnerable ' categories in Northern Norwegian.

[3] Utredninger, N. O. (1994, p. 47). 21, Bruk av land og vann i Finnmark i historisk perspektiv: Bakgrunnsmateriale for Samerettsutvalget.

[4] Ibid, p. 144.

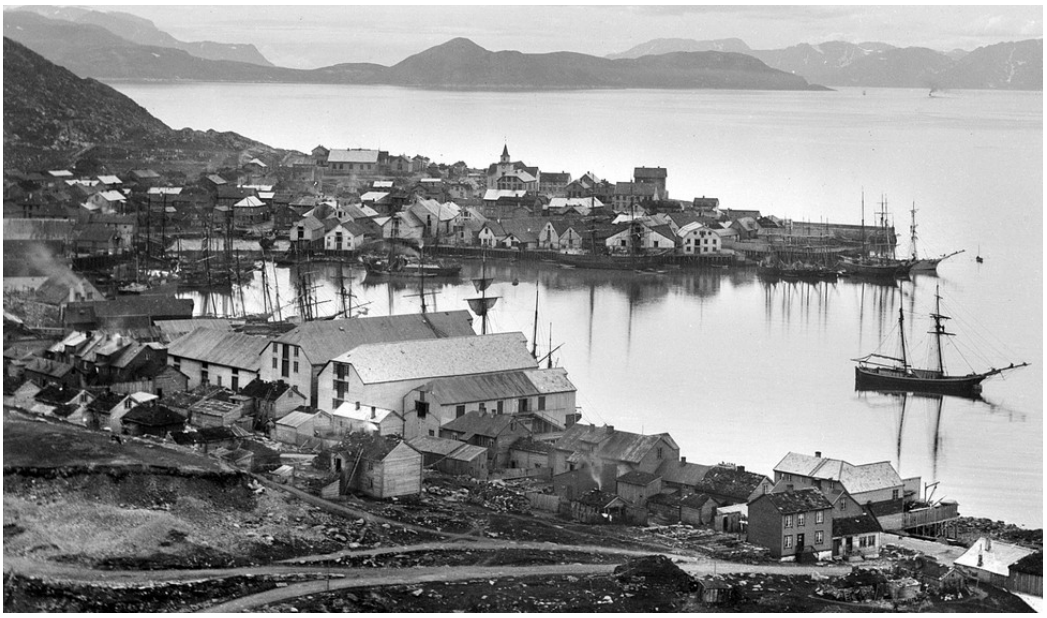
[5] Ibid, p. 110.

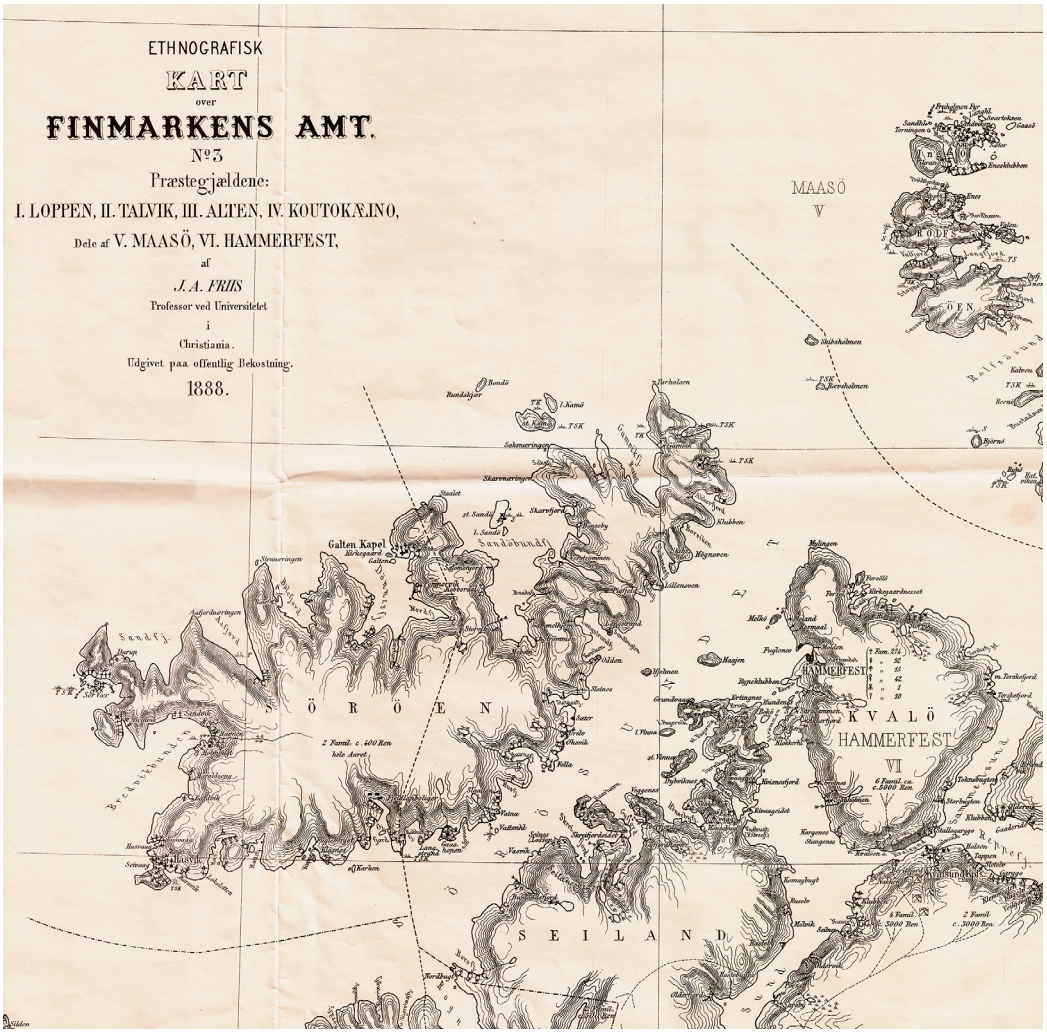
[6] Ibid, p. 139.

Figures

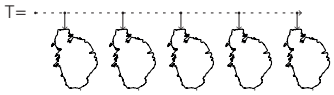
▶ 8.37 Hammerfest in1885. Five years later, a major fire eradicated half of the settlement.
© Knud Knudsen/billedsamlingen, Universitetsbiblioteket i Bergen

▶ 8.38 Ethnographic mapping of J. A. Friis of Hammerfest region. The map shows the origin of the people in the area and which language they speak. Coastal areas were predominantly mapped as they were most accessible. The map on the right is from 1888.
Map by: Friis, J.A. (1888), source: Kartverket.




ETHNOGRAFISK
KART
over
FINMARKENS AMT.
№5
Præstegjældene:
I. LOPPEN, II. TALVIK, III. ALTEN, IV. KOUTOKÆINO,
Dele af V. MAASÖ, VI. HAMMERFEST,
af
J. A. FRIIS
Professor ved Universitetet
i
Christiania.
Udgivet paa offentlig Bekostning.
1888.
MAASÖ
V
HAMMERFEST
VI
KVALÖ
SÖRÖEN
SEILAND
Galten Kapel

1900 - 1940 | A historical language



Pomor trade decline

As mentioned before, the Pomor trade was of significant importance to the people in Finnmark in the 19th century and continued to influence the economy of the Sámi in the beginning of the 20th century. For the Sea Sámi – and partly also the inland Sámi – the Pomor trade still provided in-dependency in 1910 as it did for the whole of Finnmark in 1850, because there was no need for the Sámi to compete with the modernizing Norwegian fishing industry[1]. However, this relative economic independence ended abruptly around the First World War; the cessation of the Pomor trade – which was a result of the 1917 Russian revolution - resulted in a sudden economic backlash. The Sámi had suddenly become completely dependent on domestic trading systems, and suffered a sudden deterioration in the marketing conditions for the fish they caught[2]. The Norwegian motor vessels – operating from towns like Hammerfest – were suited for fishing in winter, and had larger capacities, as opposed to the traditional gear used by the Sámi[3].

Assimilation

In the period after the first world war the Norwegianization policies reached its height. The Versailles peace treaty changed the border condition on the Fennoscandian shield, which shielded off Finland for the nomadic Sámi. Additionally, the Norwegian government launched an inner offensive against Kven and Sami. The fear for Sámi mobilization and brewing ambitions for a Greater Finland, were seen as justifications for the introduction of new measures[4]. Norwegian culture and language were considered superior and the assimilation of the Sámi was considered necessary - illustrated by the account of Chirstian Brygfjeld:

> The few individuals who are left of the original Lappish tribe are now so degenerated that there is little hope of any change for the better for them. They are hopeless and belong to Finnmark's most backward and wretched population, and provide the biggest contingent from these areas to our lunatic asylums and schools for the mentally retarded[5].

The measures advocated by Brygfjeld included further enforcement of language in schools and The Reindeer Herding Act of 1933 - aimed at reducing reindeer numbers[4]. In the period before the Second World War, there were hardly any significant conflicts between the people of Hammerfest and the reindeer herders. The Mountain Sámi were hardly seen down town and stayed up in the mountains, while the Sea Sámi mainly lived in Rypefjord and along the coast.

Citations

[1] Utredninger, N. O. (1994, p. 137). 21, Bruk av land og vann i Finnmark i historisk perspektiv.

[2] Ibid, p. 144.

[3] Ibid, p. 140.

[4] Minde, H. (2005). Assimilation of the Sami - Implementation and Consequences.

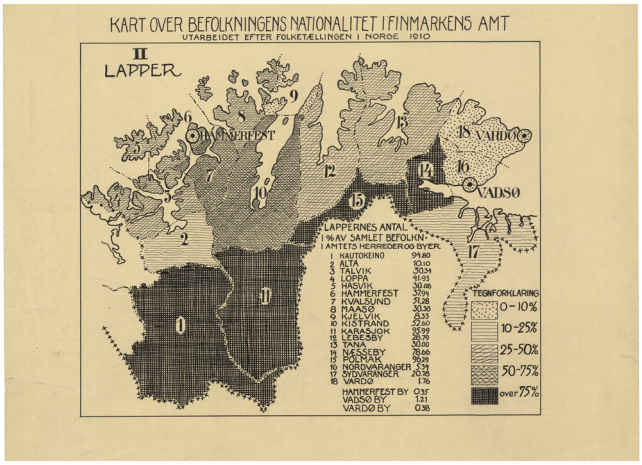
[5] Eriksen, K. E., & Niemi, E. (1981). Den finske fare. Oslo, Bergen, Tromsø: Universitetsforlaget.

[6] Utredninger, N. O. (1994, p. 250). 21, Bruk av land og vann i Finnmark i historisk perspektiv.

Figures

◀ 8.39 Map of the nationality of the population in the county of Finnmark in 1910. Map II: Lapper. In 1910, the region of Hammerfest consisted of 38% Sámi while Hammerfest was mainly Norwegian. The same thematic maps were also used to display the occupation of Kven and Norwegians.
Source: Schøyen, C. (1920). Nationalitetsfordelingen. I «Nordlandet». Red. Schøyen, Carl. Christiania.

▶ 8.40 Map of Hammerfest area in 1940.
Adapted by author from: Høydedata, Kystverket, Kartverket, NVE, Nibio, OpenStreetMap Contributors.

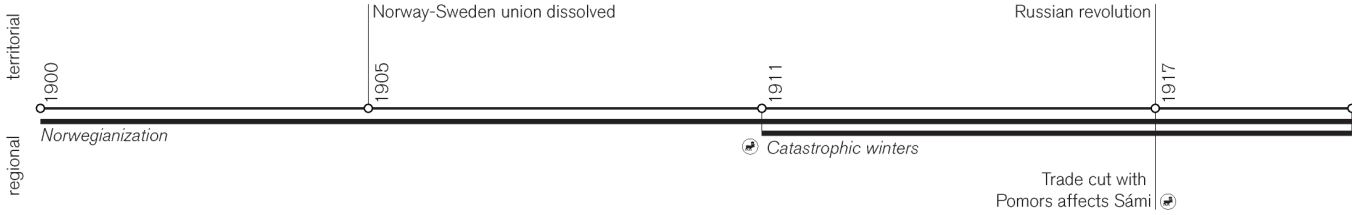


▶ Legend

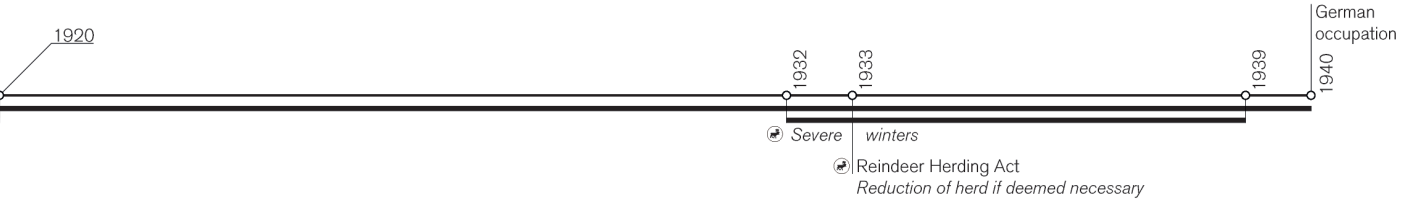
- Building
- Road
- Power line
- Industry
- Avalanche protection

Vegetation and pasture access

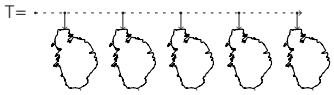
- Inland marshes
- Grass birch forest
- Accessible pastures




To Førsol
5km
Storfjellet
Boazovárri
Melkøya
Hammerfest
Hammerfest
Storvannet
Frimarkgrunnen
Rypefjorden
Rypefjord
Akkarfjord
Strømsneset
Akkarfjorden
2km


1920
1932
1933
1939
1940
German occupation
Severe winters
Reindeer Herding Act
Reduction of herd if deemed necessary

1940 - 1960 | Production and resettlement



Second World War

During the Second World War, Hammerfest was a heavy fortified base in the North. Occupied by the Germans, the town was a strategic harbor for German U-boats in Finnmark. At the end of the war the city was heavily bombed by Soviet Air Forces, resulting in the retreat of the Germans to the south. However, as explained in the field trip chapter, the Germans implemented a "scorched earth" policy during the forced evacuation of Finnmark, that would leave the area devoid of shelter and supplies for the advancing Soviet forces. Large groups of the population fled to southern cities or took shelter in the inland areas of Finnmark[1].

Resettlement after the war

After the war, the reconstruction of Hammerfest and other towns was influenced by standardized and modernized ideas from the South. The uniqueness and traditions failed to show in the new settlements in Finnmark[1]. As a consequence, the grand reconstruction and modernization resulted in a drastic decline in the amount of people identifying as Sámi, as they "switched" to becoming predominantly Norwegian[2,3]. In the end, resulting in the finishing of the Norwegianization of the Sámi along the coast[1]. This was especially true for the Sea Sámi living in places like Hammerfest and Rypefjord, where the people were already poor after the Pomor trade decline.

Modernized production and expansion

After the war in the '50s the fishing industry in Norway surged. Great market opportunities – with the invention of the freezer – in the United States, amplified export[4]. In Hammerfest this resulted in the start of the Hammerfest fish industry and fillet factory in 1952, later known as Findus. The town was centrally located and within an already existing larger fishery district it had already some service related features. Moreover, the supply of labor and proximity to the fishing grounds made Hammerfest an attractive city to invest in. The settlement of the Findus factory could be regarded as the start of the modernization and industrialization period in Hammerfest. The products went to markets in Scandinavia and from 1956 it was also exported to the United States, Britain and other European countries. Until the mid '60s, the population doubled to nearly 7.500 people, compared to before the War[5].

As mentioned before, the reindeer herders were hardly seen around the city before the war. It was only when there were tourist boats visiting that they were "shown" to tourists. After the war, Hammerfest started to expand in all directions and Rypefjord became a significant (sub) urban area[6]. The rapid modernization of the Norwegian population increased the disparity between the Sámi and the Norwegians, while Hammerfests urban expansion caused impending spatial conflicts between the residents and the reindeer herders.





Citations

[1] Based on texts from the Reconstruction Museum, Hammerfest.

[2] Reinert, H. (2019a). The Midwife and the Poet: Bioaccumulation and Retroactive Shock.

[3] Minde, H. (2005). Assimilation of the Sami - Implementation and Consequences.

[4] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6.

[5] Jacobsen, A. R. (1996). Fra brent jord til Klondyke: historie.

[6] Utredninger, N. O. (1994, p. 250). 21, Bruk av land og vann i Finnmark i historisk perspektiv.

Figures

◀ 8.41 Hammerfest in 1945 after the scorched earth burning.
© Hammerfest Museum of Reconstruction

◀ 8.42 Hammerfest in 1960.
Photo by Knudsens Fotosenter.

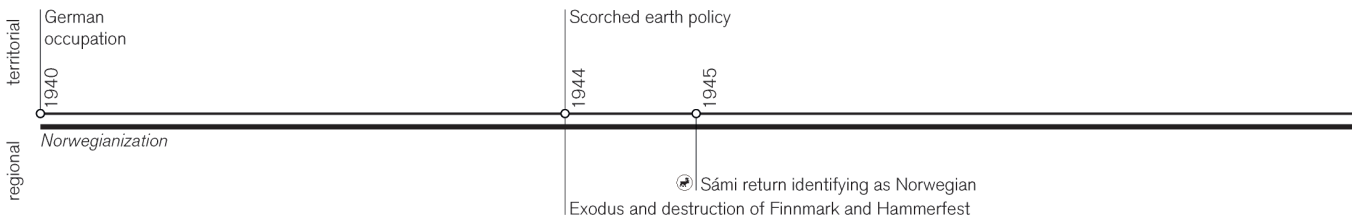
▶ 8.43 Map of Hammerfest area in 1960.
Adapted by author from: Høydedata, Kystverket, Kartverket, NVE, Nibio, OpenStreetMap Contributors.

▶ Legend

- Building
- Road
- Power line
- Industry
- Avalanche protection

Vegetation and pasture access

- Inland marshes
- Grass birch forest
- Accessible pastures



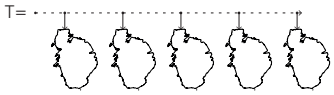


1955 1958 1960

Severe winters

Founding of Hammerfest
Fiskeindustri and fillet factory

1960 - 1980 | Industrialization and modernization



"Bringing petroleum ashore in Norway, especially north of the 62nd parallel will have significant consequences for commercial development and settlement in the northern region. Creating centres follows naturally in the footsteps of the oil industry, both for refineries and for petrochemical industry [...] We will thereby gain growth centres along the coast that could provide very profitable interesting and stable jobs."[1]

Arve Johnsen, Labour Party (1970), in *Snøhvit.*

Petroleum promises

As Johnsen already depicts in 1970; the future of Norway is oil. The discovery of oil in 1969 in the North Sea opened up a new chapter for all of Norway, and refocuses the political agenda towards a (brighter) future in the oil industry. Throughout the '60s and '70s, the government invested heavily in long-term infrastructure in order to support development in the mineral and hydrocarbon industries.

For most of the time in the past century Norway has been ruled by the social democratic Labour Party (Arbeiderspartiet), which means that with the extraction of oil and gas everyone in the country should take part in its wealth and benefit from it one way or another. This way, the oil industry has been very closely related to the political agenda since the beginning. To ensure the Labour Party's ideal of a national oil policy, two new state owned enterprises were established: Statoil - now Equinor – as the executive and managing company and the Norwegian Petroleum Directorate as a controlling and advisory body[1]. The Norwegian oil industry proved lucrative and quickly provided great economic wealth for the whole nation. As a result, for the Norwegian citizens in the '70s, it became very easy to own a house and a car[2].

Modernization and industrialization in Hammerfest

In Hammerfest, the industrialization of the fish industry reached its peak in the '60s thanks to the Findus factory in the city center. However, the Findus factory in Hammerfest was not only associated with economic growth and good times for the city. Among other things, local fisheries had to compete with Findus, and the seasonal workers, who lived in cramped living accommodations, caused tension with the residents[3]. Because of these problems and mismanagement, production started to falter in the '70s.

Citations

[1] Jacobsen, A.K. (2009), *Snøhvit, The history of oil and gas in the Barents Sea.*

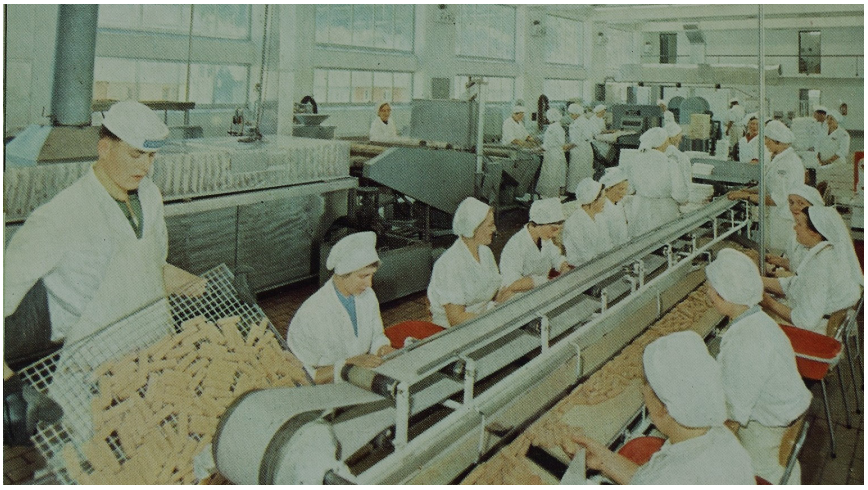
[2] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6.

[3] Jacobsen, A. R. (1996). Fra brent jord til Klondyke: historie.

Figures

◀ 8.44 The inside of the Findus factory in Hammerfest.
Source unknown.

▶ 8.45 Map of Hammerfest area in 1980.
Adapted by author from: Høydedata, Kystverket, Kartverket, NVE, Nibio, OpenStreetMap Contributors.

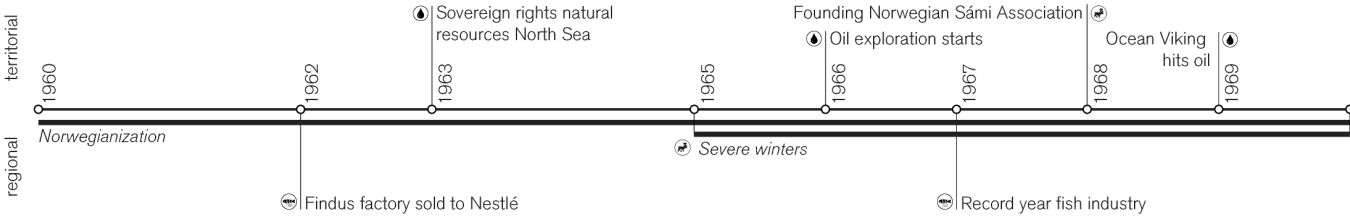


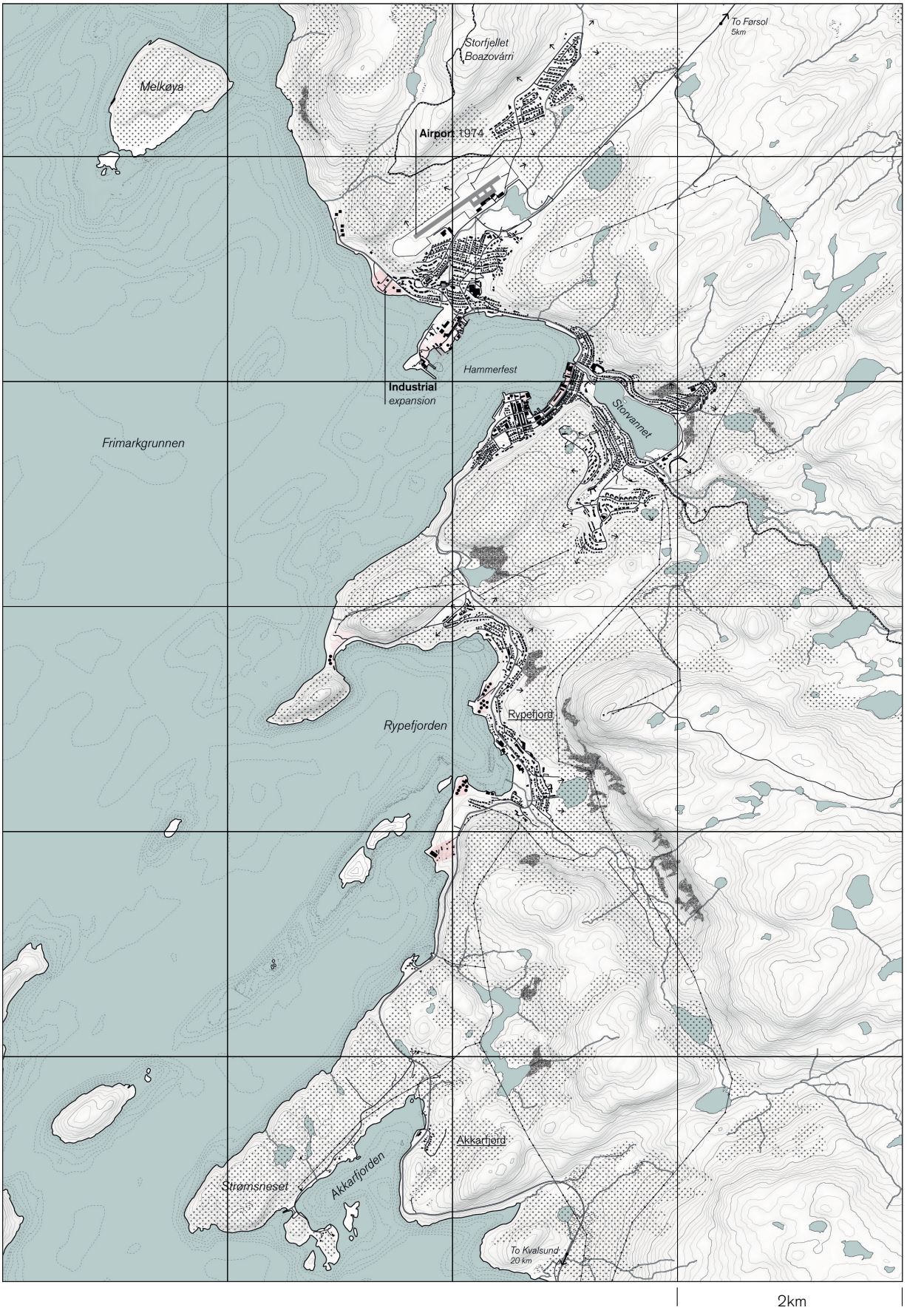
▶ Legend

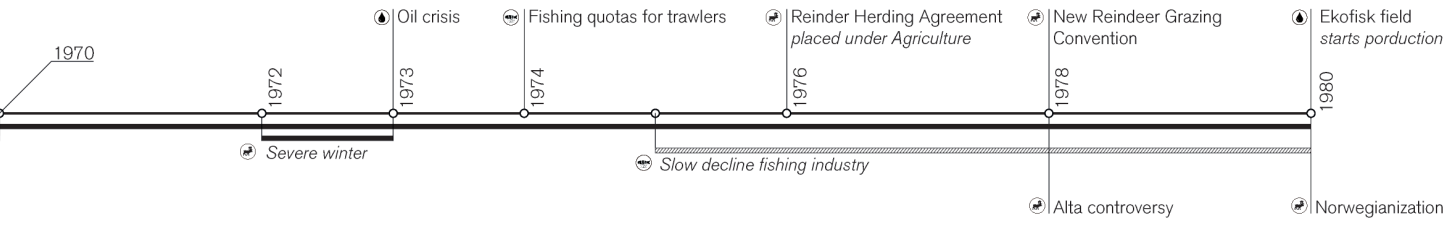
- Building
- Road
- Power line
- Industry
- Avalanche protection

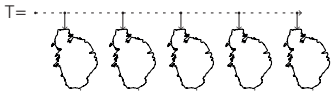
Vegetation and pasture access

- Inland marshes
- Grass birch forest
- Accessible pastures




Melkøya
Storfjellet
Boazovárri
To Førsol
5km
Airport 1974
Hammerfest
Industrial
expansion
Storvannet
Frimarkgrunnen
Rypefjord
Rypefjorden
Akkarfjord
Akkarfjorden
Strømsneset
To Kvalsund
20 km
2km


1970
1972
1973
1974
1976
1978
1980
Oil crisis
Fishing quotas for trawlers
Reinder Herding Agreement
placed under Agriculture
New Reindeer Grazing
Convention
Ekofisk field
starts porduction
Severe winter
Slow decline fishing industry
Alta controversy
Norwegianization ends



In Hammerfest, investments into infrastructure were made with the construction of the Hammerfest Airport and the Kvalsund Bridge to the mainland. In combination with the growing population and the opening of the Repparfjord mine the city vastly expanded inland in the '60s and '70s. Urban areas were mainly constructed around Rypefjord, Storvannet lake and East of Storfjellet mountain. These expansions rendered many important reindeer pastures unavailable. Additionally, increased Norwegian and foreign tourism drove the reindeer further away[1].

Assimilation and the quest for autonomy

As briefly mentioned in the field trip chapter (see Appendix), there were also other developments within in Finnmark that were regarded as problematic for the Sámi. The planned building of a dam in Alta was received with heavy protests by the Sámi. Notably, in this issue they were supported by many Norwegians. The dam became largely symbolic; for the State it represented the prospect for greater development and extension of sovereignty in the north, while local people saw the dam as an attempt to destroy the unique identity of northerners[2].

The protests sparked the discussion about the rights of Sámi people and indigenous populations - both on a national and a global level - ultimately ending the Norwegianization policies in 1980[3]. Despite these good efforts, narratives of overstocked pastures and poor economic conditions - started in the late 1970s - became problematic for the Sámi. For a large part this was linked to the Reindeer Herding Agreement in 1976, due to which the price of reindeer meat dropped significantly and is still felt today[4,5].

Power relations and implications

As part of the analysis, I will reflect on the power the relations between the various groups of actors on the island and what the implications are for the Sámi. Between 1960 and 1980 the fish industry helped in the development and industrialization of Hammerfest. The modernization it entails made the city more dependent on the exogenous trends, whilst also bringing wealth and jobs to the city. This is why the Labor Party - which was very dominant in Norway during this period - insisted on advancing industry; first the fish industry, then later the oil industry. This was the first attempt to modernize and develop Finnmark, as seen in figure 8.47. There was little concern for Sámi interests on the regional level, as well as the local level. Decisions were made by the Norwegian government, since the land belonged to the state, and even though the oil industry was not present yet, plans were made to set up development in the future. Late 1980's, Sámi protests opposed these processes and started a quest for Sámi sovereignty, in an attempt to gain influence over the landscape.

Citations

[1] Utredninger, N. O. (1994, p. 250). 21, Bruk av land og vann i Finnmark i historisk perspektiv.

[2] Briggs, C. M. (2006). Science, local knowledge and exclusionary practices: Lessons from the Alta Dam case.

[3] Alta Museum. (2019). The archives of the protest movement against the damming of the Alta-Kautokeino water system.

[4] LMD. 2001. *Verdiskapingsprogrammet for matproduksjon.*

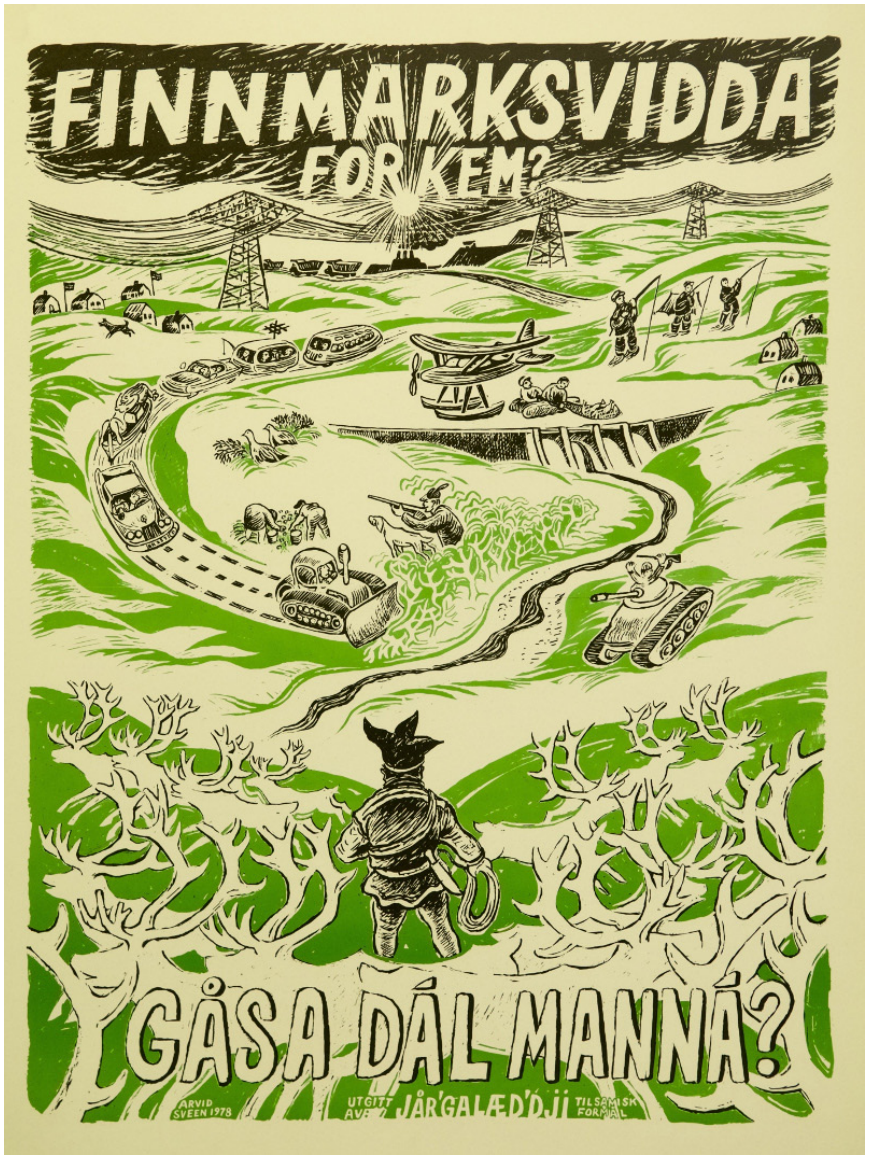
[5] Reinert, E. 2006. The economics of reindeer herding: Saami entrepreneurship between cyclical sustainability and the powers of state and oligopolies.

Figures

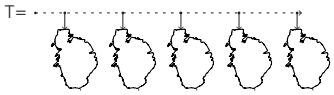
▶ 8.46 Sámi children in the 70s in Hammerfest. Photographer: Amundsen.

▶ 8.47 Finnmarksvidda, for whom? Poster by Arvid Sveen.




FINNMARKSVIDDA
FOR KEM?
GÅSA DÁL MANNÁ?
ARVID SVEEN 1978
UTGITT AV JÁRGALÆĐĐJI
TIL SAMISK FORMÅL

1980 - 2000 | Social democratic welfare policies



First hit

After the oil discoveries in the North-Sea and Norwegian Sea in the 60's and 70's, new explorations were done in the Norwegian and Barents Sea. In the summer of 1980 the Norwegian lawmakers amended the border law with the Soviet Union[1], opening up the continental shelf north of the 62nd parallel for drilling. This, in many ways, was seen as the manifestation of social democracy's success in Norway[2]. The first oil fields were discovered between 1981 and 1984. They were named Askeladd (1980), Albatross (1981) and Snøhvit (1984), after (local) fairy tales and heroic characters in order to demonstrate the grandeur the Labour Party was after[1]. As Gjellstad (2015) and Jacobsen (2009) describe, the developments of the fields, the development of the industry was depicted as a heroic adventure in order to distract from the insecurities and risks that came with drilling in the North. These risks forced the development projects to be shelved until the late 1990's[1,2].

For Hammerfest the prospect and narratives of development rendered positivism. Local interest groups lobbied actively for its development[3] even though there was opposition from environmentalists, fishermen and the Sámi[4]. Concurrently, the Polar Base harbor was constructed in contemplation of supplying the oil industry in the North. At the time, Hammerfests economy relied heavily on fishing and small amounts of tourism, with few alternative employment possibilities[5]. The mayor at this time explained that the town experienced an outflow of people towards bigger cities in the south, with shrinking classrooms and a depressing real estate market as result[6].

Fishing decline

Throughout the '80s, poor fishing policies lead to overfishing and led to unemployment and depopulation[5,7]. These problems continued into the '90s and resulted in uncertainties which spread other parts of the business community in Hammerfest. A lack of confidence in the industry caused Findus' workforce to be reduced to 450 people in 1990[7]. It is no surprise that people were hopeful with the discovery of the oil and gas fields in the Barents Sea and possible prospects of new development in Hammerfest.

Citations

[1] Gjellstad, M. (2015). Creating New Fairytales: Statoil, Snøhvit, and Petroleum Exploration in the Arctic.

[2] Jacobsen, A.K. (2009), *Snøhvit, The history of oil and gas in the Barents Sea.*

[3] Thesen, G., & Leknes, E. (2010). Nord-Norge i norsk petroleumspolitikk-narrativer og politisk endring.

[4] Klick, M. T. (2008). *The political economy of corporate social responsibility and community development: a case study of Norway's Snøhvit natural gas complex.*

[5] Loe, J. S., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway.

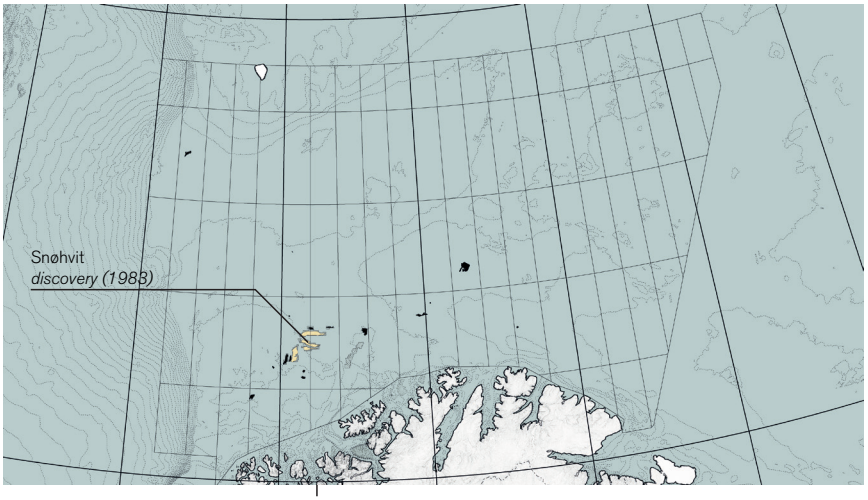
[6] Sinclair, C., First female mayor strikes largest oil deal for dying Hammerfest,in: Sornes, J. O., Browning, L., & Henriksen, J. T. (2015). Culture, Development and Petroleum: An Ethnography of the High North.

[7] Jacobsen, A. R. (1996). Fra brent jord til Klondyke: historie.

Figures

◀ 8.48 Petroleum activity Barents Sea. Compiled with data from Norwegian Petroleum Directorate (2019).

▶ 8.49 Map of Hammerfest area in 2000. Adapted by author from: Høydedata, Kystverket, Kartverket, NVE, Nibio, OpenStreetMap Contributors.



◀ Legend

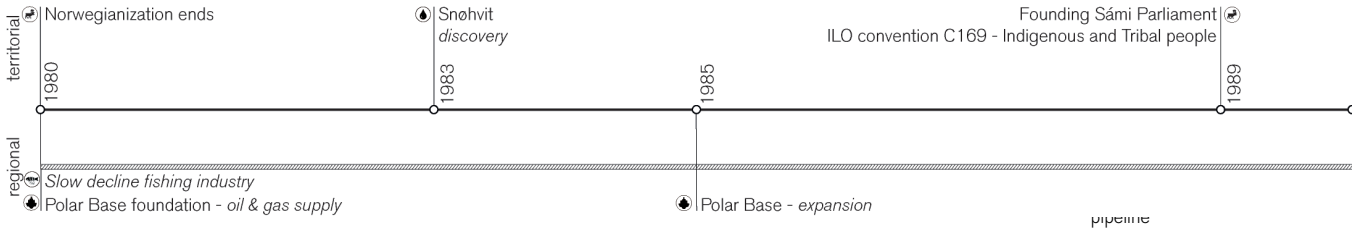
- Discovery oil/gas field
- Producing oil/gas field
- Production likely
- Open block

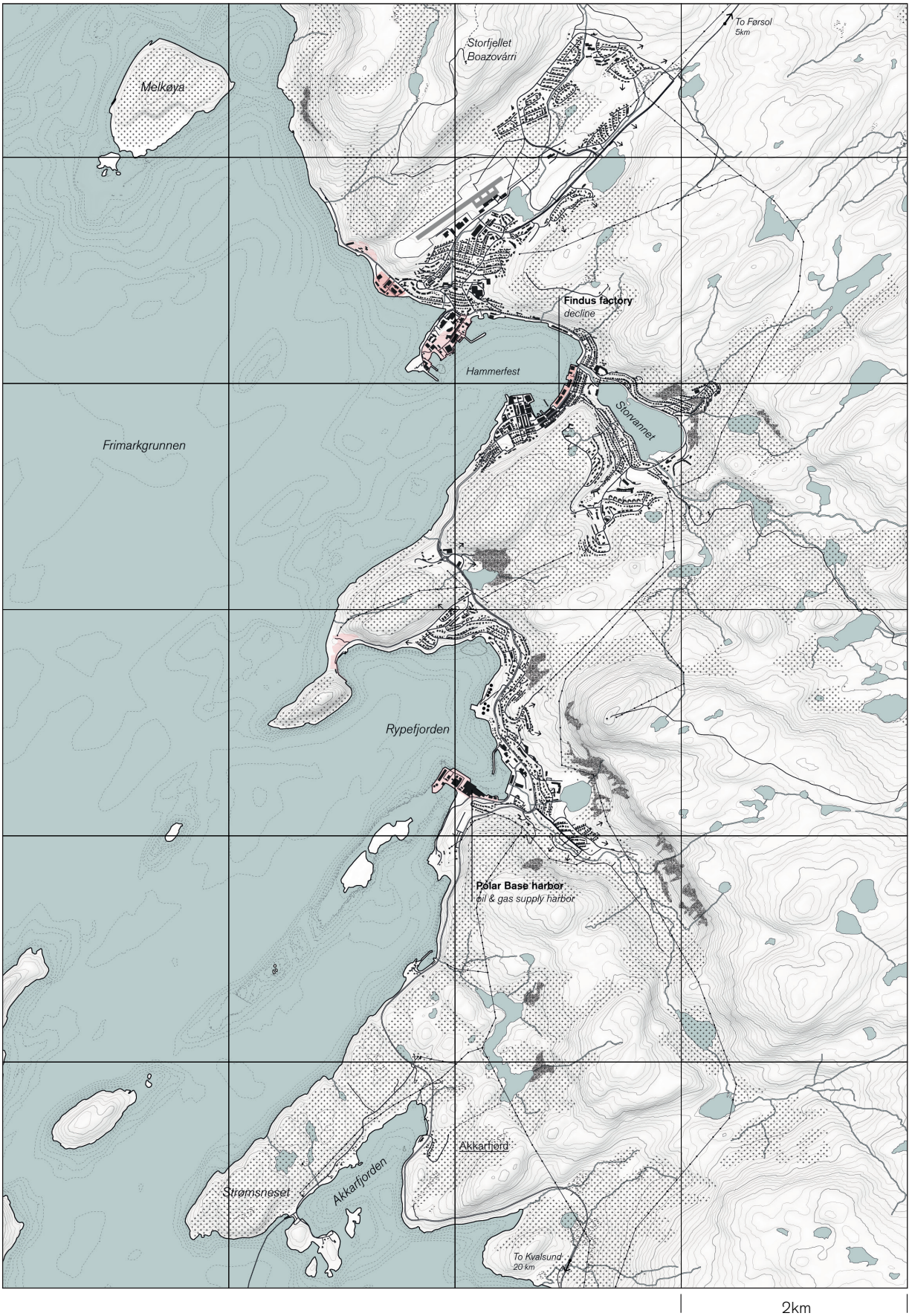
▶ Legend

- Building
- Road
- Power line
- Industry
- Avalanche protection

Vegetation and pasture access

- Inland marshes
- Grass birch forest
- Accessible pastures





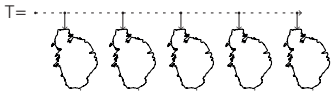
Reconsiliation Norwegian King for Norwegianization policies

Norway ratifies ILO C169
1990

1996 1997 1998 1999 2000

Severe winters

Severe winter



Power relations and implications

Some changes in stakeholders happened in between 1980 and 2000. In 1989 the Sámi Parliament was installed, a political body to promote Sámi interests – albeit with little decision-making power as they relied heavily on national parties interests. Both the ratification of the ILO convention and the Sámi Parliament have ensured more autonomy for the Sámi, but in practice narratives on overstocking and spatial conflicts surrounding land remained an issue throughout the '80s and '90s.

In the '90s, environmental concerns became a second objective next to the overstocking policies of the '70s. Standardized herd structures through centralized slaughter and reindeer number management were to believed to help make the industry more effective[1]. The severe winters of the 1990s and peoples attitude towards the reindeer slowly increased adversity against reindeer in the city of Hammerfest. Many were annoyed and easily accuse the reindeer owners of not grazing and caring for their animals - fed by stories of starvation and overstocking of pastures. People started to chase the reindeer out of their premises, causing the reindeer to become easily frightened of people and dogs. Combined with more inland development of urban areas, the situation for the reindeer herders deteriorated.

Citations

[1] Johnsen, K. I. (2016). Land-use conflicts between reindeer husbandry and mineral extraction in Finnmark, Norway: Contested rationalities and the politics of belonging.

[2] Utredninger, N. O. (1994, p. 250). 21, Bruk av land og vann i Finnmark i historisk perspektiv.

2000 - 2020 | Globalized production and marked liberal economy

The Norwegian parliament approved the plan for the development of Snøhvit in March 2002 and construction began in June of that year. The Snøhvit gas field has had great impact on the region of Hammerfest. Next to the temporary increase of the population - 20.000 people - and increased transportation by plane, boat and roads. The project initiated several infrastructural changes:

- Construction of the *Melkøya LNG plant*, resulting in an increase of the population.
- Expansion of the *Polar Base harbor* for facilitating oil development in the Barents Sea.
- Construction of new powerlines to electrify the Goliat field.

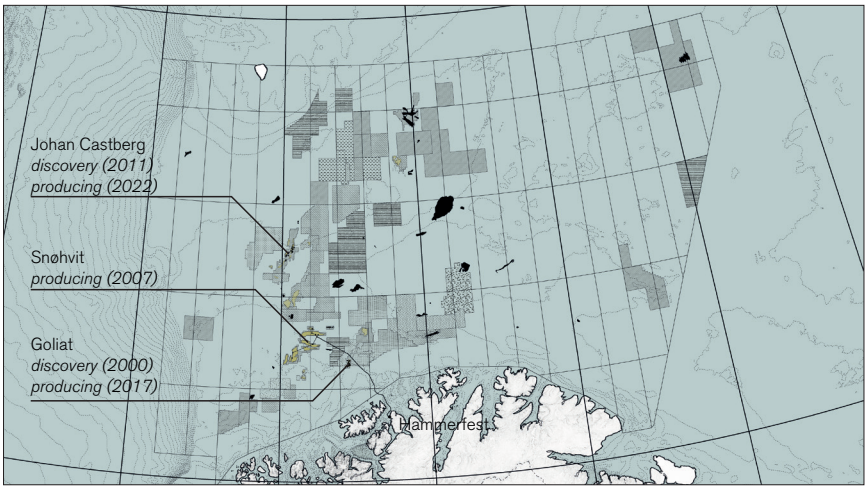
As highly skilled workers permanently moved to Hammerfest, the tax revenues increased. Ultimately it revitalized Hammerfest, providing jobs, developing culture, and making it a more attractive place to live[1]. However, the development also increased social inequality and deteriorated the situation for the reindeer herders on the island.

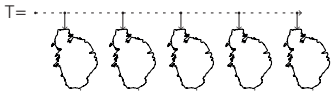
Conflicts

It is in this period of development that conflicts between city residents, industry and reindeer become more apparent. Residents complain that reindeer wander through the streets of Hammerfest and with the aid of the mayor, a 20 km long reindeer fence is constructed around Hammerfest. Headlines of local papers reported on the supposed 'reindeer war' in the city, as discussion rose on possible solutions. The reindeer that wander in the city are predominantly male and in search for fresh grass sprouts that are abundant in the city. Since the construction the pressure on other pastures has increased, and more inland development could deteriorate the situation, causing males to wander even more in urban areas[5].

Oil uncertainty

From the 2010's on there have been an ten-fold increase of licensing areas and exploration (see map below). With 2012 as the record low in summer sea ice on the Arctic, it seems that this has paradoxically resulted in even more licensing areas being sold by the Norwegian Petroleum Directorate. After a successful decade, Hammerfest had a positive attitude towards the future and still has. The town was and still is welcoming and promoting itself for more oil activity related





Citations

[1] Loe, J. S. P., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway.

[2] Fouch, G. (2017, 26 November). The rampaging reindeer of Hammerfest.

[3] Fuglesang, K. (2011, 31 augustus). Reineier: – Dette vil frarøve oss livsgrunnlaget. NRK.

[4] Johansen, G. (2008, 2 May). Smarte reinsdyr inntar Hammerfest. Nordlys.

[5] Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune.

Figures

◀ 8.50 Petroleum activity Barents Sea between 2000 and 2020.
Compiled with data from Norwegian Petroleum Directorate.

▶ 8.51 Map of Hammerfest area in 2020.
Adapted by author from: Høydedata, Kystverket, Kartverket, NVE, Nibio, OpenStreetMap Contributors.

◀ Legend

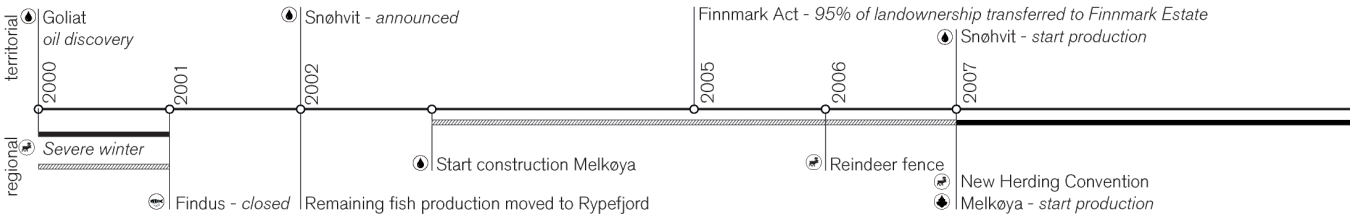
- Discovery oil/gas field
- Producing oil/gas field
- Production likely
- Open block
- (Sub) Sea structure
- Gas pipeline
- Equinor
- Aker BP
- Lundin Norway
- Spirit Energy
- Repsol
- Wintershall
- Edison
- Vår Energi

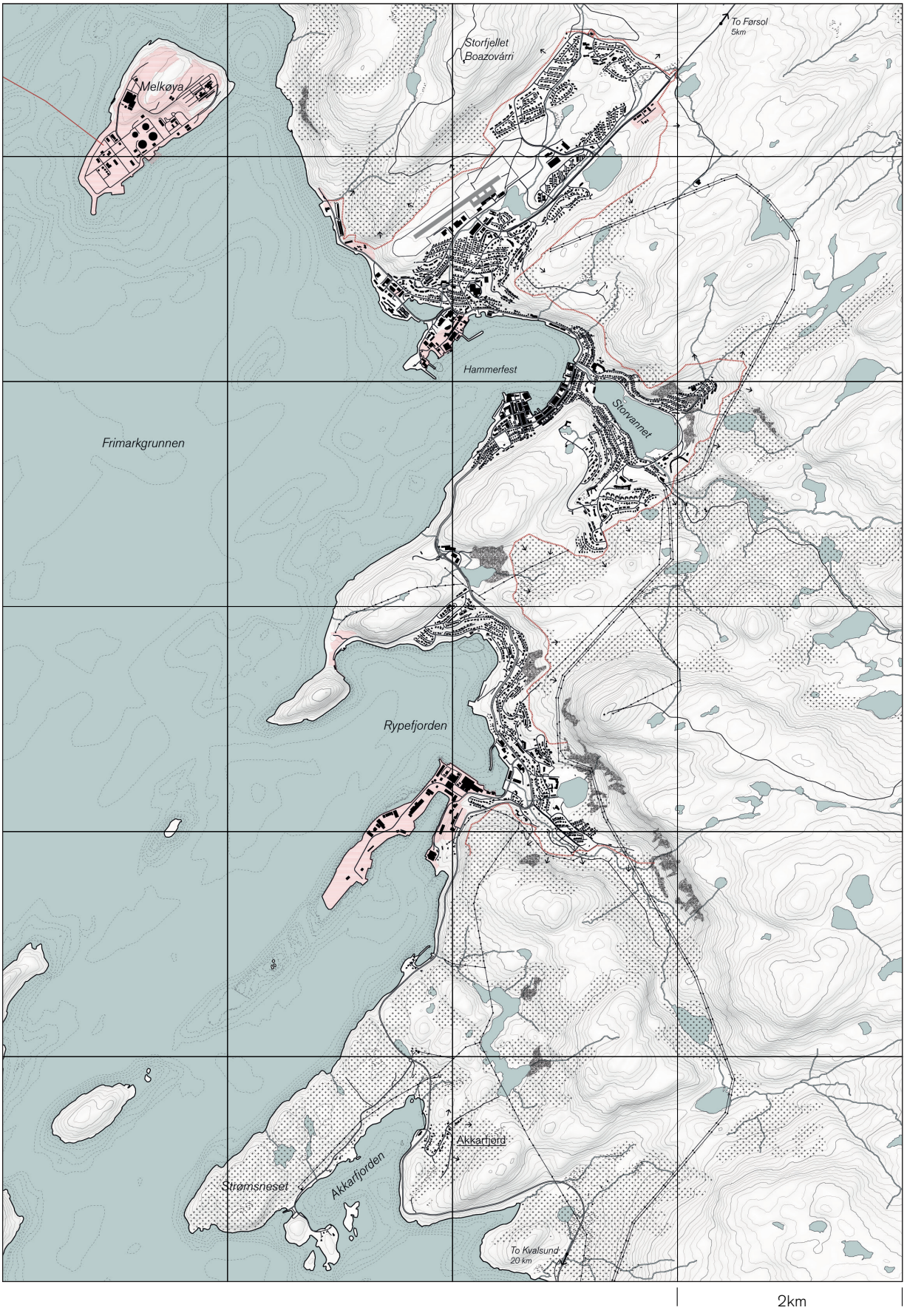
▶ Legend

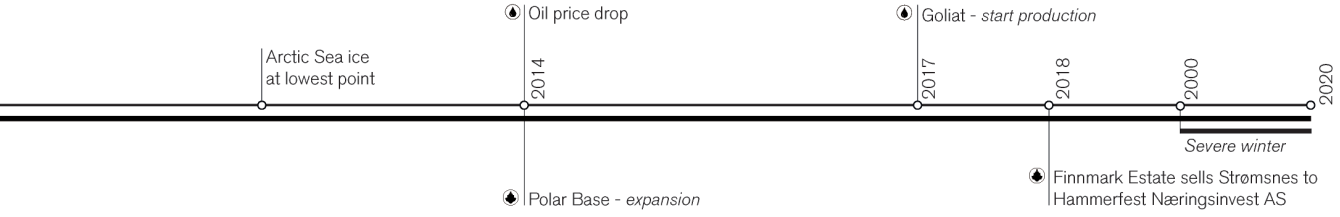
- Building
- Road
- Power line
- Industry
- Avalanche protection

Vegetation and pasture access

- Inland marshes
- Grass birch forest
- Accessible pastures
- Reindeer fence




Melkøya
Storfjellet
Boazovárri
To Førsol
5km
Hammerfest
Storvannet
Frimarkgrunnen
Rypefjorden
Akkarfjord
Strømsneset
Akkarfjorden
To Kvalsund
20 km
2km


Oil price drop
Goliat - start production
Arctic Sea ice
at lowest point
2014
2017
2018
2000
2020
Severe winter
Polar Base - expansion
Finnmark Estate sells Strømsnes to
Hammerfest Næringsinvest AS

services and infrastructure. However, the sudden collapse of the oil price in 2014 showed that the industry is highly uncertain and dependent on global demand and prices. During the crisis, 2-4% of the total population (almost 50,000 people) in Norway lost their jobs, many of whom were employed in Hammerfest[1].

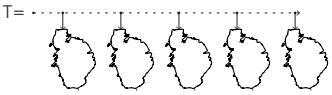
Future prospects for the High North

Since the 2014 oil price drop, development is a little less optimistic. Plans for a new airport at the Grøtnes peninsula have been pushed ahead and plans for the expansion of Melkøya have been delayed or even canceled. However, other developments like the expansion of Polar Base and the construction of a gigantic new supply base for the oil industry on the Strømsnes peninsula have remained. An earlier objected development of the Strømsnes area for gravel extraction for Melkøya now finds its way around as the premises has been sold by the FeFo. The COVID-19 pandemic and concurrent crisis threatened to disrupt the plans even further. However, the Norwegian government decided to support the development even more in order to compensate for the financial damage that the pandemic had caused[2], showing the Norwegian determination to see the development of the oil industry and the High North Strategy through.

Power relations and implications

The development of the oil industry in the north and changes in stakeholders between 2000 and 2020 have had a large impact on the Sámi reindeer herders. As mentioned earlier in chapter 4, the *Finnmarkseiendommen Finnmárkupdamat* (FeFo) became a powerful player. The organization manages up to 95% of the land in Finnmark. The board consists of three representatives of both Sámi and county members. However, reaching a consensus has proved hard. In the end, board decisions often favors industrial development over environmental preservation.

The analysis definitely points at the improvement regarding Sámi interests, although most of the powerful stakeholders are situated on the oil industrial development side. The Sámi now exert some influence on decision making, but in practice they still have little influence. In areas like Hammerfest and Kirkekens, the creation of wealth and jobs is deemed more important than the creation of a robust sustainable economy in the future. Currently, little flexibility is taken into account in decision making; as Siv Merethe explained, close collaboration is needed to find a balance between various stakeholder and the needs of the indigenous people. For this direct communication is needed. Unfortunately, there is currently no platform available to communicate and ensure the flexibility of various actors.









Citations

[1] Fanghol, T. A. (2017). 50.000 oljejobber borte.

[2] Staalesen, A. (2020, 9 June). Norway seeks way out of crisis, invests in more oil. The Independent Barents Observer.

Figures

▲ 8.52 Impression of the Strømsneset development.
Source: Hammerfest Kommune (2013). Hammerfest -- The gateway to the Barents Sea [Youtube video].

▲ 8.53 Two headlines of the Barenst observer from the 9th and 24th of June, 2020.
Photos: Thomas Nilsen.

▶ 8.54 The West-Hercules Oil rig at Polar Base, Rypefjord.
Made by author (2019).





Conclusions

The research question were:
g. What impact did the oil and gas industry have on the development of Hammerfest and how does this relate to land use by reindeer herders?
h. Can an indigenous approach towards the use of time and space become part of the planning process?

A mixed method of literature review, mapping, development and trends analysis were used to understand how global and national development have influenced decision making in Hammerfest and Finnmark between 1900 and 2020. The analysis has revealed patterns of increasing modernization along with structural neglect of the Sámi culture.

The development of the city and region is closely related to globalization and industrialization trends. With the discovery of oil arose the welfare state of Norway and the supposed obligation of the government in the South to develop the far North. The decline of the fish industry in the 1980s resulted in the support of oil development in the city of Hammerfest. This evolved in monofunctional economic and spatial policies in the fish and oil industry. The outcome is a vulnerable, monofunctional economy, which is aimed at fixing space to accommodate the oil industry, leaving little room for other more sustainable and flexible activities to develop. The knowledge on the development and trends can be used to project and speculate different future trajectories in chapter 10.

Despite efforts of strengthening the Sami culture, by implementing new policies and institutions to provide agency, their knowledge and practical need for flexibility is not adequately included in spatial decision making. This was the case during the development in the fish industry, and continues to be the main trend for the oil industry. Their conceptualization of time, space which includes the practical use territory, is under-exposed. On the one hand, there is currently no method of balancing the interests of the Sami compared to other local actors. While on the other hand, the importance of that indigenous knowledge is still insufficiently realized by the Sami themselves. On top of this, they do not have sufficient knowledge and access to communication possibilities to effectuate their agency.

In conclusion, flexibility and adaptability - based on indigenous knowledge of the seasons and the territory - is important to incorporate into spatial decision-making. This not only in regard of the Sámi, but also to strengthen the robustness for communities like Hammerfest, where economic and environmental uncertainty is always adjacent. The knowledge gained in this research design is incorporated and tested in the scenarios in chapter 9.

Figures
◀ 8.55 View on Hammerfest.
Made by author.



RECONSTRUCTION OF THE MAP

SCENARIOS

09.



"Either we have Peak Oil, and the entire world suffers a tumultuous, uncontrolled transition to postcheap- oil economics, or else there is still plenty of oil left for us to permanently destroy the global climate through continued excess carbon emissions."

Gerry Canavan, "Introduction: If This Goes On," Green Planets: Ecology and Science Fiction, ed. Gerry Canavan and Kim Stanley Robinson, Middletown CT: Wesleyan UP, 2014, 5.

09. Scenarios

Introduction

According to the spatio-temporal analysis, development in Hammerfest has always been strongly driven by exogenous mechanisms. The increased dependence on the fossil fuel industry has resulted in the domination of the local economy and creates conflicts with the reindeer herders. In the scope of this thesis, it is therefore important to look for new ways of integrating flexibility and adaptability into future decision-making.

In this chapter, three scenarios are constructed on the basis of possible future developments and transition away from oil. The scenarios explore developments of global and local trends and how they influence the different actors, systems and the environment. The goal is to include the indigenous knowledge and use of the territory into the scenario and thereby both finding new ways to reduce impact of the oil development on reindeer herders and find possible synergies between actors. The scenarios are based on the following developments:

- *More Oil* is a scenario which includes further growth of the oil industry. The scenario explores the business as usual development for the oil industry in Hammerfest and renders the possible impact of industrial, urban and infrastructural growth on the island on the reindeer herders.
- *Rejected Oil* is a scenario which embraces a controlled transition away from oil. The scenario explores a more situation where more awareness for indigenous people and environmental issues results in regionalization.
- *After Oil* is a scenario which entails complete stagnation initiated by a crisis. This scenario explores what could happen if a sudden crisis halts all development and how this changes possibilities for socio-economic development.

Scenarios set-up

In the construction three types of foresight study are applied that justifies the complexity and uncertainty of the environment: projections, scenarios and speculations[1]. Eight timelines of the most important system mechanisms were constructed (figure 9.1 on the next page). These timelines are based on developments in the past and explore possible future developments based on projections and speculation. They may continue into the future along the same line as in the past, or a transition could occur[1]. In addition, a short study, based on the analysis and Nemkova & Fyta (2016), on occupation preferences to different landscape features per actors is visualized (see figure 9.3 on page 158). These are used in the construction and evaluation of the local map and assessment of the scenarios. For the construction of each scenario the following 5 steps were taken:

(1) Based on the timelines and the scenario, global, national and regional trends have been projected/speculated. Their impact en development is translated into territorial and regional actions and visualized into a map.
(2) These regional actions are then translated into actions of the different systems, actors and environment on the island of Kvaløya. The relations between them are visualized in a interaction diagram, which describes the driving forces, dependency and impact relations.
(3) The interaction between these individual actions are translated onto a local map with indicators. This map roughly simulates and visualizes where impact and interactions take place on the island. The result is a local map that generally shows the most important changes in the scenario.

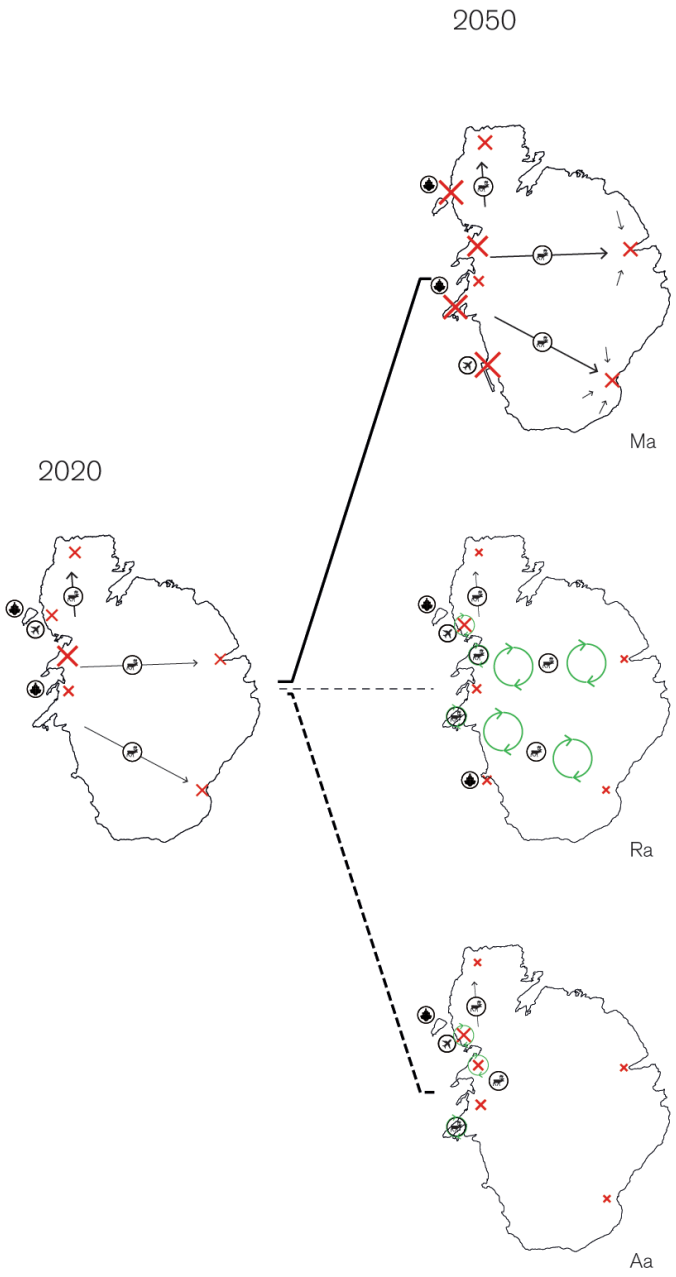
Citations

[1] Meyer, H., Bregt, A. K., Dammers, E., Edelbos, J., van den Berg, J., van den Born, G. J., ... & Heun, G. (2015). New perspectives for urbanizing deltas: a complex adaptive systems approach to planning and design.

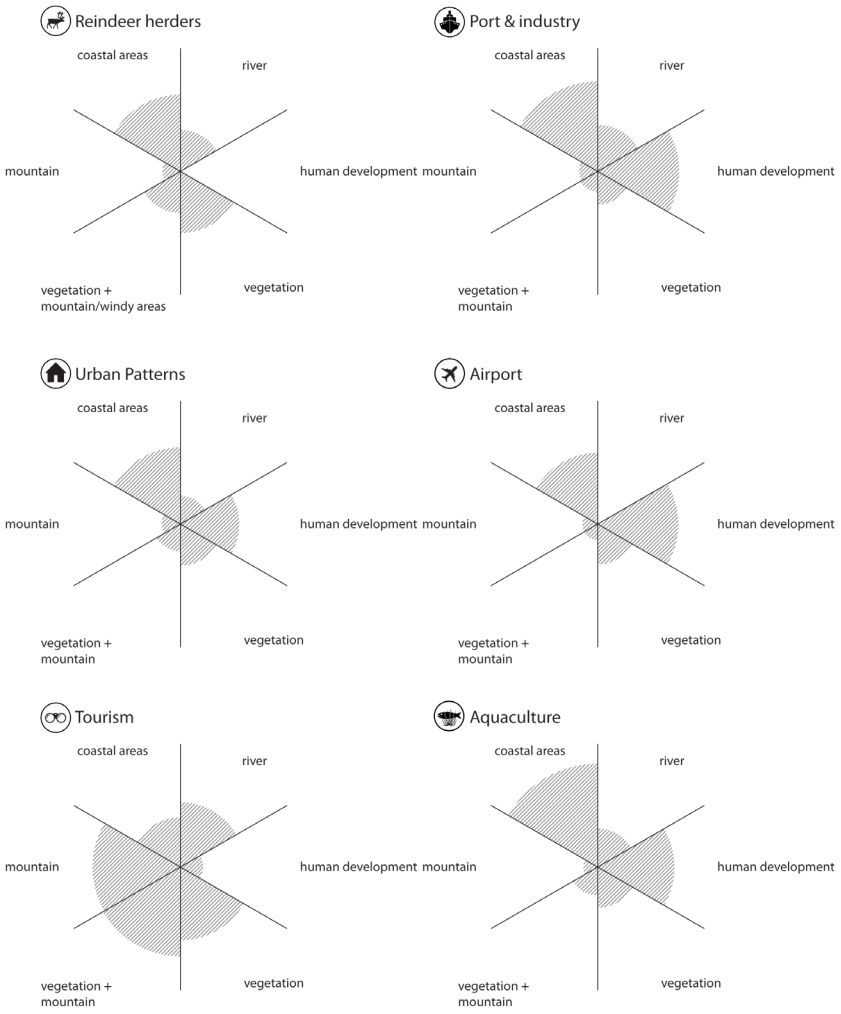
[2] Nemkova N., & Fyta P. (2016). Shifting Arctic Boundaries.

Figures

▶ 9.1 Diagram showing possible future scenarios.
Made by author.


2050
2020
Ma
Ra
Aa

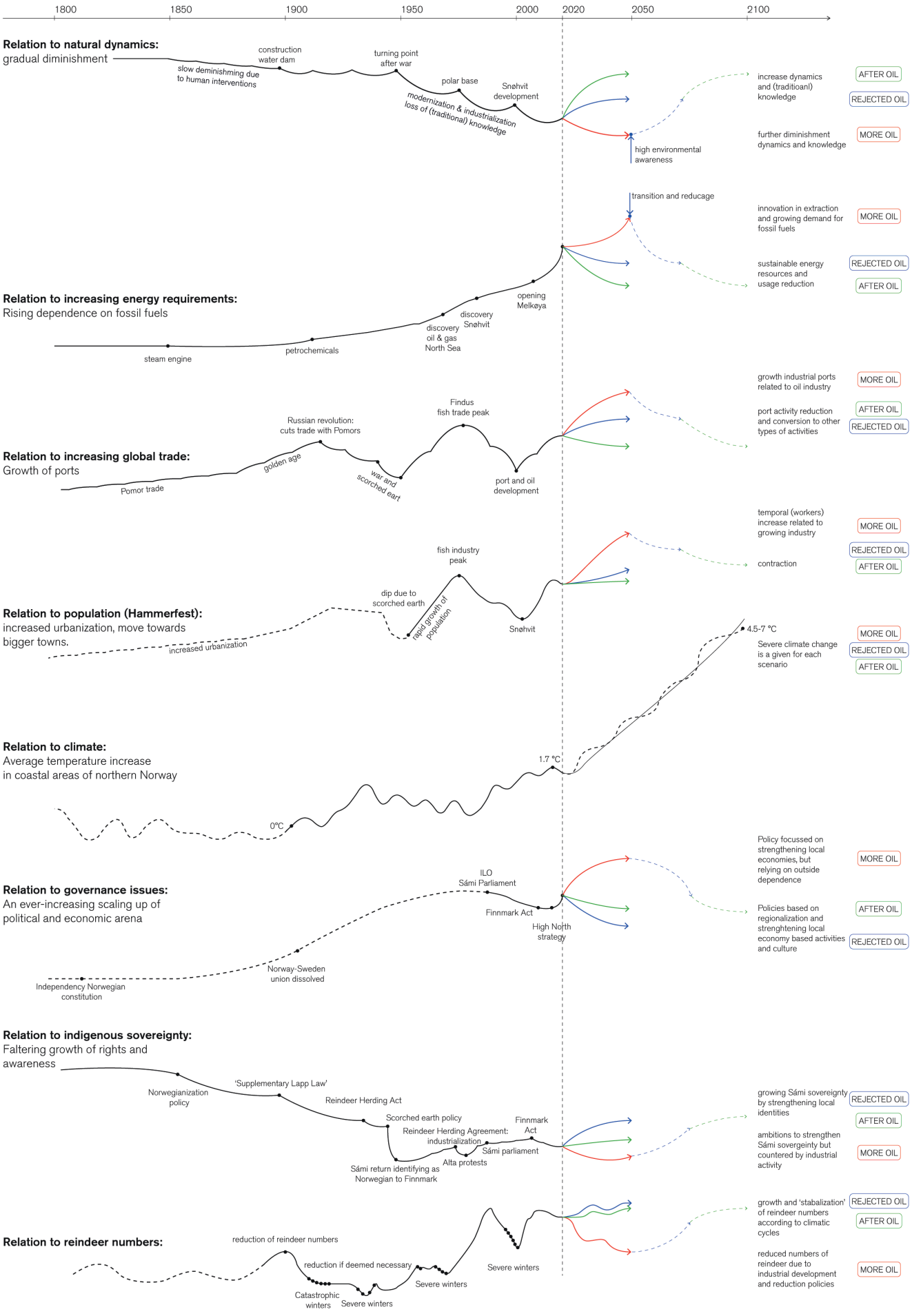
(4) The temporalities of the different actors are visualized in graphs throughout the seasons. In this step it becomes apparent what the synchronizations and between the different actors and where do collapse. Possible interrelations become apparent which can be used in further construction of strategic actions.
(5) Ultimately, a number of sub-areas were examined in response to the four main actors. Their actions and impact are simulated throughout the eight seasons. In this step the reindeer migration paths are simulated. These actions are shown in 3d diagrams, accompanied with season impact/synergy graphs.



Figures

◀ 9.2 Occupation preferences to different landscape features per actors.
Made by author (2020), based on Nemkova & Fyta (2016).

▶ 9.3 Relation past, present and future represented in timelines.
Made by author, based and extrapolated from Lie & Karlstad (2014), Meteorologistik Institutt (2020), Norwegian Directorate for Reindeer Husbandry (2015) and the earlier diachronic analysis.


1800
1850
1900
1950
2000
2020
2050
2100
Relation to natural dynamics:
gradual diminishment
slow deminishming due to human interventions
construction water dam
turning point after war
polar base
Snøhvit development
modernization & industrialization
loss of (traditional) knowledge
high environmental awareness
increase dynamics and (traditioanl) knowledge
AFTER OIL
REJECTED OIL
further diminishment dynamics and knowledge
MORE OIL
transition and reducage
innovation in extraction and growing demand for fossil fuels
MORE OIL
sustainable energy resources and usage reduction
REJECTED OIL
AFTER OIL
Relation to increasing energy requirements:
Rising dependence on fossil fuels
steam engine
petrochemicals
discovery oil & gas North Sea
discovery Snøhvit
opening Melkøya
Relation to increasing global trade:
Growth of ports
Pomor trade
golden age
Russian revolution: cuts trade with Pomors
war and scorched eart
Findus fish trade peak
port and oil development
growth industrial ports related to oil industry
MORE OIL
port activity reduction and conversion to other types of activities
AFTER OIL
REJECTED OIL
Relation to population (Hammerfest):
increased urbanization, move towards bigger towns.
increased urbanization
dip due to scorched earth
rapid growth of population
fish industry peak
Snøhvit
temporal (workers) increase related to growing industry
MORE OIL
REJECTED OIL
contraction
AFTER OIL
Relation to climate:
Average temperature increase in coastal areas of northern Norway
0°C
1.7 °C
4.5-7 °C
Severe climate change is a given for each scenario
MORE OIL
REJECTED OIL
AFTER OIL
Relation to governance issues:
An ever-increasing scaling up of political and economic arena
Independency Norwegian constitution
Norway-Sweden union dissolved
ILO Sámi Parliament
Finnmark Act
High North strategy
Policy focussed on strengthening local economies, but relying on outside dependence
MORE OIL
Policies based on regionalization and strenghtening local economy based activities and culture
AFTER OIL
REJECTED OIL
Relation to indigenous sovereignty:
Faltering growth of rights and awareness
Norwegianization policy
'Supplementary Lapp Law'
Reindeer Herding Act
Scorched earth policy
Reindeer Herding Agreement: industrialization
Finnmark Act
Sámi parliament
Alta protests
Sámi return identifying as Norwegian to Finnmark
growing Sámi sovereignty by strengthening local identities
REJECTED OIL
AFTER OIL
ambitions to strengthen Sámi sovergeinty but countered by industrial activity
MORE OIL
Relation to reindeer numbers:
reduction of reindeer numbers
reduction if deemed necessary
Catastrophic winters
Severe winters
Severe winters
Severe winters
growth and 'stabalization' of reindeer numbers according to climatic cycles
REJECTED OIL
AFTER OIL
reduced numbers of reindeer due to industrial development and reduction policies
MORE OIL

Elaboration of MORE OIL scenario | territorial

The *More Oil* scenario assume increased liberalization of the global market and expanding globalization. As sea ice recession continues, the extraction of hydrocarbons in the Arctic can be harvested in a cheaper and safer way. Combined with the population and economic growth world-wide, the fossil industry is expected grow substantially in the Arctic regions of Norway, Russia, United States and Canada. Central ports of places like Hammerfest, Kirkenes and Murmansk in northern Europe are strengthened, as they have an already developed infrastructure network and central position along the new Northern sea route.

The climate changes drastically and rapidly in the Arctic, which leads to greater challenges for ecosystems and local (indigenous) communities to adapt to the new uncertainty and changes of the seasons. These climatic changes pose especially extra challenges for wild and semi-domestic reindeer herders. The extensive growth of industrial development - related to the fossil and mining industry – result in land-use conflicts on the Yamal peninsula and Fennoscandian shield.

In Norway, the government supports industrial activity through the High North Policy and the extensive licensing of the Norwegian Petroleum Directorate in the Barents Sea. Under the framework of the sovereign fund and strengthening the region, local communities become more dependent on new economic investments by private companies. This makes the local communities in Finnmark ultimately more dependent on foreign investors, instead of creating a robust region. In communities like Hammerfest, economic imperatives are deemed more important than environmental awareness. As a result, little attention is paid to other economic and cultural sectors and actors, including the Sámi and the reindeer.

The development of the oil industry initiates several changes around the city of Hammerfest, which resonate into infrastructural changes in the region. Urban expansion and job creation result in increased flight movement from the south and to the platforms. Increasing demand for power by the industry – to electrify platforms and industry – results into the extension of a high voltage powerline between Skadai and Hammerfest.

In this scenario, unexpected changes – like the ones described below – can have major consequences. This can be caused by an unexpected event that accelerate and expand developments in the oil industry:

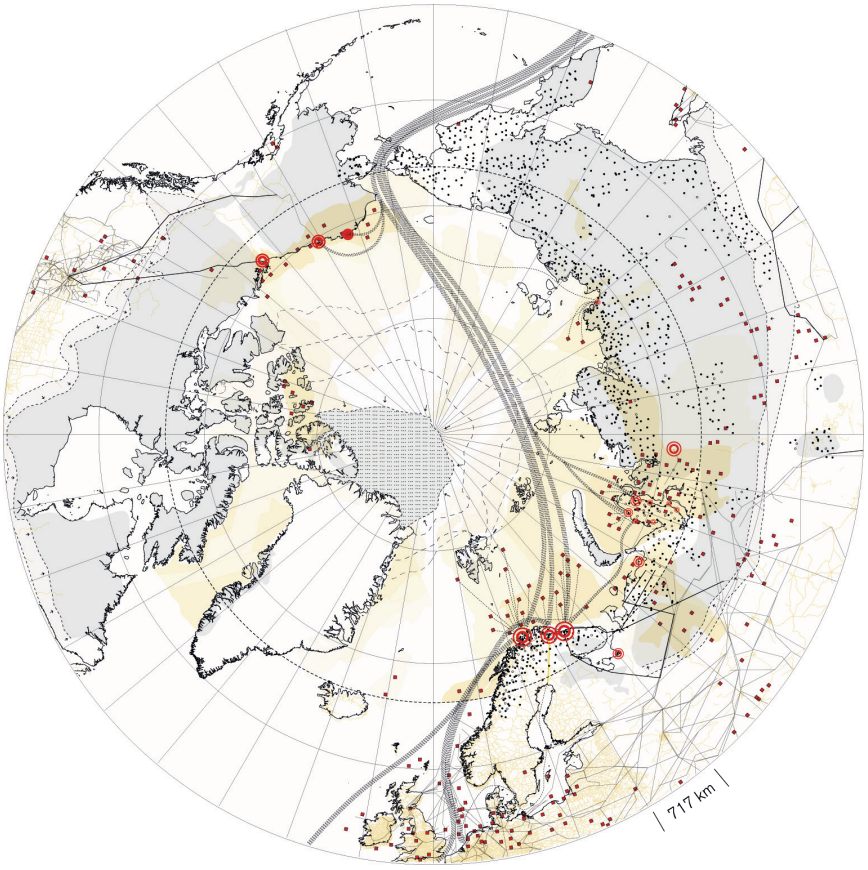
1. *Substantial opening of new blocks:* the Norwegian government presents massive drilling plans in the Barents Sea. In doing so, the state actively supports the industry into more explorations, with the prerequisite for companies to bring jobs to Finnmark. Industrial places like Hammerfest and Kirkenes will likely expand their industrial activities. Existing plans to develop new sites like Veidnes will continue.
1. *Oil price surge:* external prices rise worldwide due to cartel forming or scarcity in the future. Therefore, big investments are profitable. Investments in Hammerfest and Kirkenes are extended.
2. *Big well discoveries:* a fair amount of the explorations are full. Consequently, large investments are made into the extraction of these well, bringing more economic opportunities and jobs to Finnmark.
3. *Political break:* political approval for exploration in vulnerable areas around Jan Mayen and Svalbard. Opportunities are spread across ports and cities in Troms & Finnmark like Hammerfest, Kirkenes and Tromsø.

The following pages show how the actors, systems and environment react and interact on the international, regional and local changes of the scenario.

Figures

▶ 9.4 Territorial map *More Oil* scenario. Made by author, sea ice extent based on The Arctic Institute (2016).

▶ 9.5 Regional map *More Oil* scenario. Made by author.



▶ Legend

- Summer sea ice extend 2050
- Sea ice extend 2019 - 2050

Oil and gas potential

- Domestic reindeer reduction
- Wild reindeer territory
- Loss of wild reindeer territory

Human development

- Main infrastructure
- Main shipping routes
- Oil/gas related shipping
- New pipelines
- Existing pipeline infrastructure
- Oil/gas field
- Growing oil/gas harbor

Oil and gas potential

- 100%
- 50 - 100%
- 30 - 50%
- 10 - 20%
- <10%



▶ Legend

- Industrial/urban expansion
- Main shipping routes
- Oil/gas shipping and flights
- Pipeline infrastructure
- Oil/gas (subsea) facility
- Open license
- Energy network expansion
- Flight movement increase

System, actor and environmental actions

PORT & INDUSTRY

The port and related industry will grow due to a continuing demand for oil and gas. New coastal areas will be converted to accommodate the supply of the oil and gas structures, platforms and exploration on the Barents Sea.

- Industrial areas and ports will increase by a 172% increase in footprint, dispersed over five locations along the western side of the island.

URBAN PATTERNS

The expansion of the industry results in new urban areas near industrial development and existing urban structures on relatively flat areas near the western coast.

- Dispersed development of 8 new urban areas in and around Hammerfest, Rypefjord, Strømsnes and Akkarfjord.
- Growth and diversification of related services.
- The amount of jobs increases by roughly 12%, the total population by 27%
- Therefore the footprint of the urban areas by 45%.

TOURISM & RECREATION

Tourism will grow slightly with the continuing globalization and the new airport. However, due to little attention for the tourism sector, no big increases are expected.

- Despite industrial activity the sector will try to grow, this is especially true for the cruise sector.
- New cultural activities will be focused on the new residents and aim at recreation.

ENERGY NETWORK

With the expansion of Melkøya, Equinor wants to electrify the LNG plant. On top of this, the oil companies want to portray a sustainable image to the public by electrifying structures and platforms at sea, thereby demanding a more stable power supply from southern Norway.

- Statnett will expand the high voltage network from Skadai to Hammerfest, resulting in the construction of new powerlines along the already existing infrastructure on the western side of the island.

TRANSPORTATION NETWORK

Due to the expansion of the oil industry, flight movements will increase to cities in the South and platforms on the Barents Sea. With the high revenues of the industry the municipality of Hammerfest wants to realize three tunnels with the increasing hazards.

- Construction of a new airport at the Grøtnes peninsula, allowing bigger airplanes to land and a new helicopter base for increased oil and gas flights.
- Construction of three tunnels along locations with high risk of avalanches.

WEATHER & SEASONS

Continuing globalization and the very slow transition from fossil fuels, the weather and alteration of the seasons will be more extreme.

- The weather will be highly variable creating especially different conditions in spring-winter and spring.
- Seasons will be less predictable and will alternate more.
- Summer periods will be longer.

SOIL & WATER

The developments will alter the morphology of coastal areas. Climate change will alter water conditions at sea and increase soil fertility.

- Sea temperature will increase
- Acidification of the sea
- Composition of soil organic changes.

Figures

▶ 9.6 Actor, system and environment interactions.
Made by author.

ECOLOGY

With the rapid climate change and extreme weather, the vegetation patterns will slowly change in shielded areas with suitable soil. Vegetation patterns will change throughout the seasons and will be less predictable.

- Grass-birch areas will grow
- Insect will plague lower areas due to longer and warmer summers
- The development of industrial and urban areas reduces the ecology of the island.

FISHERIES & AQUACULTURE

Fishing has already been reduced and will not be further developed due to industrial and urban developments.

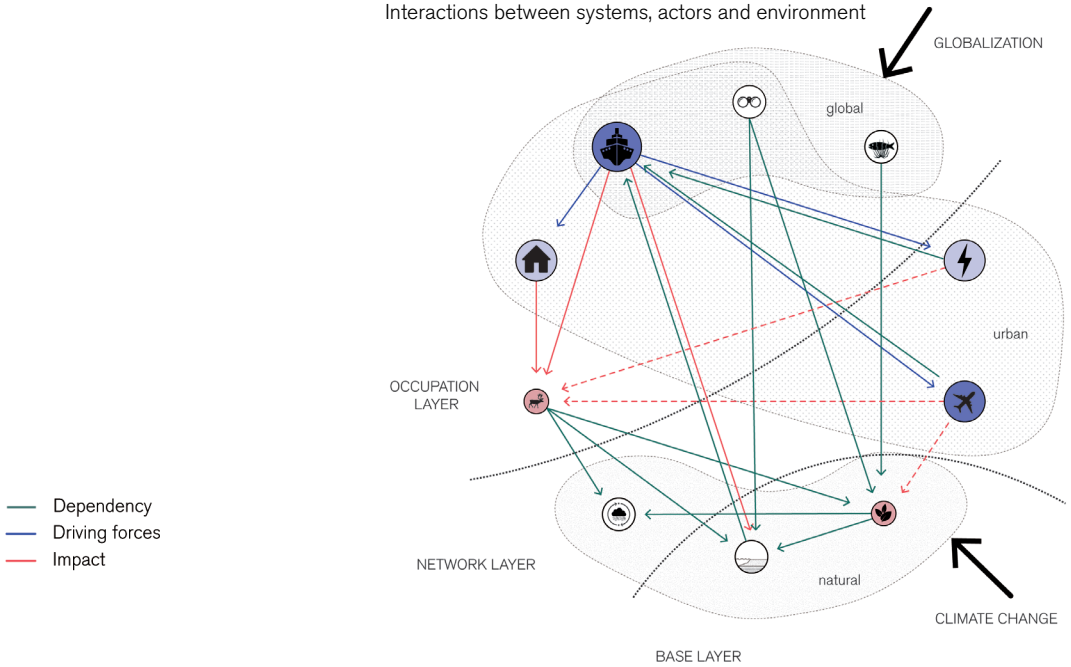
- Because of the oilfield and the changes of the climate the fishing areas will change.

REINDEER & HERDERS

The reindeer herders lose highly valuable pastures due to physical and infrastructural impact. Therefore they will move to other pastures and try to compensate with other measures.

- Climate change can be accommodated, provided that alternative pastures are accessible.
- Vital pastures are inaccessible due to industry, housing and traversed by energy infrastructure.
- Due to space limitations, there will be fewer herds and Sami.
- Herders could compensate by supplementary feeding, but is economically not viable.

Interactions between systems, actors and environment



MORE OIL | Kvaløya

In the *More Oil* scenario, the municipality of Hammerfest-Kvalsund is committed to expanding its current industries and attracting new supply-base activities to the city in order to profit from the globalization and an increased demand for oil and gas. Therefore, new industrial zones are developed along the Western coast of Kvaløya. Polar Base has doubled in size and a new industrial area on the peninsula of Strømsnes is developed. To accommodate the industrial growth, the municipality opened up the development of several new residential areas. The development has surged in a growth of the population. Temporal highly skilled workers create a lot of tax income for the municipality which has lead to a diversification of recreational services and investment in mitigation measures against avalanche risks due to more polar storms.

To accompany the growth of the Melkøya LNG plant and growing demand of power by oil platforms on sea a new high voltage power-line is constructed on the western side of the island. Due to the expansion of the oil industry, flight movements to the platforms and southern cities in Norway will increase. A new airport is constructed at the Grøtnes peninsula. The relocation of the airport and the opening of the Repparfjord copper mine in Kvalsund, traffic on the road between Kvalsund and Hammerfest will increase. This, and the avalanche risks, has resulted in the construction of three tunnels in Hammerfest and Rypefjord. Due to the better accessibility of the island and an increase in cruises, the tourist sector will grow slightly. All of the developments will result in an almost complete urbanization of the western side of the island in 2050.

Reindeer

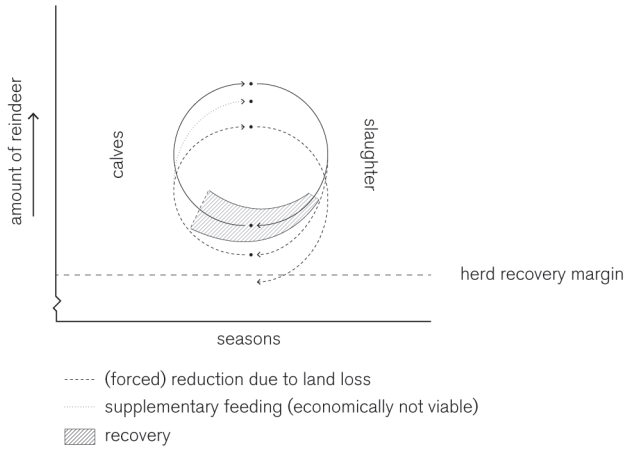
Both climatic and urbanization changes have a high impact on the reindeer husbandry on the island. The warmer summers have slowly altered vegetation patterns on the island, and the insects plague lower areas due to a hotter and longer summer. Combined with the impact of the newly developed industrial and urban areas the pressure on other pastures on the island increases.

Due to the limitations of available pastures herds, overstocking policies result in a forceful reduction. Combined with more uncertain and alteration seasons in the future the herd is unable to stay above the herd recovery margin of around 200 reindeer. The accumulation of these effects and measures has created a situation where herders are economically not able to survive (as shown in figure 9.7 below). On the long term, the reindeer herders are economically not suitable to compensate the impact by supplementary feeding.

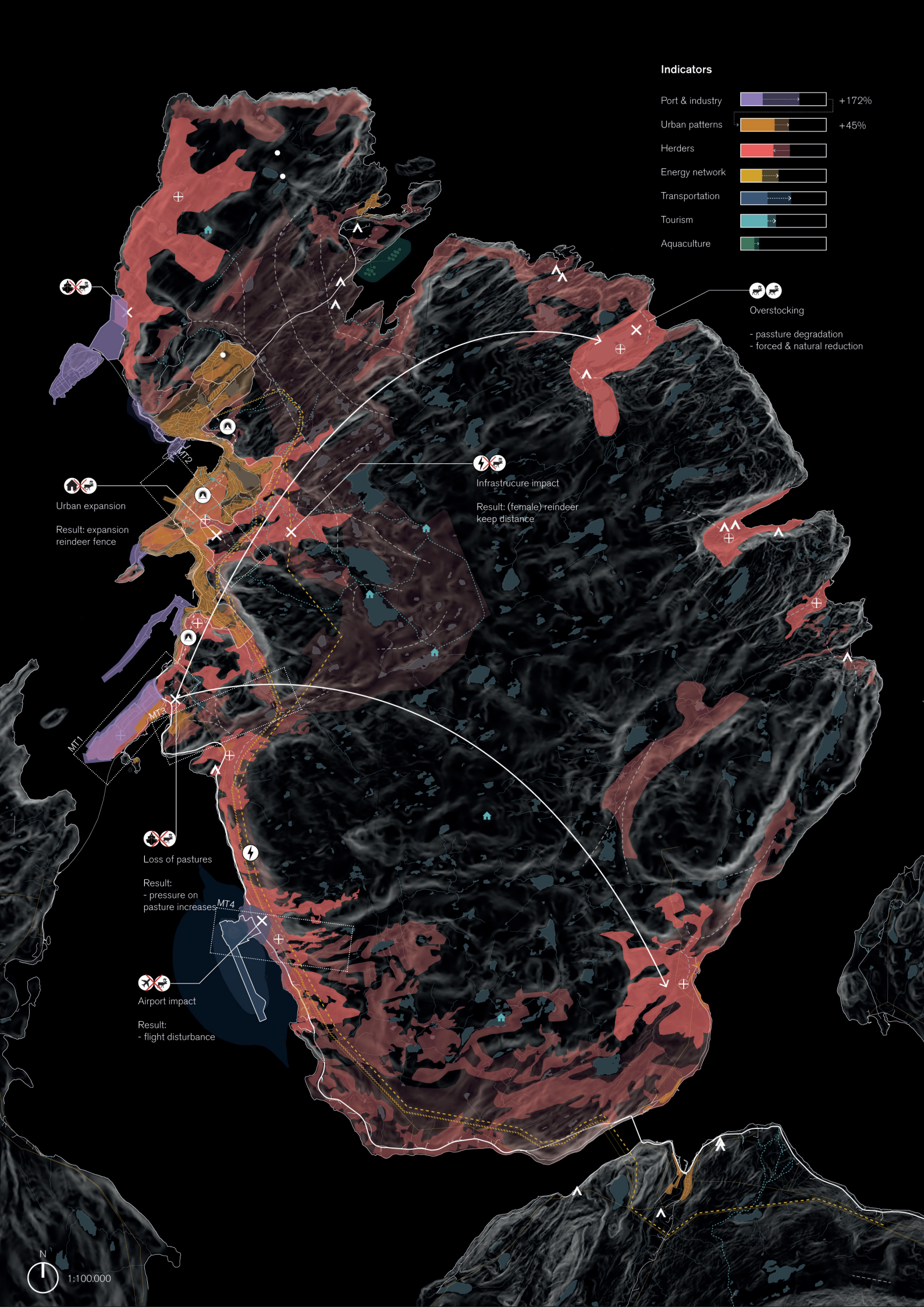
Figures

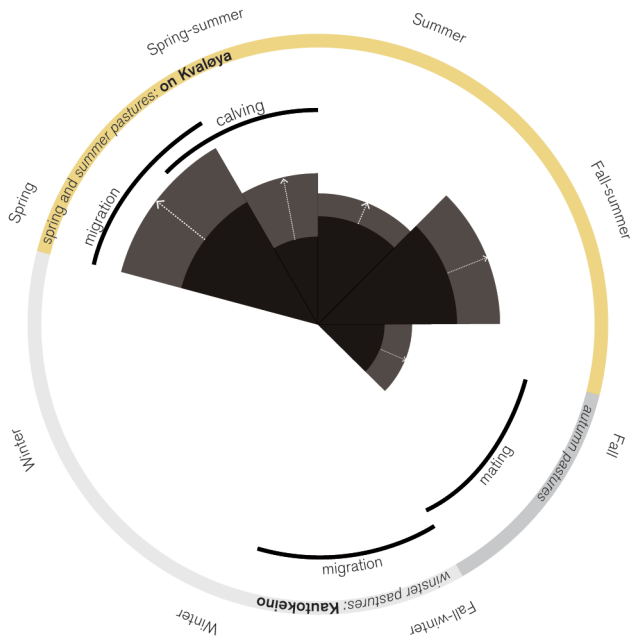
◀ 9.7 Herd reduction cycle.
Made by author.

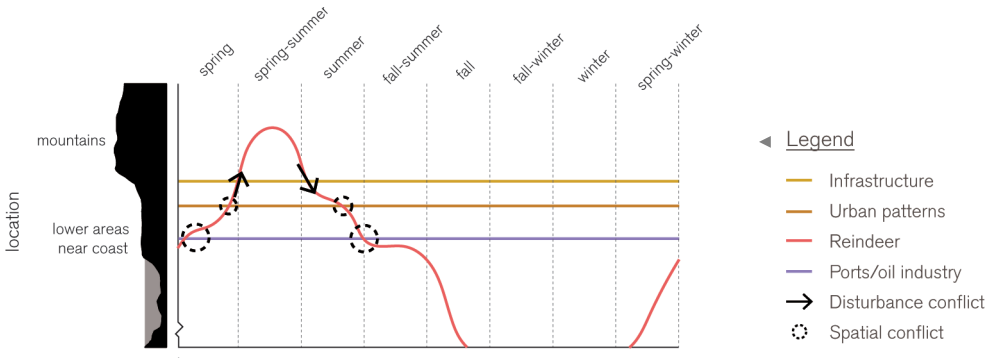
▶ 9.8 Local map of Kvaløya in the *More Oil* scenario.
Made by author.

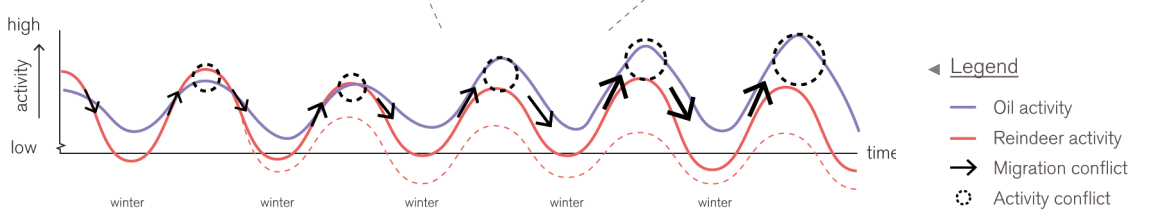





Indicators
Port & industry
+172%
Urban patterns
+45%
Herders
Energy network
Transportation
Tourism
Aquaculture
Overstocking
- passture degradation
- forced & natural reduction
Infrastrucure impact
Result: (female) reindeer keep distance
Urban expansion
Result: expansion reindeer fence
Loss of pastures
Result:
- pressure on pasture increases
Airport impact
Result:
- flight disturbance
MT1
MT2
MT3
MT4
N
1:100.000


Spring-summer
Summer
Fall-summer
Fall
Fall-winter
Winter
Winter
Spring
spring and summer pastures: on Kvaløya
calving
migration
autumn pastures
mating
migration
winter pastures: Kautokeino
Legend
Existing impact
Growing impact


spring
spring-summer
summer
fall-summer
fall
fall-winter
winter
spring-winter
mountains
location
lower areas
near coast
Legend
Infrastructure
Urban patterns
Reindeer
Ports/oil industry
Disturbance conflict
Spatial conflict


high
activity
low
time
winter
winter
winter
winter
winter
Legend
Oil activity
Reindeer activity
Migration conflict
Activity conflict

Seasonal impact

The seasonal impact in the *More Oil* scenario will increase for all seasons. The impact in the spring and fall-summer migration is already fundamental and will increase significantly with the development of the Strømsnes industrial area, the Grøtnes airport and new infrastructural powerlines along the western side of the island. In spring-summer, the females will reside in the higher undisturbed areas for the calving period, therefore the impact is less significant. For the males however, the pasture loss of the Strømsnes area is significant. As Severinsin (2008) notes, the loss of these pasture will increase the likeliness of the male deer wandering in urban areas, thus increasing conflicts with residents. In the summer the reindeer will move to the Mylingen area in the north-western part of the island. The impact will increase slightly due to the Strømsnes development and the loss of grove areas for the calves around Hammerfest and Rypefjord. In the fall-summer the reindeer will migrate to the southern gathering areas, thus passing along new infrastructural, industrial and urban development on the western side of the island. Especially the new airport will have a great disturbance effect on the reindeer.

The location and type of conflicts is dependent on the seasons and topographical location of development. Diagram 9.10 on the left indicatively shows how the fixated development impacts the reindeer and creates disturbance impact and spatial conflicts. As explained earlier the industrial development will increase in the *More Oil* scenario. And with this the urban patterns and infrastructure will grow, thereby not only impacting coastal areas, but also more inland regions on the island.

Accumulative impact
Next to the short term impact, the oil industry will continue to grow over time. Therefore, both seasonal and spatial impacts will have an accumulative impact on the reindeer practice over time. The activity of the reindeer varies throughout the year, but unforeseen impacts like severe winters and forced reindeer reductions could negatively impact the herd size and therefore reduce the activity even further.

The diagrams on the left show the indicative impact. Both physical and non-physical impact are however specific for certain activities and locations. Industrial, urban and infrastructural impact create different conflicts in various seasons. Therefore, four locations on the island are specifically analyzed according to the possible development in the future. These diagrams can be used to simulate and measure the impact of certain activities and interventions in the future.

Industry - Strømsnes development
The Strømsnes peninsula is one of the most productive pastures on the island, the industrial development will encompass the whole area, and its related urban development will increase conflicts in the Akkarfjord area.

Urban patterns - inland growth
Urban areas will grow in Hammerfest, Rypefjord and Akkarfjord. One of the most significant developments is inland of Hammerfest. This development will not only block more pastures for the reindeer herders, but will also close of popular tourism routes to inland areas.

Herders - climatic changes and infrastructure impact
Climate change will increase the likeliness of weather alterations in late winter. This could result in snow crust, and therefore reduce the available pastures in the spring. The reindeer will need more pastures to reduce this impact.

Airport - disturbance impact
The relocation of the airport to the Grøtnes peninsula has some benefits for the city of Hammerfest, but creates especially disturbance in the migration in the spring and fall-summer.

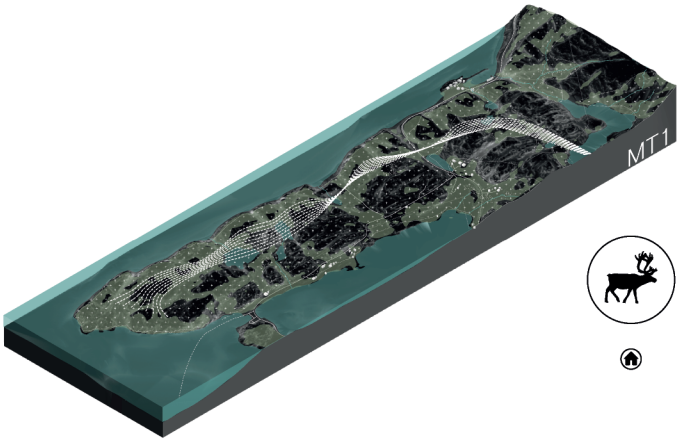
Citations
[1] Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune.

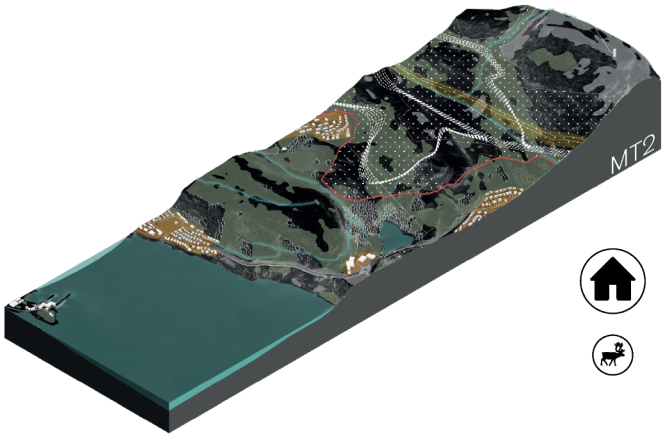
Figures
◀ 9.9 Seasonal impact on reindeer herders in the *More Oil* scenario.
Made by author.

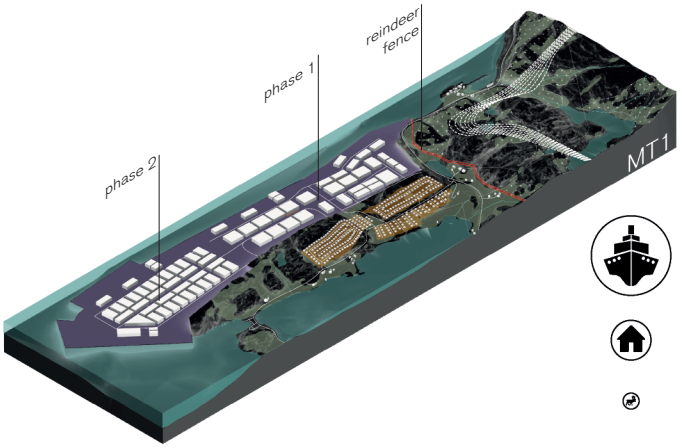
◀ 9.10 Geographical and seasonal conflicts in the *More Oil* scenario.
Made by author.

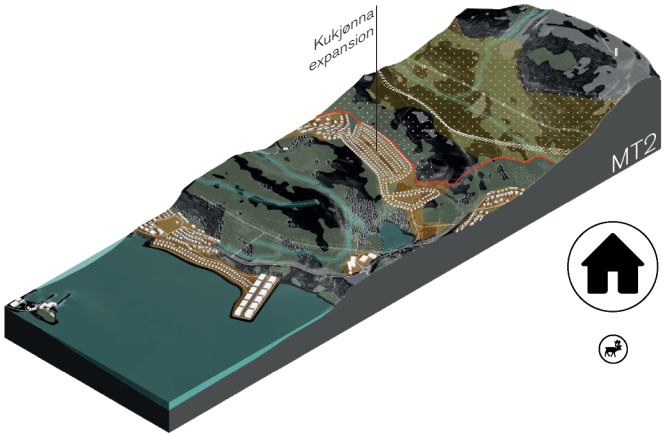
◀ 9.11 Accumulative impact over time in the *More Oil* scenario.
Made by author.

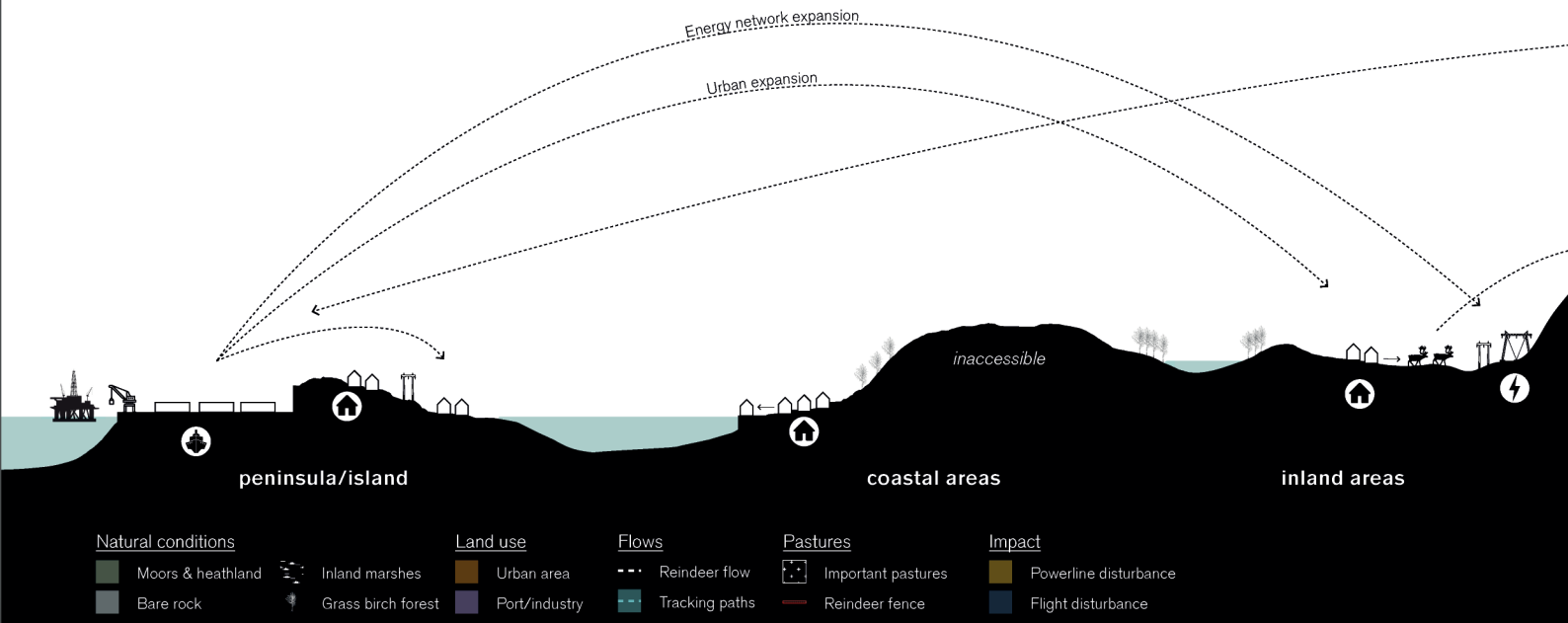
More Oil - Spatial juxtaposition 2020 - 2050 | *industrial and urban growth*

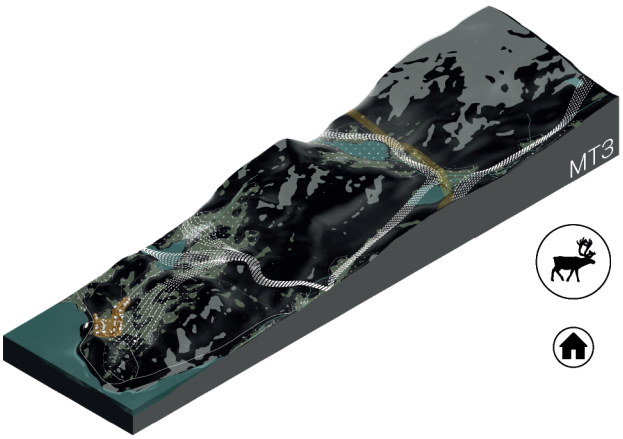


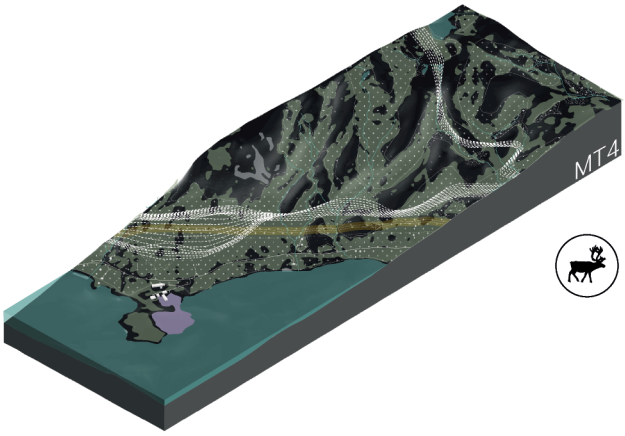


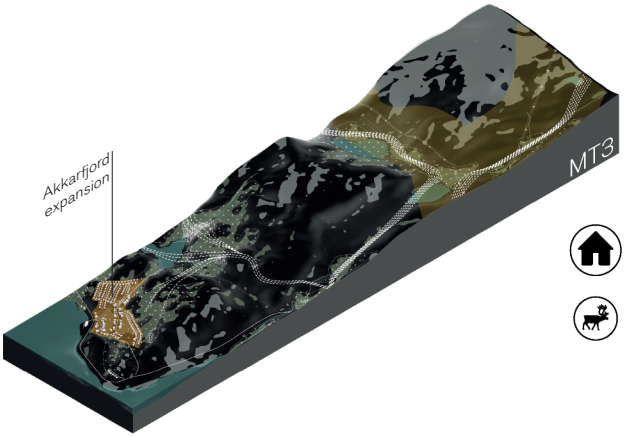


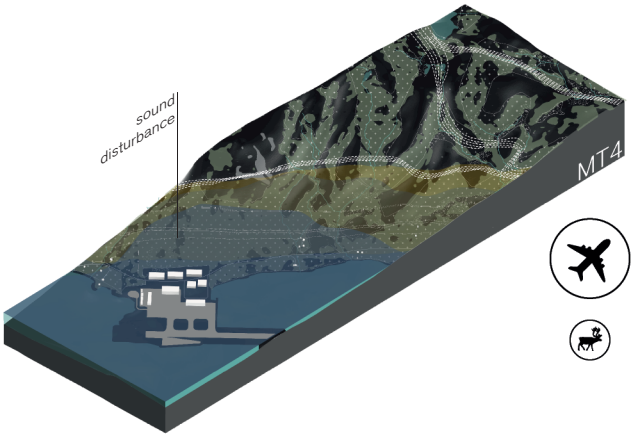


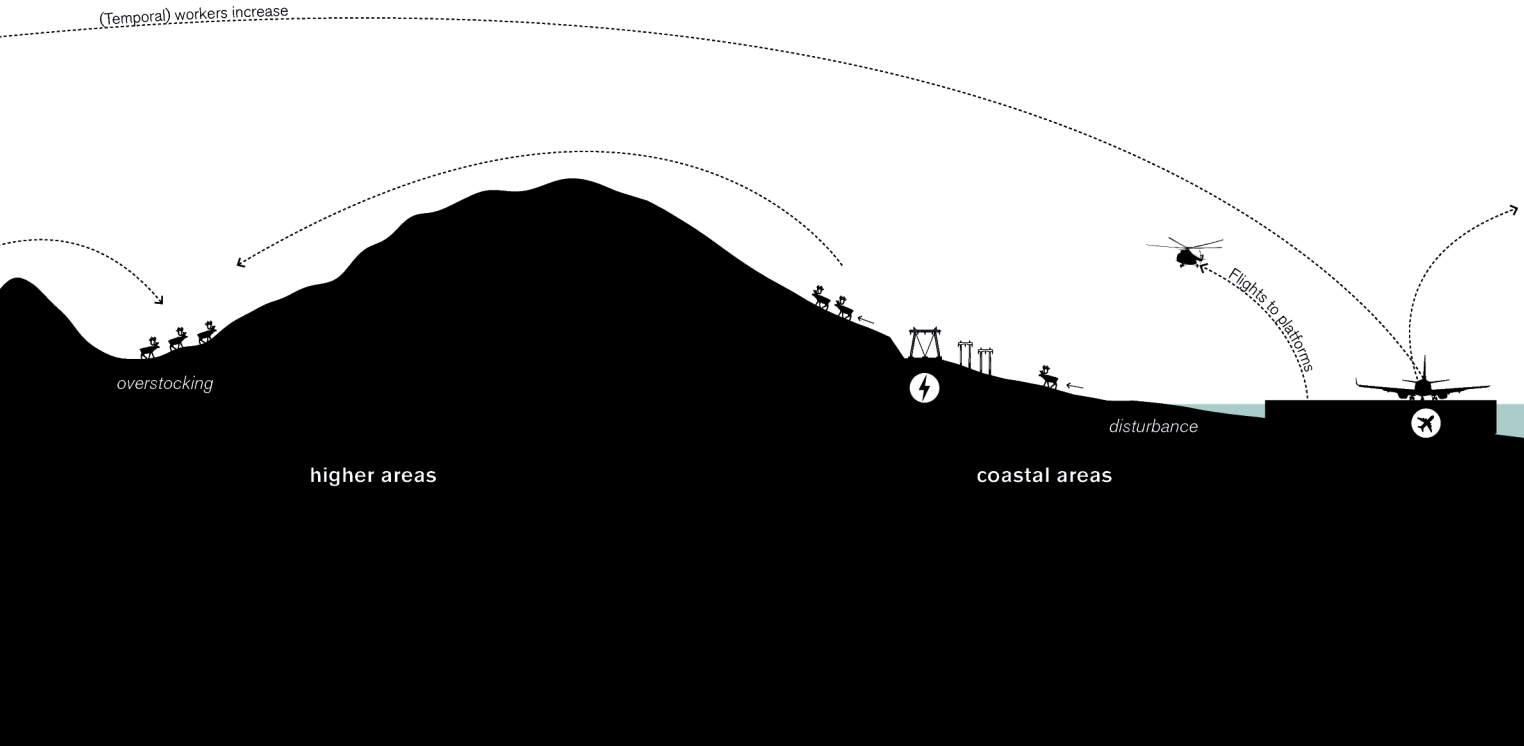



MT3

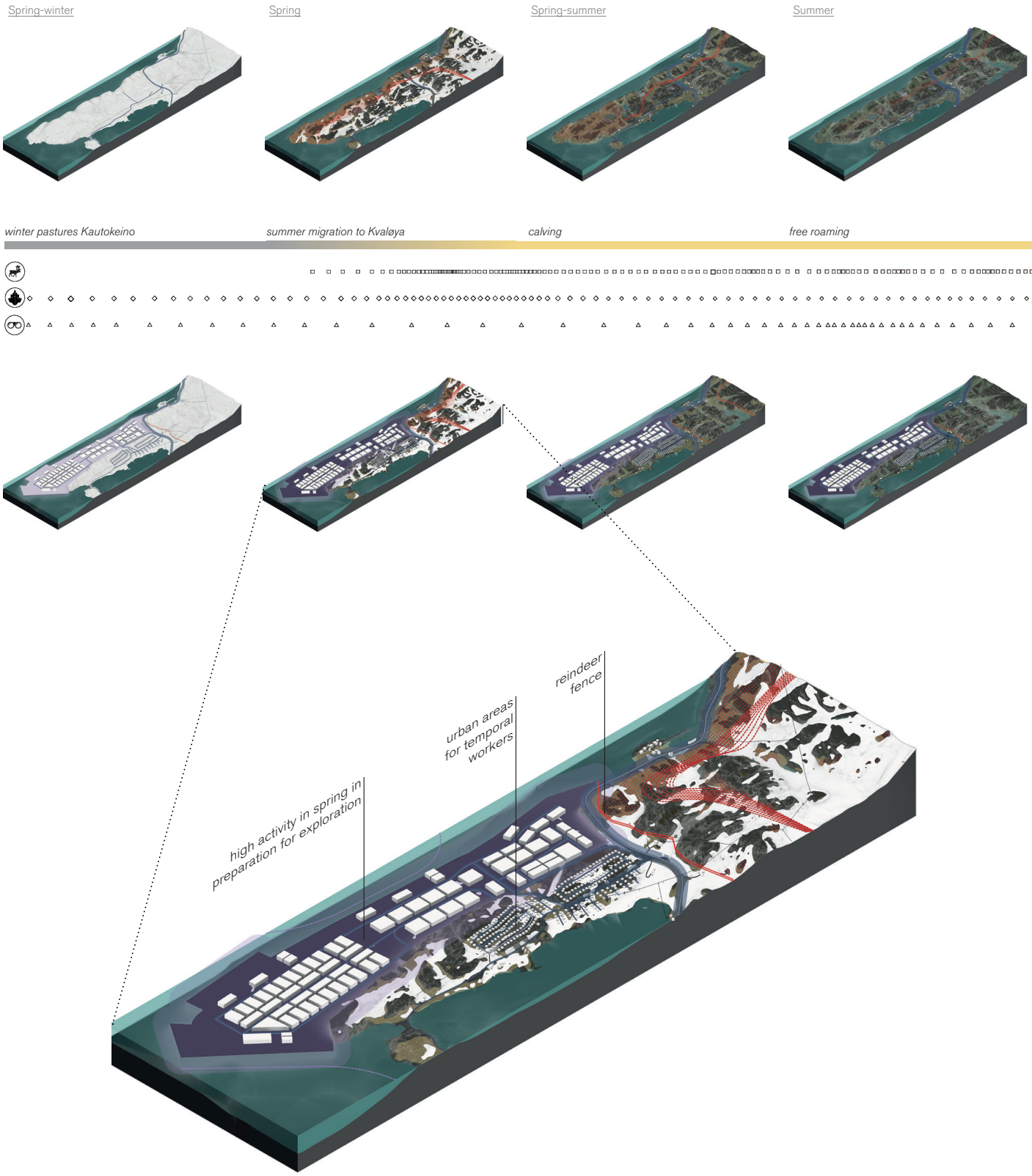

MT4


Akkarfjord
expansion
MT3


sound
disturbance
MT4


(Temporal) workers increase
overstocking
Flights to platforms
disturbance
higher areas
coastal areas

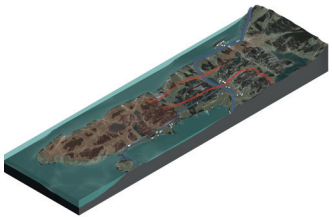
More Oil - Seasonal juxtaposition 2020 - 2050 | *MT1 - Strømsnesnet peninsula*



Spring impact

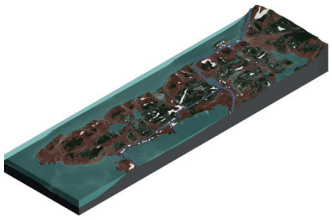
The Strømsneset industrial development will have significant impact on all seasons the reindeer reside on the island, as shown in the image and the activity timeline above. In the *More Oil* scenario the reindeer can only traverse the development towards other pastures. The impact for the spring is most problematic as these hold currently one of the few bare spots that are not directly or indirectly impacted by infrastructure, industrial or urban development.

Fall-summer



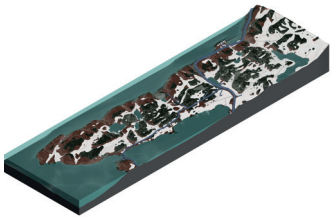
free roaming and migration

Fall



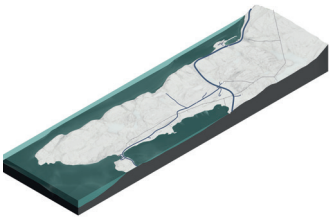
migration to mainland

Fall-winter

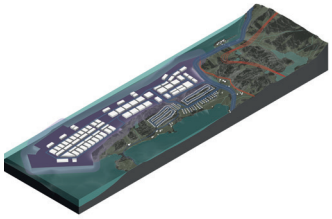


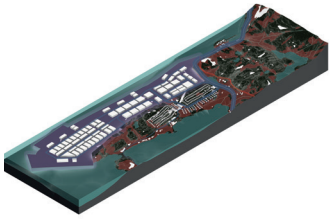
winter migration to Kautokeino

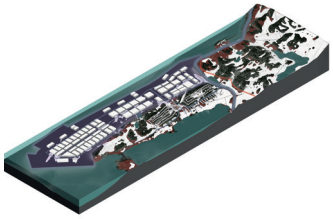
Winter

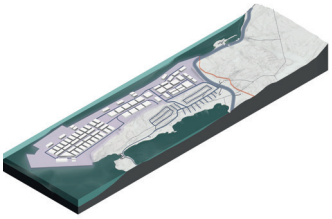


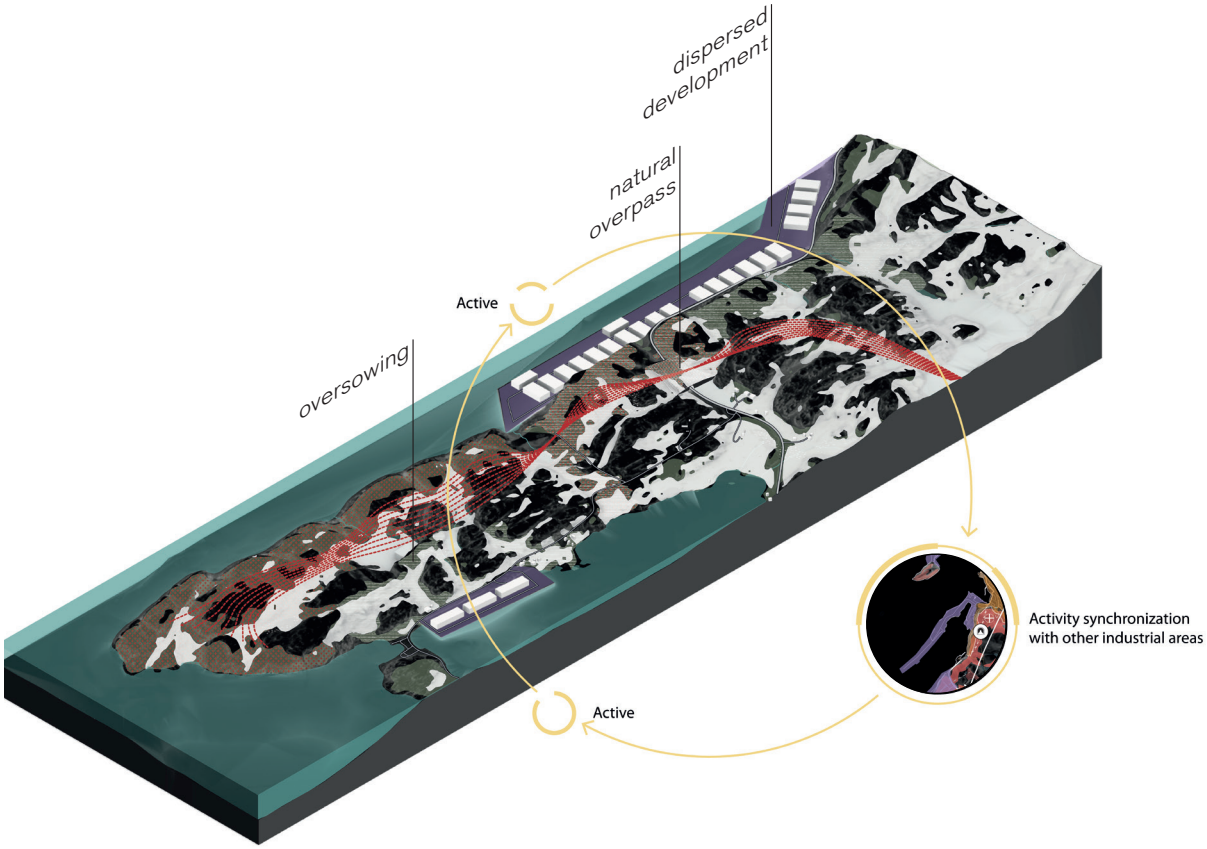
winter pastures Kautokeino











Impact measures and synchronization

Various impact measures can be applied, in reflection on the actions in the *Rejected Oil* scenario (see strategic actions on p. 189 - 192). Industrial development is dispersed over several locations where impact is low due to the proximity to the coast and existing infrastructure. Pastures surrounding the development are over-sowed and a natural overpass makes the peninsula better accessible. On preference of the reindeer herders, industrial activities can be synchronized with the reindeer activity in the areas (see above).

Elaboration of REJECTED OIL scenario| territorial

The *Rejected Oil* scenario assume reduced globalization and economic growth resulting in a regional approach. A major driving force is the changing direction of the social and political debate in Norway and Finnmark: environmental and cultural awareness as well as the desire to be self-sufficient become priorities. Therefore the government decides to slowly decouple the fossil industry, starting in the northern regions. The scenario is typified by a transition in multiple facets like; energy, economy and culture, all of which contribute to a strong shift towards regionalization. The controlled transition away from oil allows room for municipalities and local companies to prepare for a future without oil. Companies are expected to invest into more environmental sustainable modes of production which will increase the resilience of regions in the future. Nevertheless, the socio-economic impact is significant, for places dependent on the industry, dispersed along the Norwegian coast. The scenario is resembled by new more natural touristic and economic activities, with respect and knowledge of local (indigenous) peoples. This increases awareness on indigenous right in Norway.

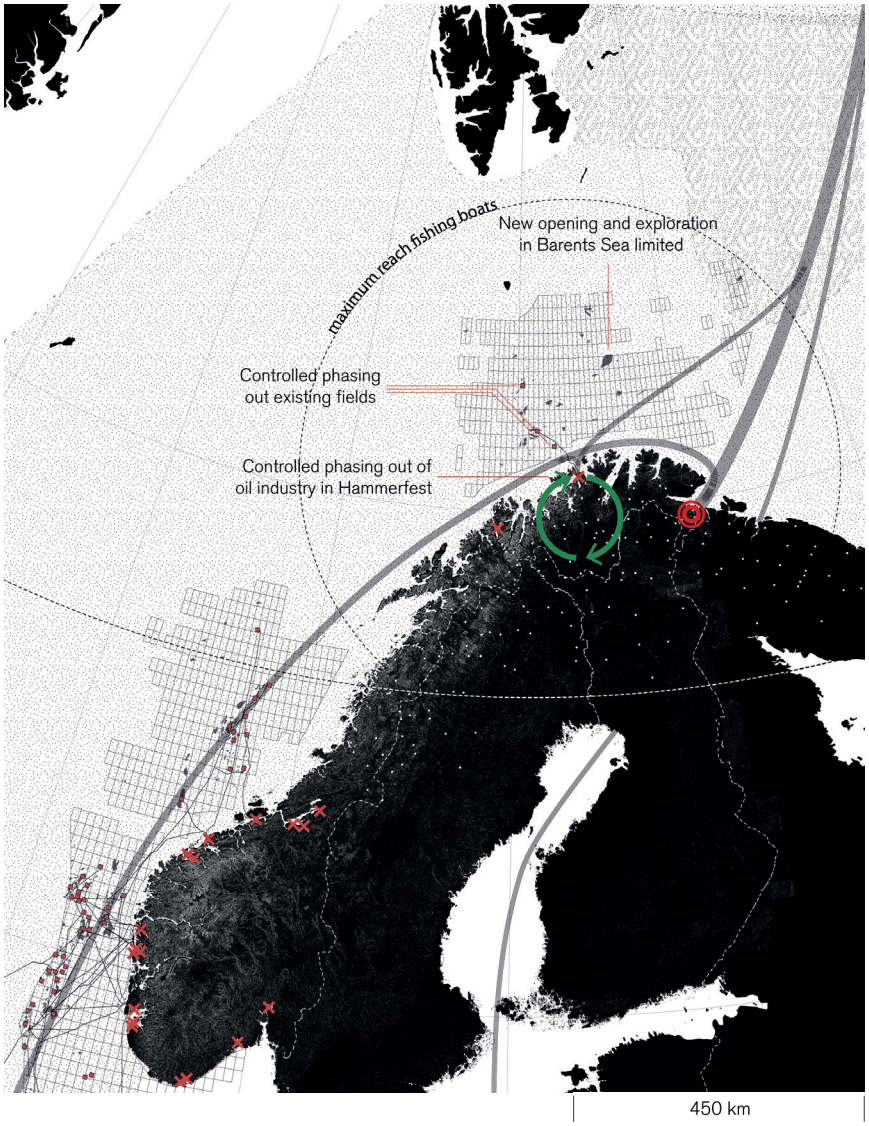
In Finnmark, the diversion from oil has a big impact. With the controlled diversion, the oil related ports may still grow in the first decade, but after that become obsolete. The shift away from oil, leaves at least the same or even more space for nature and the reindeer herders in the summer pastures. Higher temperatures of the sea increase fish productivity in the Barents Sea, leading to a renewed interest in fisheries and other aquaculture activities like kelp harvest (see figure 9.13). Regional institution and municipalities become more independent in search of more sustainable economic activities and assert more influence on decisions and are therefore made in consensus between different local actors where environmental and indigenous impacts are reduced to a minimum.

The following pages show how the actors, systems and environment react and interact on the international, regional and local changes of the scenario.

Figures

▶ 9.12 *Rejected Oil* territorial map.
Made by author, **fisheries** projected from Fossheim et al., (2015), **fishing boat reach** based on Eide, A. (2016).

▶ 9.13 Regional map *Rejected Oil* scenario.
Made by author, **kelp potential** based on Christie, Bekkby, Norderhaug, Beyer, & Jørgensen (2019).

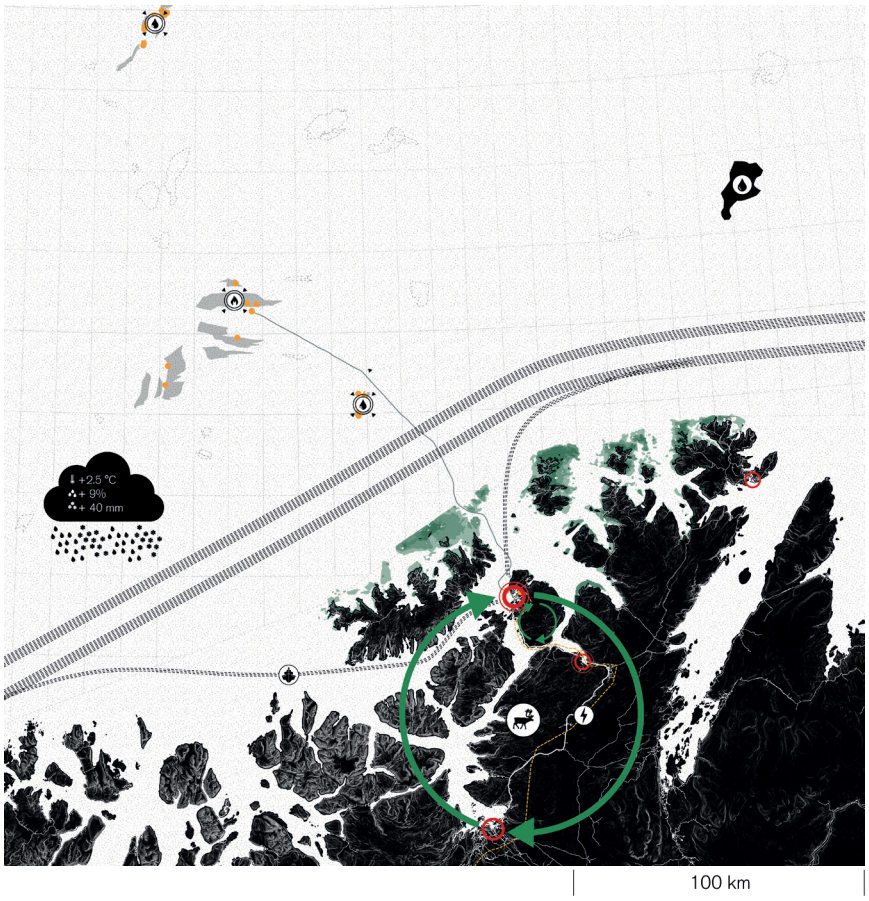


▸ Legend

- Industrial/urban expansion
- Main shipping routes
- Arctic railway
- Oil/gas field
- Pipeline infrastructure
- Scaling down of oil/gas fields
- Shrinking oil/gas supply harbor
- Regionalization

Fisheries

- Atlantic boreal fish species
- Central boreal fish species
- Arctic fish species



▸ Legend

- Industrial/urban expansion
- Main shipping routes
- Oil/gas shipping and flights
- Pipeline infrastructure
- Oil/gas (subsea) facility
- Oil/gas field phasing out
- Energy network expansion
- Regionalization

Kelp potential

- High
- Low

Actions

PORT & INDUSTRY

The port and industry will still grow slightly, as there is still a reduced demand for fossil fuels globally. Increasing awareness for environmental impact results in a slow conversion away from fossil fuels in northern Norway.

- During the first decade the oil related ports will grow slightly with 50%.
- New locations will be carefully assessed on impact and future convertibility to other industries, services or re-naturing after 2040.

URBAN PATTERNS

The slight expansion of the industry and focus other regional economic activities will result in a slight growth of urban areas near existing urban centers.

- Dispersed development of 4 new urban areas in and around Hammerfest and Rypefjord.
- Slight growth and diversification of related services.
- The amount of jobs increases by roughly 6%, the total population by 12%
- Therefore the footprint of the urban areas by 20%.

TOURISM & RECREATION

Tourism will grow with the continuing awareness/interest in culture and nature. The municipality and private companies actively market and invest to initiate growth. The Sámi culture will also be promoted in coastal regions.

- The cruise sector will slightly grow.
- Ecological tourism will grow;
- As well as cultural (Sámi) tourism.
- New cultural activities will be focused on interest in how local people use the landscape and natural processes.

ENERGY NETWORK

The application of sustainable energy like windmills and tidal power will most-likely result in investing in the energy network.

- Statnett may expand the high voltage network from Skadai to Hammerfest. To reduce negative impact on the reindeer, an alternative solution could be a sea cable.

TRANSPORTATION NETWORK

The current airport will intensify flights, if possible. A new airport is economically not viable. Therefore, investments will be made into other types of infrastructure, like ports and tunnels.

- In order to improve the accessibility of Hammerfest, it has been decided to construct tunnels in order to improve the connection with Alta and reduce avalanche risks.
- Construction of two overpasses/tunnels for increased accessibility for reindeer pastures.

WEATHER & SEASONS

The weather and alteration of the seasons will be more extreme. Because there is more respect and knowledge of indigenous Sámi knowledge on natural processes and seasons, this can be used to react to alteration and extremes.

- The weather will be highly variable creating especially different conditions in spring-winter and spring.
- Seasons will be less predictable and will alternate more.
- Summer periods will be longer.

SOIL & WATER

Climate change will alter water conditions at sea and increase soil fertility. The stronger interest and scientific knowledge on ecological and sustainable development.

- Sea temperature will increase
- Acidification of the sea
- Tidal development
- Composition of soil organic changes.

Figures

▶ 9.14 Actor, system and environment interactions.
Made by author.

ECOLOGY

With the rapid climate change and extreme weather, the vegetation patterns will slowly change in shielded areas with suitable soil. Vegetation patterns will change throughout the seasons and will be less predictable.

- Grass-birch forest areas will grow.
- Insect will plague higher areas due to longer and warmer summers.
- The development of industrial and urban areas have to incorporate and reduce impact on ecological development.
- Indigenous knowledge will help understand changing conditions and how to utilize the (changing) natural conditions in a sustainable way.

FISHERIES & AQUACULTURE

Fishing has already been reduced but will gain more attention, as well as aquacultural activities.

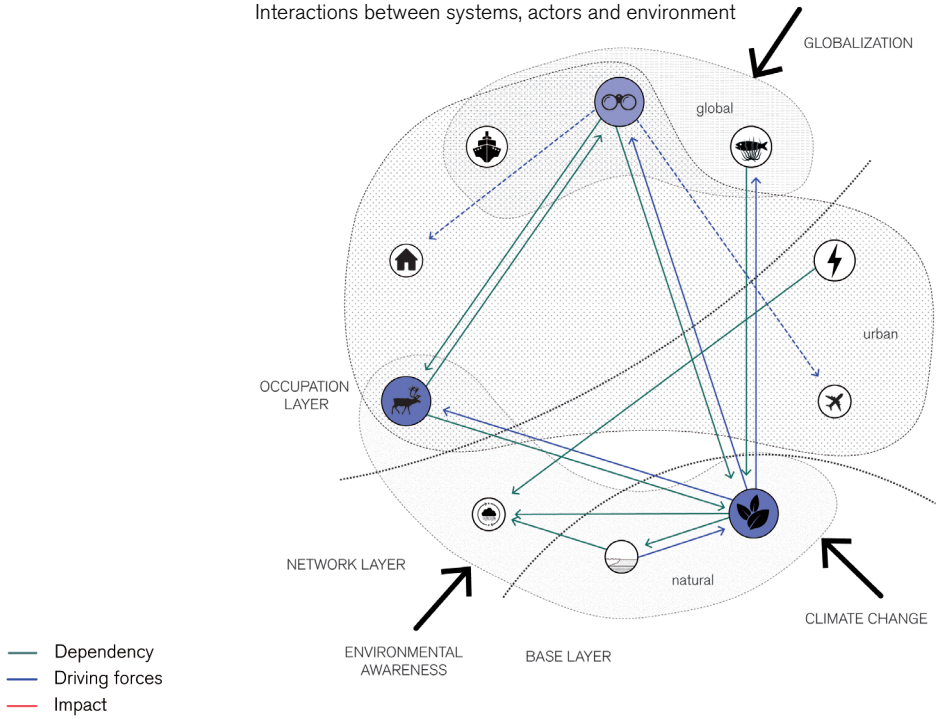
- Sea temperature rise will increase the chance of survival of Atlantic cod in northern waters.
- Acidification of sea water will negatively impact salmon farms.
- Kelp, seaweed and algae harvesting.

REINDEER & HERDERS

Some pastures will be lost, but this will be compensated due to increasing respect and awareness for the Sámi as an important cultural, tourist and economic actor in the region.

- Climate change can be accommodated, provided that alternative pastures are accessible.
- Herders will be compensated by supplementary feeding, oversowing grasslands, over and under-passages.
- Reindeer meat as a delicacy.
- Culture tourist center.
- Flexible solutions to other stakeholders land-use impact.
- Seasonal coordination and possible synergies with other stakeholder activities.

Interactions between systems, actors and environment



REJECTED OIL | Kvaløya

In the *Rejected Oil* scenario, the environmental and cultural awareness and the desire to be self-sufficient result in a controlled transition away from oil in Hammerfest. There will be less economic development, and existing industrial areas will eventually be converted to other functions. The municipality of Hammerfest has put more effort in regionalization policies, and support more environmental sustainable modes of production. The renewed interest in ecological and seasonal processes on the landscape consequently results in more respect for the knowledge of the Sámi. With less industrial development and mitigation measures the situation for the reindeer herders on the island improves.

In the first decade the oil industry and its related industry still grow slightly. New areas are dispersed around Akkarfjord and Grøtnes peninsula, where the impact is smaller for reindeer herders[1]. The Grøtnes industrial area follows the same contours as plans for the airport and is built in phases. With this measure it can always be converted to an airport if needed in the future. The few residential developments are planned within existing urban boundaries.

New forms of aquaculture develop due to the focus on natural processes. Existing harbors in Førsol are therefore expanded and kelp forests along the calm North-Western side of the island are cultivated and shipped towards the South. This increases the road traffic to Førsol, the impact on the important migration paths of the reindeer is reduced by elevating the road with left over rocks from the construction of tunnels in Hammerfest and Rypefjord.

Reindeer and tourism
Ecological tourism will increase and therefore more tourists will travel to northern Norway. Other places like Alta and North Cape are currently more popular, but the municipalities stimulation/ cooperation with of the Sami reindeer herders has opened up the further development of the tourism sector. The Strømsnes peninsula has become a center for Sámi reindeer practice. Here, cultural activities, related to the Sámi culture and reindeer practice, are combined in a new cultural center. This cooperation between the herders and tourism sector has resulted in a synergy in the summer months.

On other parts of the island new hiking tracks and huts have been constructed to attract more tourist. Around the urban and industrial areas in Hammerfest and Rypefjord, new buffer zones along stream corridors are created. These areas provide quality grazing lands with dense and nutritious forage, particularly in early seasons. The policy for these zones restrict urban development around these areas. In the following section, some of the seasonal cooperation and synergy measures between actors will be explained in further detail.

Citations

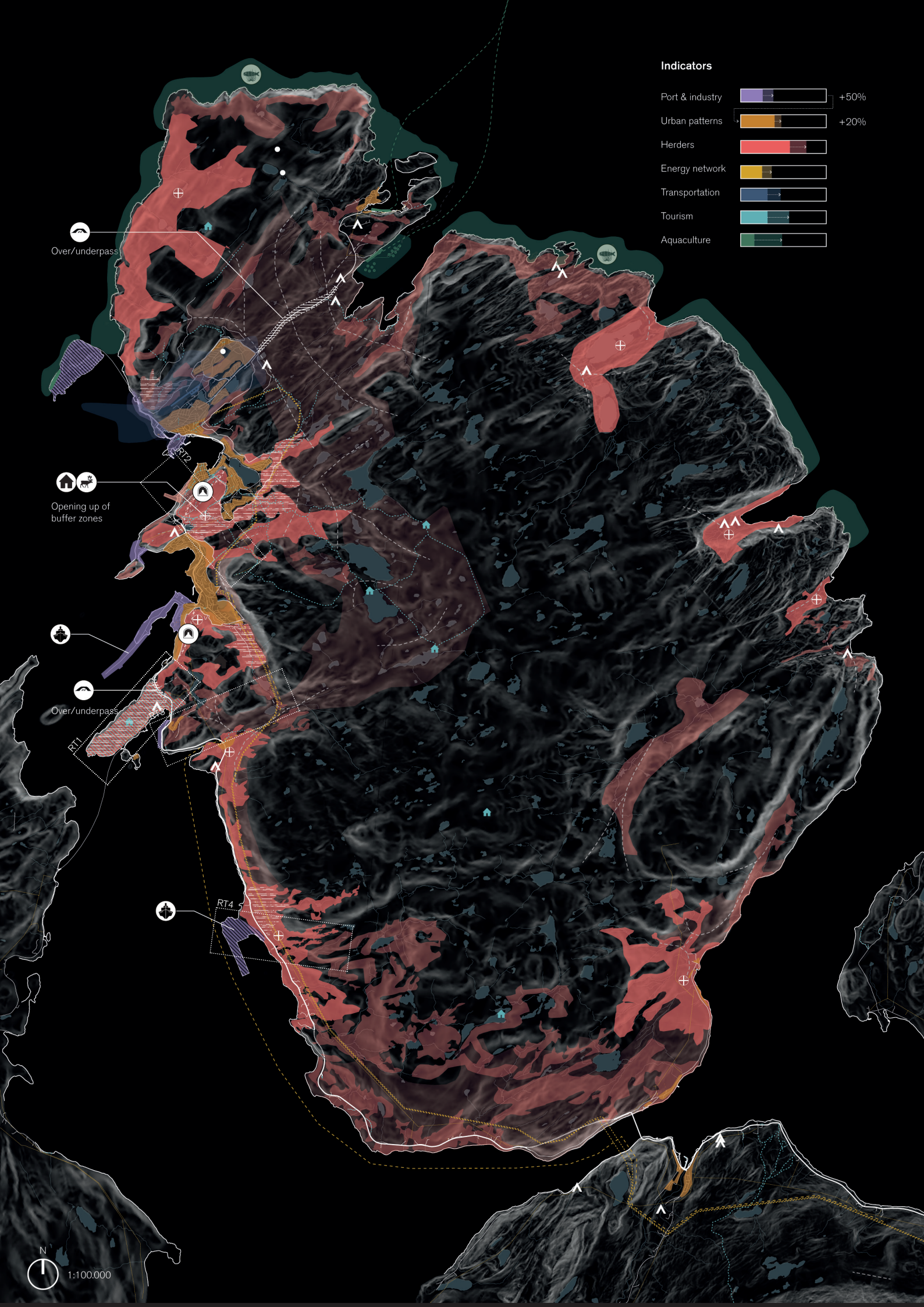
[1] Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.*

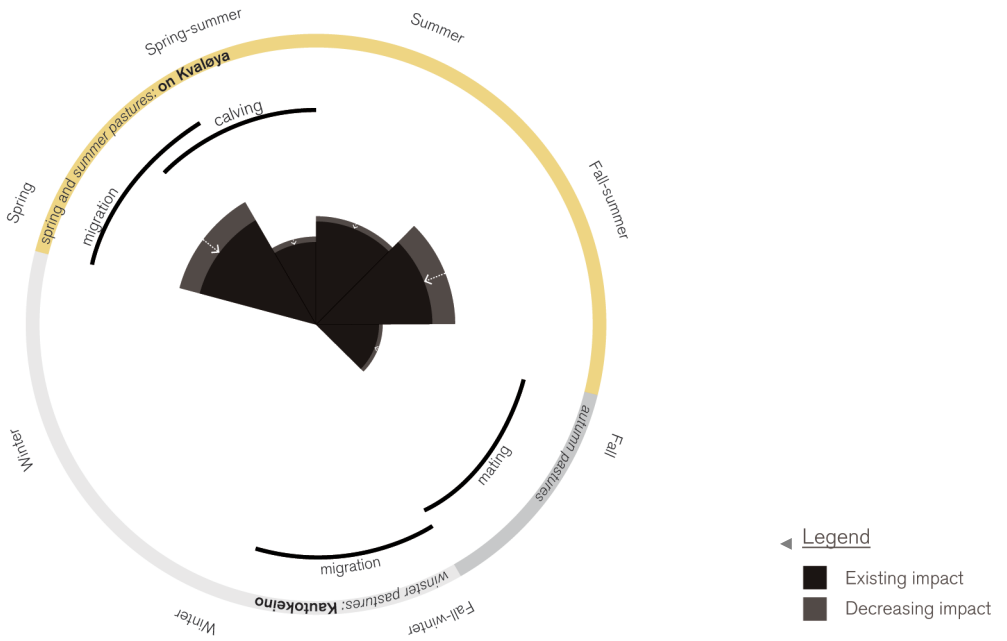
Figures

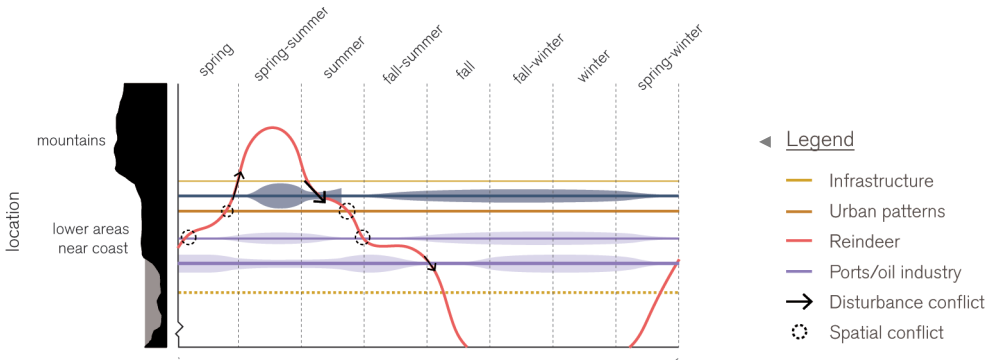
▶ 9.15 Rejected oil local map Kvaløya.
Made by author, kelp potential based on Christie, Bekkby, Norderhaug, Beyer, & Jørgensen (2019).

▶ Legend

- Vital reindeer pasture
- Conflict
- Common reindeer tracks
- Road infrastructure
- Tunnel
- Powerlines
- Recreational tracks
- Tourist hut
- Sámi structure
- Sámi historical site
- Buffer zones


Indicators
Port & industry
+50%
Urban patterns
+20%
Herders
Energy network
Transportation
Tourism
Aquaculture
Over/underpass
RT2
Opening up of
buffer zones
Over/underpass
RT1
RT3
RT4
N
1:100.000


Spring-summer
Summer
Fall-summer
Fall
Fall-winter
Winter
Winter
Spring
spring and summer pastures: on Kvaløya
calving
migration
autumn pastures
mating
migration
winter pastures: Kautokeino
Legend
Existing impact
Decreasing impact


spring
spring-summer
summer
fall-summer
fall
fall-winter
winter
spring-winter
location
mountains
lower areas
near coast
Legend
Infrastructure
Urban patterns
Reindeer
Ports/oil industry
Disturbance conflict
Spatial conflict

Seasonal synergies

Seasonal impact reduction
The seasonal impact in the *Rejected Oil* scenario will reduce for the spring and fall-summer and slightly for the other seasons. New industrial areas will primarily be developed in locations which have less impact on vital inland pastures. Therefore the expansion of Polar Base is prioritized. The impact of new areas are carefully assessed on impact and are primarily located along the coastal areas where road infrastructure already exists. One example is the development of the Grøtnes peninsula, where a new port is developed according to the topography of an airport to leave open the convertibility to an airport in the future. This location is currently a waste dump area and therefore already inaccessible for reindeer.

Industry
In this scenario, the Strømsnes area development is not executed. Instead, industrial areas are developed along the coast and near already existing infrastructure in an attempt to reduce impact on the reindeer herders. These new locations – for example Rypefjord and Akkarfjord – can synchronize their activity with the reindeer activity in the area. If any of the remaining industry wish to electrify their activities, a sub-sea cable will be installed.

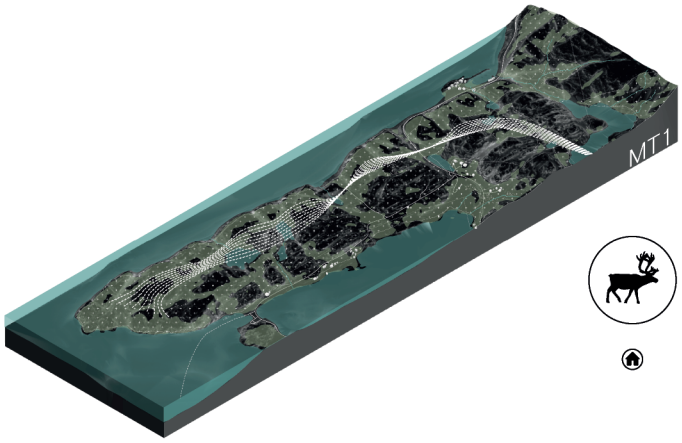
Urban patterns
In Hammerfest, the reindeer fence near the city center will be opened up to provide access to nutritious pastures. Buffer zones and stream corridors will be created which will provide quality grazing lands in the early seasons, thanks to oversowing. Not much urban development is needed, therefore, any urban developments will take place within existing boundaries of the city.

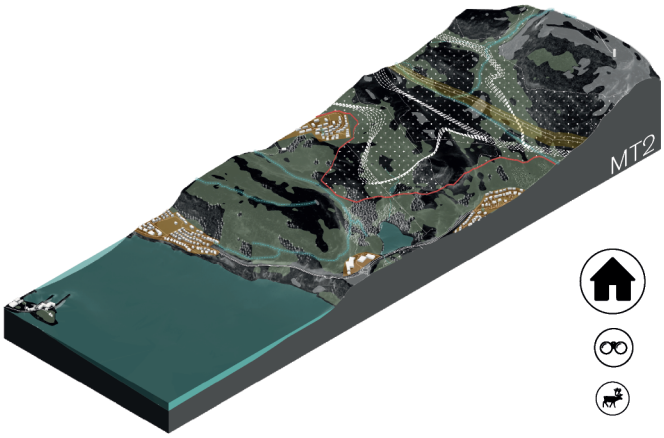
Herders - climatic changes and infrastructure impact
There will be efforts to preserve important pastures even through climate change. Where needed, new pastures will be created through oversowing. Additionally, on two locations – Forsøl road and on Strømsnes – overpasses will be built so that reindeer can cross these roads safely. Some herders might cooperate with the tourism industry. Construction of a cultural center based on the Sámi culture and uses of the landscape can be mutually beneficial for herders and other workers in the sector.

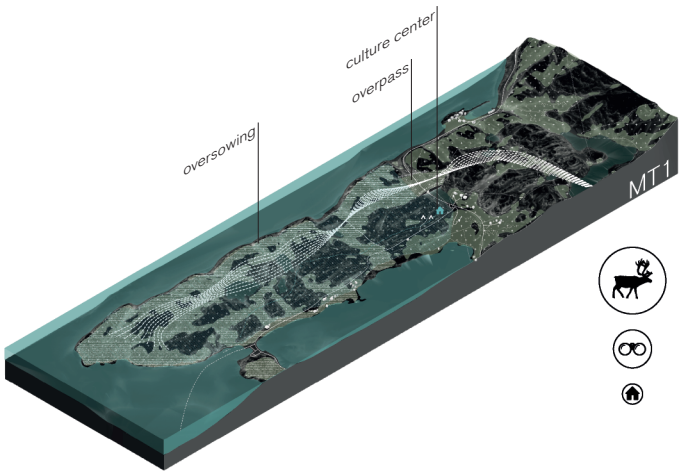
Grøtnes peninsula
On the Grøtnes peninsula, a new port is developed according to the topography of an airport to leave open the convertibility to an airport in the future. This location is currently a waste dump area and therefore already inaccessible for reindeer.

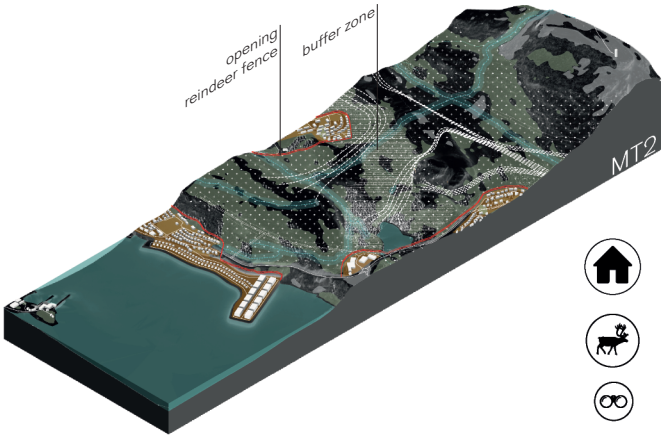
Figures
◀ 9.16 Seasonal impact on reindeer herders.
Made by author.
◀ 9.17 Geographical and seasonal conflicts.
Made by author.
◀ 9.18 Accumulative impact over time.
Made by author.

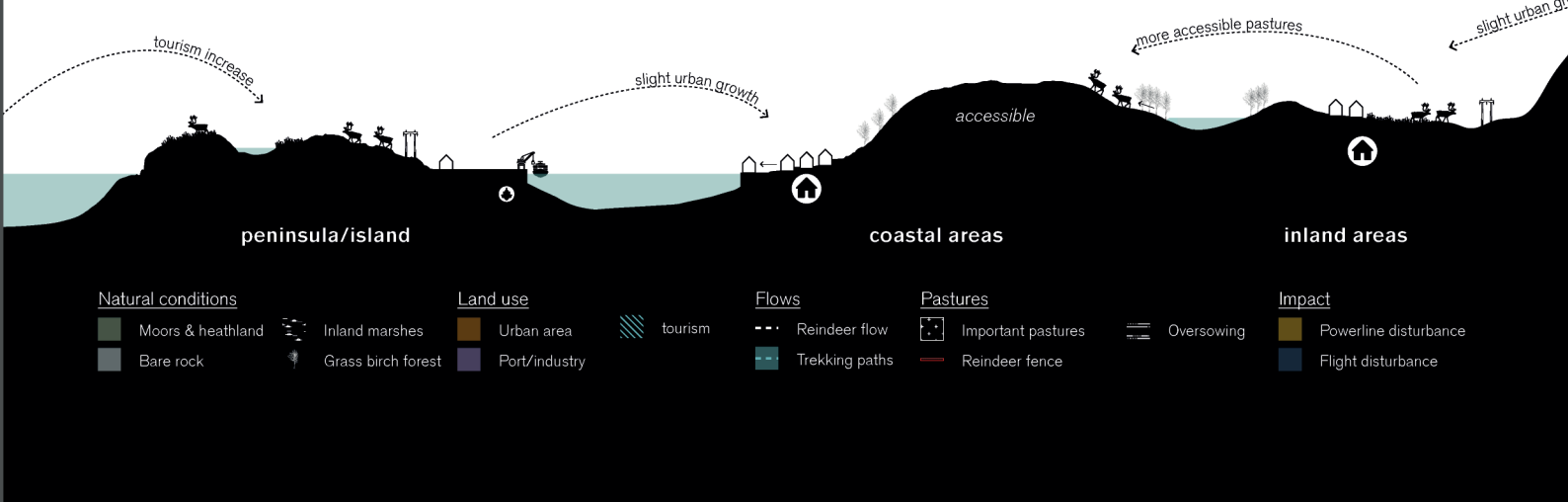
Rejected Oil - Spatial juxtaposition 2020 - 2050 | *oil territorialization*

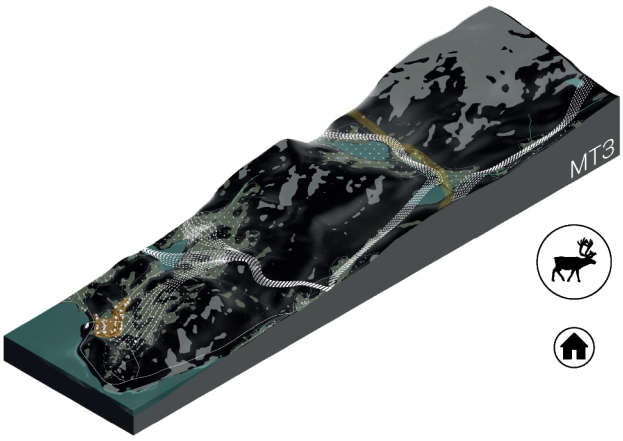


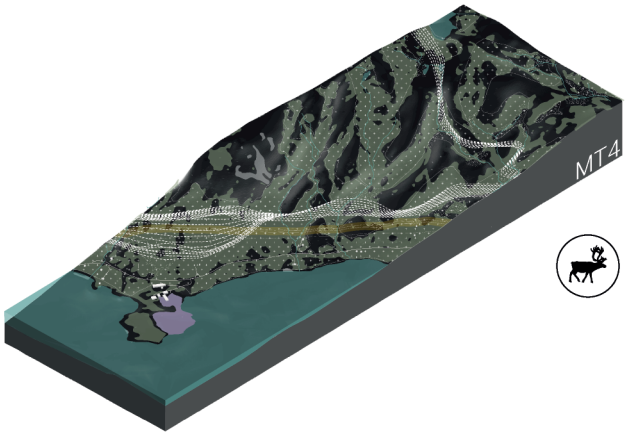


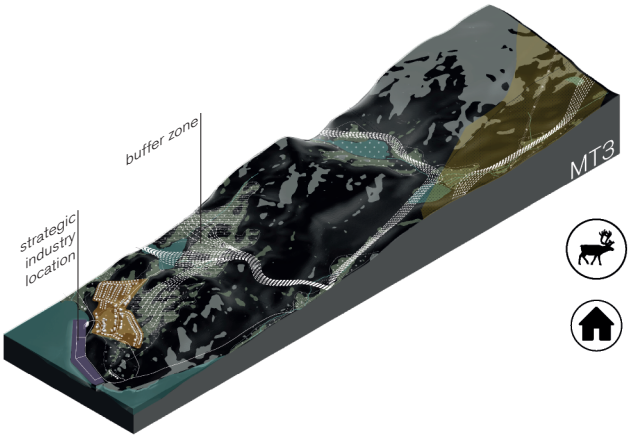


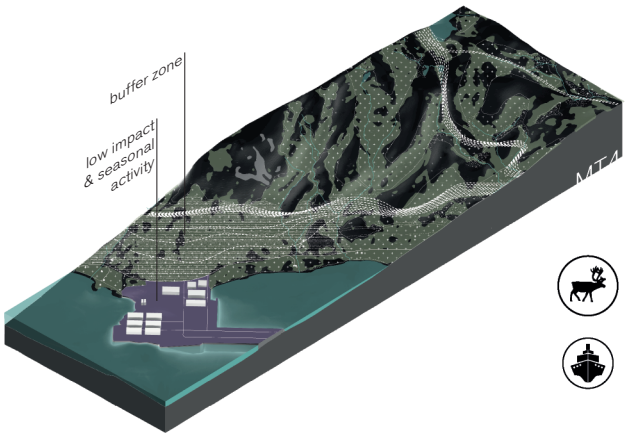


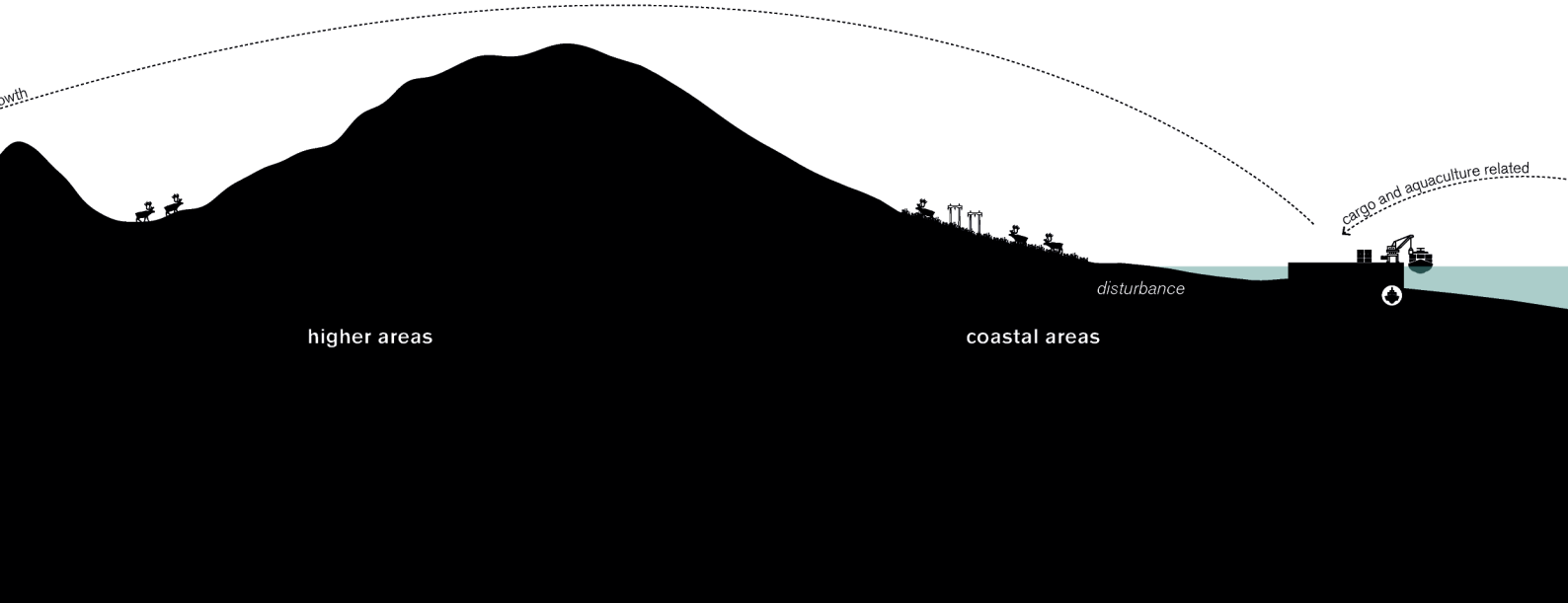



MT3


MT4


buffer zone
strategic industry location
MT3


buffer zone
low impact & seasonal activity


cargo and aquaculture related
disturbance
higher areas
coastal areas

Elaboration of AFTER OIL scenario | territorial

The *After Oil* scenario assumes an uncontrolled situation that impacts the oil sector from inside or outside. This could be the result of a shrinking of the oil industry shrinks because hydrocarbon fields that are empty or a crisis from outside which causes the oil prices to drop. A crisis can arise from (a combination) of the following developments:

- Financial crisis
- Political destabilization
- Climatic disaster
- Pandemic
- etc.

In this scenario oil companies will suspend explorations and scale down existing fields. Because of the sudden collapse or financial impact, companies are not able to compensate or invest in other activities and therefore a transition is complicated. On the short term, tourism will diminish and other industrial and economic activities, as well as urban development, will come to a halt. Although a crisis often occurs for a relatively short term, the consequences on the long term could resonate for decades, especially with uncertainty of the oil industry. Oil companies reduce non-critical activity offshore, and (temporal) high skilled workers will leave. The socio-economic impact is profound, as economic drivers are uncertain on both the short and long term. This is especially true for Hammerfest, with the unilateral economic dependence on the oil industry there will be no going back to business as usual.

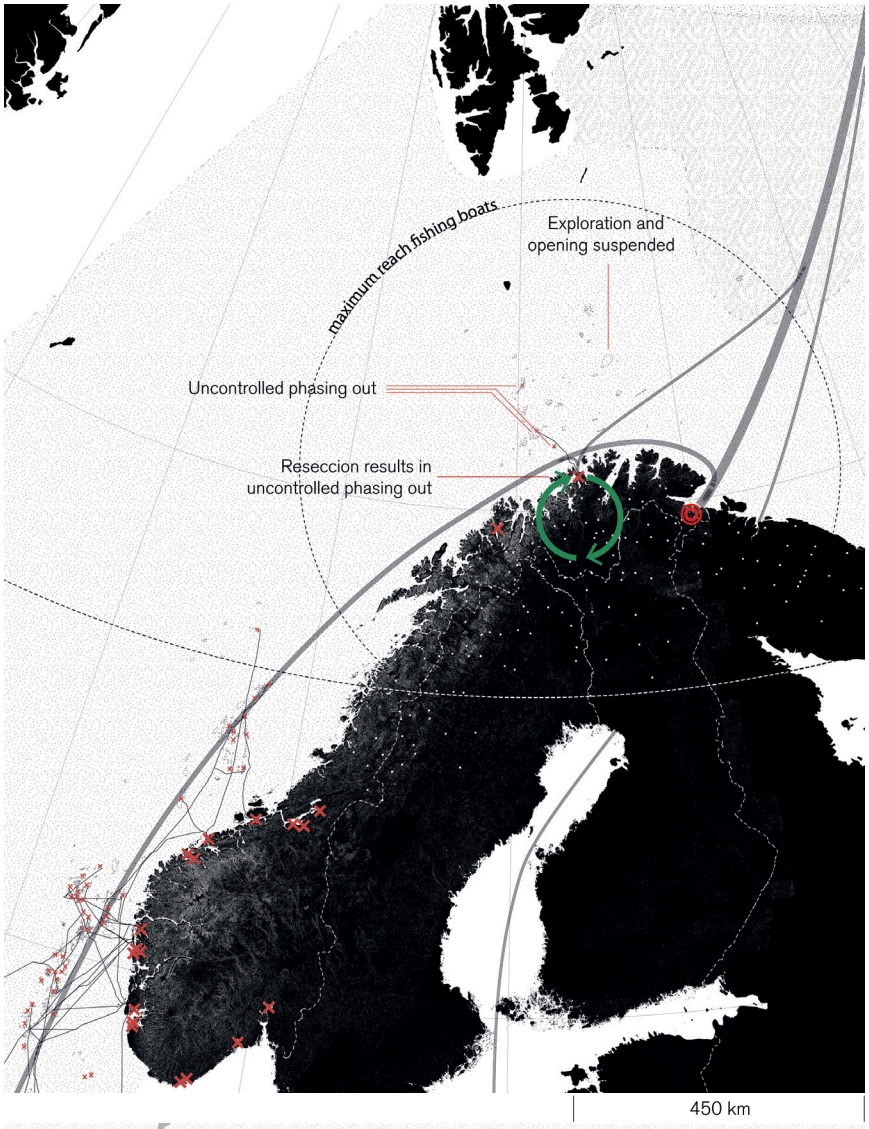
In West-Finnmark the consequences are diverse. On the one hand, reindeer herders profit because of less industrial development and the related urban and infrastructural halt. Therefore existing conflicts can be reduced with little measures and investments. On the other hand, there are limited economic and touristic opportunities to actively develop and strengthen the Sámi culture.

The following pages show how the actors, systems and environment react and interact on the international, regional and local changes of the scenario.

Figures

▶ 9.19 *After Oil* territorial map.
Made by author, **fisheries** projected from Fossheim et al., (2015), **fishing boat reach** based on Eide, A. (2016).

▶ 9.20 Regional map *After Oil* scenario.
Made by author, **kelp potential** based on Christie, Bekkby, Norderhaug, Beyer, &

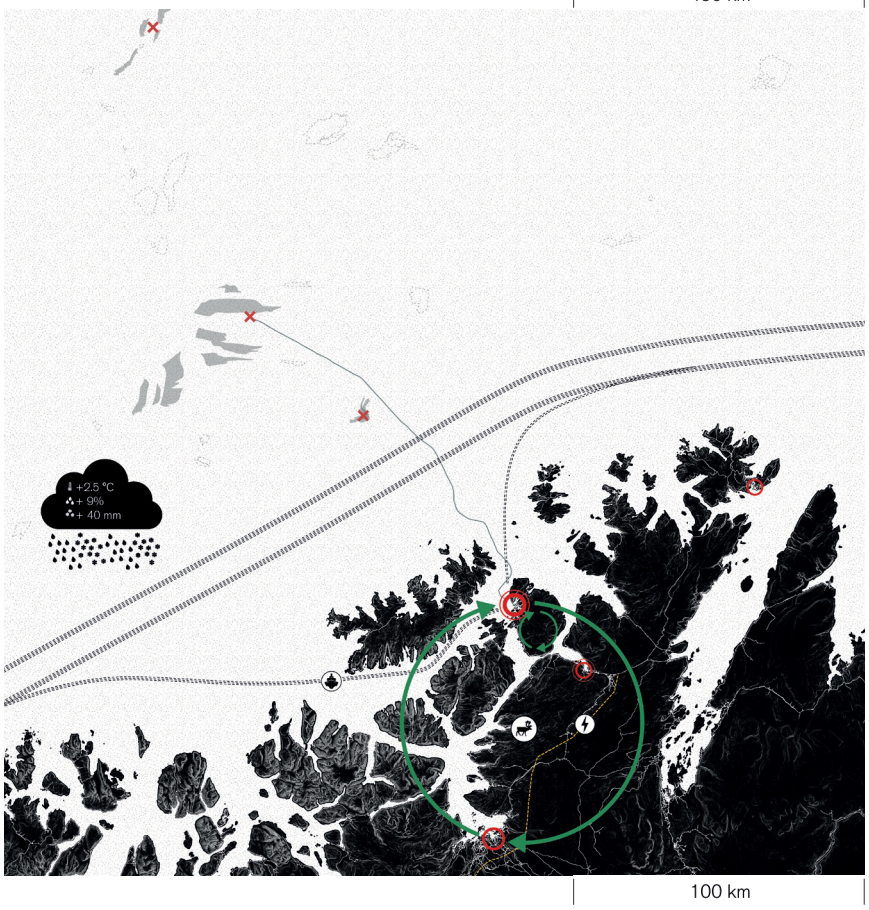


▸ Legend

- Industrial/urban expansion
- Main shipping routes
- Arctic railway
- Oil/gas field
- Pipeline infrastructure
- Uncontrolled phasing out
- Shrinking oil/gas supply harbor
- Regionalization

Fisheries

- Atlantic boreal fish species
- Central boreal fish species
- Arctic fish species



▸ Legend

- Industrial/urban expansion
- Main shipping routes
- Oil/gas shipping and flights
- Pipeline infrastructure
- Oil/gas (subsea) facility
- Sudden phasing of oil/gas field
- Energy network expansion
- Regionalization

Kelp potential

- High
- Low

Actions

PORT & INDUSTRY

Due to a national, regional or global crisis (political, pandemic, climatic) the demand for hydrocarbons drops. Therefore new development will be halted and existing fields scaled down, starting in the Arctic.

- Existing fields will continue to operate but ports and industry will not grow.
- The existing areas will be carefully assessed on convertibility to other industries, cargo, services or re-naturing, with fewer economic resources.

URBAN PATTERNS

With the reduction of industrial activities, the focus on more regional economic activities will result in a small growth of urban areas near existing urban centers.

- Dispersed development of 2 new urban areas in Hammerfest and Rypefjord.
- Contraction of related services.
- The amount of jobs in the oil industry shrinks resulting in an outflow of (highly skilled) temporal workers, the total population contracts.
- The footprint of the urban areas grows with 5%.

TOURISM & RECREATION

During a crisis, tourism will diminish, depending on the type of crisis. Afterwards, a renewed interest in ecology and cultural based tourism will rise in the Arctic. The Sámi (reindeer) culture will actively be promoted in coastal regions, as they are most suitable to adapt to a crisis.

- The cruise sector will contract.
- Ecological tourism will eventually grow;
- As well as cultural (Sámi) tourism.
- New cultural activities will be focused on interest in how local people use the landscape and natural processes, especially with interest in adaptability.

ENERGY NETWORK

The application of sustainable energy will be slower, investments in energy network will be postponed/cancelled.

- No large infrastructural changes on land.

TRANSPORTATION NETWORK

Flight movements will reduce. Small investments will be made in accessibility by road.

- In order to improve the accessibility of Hammerfest, it has been decided to construct a few (smaller) tunnels in order to improve the connection with Alta and reduce avalanche risks.

WEATHER & SEASONS

The weather and alteration of the seasons will be more moderate on the long term. Renewed interest in local seasonal knowledge result in more respect for the Sámi culture.

- The weather will be variable creating different conditions in predominantly spring-winter and spring.
- Seasons will be less predictable and will alternate more.
- Summer periods will be longer.

SOIL & WATER

Climate change will alter water conditions at sea and increase soil fertility. Stronger interest and scientific knowledge on ecological and sustainable development.

- Sea temperature will increase.
- Acidification of the sea.
- Tidal development.
- Composition of soil organic changes.

Figures

▶ 9.21 Actor, system and environment interactions.
Made by author.

ECOLOGY

With the climate change and extreme weather, the vegetation patterns will slowly change in shielded areas with suitable soil. Vegetation patterns will change throughout the seasons and will be less predictable.

- Grass-birch areas will grow.
- Insects will plague higher areas due to longer and warmer summers.
- Indigenous knowledge will help understand changing conditions and how to utilize the (changing) natural conditions in a sustainable way.

FISHERIES & AQUACULTURE

Fishing has already been reduced but will gain more attention, as well as aquacultural activities.

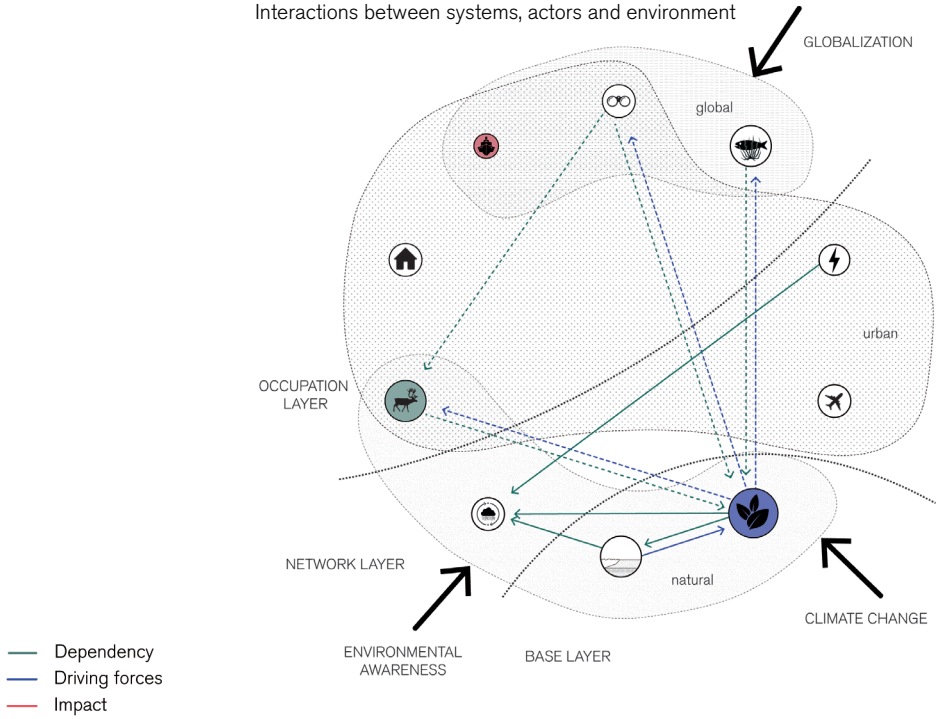
- Sea temperature rise will increase the chance of survival of the cod in northern waters, resulting in opportunities for the fish industry.
- Acidification of sea water will negatively impact salmon farms.
- Growth of kelp, seaweed and algae harvesting.

REINDEER & HERDERS

Few pastures will be lost. There is much room to reduce existing conflicts with little measures and investments.

- Climate change can be accommodated, provided that alternative pastures are accessible.
- Possible development in a tourist experience, not as a substitute for inland tourism.
- Due to limited (economic) resources, stakeholders have to make creative solutions to resolve conflicts.
- Seasonal coordination with other stakeholder activities.
- Possible synergies between reindeer herders and other stakeholders.

Interactions between systems, actors and environment



AFTER OIL | Kvaløya

In the AFTER OIL scenario, a crisis will have a direct impact on all economic activities around the oil industry in Hammerfest. Planned developments like the Strømsneset peninsula and Polar Base, will be postponed or even canceled. As a reaction on the crisis, highly skilled temporal workers will leave, resulting in a contraction or slight decrease of the population. The economic consequences will be severe; lower tax incomes, no new investments by the oil industry and less tourism result in little resources to confront the crisis. Since the municipality largely depends on private money, it will has only a small buffer to initiate a transition on the short term. Reindeer herders profit of the stagnation on the island.

Reindeer
The reindeer herders profit from the development halt on the island. Although this is only likely on the short term. Only small investments in the wellbeing of the reindeer can be made. Luckily, since fewer pastures will be lost, less investment is necessary. The effects of climate change are therefore easier to be accommodated. However, large compensation measures to reduce the impact of already existing urban and industrial areas is not possible.

Pathways forward
An acute crisis is often short-lived, but can have long stretched effects on the economic situation in Hammerfest. The stakes are high, and every actor reacts differently, but also envisions a different way forward. The oil industry wants to continue the quest for the Arctic, if global trends allow it to. But, other residents and actors like the reindeer herders and tourist sector will try to find new ways to envision the future. Since the city is currently dependent on the oil industry, the outcome of the crisis can be reciprocal: back to business as usual or adapting to the new normal. The choice will presumably be highly dependent on the type of crisis and the context it plays in. Nonetheless, there is a choice to be made between the *More Oil* and the *Rejected Oil* scenario.

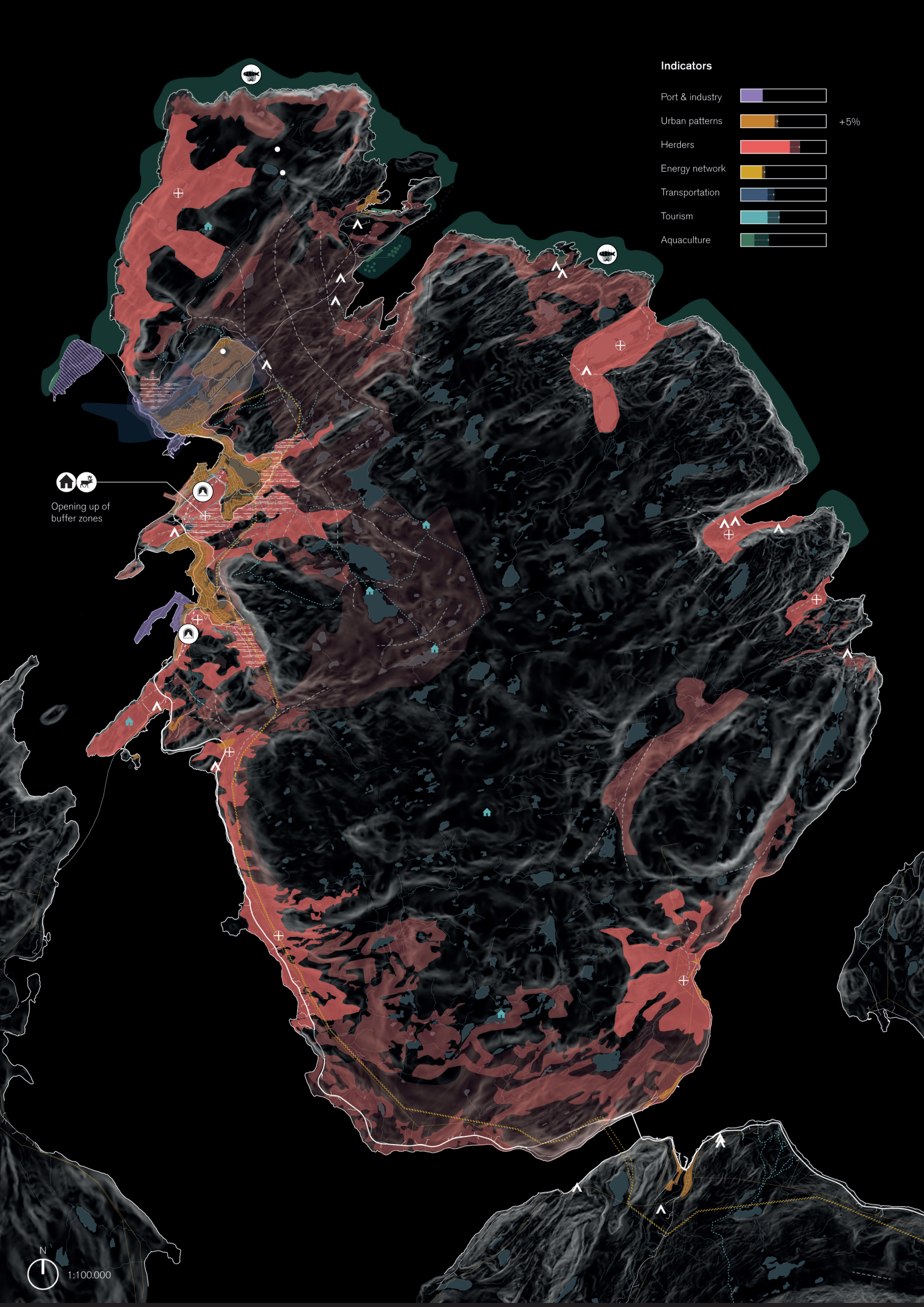
During a crisis, small-scale initiatives often lead to cooperation between residents, actors, institutes and local governments. It gives the opportunity to make use of this and to steer it towards a future in which there is better and more cooperation. A lack of exogenous driving forces leads to a condition where small local initiatives sprout. The national and regional governments have little opportunities to take measures. Creative initiatives will have to come mainly from local governments. Small initiatives like kelp cultivation along the North-Western coast find common ground for development. The tourism sector will shrink on the short term, but could profit from a renewed interest on the long-term.

Since the *After Oil* scenario is defined as an uncontrolled situation, its consequences are hard to explicate. Therefore, a detailed spatial and seasonal juxtaposition like the ones in the previous scenarios, would be a shot in the dark that is very likely to miss the mark. However, the possibility of a sudden collapse of the market needs to be kept in mind, as the current pandemic shows. In order to prepare for such a crisis, the following measures can be taken.

In preparation for this scenario, stakeholders, reindeer herders and the local governments should collaborate to work on a plan for a worst case scenario. This includes a plan to downscale the gigantic oil network if they become obsolete during a transition. As the economic versatility is low during a crisis, pre-assigned measures can reduce the impact. Measures of the *Rejected Oil* scenario can be implemented, preferably before the *After Oil* scenario occurs. One important measure is to stimulate and provide space for other economic activities like natural based production. Assessment and possible measures are explained in more details on the next pages.

Figures
▶ 9.22 After Oil local map Kvaløya.
Made by author, kelp potential based on Christie, Bekkby, Norderhaug, Beyer, & Jørgensen (2019).

▶Legend
- Vital reindeer pasture
- Conflict
- Common reindeer tracks
- Road infrastructure
- Tunnel
- Powerlines
- Recreational tracks
- Tourist hut
- Sámi structure
- Sámi historical site
- Buffer zones


Indicators
Port & industry
Urban patterns
+5%
Herders
Energy network
Transportation
Tourism
Aquaculture
Opening up of
buffer zones
N
1:100.000

Scenarios assessment and approach

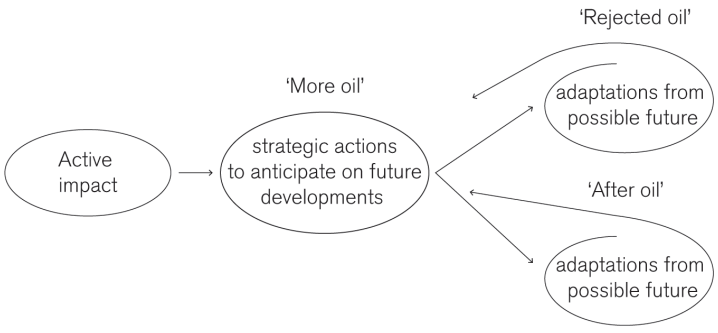
The scenario is used as method to evaluate what the best possible options are for the positive and negative sustainable developments in the future. Respectively, an assessment was made for each actor, system and environment and compared to each other within the scenario (vertically). The scenarios where then compared, after which the strengths and weaknesses between the actions of certain actors became evident (horizontally) - see figure 9.24 on the right. The scenarios can be used and repeated in future time-frames.

The *More Oil* scenario is chosen as a first priority because it is the most probable and extreme scenario to formulate and design strategic actions. To improve the conditions of the chosen scenario, adjustments have been formulated and reflected from the next possible future scenario. In this study for example *Rejected Oil* on the *More Oil* scenario. For the *More Oil* scenario, strategic actions are formulated that take into account possible future developments. In doing so, synergy and impact solutions from future scenarios are integrated. Eventually, with this method actors and governmental structures are encouraged to take earlier action and make sure they take all scenarios into consideration with decision making.

Possible development
Currently there are two possible developments (figure 9.25):

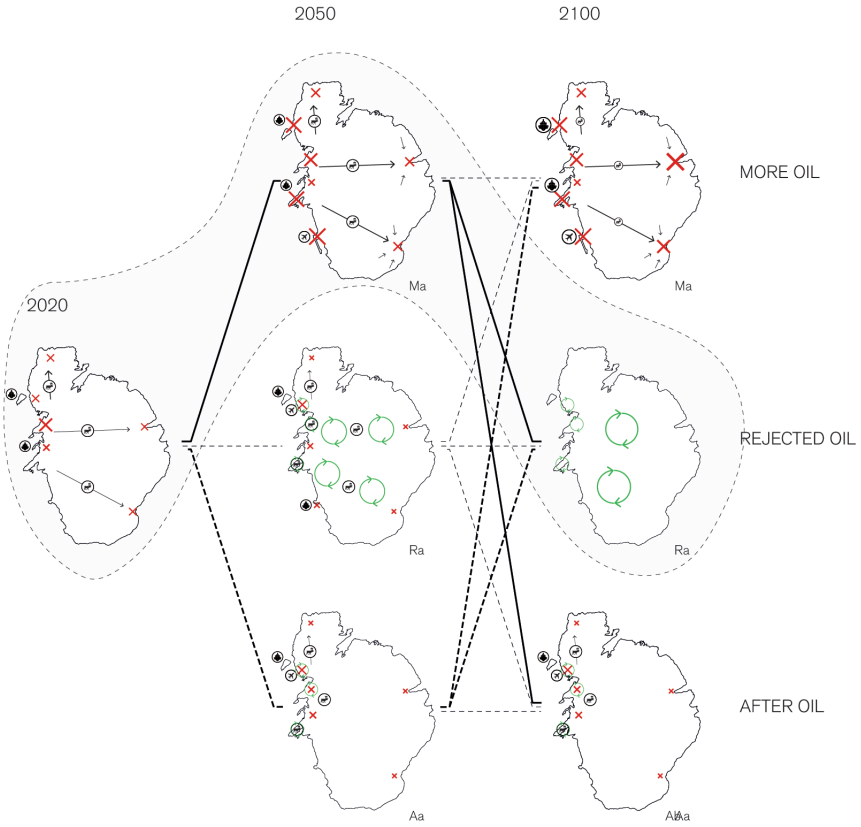
- From *More Oil* to *Rejected* or *After Oil*
  The first line of development assumes the succession of the *More Oil* scenario by the *Rejected Oil* scenario - and in the unlikely case, the *After Oil* scenario. After continued extraction in the Norwegian Arctic, the global transition towards sustainable energy evolves into a global rejection of fossil fuels. This line of development is chosen for this thesis.

- From *After Oil* to *Rejected* or *More Oil*
  The second possible development assumes a global crisis, where oil prices drop due to a pandemic, climatic or financial crisis. This scenario will have acute consequences for Hammerfest. During and after this scenario a choice or combination between the *Rejected* and *More Oil* has to be made. Due to the unpredictable nature of the After Oil scenario, this development is not explored as thoroughly as the one above. The first line of development presents enough information to base the strategic actions on.



Figures
◀ 9.23 Reciprocal scenario integration diagram. Made by author.
▶ 9.24 Scenarios assessment diagram. Made by author.
▶ 9.25 Scenario progression diagram. Made by author

	MORE OIL	REJECTED OIL	AFTER OIL
Ports & Industry			
Urban patterns			
Tourism			
Energy network			
Transportation network			
Weather & Seasons			
Soil & Water			
Ecology			
Fishing & Aquaculture			
Reindeer			



▶ Legend
- Conflict
- Synchronization
- Pasture overstocking
- Forced movement

Strategic actions and tool recommendations

Several strategic actions and recommendations are given in reaction to the *More Oil* scenario. With this succession and integration of actions from other scenarios, policymakers are encouraged not to choose between the scenarios. By providing and recommending possible pathways forward, the scenarios are not only an insight in possible events and development in the region, but also offer policymakers various measures they can institute in response to those developments - in essence a framework to adapt[1]. The following sections contains a number of strategic actions, consisting of policy and spatial interventions and measures. After providing the actions some recommendations are given in the form of three tools that could shape, improve and integrate these strategic actions.

The strategic actions are summarized in matrix 9.26 on the right and are predominantly based on the actions in the *Rejected Oil* scenario. Below are short explanation is given on how these actions and tools were developed. Some examples are shown on the following pages

Policy guidelines
The policy guidelines are based on the seasonal land-use knowledge researched throughout this thesis. The guidelines are distilled from the actions in the *Rejected Oil* scenario. They are formulated in such a way that they can be applied in the *More Oil* scenario. The main implementation of the policy guidelines are aimed at integrating impact measures for the reindeer herders on the island, while they also encourage stakeholders to take future convertibility into consideration.

Spatial interventions
Spatial actions are both based developments in the *Rejected Oil* scenario and on a short reference study. Most interventions are aimed at reducing the impact of development on specific parts of the island and are based on adaptable measures in regard of seasonal or future synchronizations.

Toolkit recommendations
The toolkit is a means to improve participation of stakeholders in planning and decision-making processes. The tools are aimed at collecting and providing existing and new data to incorporate into the assessment framework. The three tools are the *Reindeer tool*, *Impact Assessment tool* and the *Public Participation tool*. Further explanation and the possible exchange between these tools are further explained on page 193.

Citations
[1] Meyer, H., Bregt, A. K., Dammers, E., Edelbos, J., van den Berg, J., van den Born, G. J., ... & Heun, G. (2015). New perspectives for urbanizing deltas: a complex adaptive systems approach to planning and design.

Figures
▶ 9.26 Interventions and strategic actions matrix.
Made by author

EXAMPLES OF INTERVENTIONS AND STRATEGIC ACTIONS

MORE OIL

POLICY GUIDELINES

P1: Limit inland development along stream, nutritious and insect free, coastal areas.

P2: More knowledge of ecology for policy development. Urban and industrial expansion should take ecology and reindeer into account.

P3: Focus on strengthening regional structures by stimulating local, ecological modes of production and ecological tourist development. In doing so, counterbalancing national political interests.

P4: New development should be assessed on impact on the reindeer herding husbandry. Assessment should incorporate seasonal impact. And existing industry should expand along already existing locations.

P5: Allocation of buffer zones, where development is restricted and pastures are monitored.

P6: Aquacultural rejuvenation on eastern side of the island in combination with tourism. Kelp and algae stimulation.

P7: Design of new industrial and urban areas should consider future convertibility to other land-uses.

SPATIAL INTERVENTIONS

S1: Opening up of restricted areas:
Take account of the accessibility of greenlands and corridors with development of urban areas. Opening up of reindeer fence where possible.

S2: Tunnels and viaducts:
It is and advantage if tunnels and viaducts are constructed during the *More Oil* scenario. To reduce avalanche risks and increased traffic impact on reindeer. Migration to Mylingen and Strømsnes can be improved.

S3: Old airport:
Development of new urban areas preferable on location of old airport, instead of reindeer pastures.

S4: Oversowing of Buffer Zones:
Improving pasture qualities around urban areas.

S5: The design of new houses with future convertibility to tourist opportunities.

TOOLS

TOOL 1: Reindeer herding tool:
Pasture monitoring and knowledge exchange between researchers and herders.

TOOL 2: Impact assessment tool:
Framework for impact assessment of future developments.

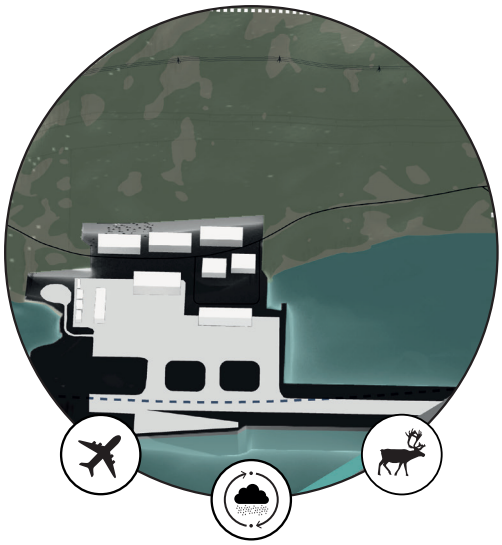
TOOL 3: Public participation tool:
Negotiation tool between actors and herders, to inform decision-making processes.

REJECTED OIL

1. *Buffer Zones:*
   Around the urban and industrial areas in Hammerfest and Rypefjord, new buffer zones along stream corridors are created. These areas provide quality grazing lands with dense and nutritious forage, particularly in early seasons. The policy for these zones restrict urban development around these areas.
2. *Regionalization:*
   Regional interests are better balanced against national and international interests.
3. *Diversification* of local economy should be advocated as an alternative to macroeconomic developments.
4. *Combined knowledge building:*
   Tool to create knowledge about reindeer and other natural databases.
5. *Oversowing of Buffer Zones:*
   Oversowing techniques are used to improve pasture qualities of nutritious buffer zones.
6. *Natural stimulation pasture quality:*
   Future climatic conditions improve chances of intensification of pasture vegetation, soil conditions can be used to re-vegetation purposes: maintain the quality of existing pastures and increase the productivity of sparsely vegetated areas.
7. *Construction of overpasses:*
   Development new infrastructure should be assessed in combination with freeing passage of reindeer and their herders across busy roads.
8. *Spring migration measures:*
   Riparian and snow free areas remain accessible during spring migration which creates patterns of development that become more permeable.
9. *Ecology developed into sustainable economic activities:*
   Kelp and algae development is further developed around the island as well as ports that are converted to supply the developments further on sea.
10. *Combining tuning of seasonal peaks:*
    Activity peaks of various actors are used to create synergies. The tourist season coincides with the time the reindeer on the island, see point 12.
11. *Airport and reindeer seasonal synergy:*
    The impact of the airport is seasonally reduced when herders traverse the road to Førsol. This is possible since this period is characterized by a low amount of tourists.
12. *Tourism and reindeer synergy:*
    Cultural strengthening of the sami is mutually beneficial for the tourist sector. A tourist center is developed on the Strømsnes peninsula. Close collaboration between these activities can be used to improve conditions for both actors.

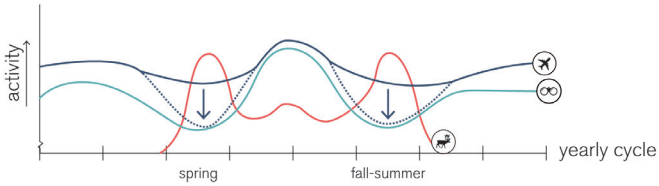
Strategic actions

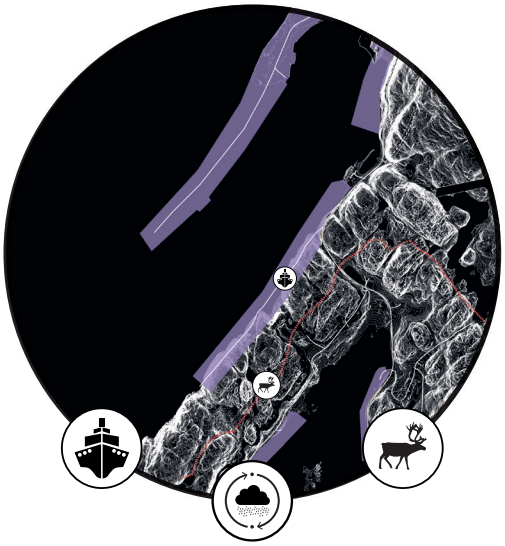
Below, four examples of strategic actions are shown for possible conflicting areas. The examples take into account both seasonal and physical interventions for the possible future developments. Most interventions are aimed at reducing the impact for the reindeer herders, while also accounting for possible follow up developments in the *Reject Oil* scenario.



Grøtnes airport - *seasonal impact reduction*

Construction halts during the spring and fall migration in order to reduce impact on the reindeer. When the airport is functioning, it has to reduce the amount of flights during the spring and fall migration. These coincide with a lower, touristic season. So particularly oil related flights have to decrease.





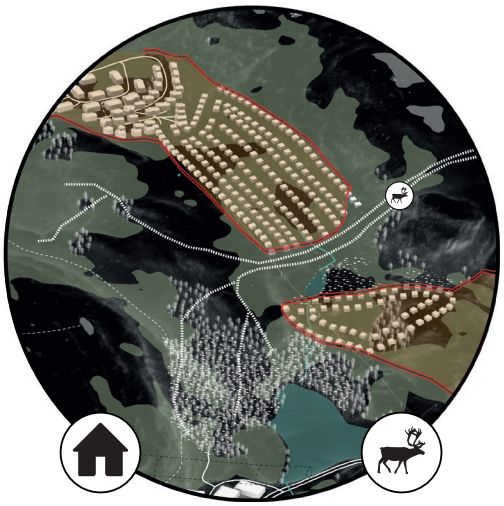
Strømsneset industrial expansion - *spatial and seasonal adaptation*

The Strømsnes peninsula holds important reindeer pastures and one of the most productive calving grounds of the island. In the Rejected Oil scenario Strømsnes remains undeveloped and is combined with the tourist season in the summer. To accommodate less impact and prevent the peninsula of total obsolete use in the future. The industrial area is dispersed over other locations which are recommended by the reindeer herders to have less impact. On top of that, these areas can switch to active and non-active periods during migration and oil and cargo industry activities throughout the year. Thus creating a (possible) synergy for future usage.

Assessment of new locations are along coastal areas, with possible expansion into the sea, preferably along already existing road infrastructure and/or steep cliffs. Non-essentially coastal industries are located on higher sparsely or bare rock locations. New locations are in Akkarfjord and Rypefjord.

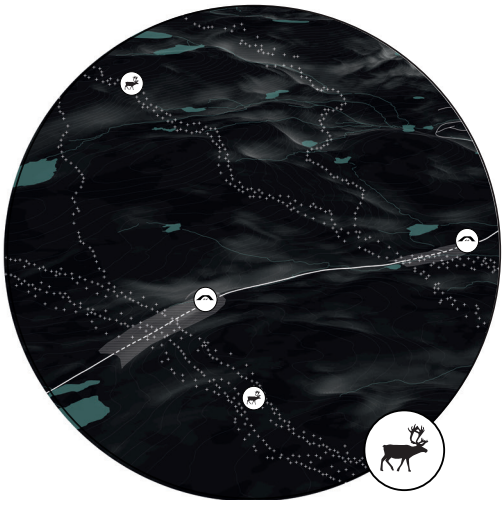
Kukjønna urban development - *spatial intervention*

This strategic action responds to the urban expansion and the related reindeer fence. In the *Rejected Oil* scenario, these urban areas are not developed and are reintroduced to reindeer in this area. The strategic action proposes to use the existing natural corridor and convert this to an passage to be used by reindeer herders in the spring and summer months to reach nutritious pasture grounds around groves near the Jannsvanett and Kjønna peninsula - which is better accessible due to the construction of the new tunnel.



Førsol viaducts - *spatial intervention*

The Førsol road, from Hammerfest to Førsol, crosses the migration patterns of the reindeer towards the most nutritious pastures of the island in Mylingen. The reindeer cross the road particularly during the summer and in the fall-summer, when they migrate towards the mainland. During this time the reindeer are quite vulnerable for interference and are easily stressed. To reduce the future traffic increase on the road to Førsol, the extracted material of the tunnel constructions in Hammerfest can be used to make flyovers for reindeer.

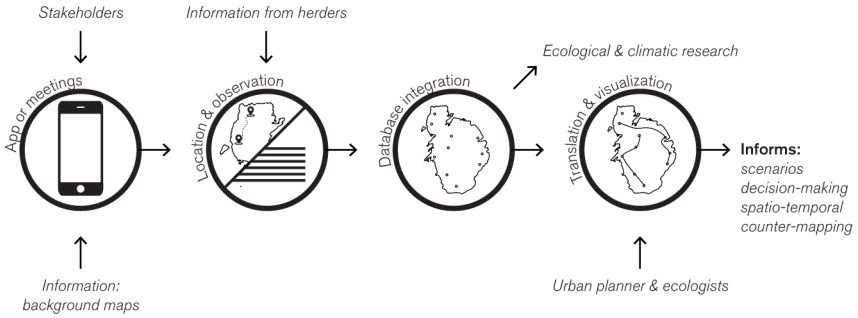


Tool recommendations

As part of the strategic actions three tools are recommended which can be developed into further development of assessment, evaluation, participation frameworks. The tools can be conjoined as outlined in diagram 9.30 on the following page. This could be done through a possible integration of these tools into an Arctic platform.

Reindeer tool

The integration of indigenous knowledge of the territory is one of the main goals of this thesis. Further development of this knowledge with close cooperation with reindeer herders was not possible in the scope of this thesis. Therefore I propose a *Reindeer Tool*, an mobile app - to be downloaded by reindeer herders - or (on-site) meetings. Which could be developed into instrument that provides transparent information directly from reindeer herders out on the field. Within this app, the herder can share his migration patterns and knowledge on the ecological state of the territory. This information is then monitored by ecologists and urbanists and further developed into a database on the reindeer migration, climate changes, vegetation alterations en impact assessment. This information is relevant for further ecological and climatic research. On top of this, the continuous monitoring of reindeer can provide more information on reindeer avoidance and therefore update theory, as analyzed in the spatial analysis. The quantitative and qualitative information can be integrated into further improving scenarios and therefore used as a tool to negotiate impact and provide agency for the reindeer herders. The tool needs continuous updating with spatial research and public policing.



Impact assessment tool

The *Impact assessment tool* is aimed at providing a framework in which a holistic assessment can be made on future spatial development on a specific location. Thereby, assessing the impact on both reindeer husbandry and the environment. The tool is accompanied by the scenarios described in this thesis and could be informed by the *Reindeer Tool* information. In order to understand what the impact is, a seasonal assessment has to be made on the direct and indirect impact of the development. For this, specific information is needed on the seasonal use of the pastures by the reindeer. The tool allows monitoring and signaling of (desired) developments. Below, such an impact analysis is shortly described in steps:

1. The first step is to determine what vegetation pastures are blocked or lost due to the development. For this a detailed vegetation analysis is needed, preferably added with detailed ecological knowledge by the reindeer herders themselves.
2. Secondly, the consequences of the impact are simulated throughout the seasons, and determined how big the impact is per season. Therefore, seasonal knowledge of the

Figures

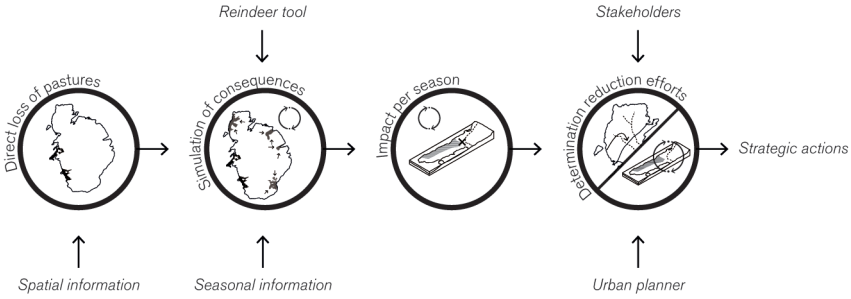
◀ 9.27 Diagrammatic explanation *Reindeer tool.* Made by author.

▶ 9.28 Diagrammatic explanation *Impact assessment tool.* Made by author.

▶ 9.29 Diagrammatic explanation *Public participation tool.* Made by author.

territory, snow conditions, weather patterns and insect areas are needed, complemented by general information about the calving grounds, migration patterns and reindeer vegetation preferences per season.

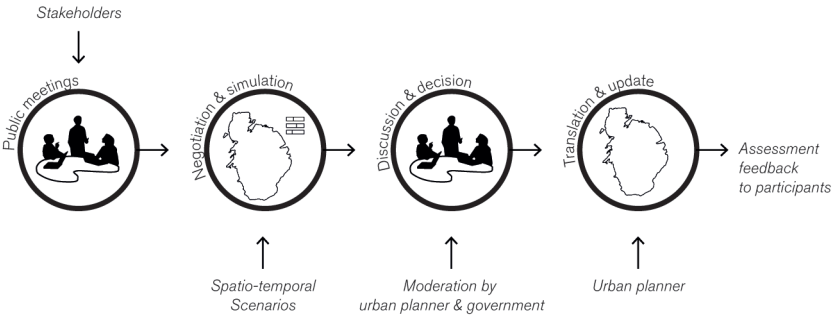
3. Third, the impact can be determined per seasons. This is done through a physical and non-physical impact analysis. The non-physical impact can be done with the theory on reindeer avoidance.
4. With the final assessment, the impact is simulated in for each season in 3d diagrams, as shown in this chapter. The outcome can help with determination of reduction efforts through policy or spatial interventions.



Public Participation tool

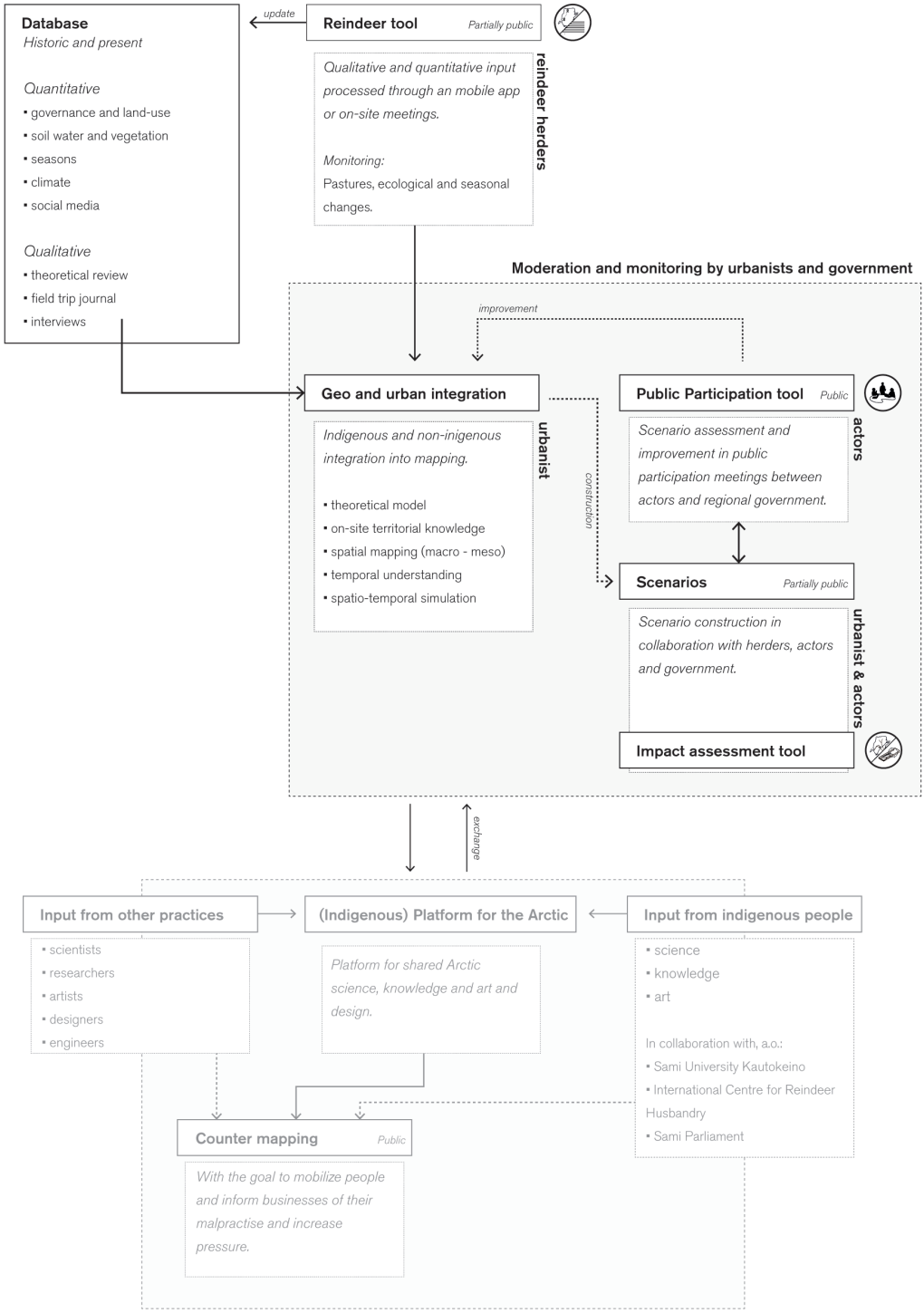
The participation has the primary function of providing information relevant to the participants. Secondly, the decision making process can be completed to link this information. In this way, interests can be weighed by direct exchange of information through the maps and scenarios provided. The main components of the tool consists of the scenarios provided in this thesis.

On the one hand, a live simulation of the local map is used as a negotiation tool between different actors. The map and indicators provided in the thesis can serve as a basis and be further developed in this way. On the other hand, the outcome of a meeting will be re-evaluated and the scenarios will be updated for the next meeting. As seen in diagram 9.30 on the next page, the urbanist and government act central as mediators and processors of the information. The process of participation and involvement of the reindeer herders into decision making, creates support for joint developments throughout the region and perhaps also in specific areas. The input of all actors in the participation tool and the scenarios provide a desired vision of the future. They can therefore actively contribute to achieving this. Thereby providing more agency for both reindeer herders and the local population.



Arctic platform

This project and funding application entails the set-up of a platform enacting through the idea of a counter-project. The platform is meant as a collective, combining local art, science, engineering and design into a land-based counter mapping program aiming to improve equity in decision-making processes for Arctic indigenous peoples. The website will show the locations of Planned extractive industries combined with local initiatives aimed at putting a stop to these damaging practices. Through combining the lessons learned from the different cases the platform aims at giving more voice to struggling (indigenous) communities in the Arctic. Furthermore, it aims at finding possible updates for Western knowledge and policies to understand traditional forms of land use



Conclusions

i. What potential lies in scenarios in integrating indigenous readings of time?
j. Can this help to get to a more holistic discussion about development on the long-term?

A scenario study was performed based on the material of the previous chapters as well as an analysis of the developments and trends in Finnmark. The scenarios are based on possible developments in the oil industry:

- *More Oil* is a scenario which includes further growth of the oil industry.
- *Rejected Oil* is a scenario which embraces a controlled transition away from oil.
- *After Oil* is a scenario which entails complete stagnation initiated by a crisis.

Approach

In each scenario the actors, systems and environment were examined. Subsequently, the scenarios were assessed, compared and put in sequence of probable future development. The scenario method used is not to test what the possible future developments could be, but a way to understand the possible developments over time. And therefore make strategic choices for the coming years. The result are three scenarios for which an assessment was made depicting the strengths and weaknesses. To improve the conditions of the current scenario, adjustments have been formulated, reflected from the possible future scenario.

Conclusion

The *More Oil* scenario is chosen as a first preference because it is the most probable and extreme scenario in which to formulate and design strategic actions. The strategic actions are predominantly based on the actions in the *Rejected Oil* scenario. By incorporating (strategic) actions from the other scenarios the, predominantly internationally, oriented actors in the *More Oil* scenario are obliged to include regionalization strategies and impact assessments/measures from the other scenario. This creates a mutually profitable situation for both herders, as well as other local actors and the population of Hammerfest. Because it will eventually help to reduce the economic and spatial impact in the following scenario where the oil industry will be phased out.

Strategic actions

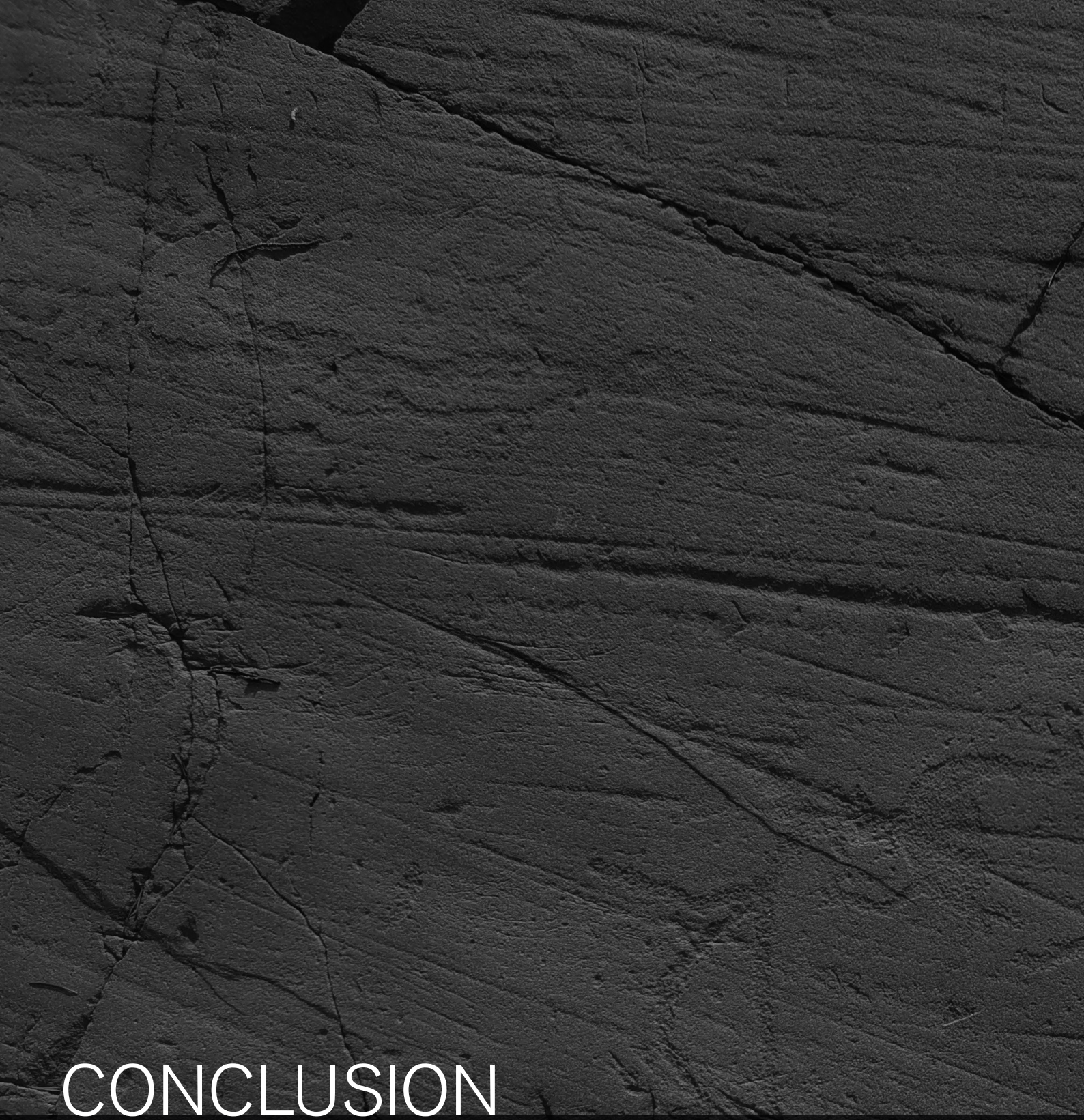
For the strategic actions several recommendations for policy guidelines, spatial interventions and tools were made. These are predominantly aimed to incorporate the (indigenous) knowledge on the territory, seasons and reindeer herding in the making of spatial and policy decisions in order to reduce impact and find possible synergies. Additional to the strategic actions three tools were proposed: the *Reindeer Tool, Impact assessment tool and Public Participation Tool.*

For each of these tools the urbanists can provide data and knowledge (of which this thesis is a start) about the territorial, seasonal, reindeer, industrial, urban and infrastructural developments and trends. This can serve as a basis on which additional qualitative and quantitative data can be added. The reindeer herders provide particularly qualitative information and experiences of seasons, pastures, vegetation, soils, migration patterns and reindeer wellbeing. The participation tool has the potential to provide transparent information, clarifying or testing the consequences of choices at a lower level, visualize interests and conflicts. The tool can be used in a participation processes and creates involvement and support. With the benefit of the participators an update of the scenarios can be made.

The integration of the indigenous knowledge of the territory, seasons, vegetation and the integration in both the scenarios and a possible toolkit makes a more transparent and holistic discussion and approach with participants possible.

Figures

◀ 9.30 Possible conjointment of the *Reindeer tool, Impact assessment tool* and *Public Participation tool.* Combined, the tools could inform or be integrated into an Arctic platform.
Made by author.



CONCLUSION

10.



"Since the early seventeenth century, science has been dominated by positivism (also called logical positivism or rationalism). It is an approach that assumes the existence of a reality driven by immutable laws based on the search for universal truths. The role of science is to discover these truths, with the ultimate aim of predicting and controlling nature. Science consists of value-neutral descriptions of objective events in nature, with the assumption that scientists themselves are detached from the world and operate in a value-free environment. Positivism uses reductionism, which involves breaking a system into discrete components, analyzing the components, and making predictions on the basis of the analysis of the parts. Knowledge about the world is then synthesized into generalizations and principles independent of context, space, and time."

Berkes, F. (2008). *Sacred Ecology* (Second). New York: Routledge.

Conclusion

Research questions

Primary:
How can the perceptions of **space** and **time**, as utilized by Sámi reindeer herders, equip the urban planner with a more **holistic understanding** of **territorializing processes**?

Secondary:
What potential lies in the urbanists engagement in overall decision-making processes by **reading of the territory** through the indigenous knowledge of **space** and **time**?

Research outline
This thesis provides a research design framework/approach for; firstly, an in depth assessment framework for possible future socio-economic spatial development related to the oil industry, secondly, creating awareness among decision-makers and academics, and thirdly, to provide agency for the Sámi reindeer herders. The approach has been applied in a case study in Finnmark, Norway. The case study was analyzed to answer to the hypothesis that including indigenous perceptions of time and space can help improve adaptability and flexibility of actors in planning and decision-making processes. This hypothesis was explored through the development of a framework for a (holistic) understanding of indigenous uses and non-indigenous/modern territorialization of the region. The result is a scenario design framework following a spatio-temporal research approach.

Providing an alternative approach for future decision-making in an environment that is highly uncertain, both in economic and natural terms, requires the coordination of both indigenous and non-indigenous knowledge and uses of the landscape. Furthermore, The incorporation of both practical and conceptual knowledge of the territory and the ability to share and communicate this knowledge between academics, practitioners and stakeholders is critical to confront this uncertainty. The flexible and adaptive knowledge of indigenous people could therefore help into planning and decision-making processes. Indigenous knowledge on temporality, territory, seasons and vegetation is crucial for the urban planner and can potentially support in creating a strong holistic framework. Integrating this in scenario planning by the urban planner could potentially evolve into an instrument to create new adaptive ways of planning and using the territory. This will help to foster trust and build consensus among indigenous and non-indigenous participants for future decision-making. Ultimately it is a tool for (co-)creating awareness, action and allowing space for Sámi agency.

Methods
The research methodology developed in this work explored a framework/approach where different temporalities within urban planning and indigenous herding knowledge are integrated. The triangulation of spatial modeling, research by design and cinematographic strategies, in a qualitative and quantitative manner, brought forward new scientific understandings of the real complexity of the issues. Furthermore, it points out weaknesses in modern and rationalized scientific methods of understanding territory. The research has been carried out from macro to meso scales and combined different temporalities to understand the practical and conceptual uses of the territory.

Exogenous mechanisms

After identifying the dynamics on the territorial scale of the North Sea and the Arctic, the existing documentation of the issues at stake in the terrestrial regions - that are affecting politics and public policy - are insufficient in helping local livelihoods to maintain their living standards. While exploring the urbanization of the Finnmark region, an equally important yet downplayed reality in public policing came to the foreground. In a rapidly urbanizing Arctic environment, the indigenous peoples are struggling for more autonomy against the sovereignty of the Arctic nations, and policies for the exploitation of land and livelihood. This therefore became the core of this thesis.

Endogenous mechanisms

Cinematography turned out to be an effective technique to grant voice for the struggles of indigenous peoples to larger audiences, yet if its absolute effect on politics and society is or can be bigger than other forms of documentation remains to be scrutinized. For this research however, the documentary and journal as documentations of the field trip provided substantial ground for further research. It became apparent that it was necessary to understand the different conceptualizations of time and space as utilized by the Sámi. These conceptualizations helped to translate both quantitative and qualitative data into information and meanings of temporality throughout the thesis

Deconstruction of the map

A separate in depth problem analysis was made on exogenous mechanisms to understand the Norwegian climate and cultural preservation paradox. A deconstruction of the map through the reading of the different temporalities onto space is important for linking different aspects of the issue to 'one another'. Land-use and land-cover analyses provided insights into the spatial actors, systems and environment. This was the basis for further temporal and impact analysis. A gap in information, discovered when composing the map, needed to be filled with a literature review on the cyclical and linear conceptualizations of time. The research was conducted to discover how the Sámi use seasons in the reindeer husbandry and what kind of linear narratives and structures shape and define the oil industry.

I join Henri Lefebvre and others in arguing that as a spatial researcher or practitioner it is always important to bring together transscalar and transtemporal research[1,2], especially in the extremely changing climate context of the Arctic. The spatio-temporal analysis of this thesis consists of two parts. The first part is a reindeer reconstruction, where the temporal knowledge of the Sámi is reflected onto space through a research by design method. Even though at first glance there seems to be little encroachment, the spatial use for industries is affecting the way of living of the Sámi inauspiciously. The second part, consists of a diachronic analysis to understand how global and national development have influenced decision making in Hammerfest and Finnmark between 1900 and 2020.

Reconstruction of the map

The knowledge gained in this research design is incorporated and tested in the scenarios. This can help to clarify the different interests of the various actors and systems in the environment. The scenario method used is partly meant to test what the possible future developments could be, but mostly a way to understand the impacts of possible developments over time. And therefore make strategic choices for the coming years. The delineation of three scenarios – *More Oil, Rejected Oil* and *After Oil* – compares different spatiotemporal impacts of decision-making on the land-sea interface of Hammerfest and the island of Kvaløya.

Citations

[1] Lefebvre, H. (1992/2004). *Rhythmanalysis: Space, time and everyday life.*

[2] Lefebvre, H., & Nicholson-Smith, D. (1991). The production of space.

Outcome

The research points out that through reading of the territory through the temporal understanding described in the thesis, the urban development of Hammerfest on Kvaløya has larger adverse effects on the profession of reindeer herding than initially anticipated. Over time, Hammerfest has become more dependent on the oil industry, and this creates a path dependency which is rendering the economy more vulnerable to instabilities. Because of their substantial knowledge of the territory and the seasons, the herders always adapt to new situations and therefore the magnitude of the conflicting realities easily remains hidden at first glance. Despite efforts of strengthening the Sámi culture and reindeer husbandry, future promises of industrial growth threaten to reduce their autonomy on the territory. In various areas, there are urban and environmental conflicts where the interests of industrial, residential and Sámi actors conflict. The increasing awareness to give more space that meets the interests of the Sámi is growing, but this agency is not yet guaranteed in decision-making, not even through the establishment of the Sámi Parliament. Currently, there is no communicative method or tool to support participation in planning processes. Therefore, a scenario study is introduced to incorporate flexibility and adaptability for a balanced development.

The result from all analyses are used in the composition of the three scenarios for which an assessment was made depicting the pros and cons. The *More Oil* scenario is chosen as a first preference at the time the most probable and extreme scenario in which to formulate and design strategic actions. The strategic actions are predominantly based on the actions in the *Rejected Oil* scenario.

One scenario will always be influenced by next future scenario, which is why regionalization strategies and impact assessments and measures from the *Rejected Oil* will have to be taken into account in the *More Oil* scenario. This creates a mutually profitable situation for both herders, as well as other local actors and the population of Hammerfest. Because it will eventually help to reduce the economic and spatial impact in the following scenario where the oil industry will be phased out. From the results of this thesis I recommend tools, frameworks, design and policy guidelines. These are predominantly aimed to incorporate the indigenous knowledge on the territory, seasons and reindeer herding in the making of spatial policy decisions in order to reduce impact and find possible synergies.

Recommendations

On the basis of the scenario study I recommend three tools to improve the participation in planning and decision-making processes. The urban planner and local government should moderate and monitor the process. The tools are aimed at collecting and providing existing and new data to incorporate into the assessment framework. The three tools are the *Reindeer tool*, *Impact Assessment tool* and the *Public Participation tool*.

The *Reindeer Tool*, a mobile app or on-site meetings, could be developed into an instrument that provides transparent information directly from reindeer herders out on the field. The herders provide particularly information and experiences of seasons, pastures, vegetation, soils, migration patterns and reindeer wellbeing. This information can be visualized and help to improve the spatio-temporal analysis in this thesis. In addition of this, it can also help with further ecological and climatic research. The quantitative and qualitative information can be integrated into further improving scenarios and therefore used as a tool to negotiate impact and eventually provide agency for the herders. The urban planners role then changes to combine data and knowledge –

which is gathered by the herders on site – to form the basis of an instrument. To assure its quality as a tool supplying for Sámi agency, it needs continuous updating and coupling with state of the art spatial research and public policing.

The *Impact Assessment* tool is aimed at providing a framework in which a holistic assessment can be made on future spatial development on a specific location. Thereby, assessing the impact on both reindeer husbandry and the environment. The tool is accompanied by the scenarios described in this thesis and could be informed by the Reindeer tools information. In order to understand what the impact is, a seasonal assessment has to be made on the direct and indirect impact of the development. The tool allows monitoring and signaling of (desired) developments.

The *Public Participation tool* consists of participatory meetings in which actors and regional governments assess and improve urban planning and decision-making with the help of the impact assessment tool and scenarios. The tool has the potential to provide transparent information, clarifying or testing the consequences of choices at a lower level, visualize interests and conflicts. The tool creates involvement of all actors and could potentially be used to find alternative and more adaptive pathways in future planning processes.

A possible weakness lies in the ability to address the current limitations caused by language in the form of the availability of data to non-Sámi speakers and translatability of Sámi specific words. Therefore a linguistic strategy needs to be developed to assess if the tools can become reality.

Finally, the implementation of these tools and the utilization of scenarios as part of the decision-making processes, should cater for more support and stability in indigenous and non-indigenous inhabitants of Finnmark. How the socio-economic development of the area can benefit from local initiatives over bigger extractive companies remains to be further scrutinized.



REFLECTION

11.



"An understanding of an independent human history became the foundation of all modern social sciences, so the convergence – or better, the collision – of human and Earth histories in the Anthropocene kindles the suspicion that all social sciences and their philosophical foundations have been built on an understanding of the historical process that is no longer defensible."

Hamilton, C. (2017) *Defiant Earth: The Fate of Humans in the Anthropocene.* Wiley.

Interest in research and design

The motivation for research, and particularly the decision to study the masters Urbanism, after my bachelor in Architecture, was that Urbanism focuses on the right scale and core of a lot of contemporary problems in the 'urban' and 'rural' environments. My interest for the topic of extraction for this thesis can be linked with the interest for understanding global and local processes which cause socio-territorial problems. Combined with my experiences in Ghana with the Design as Politics elective 'The 500 Mile City', which revealed the silent operational side of the industry, I discovered that there is little research about the impact of these industries on rural territories. The industries operate on the territory through global and modern structures, often resulting in the assimilation of indigenous people. Planning and design are based on the modernist ways of fixation through a linear concept of time. It is here that research becomes increasingly important to understand what consequences these conventional methods and tools have for other cultural views. Considering how landscapes are often mapped according to their function, and thereby reduced to their function only[1], there lies a challenge for urbanism to adapt the approach to mapping to better represent the values within the mapped area. If the map doesn't present itself as a truthful representation for the territory anymore, then new modes of representation should be considered to broaden the academic scope.

Visual media as design

If indigenous issues cannot merely be understood through general scientific knowledge, mapping is not a sufficient tool to translate and consider these problems. One method to understand this is through film making. According to Aufderheide (2007), film making can tell us something worth knowing about, while it is also grounded in life[2]. These inequalities cannot simply be mapped, it requires conversation and it requires the urbanist to be there in order to understand the place. Cinematography and photography are therefore forms of design. It forms a powerful tool to make known particular local dynamics to wider audiences. The way in which research relates to it is that it grounds its objectives.

The approach taken in the project can be understood as a constant movement between art, research and design. The combination of a continuous understanding of the territory through research and reflecting this into the documentary, helped with translating the core of the problem to the paper. This interrelation between art and science, has been the main motivator and inspiration for starting to critically analyze the problems in Finnmark, and particularly the island of Kvaløya. Throughout this thesis, the combination between research and design has been crucial to understand how the current territorialization in Arctic territories has been unfolding. I experimented with various methods for combining research and design, of which research by design, cinematography and photography have been the main components in the thesis. During the field trip our goal has been to investigate and communicate the social, environmental, cultural and political dynamics in Finnmark.

Research studio topic: Transitional Territories

North Sea: Landscapes of Coexistence

The transitional Territories graduation studio examines the interface between land and sea, shaped by political, economic, ecologic and cultural transitions in North Sea. The topic was "the North Sea territory and its altered state as an outcome of increased urbanization and environmental degradation, and by the consequences of extreme weather and resource scarcity". Both the topic and the outcome of the combined group analysis, inspired to research the Arctic territory, as rapid sea ice recession and climate change is reframing political-economic interests in this region. As oil and gas wells in the North Sea are depleting, interest in hydrocarbon

Citations

[1] Brenner, N., & Schmid, C. (2017). Planetary urbanization. In The Globalizing Cities Reader (pp. 479-482): Routledge.

[2] Aufderheide, P. (2007). Documentary Film: A Very Short Introduction.

[3] Oxman, N. (2016). Age of Entanglement. Journal of Design and Science. https://doi.org/10.21428/7e0583ad

Nida-Rümelin, M., & O Conaill, D. (2019). Qualia: The Knowledge Argument. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy (Winter 2019 ed.): Metaphysics Research Lab, Stanford University.

[4] Brenner, N., & Schmid, C. (2017). Planetary urbanization. In The Globalizing Cities

extraction in the Arctic seas is growing. Within the North Sea, Norway is a country with a big oil industry. With the interest in the Arctic and Barents Sea growing, the country of Finnmark is promised big industrial development and especially the town of Hammerfest, the project location, is profiting from this development.

The graduation studio's focus on territorial research on several political, economic, ecologic and cultural dynamics, proved to be useful in the development of this thesis. Projects developed with in the studio move away from conventional methods and tools on urban planning and design, and provide another focus of urban processes on planetary landscapes. This thesis started from the notion of territory and the territorialization of the landscape by the oil industry in Finnmark and what the cumulative effects are on the indigenous Sámi livelihood. The studio provided me with the necessary framework and tools for a graduation project on the extraction territories in future urbanization and the transition in Norway, while also sparking and opening up the possibility to combine my fascination for art (particularly cinematography and photography), research and design.

Scientific relevance

Methodological

As already argued before the map doesn't represent itself as a truthful representation of the territory. It is biased towards modern approaches of spatial policies, planning and design, neglecting much of the local dynamics. Therefore new modes of representation should be considered to broaden the academic scope. In response to this, I conducted a thorough on-site analysis through means of a journal and a documentary. Furthermore, as an on-site interview revealed, the science is not updated, the traditional ecological knowledge, accumulated through centuries of observations on the harsh landscape, is not acknowledged and incorporated into planning and decision-making processes. The methodological structure of my thesis responds to this issue. I have sought find a methodology of translating and empower the Sámi reindeer practice onto the map by means of a research design method. This was done through the analysis of the conceptual and practical use of the territory through another reading of time. The process towards this was not always easy.

The analysis consists of three main parts, the first two parts focuses on the exogenous and endogenous mechanisms to further understand the socio-territorial conflicts. This was done by means of an in depth literature review to further understand the territorialization processes and the construction of a journal and documentary to understand the local consequences of these exogenous. The quantitative mapping in the spatial analysis only produced some general results, from a modern perspective the land-use and land-cover results provided data to further use in the rest of the spatio-temporal and scenario chapters. For this analysis improvement could be a more in-depth seasonal analysis of the vegetation over time, this was not foreseen in this thesis. The temporal analysis was done to both understand how the Sámi see and use time and how the western concept of time enhances the extractive industries goals. Particularly the cyclical understanding of the Sámi proved to be the core understanding of this thesis.

In the spatio-temporal analysis both concepts were simulated over time. The reindeer reconstruction was an important step to understand how the reindeer move throughout the seasons on the island. The method for analyses here was to use design as a way of research by directly translating data, and knowledge from maps and text onto maps. This method forces the composer to select the important elements, without long analyses and after constructing

of this map, divide the different elements into bits and show how the layers of vegetation, landscape and weather influence the reindeer movement on the island. Here the input and push from the mentors was essential, as this method allowed me to overcome my ethical restraint and perfectionist attitude towards things. Limitations in language and professional meetings with herders, made this analysis hard to conduct. Therefore a Reindeer tool was recommended at the end of this thesis to acquaint more knowledge. The diachronic analysis helped in the understanding of the development of trends and urban developments in Hammerfest, which provided input for the scenarios.

The final method used to converge this knowledge and propose possible solutions was done in the scenario chapter. The scenario method was not aimed at testing and design outcome, but rather multiple possible futures, based on literature from Vettoretto (2003) and Meyer, to try to incorporate the acquainted knowledge on the indigenous use of the territory. This was done in order to increase agency of both indigenous and non-indigenous residents and reduce future development impact. Through the whole research it occurred to that current planning and decision-making processes lack involvement of the Sámi reindeer herders, and is currently solely aimed at short term economic gain by supporting the oil industry.

Societal

The impact of extraction in the Arctic is often not well understood, because of the remoteness and a low amount of people that use vast tracts of land. The loss of land could be understood as modern colonization, where specific cultures are strong-armed in the extraction of resources. The initial aim of this thesis was to show how global urbanization alters remote areas in the Arctic. We should be extremely aware that these extractive industries have impact in different intensities all over the Arctic. The construction of a oil pipeline through Wet'suwet'en territory in Canada will pass trough against the wishes of some indigenous communities[1], the silencing of the Arctic Indigenous rights groups that obstruct national development goals[2] or the approval of the re-opening of the Rypefjord copper mine in Kvalsund are merely some recent troublesome developments.

On top of this, the current pandemic shows how uncertain these extractive industries are when global demand drops. In this light of this the scenarios have been proven to be more relevant than fist thought. Currently all Arctic oil development in Norway is halted, thus putting the people in a position to choose. The current situation resembles a lot with the *After Oil* scenario, while there are also signs of returning back to 'normal'. Therefore, there is a choice to be made: *Rejected* or *More* oil scenario in the future.

Ethical issues and considerations

One notion which has been an obstruction during the research was that in such a fragile environment, with the 'Norwegianization' of the Sámi in the past, the balance between 'good' and 'bad' is often hard to find. Unfortunately the map has been used as a tool of colonization in the past[3]. If not consciously constructed, the method and tools could easily have biased effect. Despite this, mapping is "also one of the most innovative and dynamic areas in traditional knowledge research and the development of participatory, cross-cultural approaches to the research process itself"[4].

Regarding the little information available, the mapping of the reindeer migration patterns was ethically difficult to do. It must be noted that in this consideration, the creation of these map and understanding of the reindeer practice should be done in close collaboration with reindeer

Citations

[1] Rabson, M. (2020, May 5). Without Indigenous consent for pipelines, more protests to be expected: experts. *Global News.* Retrieved from https://globalnews.ca

[2] The Moscow Times. (2019, November 7). Russia Shuts Down Arctic Indigenous Rights Group.

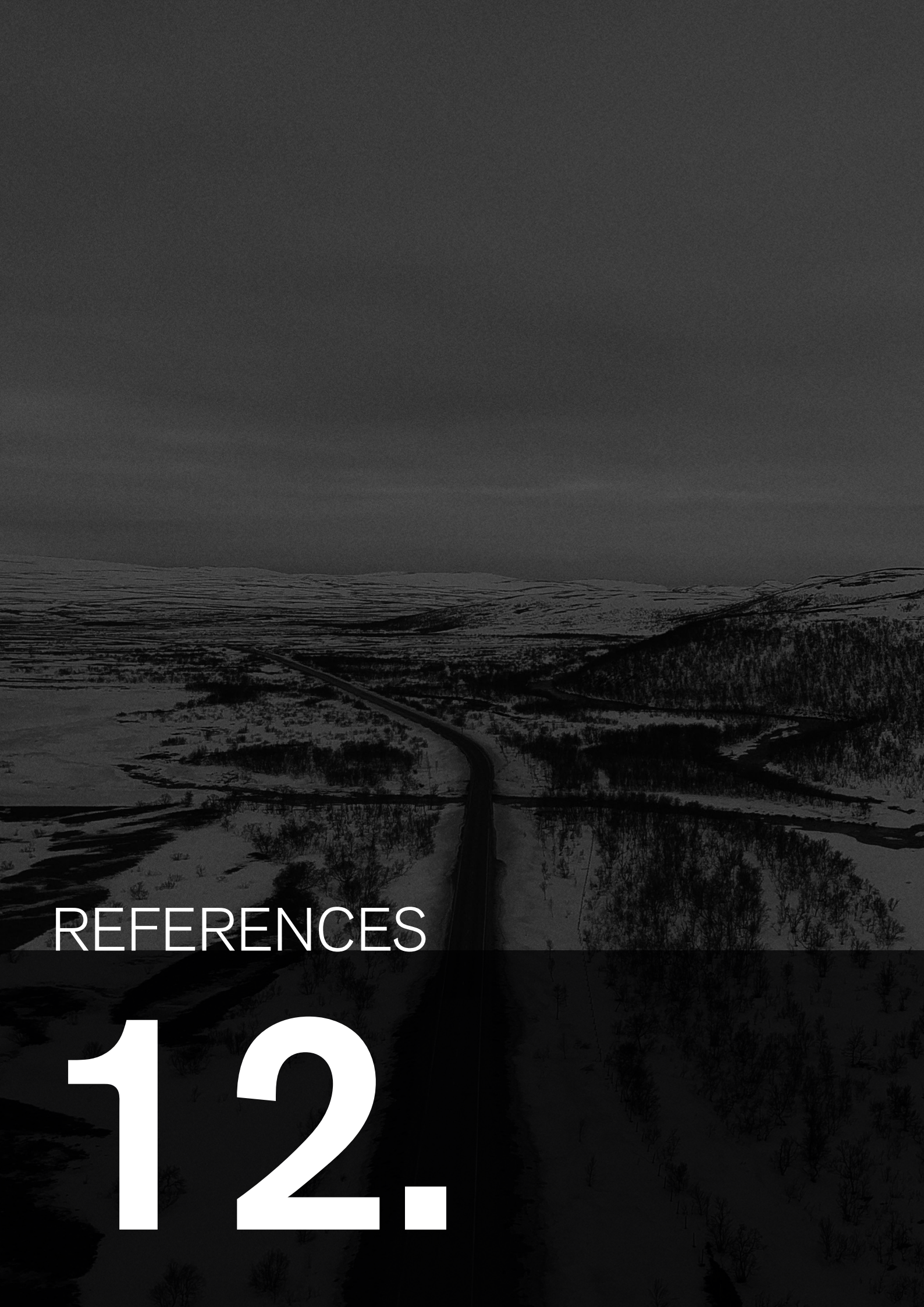
[3] Nilsen, T. (2019, November 30). Norway greenlights copper mine with tailings to be dumped in Arctic fjord. *Barents Observer.*

[4] Berkes, F. (2012). *Sacred Ecology.*

herders and ecologic experts in further research. This also affected my ability to map these aspects during the project. In the end I discovered that in this part of the construction of the thesis, the research by design method allowed me to overcome this 'ethical' limit, by means of starting to simulate the movement directly on the map, while at the same time learning from text and previous mapping of the vegetation and landscape. If done in a more 'normal' way one could get stuck in the gathering and classification of information, rather than moving forward. This is unfortunately happened throughout the process.

The role of urbanism

Urbanism could have an informing and acting role in uncovering extraction issues. With all the tools, methods and knowledge in research at their disposal, they could be the connection between actors through different scales. The urbanist can raise conflicts, but only when it is developed into a tool can he also act as a mediator.



REFERENCES

12.



12. References

01. Introduction

Brenner, N. (2014). *Implosions/explosions. Towards a Study of Planetary Urbanization.* Berlin: Jovis.

Brenner, N., & Schmid, C. (2017). Planetary urbanization. *In The Globalizing Cities Reader* (pp. 479-482): Routledge.

OEC. (2016, 11-11-2018). The Observatory of Economic Complexity. Retrieved from https://atlas.media.mit.edu/en/visualize/tree_map/hs92/export/nor/all/show/2016/

Ptak, A., & Wawrzyńczak, M. (2018). *Amplifying Nature: The Planetary Imagination of Architecture in the Anthropocene*: Zachęta - National Gallery of Art.

SGI Network. (2019). Norway - Environmental Policies. Retrieved from https://www.sgi-network.org/2017/Norway/Environmental_Policies

02. Context

Arctic Centre. (n.d.). People and the Arctic Extractive Industries: UArctic thematic network. Retrieved from https://www.arcticcentre.org/EN/research/networks/UArctic-extractive-industries

Arctic Corridor. (2019). Growth Through Arctic Resoures - A rising cross-border economic area. Retrieved from https://arcticcorridor.fi/

Bekkers, E., Francois, J. F., & Rojas- Romagosa, H. (2018). Melting ice caps and the economic impact of opening the Northern Sea Route. *The Economic Journal*, 128(610), 1095-1127.

Bélanger, P. (2013). Landscape infrastructure : urbanism beyond engineering. *PhD Thesis Wageningen University.*

Kattsov, V. M., Ryabinin, V. E., Overland, J. E., Serreze, M. C., Visbeck, M., Walsh, J. E., . . . Zhang, X. (2010). Arctic sea-ice change: a grand challenge of climate science. *Journal of Glaciology*, 56(200), 1115-1121.

Len Necefer, & Balkin, G. (Writers). (2019). Gwichyaa Zhee. In. United States.

Magga, O. H., Mathiesen, S. D., Corell, R. W., & Oskal, A. (2009). Reindeer herding, traditional knowledge, adaptation to climate change and loss of grazing land.

Mann, M. E. (2016). "Dire Predictions: Understanding Climate Change" – the Earth101 lecture. Retrieved February 6, 2020, from https://www.youtube.com/watch?v=8iEj76iX-xE&list=PLJlclvSkTJtPZXwPotTGfdj2Eal-Mj1Kv&index=4

Marques, H. (2011). Local development at a human scale. Polis. Magazine of the Universidad Bolivariana(22), 137-158.

NASA's Scientific Visualization Studio. (2018). Disappearing Ice. Retrieved February 6, 2020, from https://svs.gsfc.nasa.gov/4616

Norwegian Government. (2011). *The High North, Visions and Strategies.* Retrieved from https://www.regjeringen.no/en/dokumenter/high_north_visions_strategies/id664906/

Paraskova, T. (2020). The Race For Arctic Oil Is Heating Up. Retrieved February 6, 2020, from https://oilprice.com/Energy/Energy-General/The-Race-For-Arctic-Oil-Is-Heating-Up.html

Peng, H. T., Ke, C. Q., Shen, X., Li, M., & Shao, Z. De. (2019). Summer albedo variations in the Arctic Sea ice region from 1982 to 2015. *International Journal of Climatology*, (April), 1–13. https://doi.org/10.1002/joc.6379

Rampal, P., Weiss, J., Dubois, C., & Campin, J. M. (2011). IPCC climate models do not capture Arctic sea ice drift acceleration: Consequences in terms of projected sea ice thinning and decline. *Journal of Geophysical Research: Oceans*, 116(C8).

Turi, E. I. (2008). *Living with climate variation and change: a comparative study of resilience embedded in the social organisation of reindeer pastoralism in Western Finnmark and Yamal Peninsula.*

Wilson, E., & Stammler, F. (2016). Beyond extractivism and alternative cosmologies: Arctic communities and extractive industries in uncertain times. *The Extractive Industries and Society*, 3(1), 1-8.

World Bank Group. (2018). Poverty and Shared Prosperity 2018: Piecing Together the Poverty Puzzle.

Images

2.1 BBC (2012). Retrieved from: https://www.bbc.com/future/article/20120618-global-resources-stock-check

2.6 Fetterer F., Knowles K. , Meier W. N., Savoie M. , & K., W. A. (2017, updated daily). Sea Ice Index, Version 3. [Monthly Sea Ice Extent September 1979-2019]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center (Publication no. https://doi.org/10.7265/N5K072F8).

2.8 Fetterer F., Knowles K. , Meier W. N., Savoie M. , & K., W. A. (2017, updated daily). Sea Ice Index, Version 3. [Monthly Sea Ice Extent September 1979-2019]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center (Publication no. https://doi.org/10.7265/N5K072F8).

Bird, K. J., Charpentier, R. R., Gautier, D. L., Houseknecht, D. W., Klett, T. R., Pitman, J. K., . . . Wandrey, C. R. (2008). *Circum-Arctic resource appraisal: Estimates of undiscovered oil and gas north of the Arctic Circle* (2327-6932). Retrieved from https://pubs.usgs.gov/fs/2008/3049/

2.14 Fetterer F., Knowles K. , Meier W. N., Savoie M. , & K., W. A. (2017, updated daily). Sea Ice Index, Version 3. [Monthly Sea Ice Extent September 1979-2019]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center (Publication no. https://doi.org/10.7265/N5K072F8).

Bird, K. J., Charpentier, R. R., Gautier, D. L., Houseknecht, D. W., Klett, T. R., Pitman, J. K., . . . Wandrey, C. R. (2008). *Circum-Arctic resource appraisal: Estimates of undiscovered oil and gas north of the Arctic Circle* (2327-6932). Retrieved from https://pubs.usgs.gov/fs/2008/3049/

Arctic Biodiversity Assessment (CAFF, 2013); GRID-Arendal (GRID-Arendal/UN Environment, 2019), W.K. Dallmann (Norwegian Polar Institute, 2012), experts from the Arctic Council Permanent Participant organizations. The language classification for Haida is based on Schoonmaker et al., 1997, for Yukagir on advice from the Institute for the Peoples of the North, 2019.

Arctic Council. (2001). CAFF Map No.28 - Distribution of wild reindeer, caribou, and domestic reindeer in the Arctic. In. Conservation of Arctic Flora and Fauna Working Group.

2.15 Fetterer F., Knowles K. , Meier W. N., Savoie M. , & K., W. A. (2017, updated daily). Sea Ice Index, Version 3. [Monthly Sea Ice Extent September 1979-2019]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center (Publication no. https://doi.org/10.7265/N5K072F8).

Bird, K. J., Charpentier, R. R., Gautier, D. L., Houseknecht, D. W., Klett, T. R., Pitman, J. K., . . . Wandrey, C. R. (2008). *Circum-Arctic resource appraisal: Estimates of undiscovered oil and gas north of the Arctic Circle* (2327-6932). Retrieved from https://pubs.usgs.gov/fs/2008/3049/

Arctic Biodiversity Assessment (CAFF, 2013); GRID-Arendal (GRID-Arendal/UN Environment, 2019), W.K. Dallmann (Norwegian Polar Institute, 2012), experts from the Arctic Council Permanent Participant organizations. The language classification for Haida is based on Schoonmaker et al., 1997, for Yukagir on advice from the Institute for the Peoples of the North, 2019.

Arctic Council. (2001). CAFF Map No.28 - Distribution of wild reindeer, caribou, and domestic reindeer in the Arctic. In. Conservation of Arctic Flora and Fauna Working Group.

Center for International Earth Science Information Network - CIESIN - Columbia University, & Information Technology Outreach Services - ITOS - University of Georgia. (2013). Global Roads Open Access Data Set, Version 1 (gROADSv1). Retrieved from: https://doi.org/10.7927/H4VD6WCT

Lujala, P., Ketil Rod, J., & Thieme, N. (2007). Fighting over Oil: Introducing a New Dataset. Conflict Management and Peace Science, 24(3), 239-256. doi:10.1080/07388940701468526

Worldmap Harvard. (n.d.). Worldmap Harvard. Retrieved from https://worldmap.harvard.edu/

03. Methodology

Acuña, R. M. (2015). The politics of extractive governance: Indigenous peoples and socio-environmental conflicts. The Extractive Industries and Society, 2(1), 85-92.

Bélanger, P. (2017). Extraction Empire: Undermining the Systems, States, and Scales of Canada's Global Resource Empire, 2017-1217: MIT Press.

Berkes, F. (2012). Sacred Ecology. New York & London: Routledge.

Blaser, M. (2009). Political ontology: cultural studies without 'cultures'? Cultural Studies, 23(5-6), 873-896.

Eva (Stephanie Redding). (2015). Sámi Culture: The Sámi Concept of Time. Retrieved from https://www.laits.utexas.edu/Sámi/dieda/anthro/concept-time.htm

Fox, J. (1998). Mapping the commons: the social context of spatial information technologies. The Common Property Resource Digest, 45, 1-4.

Johnsen, K. I. (2018). Conflicting knowledges, competing worldviews: Norwegian governance of Sámi reindeer husbandry in West Finnmark, Norway.

Kääpä, P. (2016). Cyclical Conceptualizations of Time: Ecocritical Perspectives on Sámi Film Culture. In Ecocriticism and Indigenous Studies (pp. 154-171): Routledge.

Kato, S., & Ahern, J. (2008). 'Learning by doing': adaptive planning as a strategy to address uncertainty in planning. Journal of environmental planning and management, 51(4), 543-559.

Klein, N. (2015). This changes everything: Capitalism vs. the climate: Simon and Schuster.

Lefebvre, H. (1992/2004). Rhythmanalysis: Space, time and everyday life (S. Elden & G. Moore, Trans.): Continuum.

Little Bear, L. (2000). Jagged worldviews colliding. Reclaiming Indigenous voice and vision, 77.

Østerberg, D. (1998). *Arkitektur og sosiologi i Oslo: en sosio-materiell fortolkning*. Pax 1998.

Reid, G., & Sieber, R. (2016). Comparing Geospatial Ontologies with Indigenous Conceptualizations of Time. Paper presented at the International Conference on GIScience Short Paper Proceedings.

Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper. Rangifer, 93-102.

Turi, E. I. (2016). State steering and traditional ecological knowledge in reindeer-herding governance: Cases from western Finnmark, Norway and Yamal, Russia. Umeå University,

Weinstock, J. (2009). What Goes Around Comes Around: Sámi Time and the Question of Indigeneity. Retrieved from https://www.laits.utexas.edu/Sámi/dieda/anthro/time.htm

04. The Norwegian Paradoxes

Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway. Norsk Geografisk Tidsskrift, 69(4), 219–229. https://doi.org/10.1080/00291951.2015.1031274

Boyd, D. R. (2019). Norway End of Mission Statement Retrieved from Office of the United Nations High Commissioner for Human Rights: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25032&LangID=E

Dannevig, H., & Dale, B. (2018). The Nussir Case and the Battle for Legitimacy: Scientific Assessments, Defining Power and Political Contestation. In The Will to Drill - Mining in Arctic Communites (pp. 151–174). Springer International Publishing. https://doi.org/10.1007/978-3-319-62610-9_8

Down, A., & Erickson, P. (2017). Norwegian Oil Production and Keeping Global Warming Well Below 2 C. In. Stockholm Environmental Institute.

Eriksen, K. E., & Niemi, E. (1981). Den finske fare. Oslo, Bergen, Tromsø: Universitetsforlaget.

European Commission. (2018). European Commission Directorate-General for Trade: Norway. Retrieved from https://ec.europa.eu/trade/policy/countries-and-regions/countries/norway/

International Labour Organization (ILO). (1989). Indigenous and Tribal Peoples Convention, C169. Retrieved from https://www.refworld.org/docid/3ddb6d514.html

Loe, J. S. P., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway. Chemical Physics Letters. https://doi.org/10.1016/j.erss.2016.03.008

McGrath, M. (2018). Katowice: COP24 Climate change deal to bring pact to life. BBC. Retrieved from https://www.bbc.com/news/science-environment-46582025

Miljøverndepartement, D. K. (2012). Norsk klimapolitikk (Meld. St. 21). Retrieved from https://www.regjeringen.no/contentassets/aa70cfe177d2433192570893d72b117a/no/pdfs/stm201120120021000dddpdfs.pdf

Norsk Petroleum. (2018). EXPORTS OF OIL AND GAS. Retrieved from https://www.norskpetroleum.no/en/production-and-exports/exports-of-oil-and-gas/

Norges Bank. (2019). The fund's market value. Retrieved from https://www.nbim.no/

Ravna, Ø. (2011). The Process of Identifying Land Rights in parts of Northern Norway: Does the Finnmark Act Prescribe an Adequate Procedure within the National Law? The Yearbook of Polar Law Online, 3(1), 423–453. https://doi.org/10.1163/22116427-91000066

Ravna, Ø. (2012). The protection of Sámi People's language, culture and way of life in Norwegian Constitution and other legislation. In Les Cahiers d'Anthropologie (pp. 265–280).

Ravna, Ø. (2014). The fulfilment of Norway's international legal obligations to the Sámi - Assessed by the protection of rights to lands, waters and natural resources. International Journal on Minority and Group Rights. https://doi.org/10.1163/15718115-02103001

Ravna, Ø. (2015). Sámi Rights to Natural Resources and Lands in Norway. In N. Loukachova (Ed.), Polar Law and Resources (pp. 63–77). Norden.

Ravna, Ø. (2017). Links between Lands, Territories, Environment and Cultural Heritage – The Recognition of Sámi Lands in Norway. In Indigenous Peoples' Cultural Heritage: Rights, Debates and Challenges. Leiden, The Netherlands: Brill | Nijhoff.

Reinert, H. (2019). The Midwife and the Poet: Bioaccumulation and Retroactive Shock. Environmental Humanities, 11(1), 137-151.

Reinert, H. (2018). Notes from a Projected Sacrifice Zone. ACME: An International E-Journal for Critical Geographies, 17(2), 597–617.

Reinert, H. (2019). The Skulls and the Dancing Pig: Notes on Apocalyptic Violence. Terrain, (71). https://doi.org/10.4000/terrain.18051

Sandberg, A. (2008). Collective rights in a modernizing North–on institutionalizing Sámi and local rights to land and water in northern Norway. International Journal of the Commons, 2(2), 269-287.

Sollid, H., Conzett, P., & Johansen, Å. M. (2014). Gender and noun inflection: The fate of ' vulnerable ' categories in Northern Norwegian. In K. Braunmüller, S. Höder, & K. Kühl (Eds.), Stability and Divergence in Language Contact: Factors and Mechanisms. John Benjamins Publishing Company.

Stortinget. (2014). The Constitution – Complete text. Retrieved from https://www.stortinget.no/en/Grunnlovsjubileet/In-English/The-Constitution---Complete-text/

Unesco World Heritage. (2004). Rock Art of Alta. Retrieved from https://whc.unesco.org/en/list/352/

Ylsman, T. (2015). The Shifting Polar Paradox: As the Arctic Meltdown Continues, Will the Arctic Oil Rush Go On? Discover Magazine. Retrieved from http://blogs.discovermagazine.com/imageo/2015/01/19/shifting-polar-paradox/

Images

4.1 European Commission. (2018). European Commission Directorate-General for Trade: Norway. Retrieved from https://ec.europa.eu/trade/policy/countries-and-regions/countries/norway/

4.2 Equinor. (2019). Our shareholders. Retrieved from https://www.equinor.com/en/investors/our-dividend/our-shareholders.html

4.3 Norwegian Petroleum Directorate. (2019). ESRI filegeodatabase for all datasets. Retrieved from: https://www.npd.no/en/about-us/information-services/available-data/map-services/

4.4 Sølvberg, I. (2020). The Shelf in 2019. Retrieved from https://www.npd.no/globalassets/1-npd/publikasjoner/sokkelaret/sokkelaret-2019/engelsk-presentasjon-master-sokkelaaret2019.pdf

4.5 Statistik sentralbyrå. (2019). Export data Oil & Gas, Fisheries (traditional and cages). Retrieved from https://www.ssb.no/

4.6 Nemkova N., & Fyta P. (2016). *Shifting Arctic Boundaries.* Architectural Association School of Architecture, Retrieved from http://landscapeurbanism.aaschool.ac.uk/research/shifting-arctic-boundaries/

4.11 Landbruksdirektoratet (2019). Beitebruken gjennom året. Retrieved from https://www.landbruksdirektoratet.no/no/reindriften/fakta-om-reindrift/beitebruken-gjennom-aret#sommeren

4.12 Valgdirektoratet. (2019). County for Norway - County authority election 2019. Retrieved from https://valgresultat.no/?type=fy&year=2019

05. Field Trip & Documentary

Berkes, F. (2012). Sacred Ecology. New York & London: Routledge.

Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6. Available at: https://vimeo.com/246274276.

Hammerfest Kommune (2013). *Hammerfest -- The gateway to the Barents Sea* [Youtube video]. Retrieved January 2020 from: https://www.youtube.com/watch?v=lKDs0alwYnE&t=226s

Jacobsen, A. R. (2010). *Snøhvit, the history of oil and gass in the Barents Sea*: Statoil.

Johnsen, K. I. (2016). 'Land-use conflicts between reindeer husbandry and mineral extraction in Finnmark, Norway: Contested rationalities and the politics of belonging', Polar Geography, 39(1), pp. 58–79. doi: 10.1080/1088937X.2016.1156181.

Loe, J. S. P., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway. Chemical Physics Letters. https://doi.org/10.1016/j.erss.2016.03.008

Nida-Rümelin, M., & O Conaill, D. (2019). Qualia: The Knowledge Argument. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy (Winter 2019 ed.): Metaphysics Research Lab, Stanford University.

Nisbet, M. C., Hixon, M. A., Moore, K. D., & Nelson, M. (2010). Four cultures: New synergies for engaging society on climate change. Frontiers in Ecology and the Environment, 8(6), 329-331.

Noteboom, B. (2018). Arctica - Mijn biografie van de noordpool. Amsterdam: Prometheus.

Pink, S. (2015). Going forward through the world: Thinking theoretically about first person perspective digital ethnography. Integrative Psychological and Behavioral Science, 49(2), 239-252.

Reinert, H. (2019). The Midwife and the Poet: Bioaccumulation and Retroactive Shock. Environmental Humanities, 11(1), 137-151.

Schreiber, M. (2018). The Arctic's Indigenous peoples bear a disproportionate burden of the world's response to climate change, leaders say. Retrieved from https://www.arctictoday.com/arctics-indigenous-peoples-bear-disproportionate-burden-worlds-response-climate-change-leaders-say/

Wilder, B. T., O'Meara, C., Monti, L., & Nabhan, G. P. (2016). The importance of indigenous knowledge in curbing the loss of language and biodiversity. BioScience, 66(6), 499-509.

06. Spatial Analysis

Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 69(4), 219-229.

Bradshaw, C. J., Boutin, S., & Hebert, D. M. (1998). Energetic implications of disturbance caused by petroleum exploration to woodland caribou. *Canadian Journal of Zoology*, 76(7), 1319-1324.

Cambridge Dictionary. (Ed.) (2019) Cambridge Dictionary. Cambridge Dictionary.

Congedo, L. (2017). Semi-Automatic Classification Plugin Documentation. Retrieved from https://semiautomaticclassificationmanual-v5.readthedocs.io/en/latest/index.html#semi-automatic-classification-plugin-documentation

Dalfest, T., Thorsnæs, G., & Askheim, S. (2019). Finnmarks natur. Retrieved from https://snl.no/Finnmarks_natur

Granøien, I. L. N., & Vennerød, J. (2015). *Oppdaterte beregninger av flystøy for Hammerfest lufthavn*. Retrieved from https://docplayer.me/10905472-Hammerfest-lufthavn-vedrorende-ulike-sporsmal-knyttet-til-avinors-soknad-om-fornyelse-av-konsesjonen.html

Johansen, B., Karlsen, S. R., & Uhlig, C. (2007). *Kartlegging av vegetasjon, reinbeiter og erosjon - Kvaløya i Hammerfest kommune*. Retrieved from NORUT:

Johnsen, K. I. (2018). Conflicting knowledges, competing worldviews: Norwegian governance of Sámi reindeer husbandry in West Finnmark, Norway.

Johnsen, K. I., & Benjaminsen, T. A. (2017). The art of governing and everyday resistance:"rationalization" of Sámi reindeer husbandry in Norway since the 1970s. *Acta Borealia*, 34(1), 1-25.

Luick, B., Kitchens, J., White, R., & Murphy, S. (1996). Modeling energy and reproductive costs in caribou exposed to low flying military jet aircraft. *Rangifer*, 209-212.

Maier, J. A., Murphy, S. M., White, R. G., & Smith, M. D. (1998). Responses of caribou to overflights by low-altitude jet aircraft. *The Journal of wildlife management*, 752-766.

Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift*. Hammerfest Kommune. Retrieved from https://img6.custompublish.com/getfile.php/3532076.1646.uwxuutavts/Vedlegg+7+-+KU+Reindrift.pdf?return=www.hammerfest.kommune.no

Severinsen, T. K. H. (2008). *Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune*. University of Oslo, DUO Research Archive. Retrieved from https://www.duo.uio.no/handle/10852/21658

Skarin, A., & Åhman, B. (2014). Do human activity and infrastructure disturb domesticated reindeer? The need for the reindeer's perspective. *Polar Biology*, 37(7), 1041-1054. doi:10.1007/s00300-014-1499-5

Vistnes, I., & Nellemann, C. (2007). Impacts of human activity on reindeer and caribou: The matter. *Rangifer*, 47-56.

Vistnes, I., Nellemann, C., & Strøm Bull, K. (2004). Inngrep i reinbeiteland Biologi, jus og strategier i utbyggingssaker.

07. Temporal Analyses

Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway. Norsk Geografisk Tidsskrift-Norwegian Journal of Geography, 69(4), 219-229.

Curry, T. (2013). Herding on Thin Ice. (Master Thesis). Harvard University, Retrieved from https://www.scribd.com/document/149175432/Herding-on-Thin-Ice-An-Excercise-in-Resilience-and-Adaptive-Strategy

Equinor. (2019). Exploration. Retrieved from https://www.equinor.com/en/what-we-do/exploration.html

Eva (Stephanie Redding). (2015). Sámi Culture: The Sámi Concept of Time. Retrieved from https://www.laits.utexas.edu/Sámi/dieda/anthro/concept-time.htm

Hall, E. T. (1984). The dance of life: The other dimension of time: Anchor.

Klein, N. (2015). This changes everything: Capitalism vs. the climate: Simon and Schuster.

Landbruksdirektoratet (2019). Beitebruken gjennom året. Retrieved from https://www.landbruksdirektoratet.no/no/reindriften/fakta-om-reindrift/beitebruken-gjennom-aret#sommeren

Lefebvre, H. (1992/2004). Rhythmanalysis: Space, time and everyday life (S. Elden & G. Moore, Trans.): Continuum.

Little Bear, L. (2000). Jagged worldviews colliding. Reclaiming Indigenous voice and vision, 77.

Norges Bank. (2019). About the fund. Retrieved from https://www.nbim.no/en/the-fund/about-the-fund/

Norsk Petroleum. (2020). The Petroleum Act and the licensing system. Retrieved from https://www.norskpetroleum.no/en/framework/the-petroleum-act-and-the-licensing-system/

Norwegian Petroleum Directorate. (2017). The NPD's role. Retrieved from https://www.npd.no/en/facts/publications/reports2/resource-report/resource-report-2017/the-npds-role/

Norwegian Petroleum Directorate. (2019). Record licence awards in APA 2018. Retrieved from https://www.npd.no/en/facts/news/general-news/2019/Record-licence-awards-in-APA-2018/

Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper. Rangifer, 93-102.

Sølvberg, I. (2020). Barerly halfway. Retrieved from https://www.npd.no/en/

Weinstock, J. (2009). What Goes Around Comes Around: Sámi Time and the Question of Indigeneity. Retrieved from https://www.laits.utexas.edu/Sámi/dieda/anthro/time.htm

08. Spatio-Temporal analyses

Alta Museum. (2018). The archives of the protest movement against the damming of the Alta-Kautokeino water system. Retrieved from https://www.altamuseum.no/en/altas-nyeretids-historie/samlingene/altasaken-arkivet

Berkes, F. (2012). Sacred Ecology. New York & London: Routledge.

Briggs, C. M. (2006). Science, local knowledge and exclusionary practices: Lessons from the Alta Dam case. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 60(2), 149-160.

Eriksen, K. E., & Niemi, E. (1981). Den finske fare. Oslo, Bergen, Tromsø: Universitetsforlaget.

Ellefsen, K. O. (Writer). (2018). Keynote - Karl Otto Ellefsen. In: RSD6.

Fanghol, T. A. (2017). 50.000 oljejobber borte. Retrieved from https://www.bt.no/nyheter/okonomi/i/lRevM/50000-oljejobber-borte

Fouch, G. (2017, 26 november). The rampaging reindeer of Hammerfest. *The Guardian.* https://www.theguardian.com

Fox, J. (1998). Mapping the commons: the social context of spatial information technologies. *The Common Property Resource Digest, 45, 1-4.*

Gjellstad, M. (2015), Creating New Fairytales: Statoil, Snøhvit, and Petroleum Exploration in the Arctic. *Scandinavian-Canadian Journal / Études scandinaves au Canada 22: 66–77.*

Jacobsen, A. R. (1996). Fra brent jord til Klondyke: historien om Findus i Hammerfest og norsk fiskeripolitikks elendighet: *Universitetsforl.*

Jacobsen, A. R. (2010). *Snøhvit, the history of oil and gass in the Barents Sea*: Statoil.

Johansen, B., Karlsen, S. R., & Uhlig, C. (2007). Kartlegging av vegetasjon, reinbeiter og erosjon - Kvaløya i Hammerfest kommune. Retrieved from NORUT:

Johansen, G. (2008, 2 mei). Smarte reinsdyr inntar Hammerfest. *Nordlys.* https://www.nordlys.no

Johnsen, K. I. (2018). Conflicting knowledges, competing worldviews: Norwegian governance of Sámi reindeer husbandry in West Finnmark, Norway.

Klick, M. T. (2008). The political economy of corporate social responsibility and community development: a case study of Norway's Snøhvit natural gas complex *(Doctoral dissertation).*

Landbruksdirektoratet. (2019). Beitebruken gjennom året - Sommeren. Retrieved from https://www.landbruksdirektoratet.no/no/reindriften/fakta-om-reindrift/beitebruken-gjennom-aret#sommeren

LMD. 2001. *Verdiskapingsprogrammet for matproduksjon.* Oslo: Landbruks- og matdepartementet.

Loe, J. S. P., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway. Chemical Physics Letters. https://doi.org/10.1016/j.erss.2016.03.008

Mikalsen, J. (2015). Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift. Retrieved from Hammerfest Kommune:

Minde, H. (2005). Assimilation of the Sami-implementation and consequences. *Journal of Indigenous peoples rights, 3.*

Østerberg, D. (1998). *Arkitektur og sosiologi i Oslo: en sosio-materiell fortolkning*. Pax 1998.

Reinert, E. 2006. The economics of reindeer herding: Saami entrepreneurship between cyclical sustainability and the powers of state and oligopolies. *British Food Journal* 108, 522–540.

Reinert, H. (2019). The Midwife and the Poet. Environmental Humanities, 11(1), 137-151. doi:10.1215/22011919-7349455

Sara, M. N. (1999). Praktisk reinbeitebruk-tradisjonelle kunnskaper. Rangifer, 93-102.

Severinsen, T. K. H. (2008). *Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune*. University of Oslo, DUO Research Archive. Retrieved from https://www.duo.uio.no/handle/10852/21658

Sinclair, C., First female mayor strikes largest oil deal for dying Hammerfest, in: Sornes, J. O., Browning, L., & Henriksen, J. T. (2015). Culture, Development and Petroleum: An Ethnography of the High North. *Routeledge Abingdon.*

Skjenneberg, S., & Slagsvold, L. (1979). *Reindeer husbandry and its ecological principles* [Reindriften og dens Naturgrunnlag]. US Department of the Interior, Bureau of Indian Affairs.

Sollid, H., Conzett, P., & Johansen, Å. M. (2014). Gender and noun inflection: The fate of ' vulnerable ' categories in Northern Norwegian.

Staalesen, A. (2020, 9 juni). Norway seeks way out of crisis, invests in more oil. *The Independent Barents Observer.* https://thebarentsobserver.com

Thesen, G., & Leknes, E. (2010). Nord-Norge i norsk petroleumspolitikk-narrativer og politisk endring. *Oljevirksomhetens inntog i nord: næringsutvikling, politikk og samfunn, 45-76.*

Utredninger, N. O. (1994). 21, Bruk av land og vann i Finnmark i historisk perspektiv: Bakgrunnsmateriale for Samerettsutvalget. *Oslo: Statens forvaltningstjeneste.*

Images

8.38 Friis, J.A. (1888). Ethnographic map of the county of Finnmark. Retrieved from: https://www.kartverket.no/Kart/Historiske-kart/Historiske-kart-galleri/historiske-kart---detaljer/?kartid=12020

09. Scenarios

Meyer, H. (Ed.), Bregt, A. K., Dammers, E. (Ed.), Edelbos, J. (Ed.), van den Berg, J., van den Born, G. J., ... Warmerdam, M. (2015). *New perspectives for urbanizing deltas: a complex adaptive systems approach to planning and design : Integrated Planning and Design in the Delta (IPDD).* Amsterdam: MUST Publishers.

Mikalsen, J. (2015). *Områderegulering for Strømsnes/Akkarfjord - Konsekvensutredning Reindrift.* Hammerfest Kommune. Retrieved from https://img6.custompublish.com/getfile.php/3532076.1646.uwxuutavts/Vedlegg+7+-+KU+Reindrift.pdf?return=www.hammerfest.kommune.no

Nemkova N., & Fyta P. (2016). *Shifting Arctic Boundaries.* Architectural Association School of Architecture, Retrieved from http://landscapeurbanism.aaschool.ac.uk/research/shifting-arctic-boundaries/

Severinsen, T.K. (2008). Reindrift og arealforvaltning : med fokus på reinbeitedistrikt 20 Fála/Kvaløy og Hammerfest kommune. *Master thesis,* University of Oslo.

9.2 Nemkova N., & Fyta P. (2016). *Shifting Arctic Boundaries.* Architectural Association School of Architecture, Retrieved from http://landscapeurbanism.aaschool.ac.uk/research/shifting-arctic-boundaries/

9.12 Fossheim, M., Primicerio, R., Johannesen, E., Ingvaldsen, R. B., Aschan, M. M., & Dolgov, A. V. (2015). Recent warming leads to a rapid borealization of fish communities in the Arctic. *Nature Climate Change*, 5(7), 673-677.
Eide, A. (2016). Causes and consequences of fleet diversity in fisheries: The case of the Norwegian Barents Sea cod fishery.

9.13 Christie, H., Bekkby, T., Norderhaug, K. M., Beyer, J., & Jørgensen, N. M. (2019). Can sea urchin grazing of kelp forests in the Arctic make rocky shore systems more vulnerable to oil spills?. *Polar Biology*, 42(3), 557-567.

9.19 Fossheim, M., Primicerio, R., Johannesen, E., Ingvaldsen, R. B., Aschan, M. M., & Dolgov, A. V. (2015). Recent warming leads to a rapid borealization of fish communities in the Arctic. *Nature Climate Change*, 5(7), 673-677.

Eide, A. (2016). Causes and consequences of fleet diversity in fisheries: The case of the Norwegian Barents Sea cod fishery.

9.20 Christie, H., Bekkby, T., Norderhaug, K. M., Beyer, J., & Jørgensen, N. M. (2019). Can sea urchin grazing of kelp forests in the Arctic make rocky shore systems more vulnerable to oil spills?. *Polar Biology*, 42(3), 557-567.



APPENDIX

13.



The urban territory of extraction

Extraction and the planetary urbanization in the contemporary politics of climate change

Student Boaz Peters, student no. 4215583, boazpeters@gmail.com
Delft University of Technology, MsC3 Urbanism, TT Graduation Studio, AR3U023 Theory of Urbanism
December 5th, 2018

Abstract – We live in a world where we consume products, knowledge, jobs and experiences as never before. This social behaviour has a huge impact on the earth as we know it. We can even say that we have entered the Anthropocene, or better; the Capitolocene. We can state that resource extraction is the source of the climate variations we experience today. But what are these extraction sites? Whose lands? Whose authority? What do they extract? How is this moved? And most importantly, what is the impact? We have become far-removed from the origins of our products and the territories of resource exploitation. These territories of extraction need to be explored and explained spatially. In this paper I try to reconstruct the urban phenomenon of the Planetary Urbanization. Urbanity is not an antonym of the rural. It is everything that serves the city. With this in mind, we can review the implosion-explosion phenomenon that has been unfolding for the past decades. I do so by creating a dialect between different theories on the contemporary urban issue and applying them to the example of Norway. The theory of Planetary Urbanization elaborated by Neil Brenner and the Politics of Climate Change by Anthony Giddens will be used and consequently I will try to fit these theories into the account of Territoriality by Claude Raffestin. Through this I hope to achieve a theoretical background with which we can start to deconstruct small parts of the contemporary urban conditions.

Key words – Planetary urbanization, territoriality, extractivism, implosions, explosion, politics on climate change, Norway

"If we dig precious things from the land, we will invite disaster"

from the motion-picture "Koyaanisqatsi" (Reggio, 1982)

Introduction

We live in a world where we consume products, knowledge, jobs and experiences as never before. This social behaviour has a huge impact on the earth as we know it. We can even say that we have entered the Anthropocene, a new era in which humans have become a global geophysical force (Steffen, Crutzen, & McNeill, 2007).

Jason Moore (2018), on the contrary, describes the popular Anthropocene as an "indispensable weapon in the capitalism's arsenal". He states that the principle driver of modern environmental change is not the anthropogenic, but the capitalogenic, driven by capital. Therefore, he suggests a new term; the Capitolocene. Here the concept is not 'Human' against 'Nature', but labour and capital used by the 1% as a driver of climate change (Moore, 2018). As he explains in one of his lectures; the steam engine is not the start of the industrialization, but the extraction of resources is. Hence, we can conclude that the Capitolocene started with the colonization of distant territories. The colonies were convicted

to produce resources for the West. We could argue that colonization is the source of Capitalism and therefore Capitalism is the main driver of resource extraction. Thus, Capitalism and its devastating practice of resource extraction is an important cause of climate change we experience today.

But what are these extraction sites? Whose lands? Whose authority? What do they extract? How is this moved? And most importantly, what is the impact? These should be fundamental questions for everyone.

Our minds have been focussed too much on our cities. We need to shift our focus towards the total scope of the global urbanization. Virtually everything has become urban. Everything we do, everything we consume, everything we see comes from distant invisible places. We have become far-removed from the origins of our products and the territories of resource exploitation (Bélanger, 2018). These territories of extraction need to be explored and explained spatially. The questions posed earlier are fundamental for understanding the current global urbanization.

In this paper I try to reconstruct the urban phenomenon of the Planetary Urbanization. Urbanity is not an antonym of the rural. It is everything that serves the city. With this in mind, we can review the implosion-explosion phenomenon that has been unfolding for the past decades. I do so by creating a dialect between different theories on the contemporary urban issue. The theory of Planetary Urbanization elaborated by Neil Brenner and the Politics of Climate Change by Anthony Giddens. I will try to fit these theories into the view of Territoriality as elaborated by Raffestin. Through this I hope to achieve a theoretical background with which we can start to deconstruct the contemporary urban conditions.

Perhaps one of the most accurate statements on the contemporary climate change issue in the West is by Anthony Giddens (2009). He states that; "since the dangers posed by global warming aren't tangible, immediate or visible in the course of day-to-day life, however awesome they appear, many will sit on their hands and do nothing of a concrete nature about them. Yet, waiting until they become visible and acute before being stirred to serious action will, by definition, be too late" (Giddens, 2009). Apparently, the current discourse on climate change is not yet enough to argue climate change is a serious and immediate threat and that we need to act accordingly.

Norway will be used as a practical example of how these theories can be analysed and spatialized in the real world. In the end, I would like to have clarified that the most pressing issue is the continuous underestimation of the issue of climate change. I hope this paper will explain and link theories to spark the debate on the most important issues of today; climate change induced by capitalism and neo-colonial industries.

2. Exploring the planetary urbanization

2.1 The planetary urbanization

The urban question has long been the centre point of debate among researchers. Despite a variety of studies "regarding the role of cities, urbanism, and the urbanization processes in ongoing global transformations", our urban field has been focused too much on the mapping of human settlements (Brenner & Schmid, 2017, p. 160). The city has been the primary unit of analysis and site of investigation despite the fact that we could say that, "the city is everywhere and in everything" (Amin & Thrift, 2002, p. 1). This idea of the planetary urbanization is not new.

Four decades ago, Lefebvre already put this idea forward with his hypothesis of the complete urbanization of society, demanding for a radical shift from urban form to the urbanization process (Lefebvre, 1970/2003). Although he viewed the complete urbanization as a virtual object, we can confirm that this has become a reality (Brenner & Schmid, 2017). We have experienced an expansive form of urbanization of the entire globe over the past decades (Soja & Kanai, 2007) and with this arose the issues on climate change and social injustice we experience today. The city has been the primary subject of urbanism, but there are more things to look at. What are these objects of interest and

why do urbanists need to concern themselves with them?

2.2 Implosion/Explosion

As Brenner (2014) argued in his book Implosions/Explosions, the Planetary Urbanization, as hypothesized by Lefebvre, nears completion. This can be confirmed since it is estimated that 70% of the world population will live in cities by 2050 (Provoost, 2016). We can argue that industrialization around the world is in service of urbanization. It can be argued that cities are the main source of pollution in several ways across the world. This will accelerate with the implosion of people and the explosion of the industrialization of the world. Our focus should shift from the implosion of cities towards the explosion it caused.

Brenner characterizes Lefebvre's notion of "implosion-explosion" as a generalization of the capitalist urbanization. This is a tool to describe the broad transformation caused by capitalism as the source of a transformation of territories, landscape and environment (2014). "Implosion-explosion" is the implosion of cities and the explosion of agriculture and resource extraction. While these are primarily visible, there are also invisible structures which link the agglomerations and their operational landscapes. These infrastructures can be found everywhere; under the ground, on water, in the air. Our daily life wouldn't be possible without it (the internet, roads, boats, airplanes etc.).

In figure 1 the urbanization process is drawn as an axis which represents both space and time. He describes implosion-explosion as a critical moment in time with the transition from the "pure nature" on the left to the completion of the urbanization process on the right (Lefebvre, 1970/2003). The moments of transition can be described as the *critical phase*. During the critical phase we often experience periods of profound crisis. Lefebvre suggests that industrialization often becomes a dominant power in these periods, which "results in tremendous confusion, during which the past and the possible, the best and the worst, become intertwined" (Lefebvre, 1970/2003).

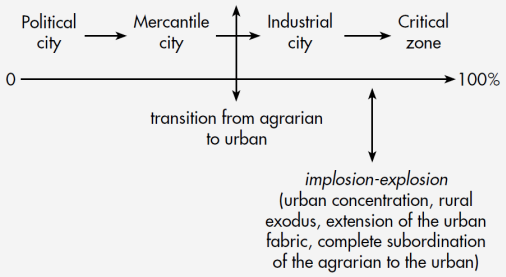


Figure 1. The implosion-explosion and the Critical zone (Lefebvre, 1970/2003).

It is this point that I want to highlight. We are currently at the genesis of the most profound crisis of our age: climate change. The transition we are currently facing is a purgatory in which possible theories, technologies and ideologies are boiling to the surface. Of course, we do need these technologies, but we should be very critical towards them. Some of them menace the extreme growth in resource extraction and capitalism; which are exactly the source of climate change.

Ergo, we must be very critical towards the current proposals on climate change, political environment and the solutions offered within Urbanism and Architecture.

2.3 Towards a new understanding

To conclude the above. We are in a state of profound crisis. The planetary urbanization, as a result of capitalism, is nearing completion and is at the ground of climate change. Yet, we have not adapted our analyses and methods accordingly. A focal shift is needed. I would argue that a better spatial understanding of the Planetary Urbanization and the Implosions/Explosion theories are fundamental in contributing to the debate of climate change. To quote Brenner; "It seems as urgent as ever, under these conditions, to develop theories, analyses and cartographies that situate such operational landscapes" (Brenner, 2014). The following sections, The Politics on Climate Change and Territoriality, will elaborate on the characteristics of these landscapes.

3. The Politics of Climate Change

3.1 On the Politics of space and oil

In order to understand the planetary urbanization and the issues surrounding climate changes a theoretical background on the geopolitics is needed. We as urbanists operate in a complex field of actors which operate on a global scale and we cannot ignore the contemporary discussions within the global politics, mainly climate change.

Let's start with the fact that the industrialized countries (the West) have pumped most of the emissions into the atmosphere and should therefore take prime responsibility for the consequences of climate change (Giddens, 2009). However, currently there are no methods in place for governments to effectively reduce pollution. In fact, Giddens states that "at present, *we have no politics of climate change*" (2009), and therefore we mainly rely on technological advances, invented by capitalist companies. Giddens states that support from the state is crucial. It is apparent that even now, in 2018, we still do not have a politics of climate change; there are no ministries of climate change. Therefore, the global impact of urbanization is still not fully grasped by the general public. Companies are the main actors in this process and should be accounted a bigger role in the mitigation of climate change.

There are serious concerns about when oil and gas supplies will peak. This is the critical moment of when half or more of them is consumed. If the end of the oil-era is as near as some people argue, we have a big problem; most of what we consume in our daily lives involve the use of oil (Giddens, 2009). This shows how much this unsustainable industry is part of our lives.

Linking the Politics on space to the global context poses a critical example on oil. In his last chapter, "The Geopolitics of Climate Change", Giddens gives an example on how countries and companies still compete over resources and, particularly, oil. The opening of the Arctic provides a good example. When the ice was still in place, countries were in general agreement regarding the activities performed on the Northern pole. But now, with the retreat of the sea ice, conflicts arise over the possibilities on resource extraction of these new territories. The availability of oil, gas and mineral resources has lead to division on this part (Giddens, 2009). The same can be recognized in the logistic field, namely the opening of the Artic sea as a trading route. Thus, I would to state that the government is a cultural landscape and capitalist actors have the power to shape them.

Since the planetary urbanization unfolds globally, there is need for global research. I understand that global politics is a complex system, but I try anyway to analyse them appropriately to our specific projects. We cannot ignore them with the current urbanization.

Since urbanism is unfolding globally, we should consider solutions on climate change on all scales. Not per city or per country. The current methods on mitigating climate change are not sufficient. We could use the theories above as an instrument to show the consequences urbanization has globally. Nothing more needs to be said, at the moment.

4. Territoriality

4.1 Definitions on territoriality

Next to its scale, there are other aspects of climate change that have been neglected. Bélanger (2018) criticizes the way climate change is handled; our current lifestyles are threatened by landscapes of power to which our current discourse on climate change has turned a blind eye. He states that the real crisis is in the people's minds, models and media. We have become far-removed from the origin of our products and the territories of resource exploitation. "The map is no longer the territory", thus Bélanger (2018).
To understand what territory and territoriality is, we need a clear definition. Robert David Sack provides a clear definition on territory and space: "Territoriality in humans is best understood as a spatial strategy to affect, influence or control resources and people, by controlling area; and, as a strategy, territoriality can be turned on and off. In geographical terms, it is a form of spatial behavior" (Sack, 1986).
Currently, "the problem of territory, and of territoriality, is one of the most neglected in

geography and political economy" according to Raffestin (1980).

There are clear definitions on territoriality, but most theories still don't cover its spatial implications on contemporary landscapes. As I will try to conclude this paragraph, concise understanding and mapping could elaborate on that. Territory is the result of the production of actors. It can be understood as a produced space. Prior to territory there is movement: prior to establishing something and gaining things from that place there is an intention of approaching the site or the need of processing through. Territorialization is establishing something new, with a certain intention like settling, access to resources or a specific network of relations.

Sacks definition could be more nuanced. According to Claude Raffestin, "territoriality is the ensemble of relations that humans maintain with exteriority and alterity, with the assistance of mediators, for the satisfaction of their needs, towards the end attaining the greatest possible autonomy – that is, the capacity to have aleatory relations with their physical and social environment - taking into account the resources of the system" (Raffestin, 2012). Although he states that definition is growing outmoded, it can still be regarded as the most concise definition of territoriality.

To be able to deconstruct the current territorialities it is needed to understand which factors play a role in the process of territoriality. Deleuze and Guattari explain "political territoriality as the evolution of borders", and thus the act of territorialization, deterritorialization and reterritorialization takes place (Deleuze & Guattari, 1987). This process between various phases can develop itself rapidly or quite slowly. This is dependent on the actors that subject to and a range of ecological, economic and political conditions (Raffestin, 2012).

Labor is at the origin of power, as explained by Foucault (1998), and plays a main role in the realization of the actions carried out by the actor. While this used to be physical labor, it is currently dominated by money. This allows the actor to appropriate and control the labor that is needed to modify the environment (Raffestin, 2012).

Today, it seems that money is the actor's main motivation. To cite Sloterdijk: "Money is abstraction in action. To hell with value, business is business. For money, nothing matters. It is the medium in which the equiting of what is different is realized in practical terms. Like nothing else, it has the power to bring different things to a common denominator" (Sloterdijk, 1988).

4.2 The act of TDR explained

On the next page, Raffestin's theory on TDR (territorialization, deterritorialization, reterritorialization) is shown in a descriptive model along with my own interpretation of this concept.

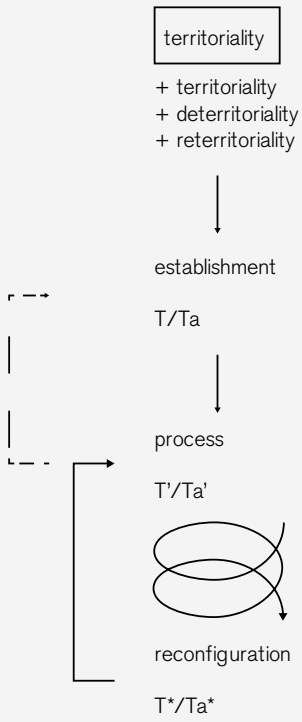


Figure 2. Process of territoriality, made by Author

A = Actor
L = Labor (energy + information)
M = Mediators (material + immaterial instruments)
P = Program (intentions + objectives)
R = Relation (set of actions)
Sn = State of the environment (natural)
So = State of the environment (synthetic, cultural)
T = Territory
Ta = Territoriality (relation between territory and its residents)

Territorialization:

A (L, M, P, R, S(Sn/So)) = **T/Ta**

So, in the initial state of territorialization (T), the actor (A) acts upon the original environment (S) to create a Territory and territoriality that accommodates him.

This is what is currently unfolding beyond the Arctic border now.

Deterritorialization:

A' ((L, M, P)', R' (A (L, M, P), R, S(Sn/So) = T/Ta)) = **T'/Ta'**

Then, a new actor will manipulate the new environment (after a certain time) again and again, resulting in its marginalization. Actors then abandon their territories. This process may repeat itself when new territorialization is needed.

This is what we can expect when resource interests shift.

Reterritorialization:

A* (L, M, P)*, R* =
(A' ((L, M, P)', R' (A (L, M, P), R, S(Sn/So) = T/Ta)) = T'/Ta')
= **T*/Ta***

Finally, a new perspective will be taken on the worn-out territories and they will be seen with a fresh pair of eyes.

Here lies the opportunity to re-use these old territories, which is the key to sustainability.

4.3 A short summary

How can we use territoriality in spatial form? If we currently look at the territorial activity of extraction, they often entail a monofunctional existence. The current system of territoriality produces spatial fragmentation, environmental disasters, social segregation etc. But in the end is evaluated as efficient by stakeholders and governments on a large scale. These stakeholders often only act in their own interest, which is making money. The current system of territory and territorialisation is not only harmful for nature and humans, but also economically in the future. For now, we are investing into unsustainable systems, since we must mitigate the effects of climate change in the future.

Territoriality is about the politics of space where, currently, money dominates as a mediator. This results in monofunctional territories which operate on a large scale. From what I've stated it seems obvious that these monofunctional systems don't have enough reach to deal all the issues that have been neglected. We need to spatially analyse the effects of the planetary urbanization and the politics of climate change. The theory on territoriality could be of use by urbanist to rationally deconstruct this through mapping.

5. A brief reflection on Norway

The implosion of settlements in Western Europe have caused an explosion of resource extraction in Norway over the past decades. Currently, Norway is the richest country in Europe in exporting raw commodities. 50% of Norway's export consists of petroleum (OEC, 2016). Furthermore, the Norwegian government is highly involved in the oil and gas extraction economy of Norway. In fact, the government has a share of 67% in this company (Equinor, 2018). In light of this, it seems that, while Norway claims to be 'natural', they are highly urbanized. The same can be said of mineral extraction. But oil and gas extraction practices are on their return. To maintain its economic growth, Norway is redirecting its attention to mineral extraction. Since oil and gas are the main source of income, this entails a significant economic and political shift. Additionally, as stated before, Norway is one of the main actors in the new territory of the North Arctic sea; this opening gives Norway a unique trading position.

Norway's current position can be described in terms of territoriality, as briefly stated earlier. The territorialization of the North pole is about to start, the oil and gas industry in its Southern part is subjected to deterritorialization, and hopefully, in the future, it will invest in the reterritorialization of deteriorated landscapes, in order to recuperate a sustainable system.

6. Conclusions

The issues raised in this essay deserve considerable attention. The solutions will not come easy, and even when they are there, the weight of our mistakes should not be forgotten. As explained by Giddens paradox; people will not be motivated to accept a change, unless danger is staring them in the face. Therefore, the understanding and acceptance of the Planetary Urbanization is crucial for people to realize that the current system and behaviour is not only affecting distant territories but will also affect their own lives (and the lives of their children) in the future. Since it is a global issue, we should take in a global perspective, and not settle for local mitigation, as we tend to do now.

The "implosion-explosion" effect will expand when the developing countries gain even more economic leverage by 2050. Since we, as industrialized West, are responsible for the concepts in place, we should take the lead and research how to mitigate the effect.
Presumably, we will not be able to change the system in which we operate, but if want to, we need to turn to the governments first. The intent is to contribute to this new paradigm in Urbanism and add to methods in place today, going towards a transition in climate change and our behaviour in the future.

7. Discussion

It should be kept in mind that there has been no systematic application of Planetary Urbanism as a methodology. Hopefully, doing so in the case of Norway, and adding the aforementioned theories, will prove fruitful. Also, following Giddens, it is important to stay positive. He states that Martin Luther King didn't stir people to action by proclaiming, 'I have a nightmare!' (Giddens, 2009).

Bibliography

Amin, A., & Thrift, N. (2002). *Cities: reimagining the urban*: Polity Press.

Bélanger, P. (2018). The Decolonization Of Design Pierre Belanger. Retrieved from https://www.arch.columbia.edu/events/824-the-decolonization-of-design-pierre-belanger

Brenner, N. (2014). Implosions/explosions. *Towards a Study of Planetary Urbanization. Berlin: Jovis*.

Brenner, N., & Schmid, C. (2017). Planetary urbanization. In *The Globalizing Cities Reader* (pp. 479-482): Routledge.

Deleuze, G., & Guattari, F. (1987). Capitalism and Schizophrenia Vol. 2: A Thousand Plateaus. *Trans. by Brian Massumi. Minneapolis: University of Minnesota Press*.

Equinor. (2018). Investors. Retrieved from https://www.equinor.com/en/investors.html#our-shareholders

Foucault, M. (1998). The will to knowledge: The history of sexuality vol. I.

Giddens, A. (2009). *Politics of climate change*: Polity.

Lefebvre, H. (1970/2003). *La révolution urbaine [The urban revolution]* (R. Bononno, Trans.): U of Minnesota Press.

Moore, J. W. (2018). Confronting the Popular Anthropocene: Toward an Ecology of Hope. In M. Gomez-Luque & G. Jafari (Eds.), *New Geographies 09: Posthuman* (pp. 186-191): Actar D.

OEC. (2016, 11-11-2018). The Observatory of Economic Complexity. Retrieved from https://atlas.media.mit.edu/en/visualize/tree_map/hs92/export/nor/all/show/2016/

Provoost, M. (2016). The New Urban Agenda –the Perspective of New Towns.

Raffestin, C. (1980). Pour une géographie du pouvoir.

Raffestin, C. (2012). Space, territory, and territoriality. *Environment and Planning D: Society and Space, 30*(1), 121-141.

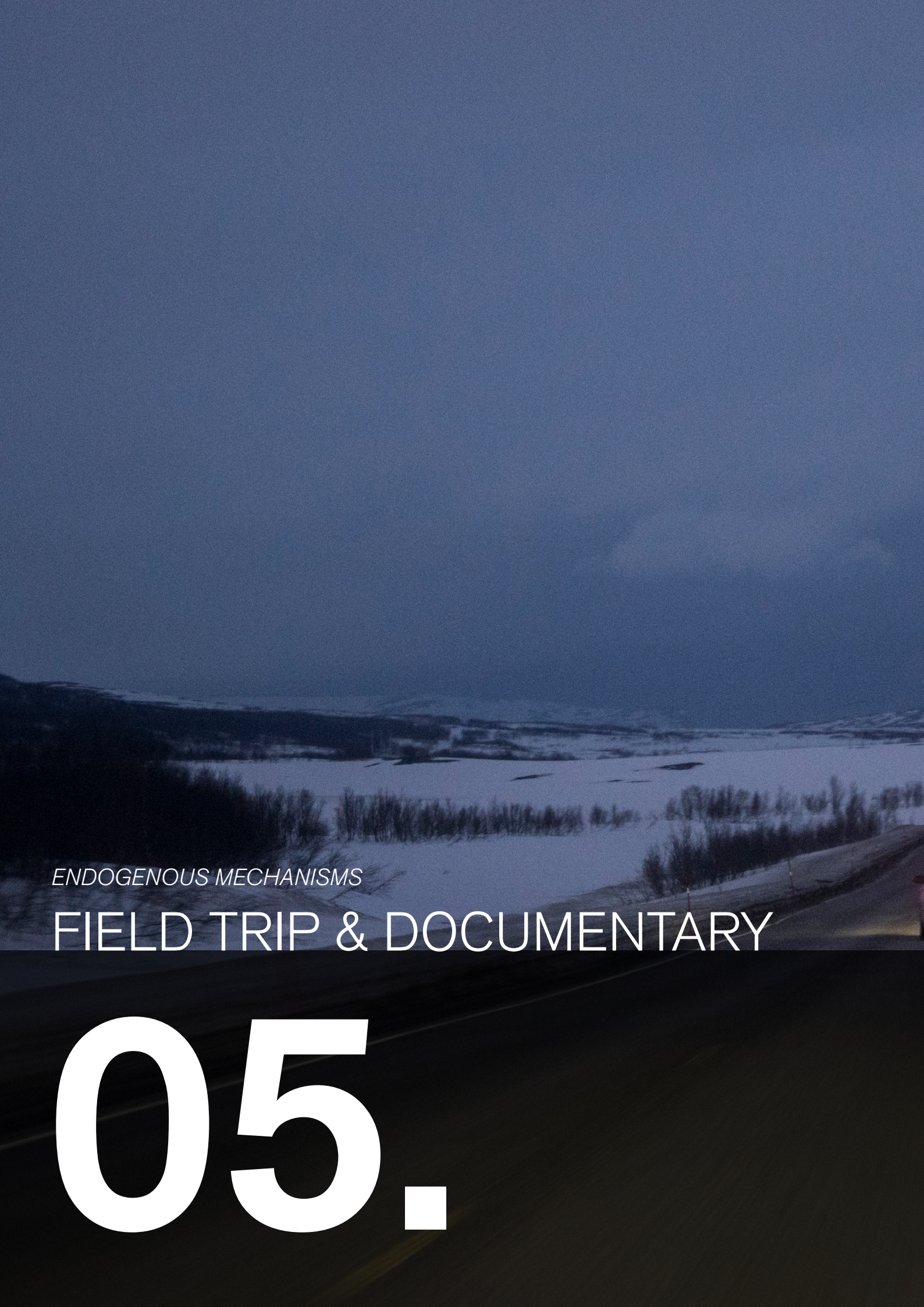
Reggio, G. (1982). Koyaanisqatsi. Retrieved from https://www.koyaanisqatsi.org/films/k_defs.php

Sack, R. D. (1986). *Human territoriality: its theory and history* (Vol. 7): CUP Archive.

Sloterdijk, P. (1988). Critique of cynical reason.

Soja, E., & Kanai, M. (2007). The urbanization of the world. *The endless city*, 54-69.

Steffen, W., Crutzen, P. J., & McNeill, J. R. (2007). The Anthropocene: are humans now overwhelming the great forces of nature. *AMBIO: A Journal of the Human Environment, 36*(8), 614-621.



ENDOGENOUS MECHANISMS

FIELD TRIP & DOCUMENTARY

05.



"You see, gentlemen, reason is an excellent thing, there's no disputing that, but reason is nothing but reason and satisfies only the rational side of man's nature, while will is a manifestation of the whole life, that is, of the whole human life including reason and all the impulses. And although our life, in this manifestation of it, is often worthless, yet it is life and not simply extracting square roots."

Dostoevsky , F. (1864). Notes from Underground.


WEST HERCULES
PANAMA
IMO 8768763
ANTHROPOCENE


PEOPLE


LANDSCAPE

Introduction

Thorough research on site is a crucial aspect for every project. Preliminary analyses has shown gaps between western and indigenous perspectives which have caused conflicting situations. In order to bridge these gaps, we (Boaz Peters and Mark Slierings) conducted a two week field trip to northern Norway and Scandinavia. The main purpose is to understand the perspectives of the local residents on the incoming industries. By means of a journal we ground our experiences through cinematography, photography, interviews and literature in order to get a more holistic socio-territorial perspective.

The first part will explain the objective of the field trip and what types of documentation were used. The second part will consist of a day to day journal. This documentation explains the foundations for the construction of our documentary.

As outcome we proudly present our documentary 'Northbound' which has been selected for the Architecture Film Festival Rotterdam 2019 and the Budapest Architecture Film Days 2020. Main narrative lines of the documentary were build under the notions of anthropocene, people and landscape. The field trip has aided in the further creation of the theses, and the documentary and journal are the instruments to translate in real life as possible. We suggest that a project in contested landscapes like this is incomplete without the first person perspective, and we build this argument throughout this chapter.

Figures

◀ 5.33 West-Hercules, Rypefjord, Hammerfest.
Made by authors 2019

◀ 5.34 Winning act of Sámi Grand Prix, Kautokeino.
Made by authors 2019

◀ 5.35 Håja island, Hammerfest.
Made by authors 2019

Objective

"Both in the selectivity of their content and in the signs and styles of representation maps are a way of conceiving, articulating and structuring the human world which is biased towards, promoted by, and exerts influence upon particular sets of social relations."

J. Brian Harley, "Maps, Knowledge and Power" (1988)

If the map doesn't present itself as a truthful representation for the territory anymore, then new modes of representation should be considered to broaden the academic scope. During the field trip our goal has been to investigate and communicate the social, environmental, cultural and political dynamics in Finnmark.

We chose documentary making as a tool to translate these problems. Objective and subjective gaps between Western and indigenous perspectives are causing conflicts in Finnmark. One of the primary problems is that a Western perspective - often based on a more objective, third person knowledge - fails to understand and translate local knowledge and perception into its research. According to the Stanford Encyclopedia of Philosophy, this objectivism is effectively based on the assumption "that an objective description of what exists can be complete; that there are no aspects of reality which can only be understood by having experiences of a specific type"[1]. But as the philosophical Knowledge Argument reveals; "no objective description of what exist can be complete"[1].

The Knowledge Argument "rests on the idea that someone who has complete physical knowledge about another conscious being might yet lack knowledge about how it feels to have the experiences of that being"[1]. This is exactly where documentary making can be seen as an effective tool. Our goal is to combine and test our pre-gathered research and hypotheses with the first person experience through filming, photography and interviewing and translating this to reach a wider audience.

There are multiple methods to gain a holistic view in regard of first person perspective/ knowledge (interviewing, studies in humanities etc.). We chose to focus on film making as it provided us with a tool which is visually and emotionally strong. Furthermore, it is quite quickly mastered with little experience or study.

Western- and indigenous knowledge perspectives

Knowledge based indigenous science has been gathered over centuries by place-based natural-history observations: in lexicon, calendars, place names, maps and other practices of indigenous resource managers. We will use the field trip, journal and documentary as aides for opening up this knowledge to us, in order to elaborate on the findings of our theses. And as Sarah Pink explains; "first person perspective recordings might be engaged and made analytically meaningful in disciplines where naturalistic and observation visual recording is uncommon". She argues that these technologies can be used for wider possibilities in ethnographic research both beyond their existing uses and for interdisciplinary research where the images they produce might be analyzed from more than one perspective[2].

We will use the journal and documentation through documentary making to combine our (Western) research with the *traditional ecological knowledge*[3]. Traditional ecological knowledge is "knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings, including humans, with one another and with their environment"[4].

Citations

[1] Nida-Rümelin & O Conaill, (2019), Qualia: The Knowledge Argument.

[2] Pink, S. (2015). Going forward through the world: Thinking theoretically about first person perspective digital ethnography.

[3] Wilder, O'Meara, Monti, & Nabhan, (2016), The importance of indigenous knowledge in curbing the loss of language and biodiversity.

[4] Berkes, F. (2012). Sacred Ecology.

[5] Nisbet, M. C., Hixon, M. A., Moore, K. D., & Nelson, M. (2010). Four cultures: New synergies for engaging society on climate change.

Figures

▶ 5.36 Diagram showing relations between western knowledge and traditional ecological knowledge and their respective perspectives.
© authors 2019

▶ 5.37 Table comparing features of Western science and TEK.
Based and adapted from Wilder, O'Meara, Monti, & Nabhan 2016

The diagram and table below explain the main differences between Western knowledge and traditional ecological knowledge (TEK). As the digram shows, traditional ecological knowledge enriches Western science, but can also benefit from it. This cooperation will eventually enable researchers working in these environments to help engage diverse constituencies in addressing the biological, cultural and economic consequences that global externalities have on these territories. This should therefore be of interest to those scholars working to bridge the environmental sciences with social sciences, art an religion[5].

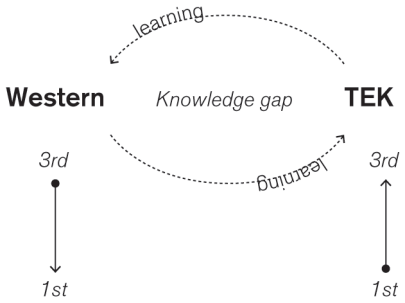
Ultimately we will try answer the following questions:

How can the field trip, journal and documentary broaden our knowledge for our theses?

How can the field trip, journal and documentary broaden general scientific knowledge of indigenous issues?

The journal can be found on the following pages. For each location we stopped, we will couple our personal experience with scientific literature and news articles. On the days of the interviews, a summary of the interview will be given. Concurrently, we will explain which stories, conclusions and images ended up in the documentary. By providing a journal, we hope to be transparent in our motivations and intentions.

Western and indigenous perspectives



Goals	Seeking universals and testing theories through experiments, the analyses of data and models	Usually offering data and pattern analyses specific to or bounded by a culturally defined space and time
Participants	academically trained professionals & technicians	Largely done by “proto-professional” naturalists: foragers, hunters, fishers, farmers and shamans
Communication	Primarily through written works, graphs and formal oral presentations	Primarily transmitted orally in indigenous language and through songs, story, maps and art.
Framework	Done by individuals, small teams, or cybernetworks for universal benefit	Done in multigenerational communities primarily for the community

Journal setup

Day 1 - 3: Tromsø | page
Arctic University of Norway
Grøtsund Fort Harbor
Tomsø Arctic Reindeer
Nordnorsk Kunstmuseum

Day 3 -4: Hammerfest | page
Snøhvit: oil & gas industry
Museum of Reconstruction
Local perspectives

Day 4 - 5: Forsøl - Børselv | page
Fish industry
Strømsnes: future industrial development
Repparfjod: re-opening copper mine

Day 5 - 6: Børselv - Vardø | page
Interview: Siv and Per - social geographer and reindeer herders
Fjord landscapes : fishing towns
Varangerfjorden

Day 6 - 7: Vardø - Kirkenes | page
Radar surveillance stations
Interview: Torbjørn
Steilneset Memorial: Sámi and Kven evictions
17th century

Day 7: Kirkenes - Russia | page
Nikel: nikel mines and smelters
Zapolyarny: mines and industry

Day 7 - 8: Inari - Leppäjärvi | page
Siida museum
Arctic Corridor
Sámi Parliament

Day 8 - 10: Kautokeino | page
Sámi University
Interview: Aslak Sokki - owner Sokki
Adventures and reindeer herder
Sámi Grandprix

Day 10 - 11: Leppäjärvi - Alta | page
Alta Rock Carvings Center
Alta Canyon: Alta protests against Alta dam

Day 12 - Alta - Hammerfest - Tromsø | page
Kåfjord: old copper mine and 2nd world war
Repparfjord
Rypefjord: Polar Base harbor

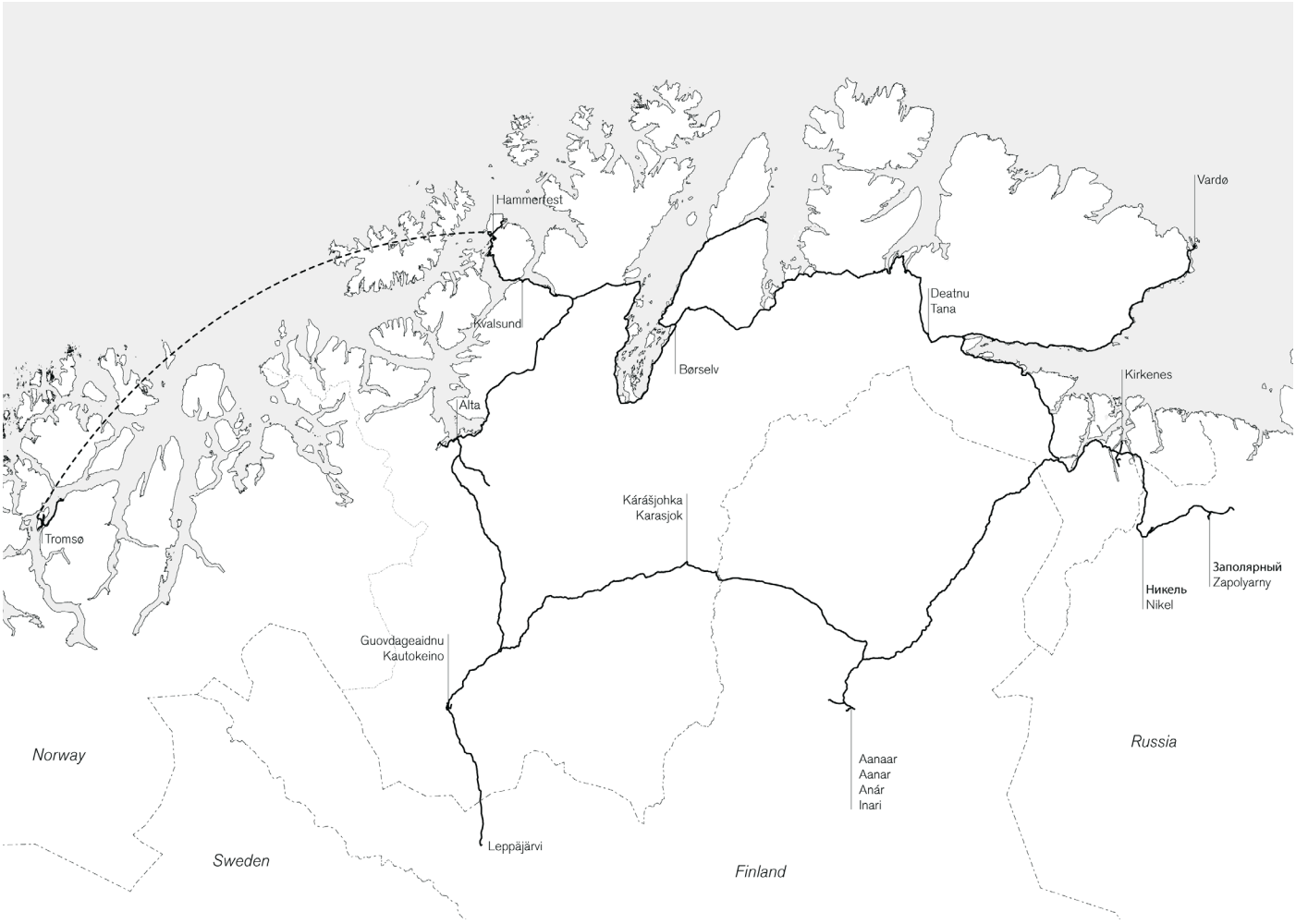
Day 12 - 14: Tromsø | page
Norgen Arktiske Universitetsmuseum
Polar Museum

Figures

▶ 5.38 Twilight lasting hours seen from the car.
Made by authors 2019

▶ 5.39 Map of traversed route through Norway, Russia and Finland.
Made by authors 2019, based on height data from Kartverket 2019




Hammerfest
Vardø
Deatnu
Tana
Kvalsund
Børselv
Kirkenes
Alta
Kárášjohka
Karasjok
Tromsø
Заполярный
Zapolyarny
Никель
Nikel
Guovdageaidnu
Kautokeino
Norway
Russia
Aanaar
Aanar
Anár
Inari
Leppäjärvi
Sweden
Finland

Tromsø

- *Thursday April 11th, 2019*

  To reach the North of Norway one can travel to Alta or Tromsø. Most flights to Tromsø have a layover in Oslo. It is one of the few airports with wooden floors, and exhibits grand luxurious characteristics. This sight immediately confirms the richness of this Scandinavian country, and we joke that this is all built on oil. Landing around midnight, our first Arctic experiences are greatly influenced by an immensely long twilight, illuminating steep fjord mountains in the distance.

- *Friday April 12th, 2019 | 9:00*

  Tromsø can be considered the northernmost 'big' city of Norway and is mainly situated on an island between the fjords. While walking around town, the remoteness of this place is confirmed by a constant visual reminder of the mountains looking over the town (figure 5.42). We spend the first day walking around and trying to contact researchers from the University.

- *15:00*

  The campus of the Arctic University of Norway is desolated because of the Easter study break and our attempt to find Sámi researchers ends in vain. The academic librarian Vibeke Bårnes tells us that the Sámi are quite religious and therefore it is difficult to get in touch during the Easter time. This difficulty, and the fact that many Norwegians go on holidays in the South, resonated throughout the whole trip.

  In the basement of the faculty of Human Sciences a poetic embroidery is displayed called *"Historja"* (figure 5.40), made by Swedish textile artist Britta Marakatt-Labba. The artwork reaches back centuries and across 24 meters of linen, mapping out the lives of the land's indigenous Sámi people. The artwork shows in detail the natural connections of the Sámi with

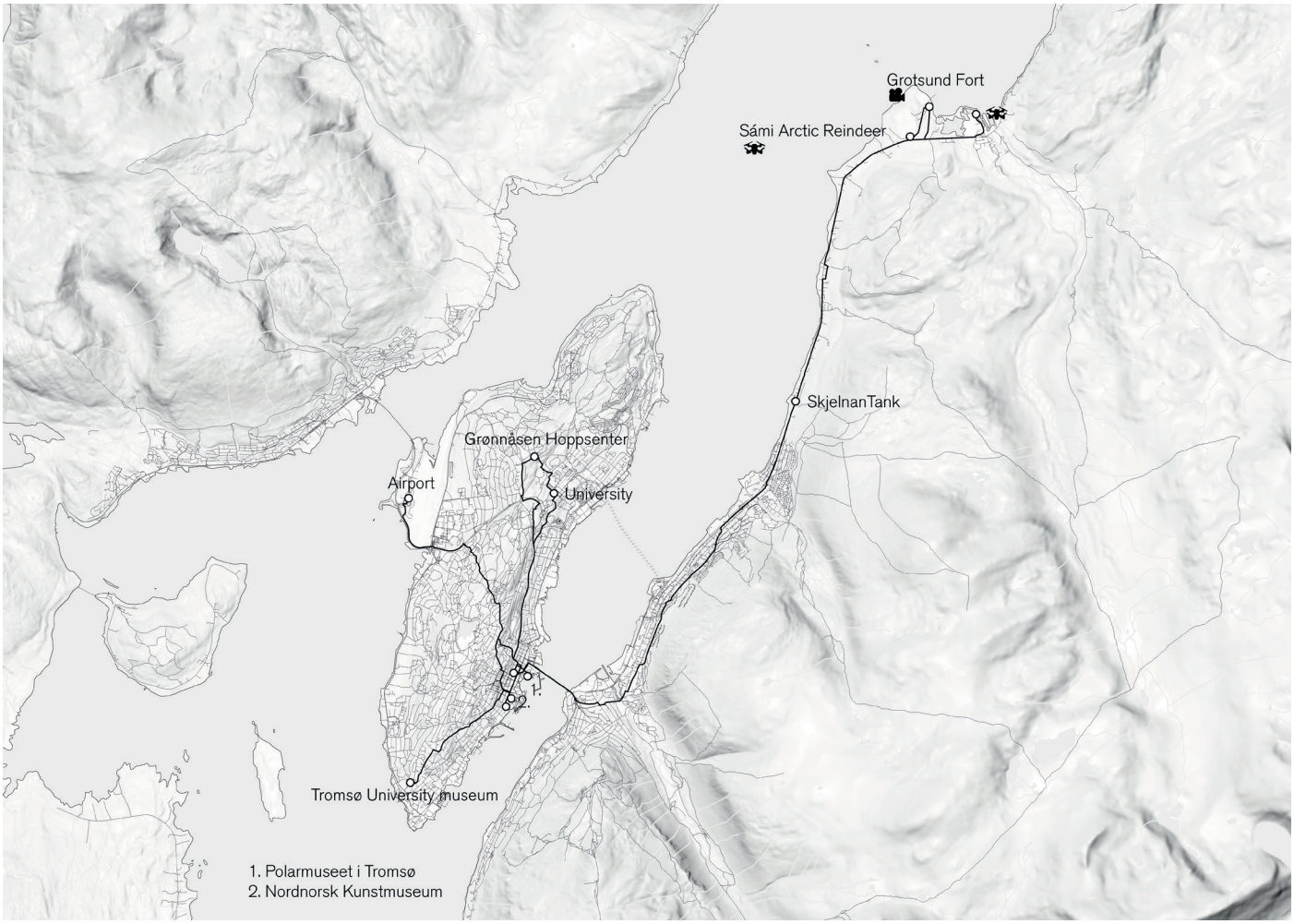


Figures

▲ 5.40 Detail of *"Historja"*.
© Britta Marakatt-Labba, detail 2003-07.

▼ 5.41 Traversed route in and around Tromsø.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.42 Tromsø bridge seen from Grønåsen Hoppsenter (ski jump centre).
made by authors 2019





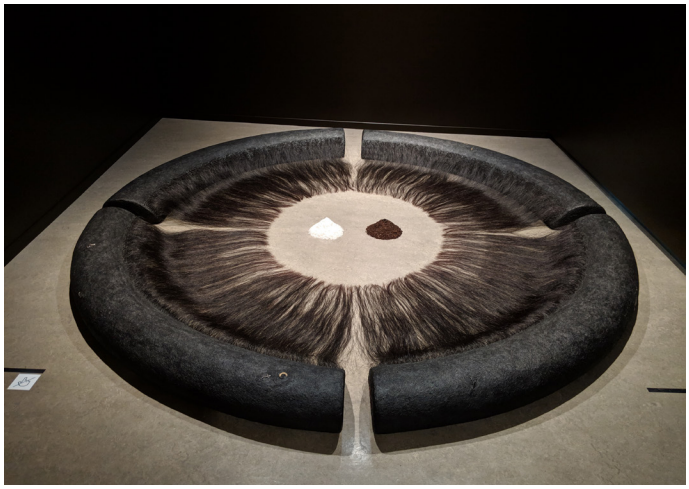












the landscape and its animals. Although Tromsø is a real Norwegian town, the Sámi presence is sensible throughout town. Every year around February there is a Sámi week which aims to fuse modern city life and traditional Sámi values[1].





Saturday April 13th,2019 | 12:00

Prior analyses by Boaz along the coast in Norway revealed that a new harbor was recently erected near Tromsø. The new industrial port was completed in 2014 and is focusing on the storage and transportation of goods and equipment for oil and gas fields and renewable energy development projects[2]. After further research a movie about the development shows that further expansion of the port into a full grown industrial area - primarily focused on the oil and gas development in Barents Sea. The heroic clip - with up-beat music - seems to be directed towards the youth[3], once again confirming the continuing interest in developing more hydrocarbons in the future.

We decide to have a bike ride to Grøtsund Fort, since buses hardly go into this 'dead' direction. After a 45 minute ride, along typical Norwegian houses and an oil terminal location, we stumble upon a Sámi reindeer attraction. Watching the reindeer behind fences - with in the distance tourist having a sleigh ride - the place feels uncomfortable. Of course these types of tourist attractions are important, even for the Sámi to make some extra money, but we can't stop thinking about the supposed dual nature of this phenomenon, whereas indigeneity seems to become more part of a museum or a tourist ride.

Currently a big Chinese ship is harbored at Grøtsund Fort and is unloading, what seems to be windmill parts. We decide to have a closer look and film the processes around the ship from ground and in the air. One can only imagine what kind of impact a large oil rig will have, especially for tourists learning about the Sámi culture this seems to have a big impact.

Sunday April 14th, 2019 | 11:00

> The North has enthralled and attracted artists for centuries. Yet the North is multidimensional, comprised of several places and landscapes. So what exactly is the North? In the 19th century Romantics linked the concept of the sublime to the northern regions. Nature was regarded as dramatic, fearsome, and often associated with divine and cosmic powers. Artists are still fascinated by the North's landscape and how it is affected by extreme light and darkness, namely the midnight sun and northern lights[4].

A visit to the Northern Norway Art Museum helped us with shaping our understanding of the North and its history. There were a few sections of the museum each with their own introductionary texts about people, places and stories. The museum questions the following; *what shapes the North? What is its history and what does it hold for the future?* The following text about *stories* struck us most as it shows that there is a rich history to be discovered.

> Diverse cultures in the North have coexisted together despite land borders for thousands of years. While for most part maintaining a peaceful coexistence, there are also dark moments of unrest in history. Rights to land and water have often been the source of conflict[4].

Reflecting on this we noticed that a huge part of contemporary art is from Sámi descend where reindeer herding is an often occurring theme. Art - mainly in the form of poetry and handicrafts - is an important part of Sámi culture, and many exhibitions in Nordic art galleries are composed by Sámi artists. When thinking about the Norwegian art in these areas there's less to find. Only earlier painters like Knud Baade and Peder Balke come to mind, who painted dramatic versions

Citations

[1] Sámi Week (2020)

[2] Port of Tromsø (n.d.)

[3] Tromsø Havn, [video] (2014)

[4] Nordnorsk Kunstmuseum, Tromsø (2019)

Figures

◀◀ 5.43 Tromsø Arctic Reindeer.
Made by authors 2019

◀ 5.44 Undocking of Chinese windmill parts at Grøtsund Fort, Tromsø.
Made by authors 2019

◀◀ *5.45 Northern Lights, Bossekop, January 6, 1839 at 6:04 pm* - Leon Jean Baptiste Sabatier
Tromsø Kunstmuseum

◀ 5.46 *Northern Lights* - Peder Balke
Tromsø Kunstmuseum

◀◀ 5.47 *Asjas* - Rose-Marie Huuva, Sámi artist
Tromsø Kunstmuseum

◀ 5.48 *unknown* - Rose-Marie Huuva
Tromsø Kunstmuseum

▲ 5.49 Tonsvik delta in 2010.
© Google Earth 2019

▲ 5.50 Tonsvik delta in 2018, 1: Grøtsund Fort and 2: Tomsø Arctic Reindeer.
© Google Earth 2019


2CH I
I3CH
Seacom
ISPS

of the landscape in the 19th century. Hypothesizing from this we start to question whether there's a relationship, perhaps if you're more outside the city using the landscape, you're more inspired to start making art projects.

Documentary

Although the documentary focuses on the province of Finnmark - from 2020 on the region Troms and Finnmark are merged - our experience in Tromsø have shaped our perspectives on the various peoples that reside here. By visiting museums before and after the trip we were able to confirm most of our expectations and hypothesis and were able to critically reflect on what they represent. Tromsø could be considered the capital of Arctic Norway, with both culturally embracing the Sámi - thanks to Sámi reindeer festivities and representation in various fields of research at the University - as well as aiming at expanding its industrial and economic position in the North.

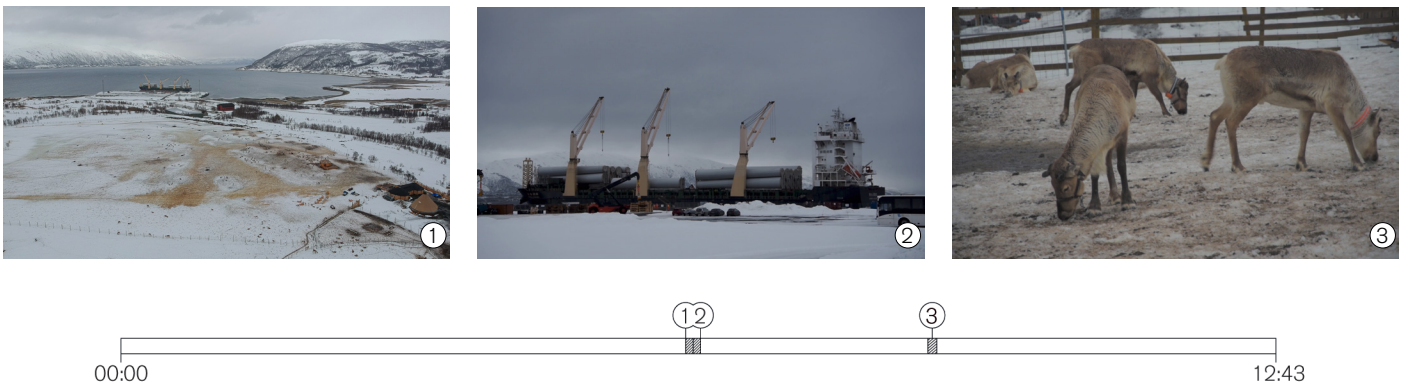
The example of the Grøtsund Fort harbor was our first experience with new big industrial development and immediately a good example of the dual characteristics of the Arctic. While the Sámi culture is a strong culture, they are both threatened to become a historical attraction/ museum and at the same time industrial development is taking land which reindeer herders particularly need with the climate change.

This duality is one of the main topics of the documentary and therefore the shots from the Tromsø Arctic Reindeer tourist place next to the newly (still developing) industrial area has got a prone position in the documentary. With future development the Tromsø Arctic Reindeer probably have to move to another location.

Figures

◀ 5.51 Undocking of Chinese windmill parts at Grøtsund Fort, Tromsø.
Made by authors 2019

▼ 5.52 Documentary stills.
Made by authors 2019



Hammerfest

Sunday April 14th, 2019 | 15:00

The easiest way to reach Hammerfest is by plane, we board a small propeller plane and are condemned to a turbulent 45 minute flight to Hammerfest. The first meeting with Hammerfest is a rough one, with strong tail winds, the landing was a shaky experience. Being in close connection with open sea Hammerfest is prone to higher winds, making a turbulent landing not an uncommon experience. Descending through the clouds, the flaming chimney of the Melkøya gas plant is one of the first sights. The city embraces the sea, with its harbors situated on headlands and the residential areas on the slopes behind that. Arriving at the airport, a sign is welcoming us in *the northernmost town of the world.*

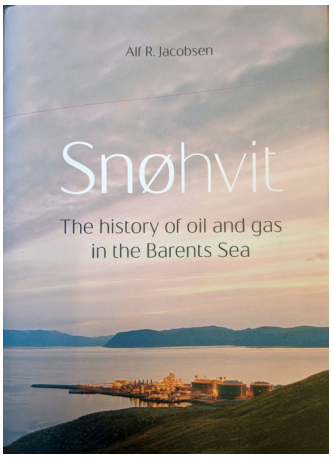
> In the arrival hall there is a depiction of a polar bear with a crown on its head, the Hammerfest city coat of arms. Strange, [...] because there are no polar bears in Norway. It is symbolic of what this place stands for: the gateway to the Barents Sea adjacent to the Northern Ice Sea, the most productive sea in the world, full of expensive fish such as salmon, cod and halibut. Hammerfest means "Fixed anchor" in Old Norwegian, a name from the time that fishermen on the turbulent Barents Sea faced an uncertain adventure[1].

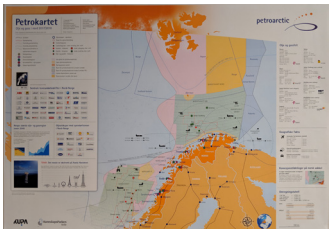
Where in Tromsø it still feels everywhere that you're in a city or a small village, in Hammerfest the remoteness of Arctic Norway can be felt strongly. The strong winds and inclemency of the sea give rise to a chilling almost melancholic feeling. Being there, we're reminded of paintings by Knud Baade and Peder Balke, that in many works tried to show this side of the Norwegian landscape.

19:00

The importance of the sea is adequately portrayed in a book we encounter at a prominent place in the hotel lobby. The book is titled 'Snøhvit' (Snow White) named after the gas field and project that gave rise to the gas plant developments on Melkøya island. The local author Alf K. Jacobsen describes the developments of the gas plant with great pride.

> For Hammerfest and the surrounding area the arrival of the petroleum industry has been a revolution. Development has been phenomenal. From being the centre capital of a region marked by pessimism and stagnation, the town is now full of optimism and is positive - based on the income and the opportunity that the gas has brought.
>
> [2] Alf K. Jacobsen, "Snøhvit, The history of oil and gas in the Barents Sea"







Citations

[1] translated from Noteboom, B. (2018). *Arctica - Mijn biografie van de noordpool.*

[2] Jacobsen, A.K. (2009), *Snøhvit, The history of oil and gas in the Barents Sea.*

Figures

▲ 5.53 Snøhvit book on display in hotel lobby. Made by authors 2019

▲ 5.54 Petroleum maps, visible in many hotel lobbies and governmental buildings. By authors 2019

◀ 5.55 Håja island, prominently visible from all over Hammerfest. Made by authors 2019

▶ 5.56 Headland with Skansen Fortress (front), Melkøya gas-plant facility island (back). made by authors 2019



20:00

In the evening there is time to see the city in a different light, we walk around town and get a good view of Melkøya from the Skansen Fortress (figure 5.56 on previous page). Under a seemingly excessive amount of lights, a boat is docked and being loaded (figure 5.60 next page).

Monday April 15th, 2019 | 11:00

On the second day we try to get a better feeling of what it would be like to live in Hammerfest. Probably because Easter is around the corner, the amount of people we encounter on the streets in Hammerfest is quite low, only when a Hurtigruten boat docks the activity around the harbor was higher. There are a few snack-bars, some restaurants and a big supermarket with some more activity, but at the same time it is clear that we are there at a time with low activity.

12:00

We learn that Hammerfest (and all of Finnmark due to a scorched-earth policy) has been rebuilt completely after the Second World War. The Museum of Reconstruction focuses on the dramatic events around WWII: the forced evacuation, the conflagration and the reconstruction. Societies in the fjord areas before the war were shaped by three northern cultures meeting; (sea and nomadic) Sámi, Kvens and Norwegians. The forced evacuation and destruction at the end of the war made 75.000 people homeless and many of them hid in caves or in turf huts. Although some Sámi houses were saved, the museum hints that the scorched-earth policy basically finished the authorities ideas of equalization - or "Norwegianization" - during the reconstruction period. This was because the reconstruction was influenced by standardized and modernized ideas, and therefore the uniqueness and traditions failed to show in the new settlements. This was particularly felt the hardest by the Sea Sámi[1]. Reinert explains this as following:

> After the war, when the government in the south undertook the grand project of reconstruction, aiming to modernize and reform the north, many of the returning villagers saw this as an opportunity: a chance to join the opulent southern modernity they had glimpsed in the evacuation, a world of wealth and abundance—of wide roads and grand structures, electricity, markets, libraries. And that world, of course, was Norwegian. Unsurprising, then, that in town after town along the coast, in the first census after the war, townships that registered a Sámi majority before the war suddenly "switched," en masse, to becoming predominantly Norwegian[2].

In the new modernized world older generations were sometimes ashamed of their culture and therefore "many children ha[d] to live without grandma and grandpa's soft words because grandma and grandpa d[idn't] want to nurture them with a strange language"[3].





Citations

[1] Based on texts from the Reconstruction Museum, Hammerfest.

[2] Reinert, H. (2019a). The Midwife and the Poet: Bioaccumulation and Retroactive Shock.

[3] Rauni Magga Lukkari, quote from Reconstruction museum, Hammerfest.

Figures

▲ 5.57 Hammerfest in 1945 after the scorched earth burning.
© Hammerfest Museum of Reconstruction

◀ 5.58 View on the coastal Hammerfest. Made by authors 2019

▶ 5.59 Hammerfest seen from the view point on top of Salen, with Melkøya on the background.
Made by authors 2019

▶ 5.60 Main street of Hammerfest, empty.
Made by authors 2019









5.61 Melkøya at night.

Walking around town, the modernization trend is still clearly visible. Large parts of the city consist of a relatively modern, but generic appearance. After another period of decline in the 80s and 90s - due to the decline of the fish industry - the city welcomed the arrival of the oil industry with open arms in 2001. From that moment on, new buildings have emerged and facades refurbished, but some doubt the success of this; "Never have we had more money, and never has it been uglier around us"[1]. Compared to other places in Norway, Hammerfest seems to have lost its typical Norwegian character for good.

18:00

We plan on having an interview in Hammerfest, but aside from some tourists brought in by the cruise-ship, the town is empty. The only activity seems to be the fueling of the gigantic Arctic Princess, docked at Melkøya island. When filming from an empty parking lot, next to the entrance of the tunnel - leading to the island - we feel slight uncomfortable, as being watched over. The kind of misplaced feeling is underlined by the perspectives most people here have on external parties opposing petroleum developments. As Loe & Kelman explain, based on interviews, most people assumed that "the petroleum adventure (or fairy tale, since the Norwegian word "eventyr" means both) would last decades and obviates any need to worry about the future, such questions of scale, either spatial or temporal, were effectively absent from the interviewees' consciousness"[2]. Local people who do worry, are often confronted or silenced by (un)written rules. As the following interviewees' show:

> "I am pissed off at academics and people sitting in cafés in Grünerløkka in Oslo [a trendy neighborhood in Norway's capital] arguing against petroleum. They have their things—so why should they begrudge us to have something as well"[2].

> "People care more about status, [material] things and expensive cars. People talk about buying new snow scooters and where they are planning to travel. The petroleum industry has created an illusion that having much money is happiness. It was different before. Calmer"[2].

> Interviewee 12, a young female cultural worker, explained that environmental concerns would typically be met with comments such as "If you care so much about the environment, then why are you living here and reaping all the benefits from oil and gas?"[2].



Citations

[1] From "Mitt hus er din utsikt", Anna Elisa Tryti, leader of the Public Committe on Building Tradition - 1996-2000, quote in the Museum of Reconstruction.

[2] Loe, J. S., & Kelman, I. (2016). Arctic petroleum's community impacts: Local perceptions from Hammerfest, Norway.

Figures

◀ 5.62 Stormy weather along the coast of Hammerfest.
Made by authors 2019

▶ 5.63 Documentary stills.
Made by authors 2019

"For us, it has not been a question of environmental risk but of survival and having a place to work· · ·Our nature and culture in this region [where fisheries used to dominate] is to survive, and we know there is a risk in all activities. Furthermore, we have grown up here, and don't see the nature surrounding us as so unique"[2].

It is of course hard to disagree with the desire of the people to - finally - have a stable, wealthy future, but at the same time it feels wrong, knowing climate change and Sámi are both victim of these kind of industries.

"Hammerfest has become one of the richest small places in Finnmark because of Equinor, because of the gas developments."

Atle Staalesen, Barents Observer.

Documentary

Hammerfest is portrayed in the documentary as a town that is subject to inclemency, that embraces the sea both spatially and economically. It has known a long sordid history with its reconstruction and fluctuating economy after the second world war. The industrial developments, and particularly the ones aimed at developing off-shore oil and gas, can relate to Hammerfest as a successful example. The town has already claimed its share in the Arctic oil and gas developments. Therefore Hammerfest has a central role in the documentary.

Hammerfest is *the* foremost example where the Northern industrial transition has already triumphed. The message we wanted to portray is why coastal towns advocate in favor of industry, but also explain that this could leave the city vulnerable in the future.



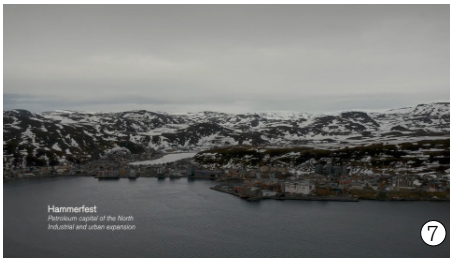






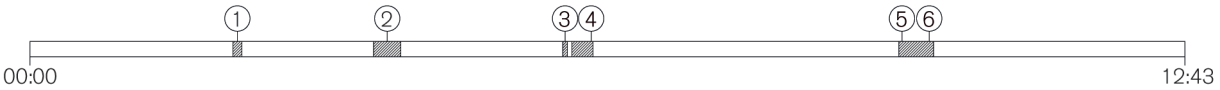












Forsøl - Repparfjord - Børselv

Monday April 15th, 2019 | 18:00

After receiving the rental car we drive to the small village of Forsøl on the east side of Kvaløya island. What particularly catches our eye are the fishing racks residing in the calm waters. The salmon held here is the kind of fish we can find in our supermarkets. Browsing Google maps, these kind of structures can be found all along the coast in Norway and it is therefore no surprise that Lars Lerup argued - in his keynote lecture - that this industry has been the driver behind the Norwegian economical succes[1]. The same modernization policies - visible in Hammerfest - have industrialized the fishing industry in the 50s, when freezers were introduced in every household in America. Combined with cheaper transportation - and the older generations selling their quotas to companies - it has slowly pushed out traditional fisheries[2]. Knowing that, we observed this phenomenon along the whole coast of Finnmark. Aside from the cheap production, these fish farms are also known to spread diseases in the fjords[2], thereby altering the local ecosystems. Villages - like Forsøl - seem to slowly decay as younger generations move to bigger cities in the region and the south. It is one of the reasons as to why people are turning towards industrial development to ensure a higher availability of jobs.

"The fisheries have undergone major changes over the last decades. There is big industrial ships doing lots of processing offshore for example, there is not so much fish going to the ports as before."

Atle Staalesen, Barents Observer.

Citations

[1] from keynote lecture at the Transitional Territories sypmosium - Territory as a Project.

[2] Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen.

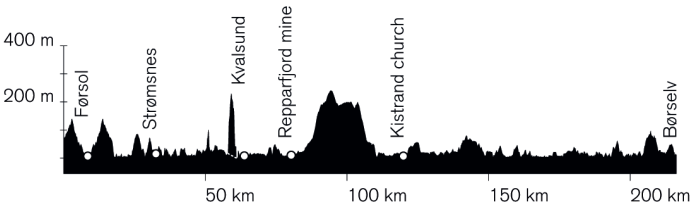
Figures

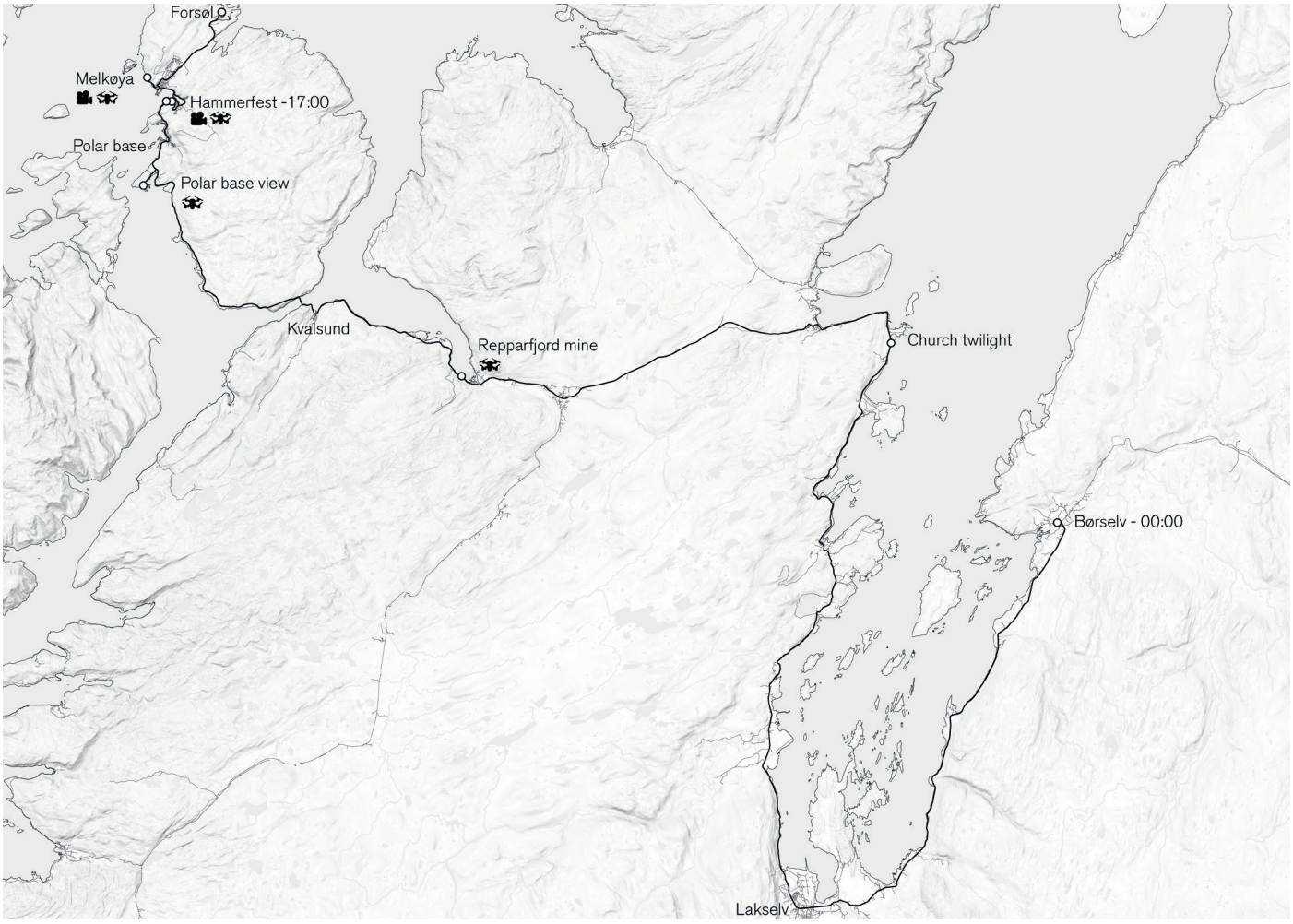
◀ 5.64 Section of traversed route. Made by authors 2019, based on height data from Kartverket 2019

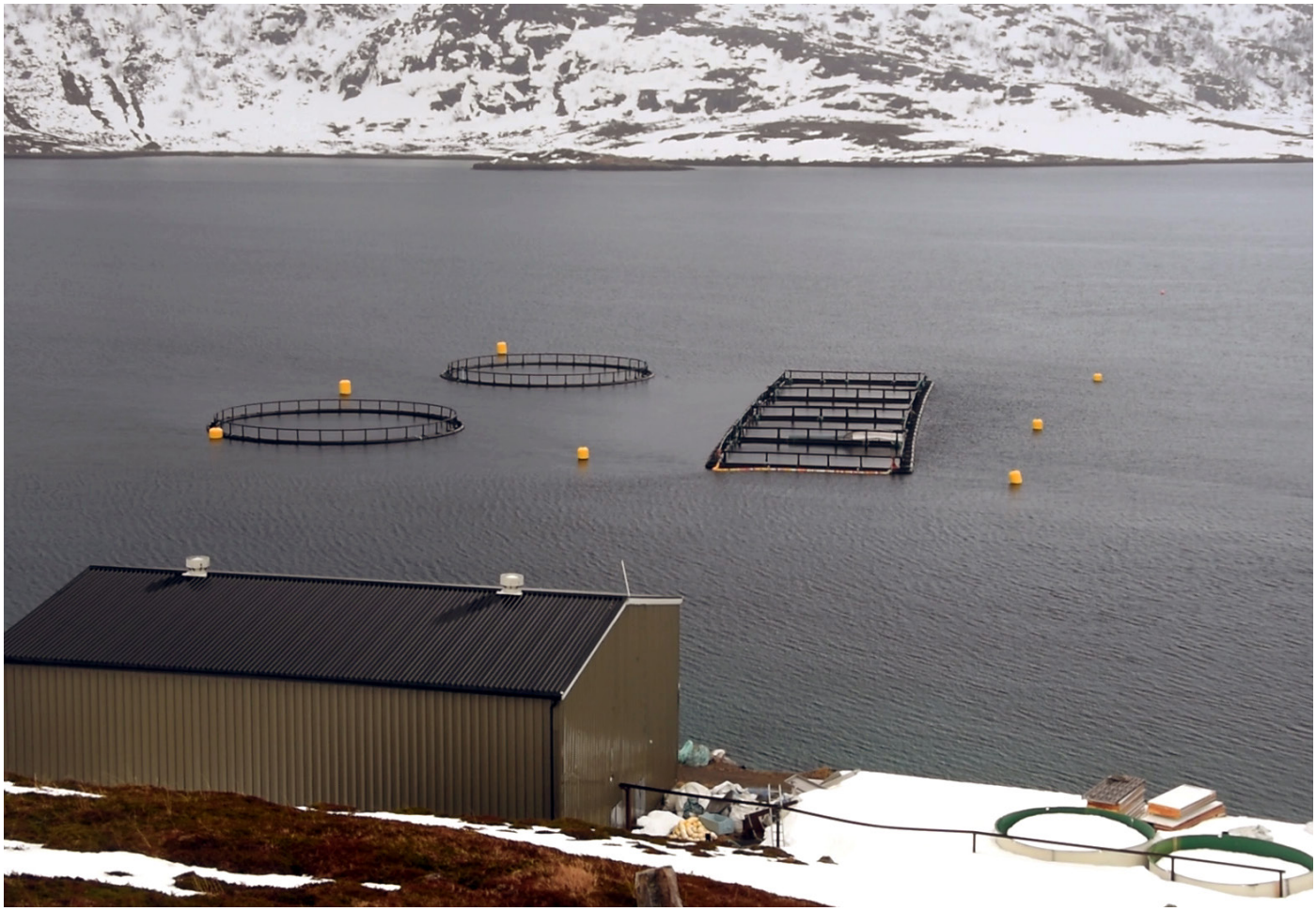
▼ 5.65 Traversed route from Forsøl to Børselv. Made by authors 2019, based on height data from Kartverket 2019

▶ 5.66 Salmon fishing farms calmly residing behind the mountains near Forsøl. Made by authors 2019

▶ 5.67 Small harbor in Sandbukta bay, Forsøl. Made by authors 2019













20:00

Driving out of Hammerfest we pass Rypefjord - which is nowadays considered a suburb of Hammerfest. The village is home to a major harbor, consisting of a fish factory and Polar Base AS - an oil and gas supply base. When preparing the trip we contacted the company for an interview, unfortunately without response. The harbor has been extended since the 80s when oil was first discovered in the Barents Sea. We are surprised and overwhelmed by the sight of a gigantic oil rig in the harbor and turn into the first road to get a better look with the drone (figure 5.69). As we hypothesized upfront, the Norwegians are - perhaps unconsciously - quite good at hiding the industry from most main roads. It strikes us that from one point of view we witness the beautiful docking of a ferry to Seiland, while looking the other way reveals the other face of Norway. As we later discover there are plans to turn the whole peninsula of Strømsnes into a new industrial area - a not so modest 1.000.000m^2 - which will significantly impact on the Sámi reindeer herders on the island. Again an accompanying movie - advertising the industry in a heroic way - is used to attract investors and people to Hammerfest[1]. But more on that in Boaz' project.


The Barents Observer

Norway greenlights copper mine with tailings to be dumped in Arctic fjord

21:00

This is not the only controversial industrial development plans which we pass today. About an hour drive from Polar Base, we pass the bridge connecting Hammerfest to Kvalsund, municipality that is home to the Repparfjord. Here the biggest known copper deposit of Norway is situated a few hundred meters below the ground. Mining company Nussir has received a license to operate from the Norwegian government, despite strong opposition from the Sámi Parliament, the Fishing Union and Environmental groups. The issues revolve around two issues. First, the dumping of waste material in the nearby fjord - destroying live for several years in a National Salmon Fjord with possibly broader consequences. Second, the encroachment on important calving grounds and migration routes for the Fiettar and Fálá reindeer districts. The mine has been the center of a national debate revolving around the damaging practices of Norwegian mining, both on environment as on indigenous livelihood.

> Kvalsund is an old coastal Sámi community. Then-Mayor of Kvalsund estimated that while 90% of the population were Sámi descendants, only 15% speaks or understands Sámi language today. Fishing combined with agriculture and reindeer husbandry were traditional livelihoods within the municipality, but these livelihoods were weakened after the Second World War. Between 1950 and 2004, the population declined by 43% – a decline related to the decrease in employment in fisheries[2].

When we arrive, we're surprised to see a construction vehicle in operation. Although the mine received a license to start operating in February, the decision was appealed to the King-in-Council (highest form of appeal), limiting the operation possibilities of Nussir. We assume that operations now involve the preparation for mining developments to start. The only parts of the mine that are visible at this time are the processing plant in the red building, some barracks for workers and a part of an open pit which was used for the extraction of gravel. The Ulveryggen open pit which was in operation in the seventies is higher up and is only accessible on foot, but a thick layer of snow impedes our possibilities to reach it.

Citations

[1] Hammerfest -- The gateway to the Barents Sea. [youtube video].

[2] Johnsen, K. I. (2016). 'Land-use conflicts between reindeer husbandry and mineral extraction in Finnmark, Norway: Contested rationalities and the politics of belonging'.

Figures

◀ 5.68 Strømsnes ferry to Seiland national park at Akkarfjord.
Made by authors 2019

◀ 5.69 Strømsnes peninsula with on the background the West-Hercules oil rig in Rypefjord.
Made by authors 2019

▲ 5.70 News cover of November 30th, 2019 in the Barents Observer.





22:00

In the next two hours we drive towards Børselv. The inland areas are seemingly empty of any human intervention. The twilight - lasting for hours - deeply impacts both of us. When descending from the mountain range we see a small church. We decide to have a look. The Porsangerfjord - the 4th longest fjord of Norway and longest of Finnmark - stretches out before us. The silence and emptiness has a calming effect. Hours seem to go slower here, and we start imagining how it is to live of the land here. Words - and even photography and film - seem insufficient to cover the experience.

Documentary

Depicting and explaining the developments around the oil and mining industry is one of the central goals of the documentary. The main footage used of today is about the Repparfjord and Strømsnes peninsula. Though there is no time in the documentary to thoroughly explain both developments, we have tried to communicate these problems through powerful imagery and narration. It is a good exercise in how to translate these problems to a wider audience.

Figures

◀ 5.71 Repparfjord mine.
Made by authors 2019

◀ 5.72 Kistrand Church in deep green-blue twilight.
Made by authors 2019

▼ 5.73 Documentary stills.
Made by authors 2019











Børselv - Vardø

- *Tuesday April 16th, 2019 | 10:00*
  While making ready to leave Børselv we're talking about the projects and our goal of shooting a documentary in Finnmark with the owner of the bungalow park. She tells us that she knows reindeer herders that are situated on Porsanger, and they might be willing to help us out by having a conversation before the camera. After making the call and setting the appointment, we drive north in the direction of Kjæs in Porsanger, where we meet with Siv Merethe Sara (SMS) and her husband Per Alf Sara (PAS[xx]), and their dog Bárfi.

- *12:30*
  Summary interview Siv Merethe Sara and Per Alf Sara:
  They're out on the field at that time to make sure that the reindeer are kept together, while being disturbed as little as possible. Upon arrival SMS tells us that she has relatively recent obtained her degree in social geography, she is of Norwegian descent and has a full-time job in order for them to be able pay the bills. PAS is of Sámi descent and has lived the days in which the herding of reindeer was still done without the benefits of the snowmobile. He tells us that he has lived the days that they had to cross with the whole family much larger distances than the Sámi are now

Citations and comments

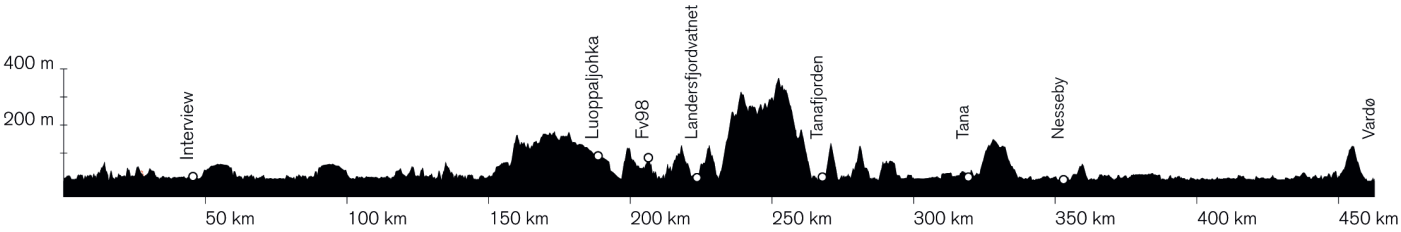
[xx] Per Alf Sara spoke Norwegian during the interview, what he said was translated by Siv Merethe Sara.

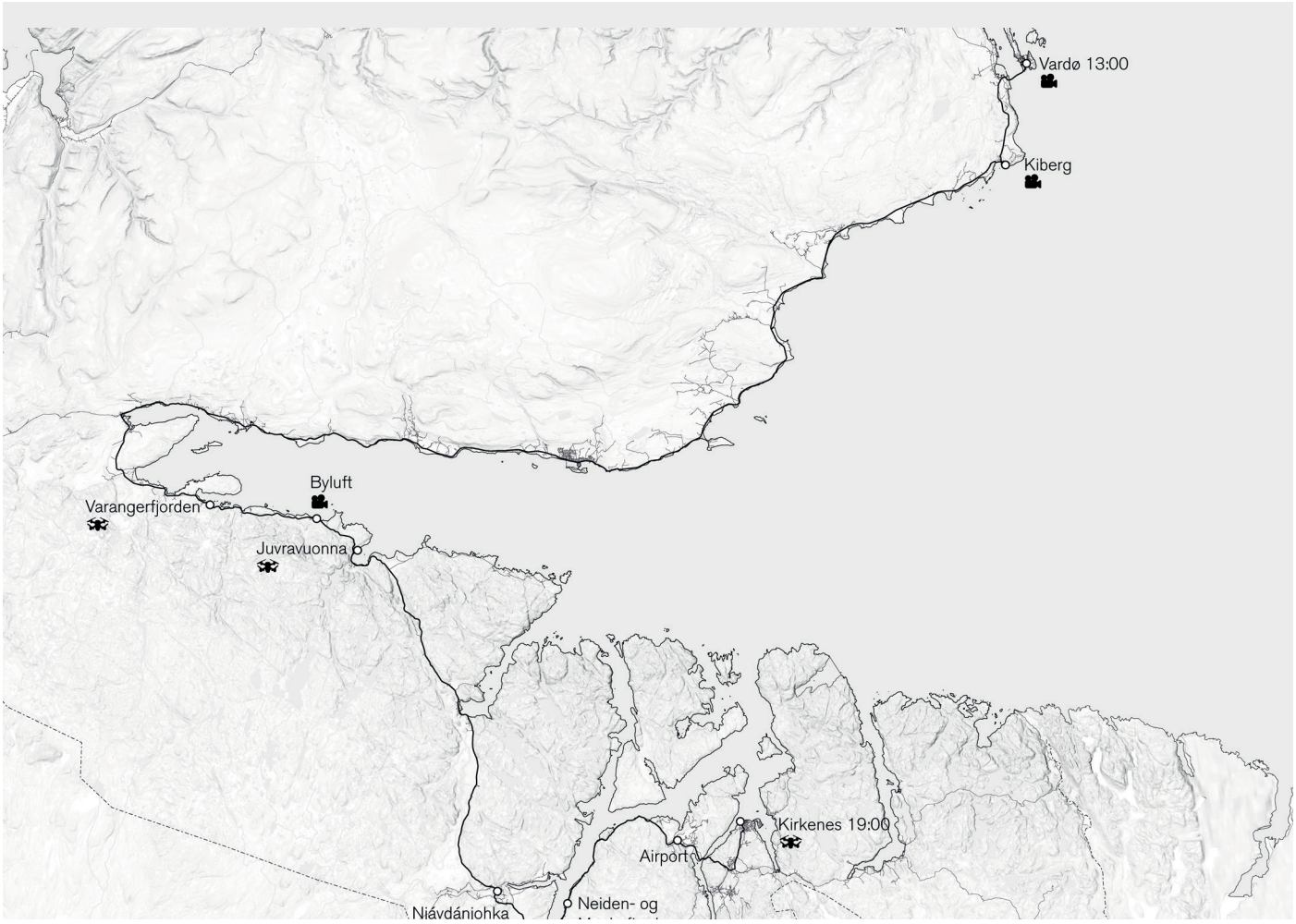
Figures

▼ 5.74 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.75 Traversed route from Børselv to Vardø.
Made by authors, 2019, based on height data from Kartverket 2019

▶ 5.76 Siv Merethe Sara, Per Alf Sara and their dog Bárfi.
Made by authors, 2019







accustomed to. Their marriage was at the time controversial, as it was customary for Sámi and Norwegians not to mix.

The start of the conversation is about climate change which is felt strongly here.

SMS

"Nature is connected to us all, and it affects us all. What people do globally, we feel locally."

PAS

"There's been much changes in the climate, there's now often so little snow left, that makes it difficult for us to move."

SMS

"The landscape is changing, because of there's coming more trees... and people are not using the area for cutting wood, for fire and so on. So they're not using it anymore. And that's what happens, this knowledge doesn't go further."

What makes it more difficult is the variability in which climate change affects the landscape; PAS shows us a small branch of lichen (food for the reindeer), while SMS explains that the growth rates have surprisingly been going well in this specific area lately. The conversation then quickly moves to the annual variability.

PAS

"The Sámi way of saying is that this year is not the same as next year, they're not brothers. Because they're so unlike."

It seems then that already we can find the first break with Western science, which is preoccupied with trying to understand the changes happening in the Arctic as one closed system, and how to respond to them.

PAS

"I'm a lot out here on the field, and science is not updated. It's not connected. Science and field works from reindeer herders. They're having their own methods and ways to see how the world is."

SMS

"So they don't take the knowledge from people who work out in the fields. I was talking with the area planner in the local community, and the difficulty for reindeer herders, in relation to the local community is that they want to have everything in a plan. And a plan is for the hearing and everything, it takes a lot of time. But reindeer herding is about flexibility and mobility. That's the way it has survived, because it's flexible and mobile, and follows to changing conditions. But the plan is fitted. And you have to have a hearing and everything. It makes it difficult to meet in a point where you can discuss properly."

The spatial distribution of the energy transition on reindeer herding lands is often coined as problematic for the Sámi. Despite that the reindeer herding area of SMS and PAS is of low interest for mineral industries, the conversation moves to the energy transition, and the plans for developments in Finnmark.

SMS

"They want to build this wind parks and mining projects, like Nussir. And it's not good for our culture because we need areas. Reindeer need really big areas, they are eating different kinds of food, and they have to walk long ways to find it."

The question arises then, what is sustainability? Is its foundation maintained through extraction processes (as is required for the energy transition)? Or is its foundation primarily sedimented into

failing to understand how to make use of the landscape surrounding us?

SMS

"We're trying so hard to maintain this way of living because it's, we take from nature and give back to nature. That's sustainable. It's renewable resources. We use what is here. But it's difficult, we're connected too... to capitalism, in the same way. We live in a house we use the stores."

PAS

"Drive cars... Use electrics [problematic because of Nussir]..."

SMS

"It's difficult, it's hard to find a balance."

As PAS has left to keep the reindeer together, the discussion moves towards the current economic system. And it's apparent pervasiveness into traditional ways of living.

SMS

"It's difficult to live here. And I have to have another job, a full-time job to earn money. So, my money goes back to the reindeer herding, and for our house and so on, but it's quite expensive to do this. In this industry, it's not so much about money, but values are important. The way of living. For us it's important to see the reindeer, that they have good animal welfare, and that we're taking care of our animals. And we have seen that this is difficult when you have big herds to maintain that. But that's capitalism making you think that's necessary. That you need a lot of reindeer because of the money it makes. It could of course be good for us to have for example an expensive car, but it's not so... it doesn't matter. Because we have the love to each other, to the animals, the dog, the reindeer. And to our children, and that's most important for us. And that we can have reindeer meat to eat, to make clothes, shoes. And that we can eat salmon because we can fish salmon. And that's important for us, it's not so important for me to have a good house... that doesn't matter for me."

To conclude we ask SMS the following question: "Do you think Finnmark will thrive or subdue under this increasing industrial expansion?"

SMS

"*Sigh* ... Well, that depends on the government, and on the municipalities. And how they're taking ownership to the fact that we are here where we are. But I think, the governing bodies in the south are not giving so much money to the municipalities here. And it's pressing that municipalities, in a way, are setting their values aside, for money, so they can use money for this welfare, for stores, doctor, everything what you need to live in this cities. So it's depending on them, its depending on the voices. Whose voices, who are talking. And it's depending on how much we appreciate the values that we have here.
We have to talk together. Dialogue is important, we have to speak, what's the problem?"

14:00

Back in the car we reflect on the lessons learned during the talk with Siv Merethe Sara and Per Alf Sara, and try to connect it to our previous knowledge obtained. What stuck most is the way in which the landscape is perceived differently. Climate change wasn't perceived so much as a direct threat, but more as a challenging way to adapt to new uncertainties. The biggest threat perceived therefore wasn't the rapidly changing climate - as one might suggest - but more the loss of land through political economic processes. This resonates with the following said by Turi on a Standing Committee on Natural Resources at the House of Commons of Canada:

> If you talk to Sámi reindeer herders, they will often say they are much more alarmed by loss of grazing land than they are of climate change. Why? A reason for this is that mobility, moving your herd to a different area, is a key adaptive strategy for adverse snow conditions. Access to pasture resources will therefore be even more important under climate change.[1]

The response to climate change from the Norwegian state is one of a very different character. Planned windmill parks on (eg. in Fosen) and mineral mines (eg. Nussir) needed for 'the green shift' are unstrategically positioned on Sámi lands, and directly impede indigenous professions practiced on these lands. Among other Sámi representatives the Sámi Parliament president Aili Keskitalo has termed these intrusions as *green colonization* on official meetings: "Colonialism has dressed up in nice green finery and we are told that we have to give up our territories and our livelihoods to save the world because of climate change"[2].

Another resonating aspect of the interview was the friction between the fixations imposed by planning and design instruments, and the flexible use of land paramount to the survival of the reindeer herd. As became clear, there's no need for fixed planning, nor design, as this would in municipal discussions, count as opportunities to mainly instrumentalize non-indigenous livelihoods. Rather, there's need for improved tools for communication, which enhance the reindeer herder's possibilities of being understood, and allow for a better and more just weighing off of values. As SMS explained, the future of Finnmark depends largely - if not fundamentally - on communication and values.

14:00

We drive as far as the road takes us to the end of the Porsanger peninsula, and arrive in a very small village by the name of Veidnes. The first impression of the area is not one of incredible uniqueness, we see a few houses, and a seemingly barren land around us. On the internet, we've read in advance that there's plans for a new oil terminal on this location - later on we understand that the oil terminal was planned on Veidnes on the island of Magerøya near Nordkapp. It is only after we send a drone up in the air that we start realizing that we're actually on a frozen delta, with a unique and massive variability of both colors and vegetation types. We realize that the different perspectives of the landscape - illuminated by the drone, leads to a more complete understanding of the landscape. We continue our way in the direction of Vardø knowing that



Citations

[1] Turi (2019). RNNR-127.

[2] A. Keskitalo as quoted in Schreiber (2018). The Arctic's Indigenous peoples bear a disproportionate burden of the world's response to climate change, leaders say.

Figures

◀ 5.77 Frozen lake in between Sáhkkavárri and Bærfjellet mountains.
Made by authors, 2019.

▶ 5.78 Veidnes frozen delta.
Made by authors, 2019.

this day we travel through the mountainous coastal areas, and touch upon the Porsangerfjord, Laksefjord, Tanafjord and Varangerfjord - the four longest fjords of Finnmark. The stops we make along the road show a huge diversity in landscape settings with occasionally small towns.

18:00

We stop on a small unpaved road to take a better look at the Tanafjorden and are confronted with a street filled with abandoned houses showing the visual effect of population decline in the area (see next page). The twilight made the fjord water into a surreal mirror-like ambiance, which only seemed to exacerbate the abandonment of the houses.

> Finnmark consist of mostly small towns and a quite fragile system of people moving out, population decline and local municipalities which do not have much money.
>
> From personal interview with Atle Staalesen, Barents Observer.

20:30

As it is already late we pass through the Sámi towns of Tana and Varanger relatively quickly. We stop at Nesseby to see a church and a fish drying rack, situated on a headland. On this side of Finnmark the presence of numerous fish drying racks illustrate the importance of the fishing industry for this region. Reason for the survival of the industry may be connected to the close proximity of the towns in this area. The town of Vardø is situated at the end of the road on an island for which we have to go through a steep tunnel.

Documentary

From this day much footage made it to the final version of the documentary. On the right page a selection is shown. The main messages that are shown in the documentary are main lines of the interview with Siv Merethe Sara and Per Alf Sara and the unique fjord landscape of the north of Finnmark. The mountain range, high natural diversity, many (frozen) rivers and lakes and desolated houses, leave a lasting impression on anyone traveling through here.

The talk with Siv Merethe Sara and Per Alf Sara has deeply influenced the projects and the trajectory of the documentary. In approximately an hour and a half we've talked about the biggest issues now faced by them and other reindeer herders, and were very inspired by what Siv Merethe Sara sees as the way forward, better communication and a common understanding of values.

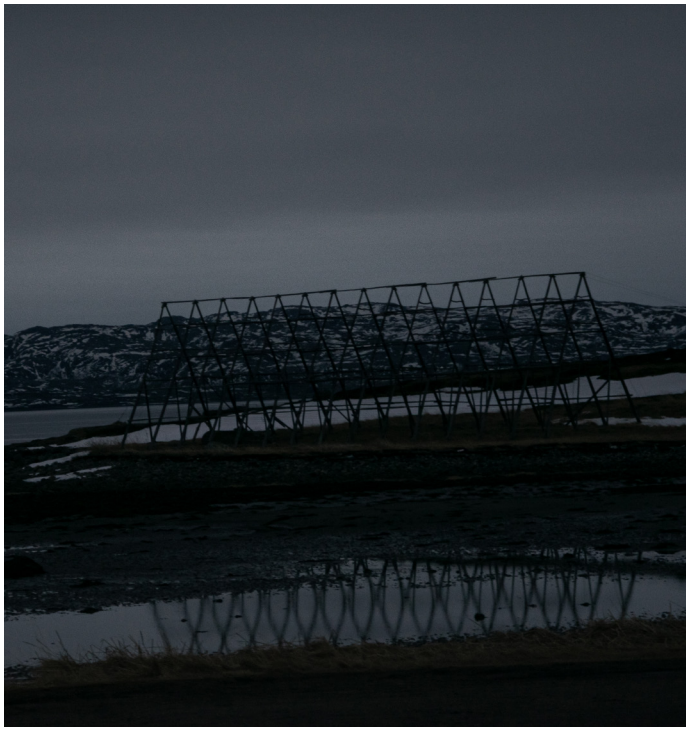
Figures

▶ 5.79 Twilight mirror effect in Tanafjorden.
Made by authors, 2019.

▶▶ 5.80 Fish rack on headland in Nesseby.
Made by authors, 2019.

▶ 5.81 Documentary stills.
Made by authors.






1


2


3


He says he's a lot on the field and he sees what happens.
4

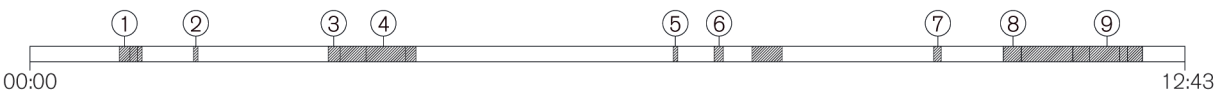

5


6


We have to talk together, dialogue - important -
7


- should communicate to find common ground.
8


9


1
2
3
4
5
6
7
8
9
00:00
12:43





5.82 Abandoned houses Tanafjorden.
Made by authors, 2019.

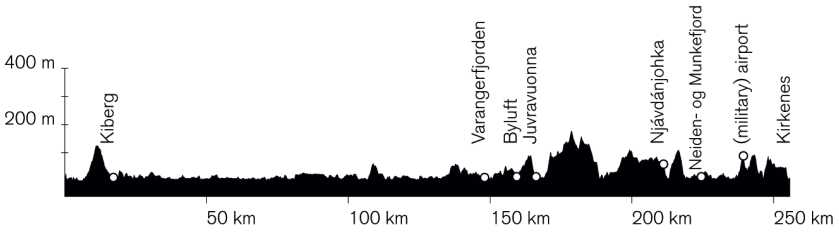
Vardø - Kirkenes

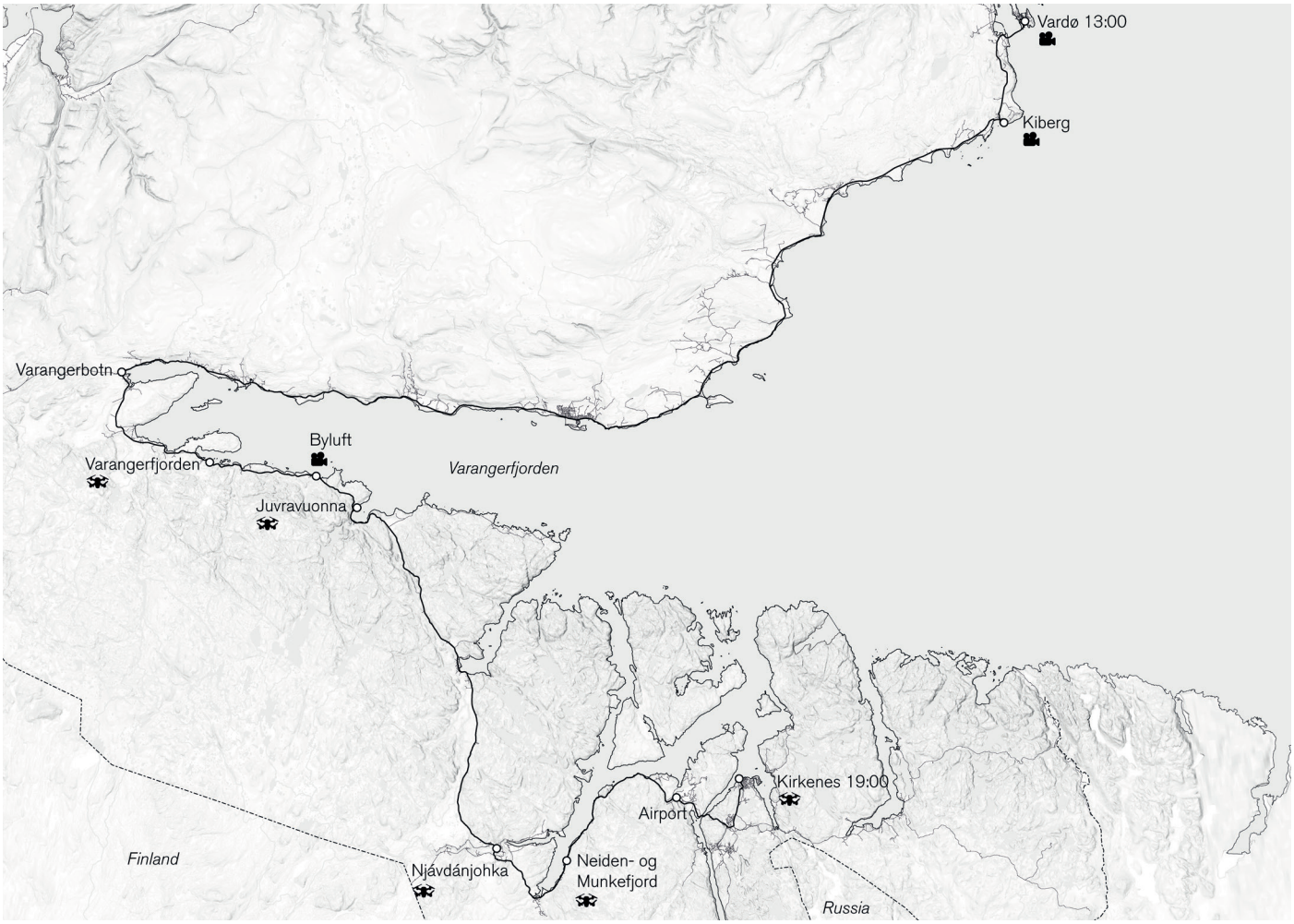
Wednesday April 17th | 10:00

Vardø is an old town and its situation has been of strategical importance in its history. The population heavily fluctuated with the up-rise and decline of the fish industry the past centuries. Because we arrived at night, we start to wander around the town in the morning. The first noticeable thing are the enormous radar stations at the highest point of the island. The Norwegian Intelligence Service states that the radar is used for space surveillance, surveillance of areas of national interest abroad and for research[1]. It is believed that the new radar - funded by the US in 2017 - was built as part of the US anti-ballistic missile system[1]. It's controversy and its presence are felt all over the island.

11:00

We walk around town and are an outstanding appearance with our camera for this time a year. The owner of the hotel told us that we are actually here in between seasons, as most people come here in the winter or summer - for bird watching. In front of a coffee bar a man comes up to us and asks what we are here for. We explain that we are filming a documentary about Finnmark and the incoming industries and decide to ask him for a short interview.





Citations

[1] Nilsen, T. (2018). US and Norway upgrade eye on border to northern Russia.

Figures

◀ 5.83 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.84 Traversed route from Vardø to Kirkenes.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.85 Vardø seen from behind the church.
Made by authors 2019

▶ 5.86 The military surveillance radars in Vardø.
© Thomas Nilsen, Barents Observer






NATURRESSURSENE
TILHØRER FOLKET

Summary interview Torbjørn:

Before the interview Torbjørn (**T**) tells us that he has been living most of his life in Vardø - aside from a few years in Sweden - and that he is currently receiving benefits from the government. His daily occupancy consists of hand work with clothes, wood for fire and taking away snow for people who can't do it themselves. In Norway securing benefits often comes with the obligation of doing social work at a communal company in return.

We start the interview by asking if he notices changes in the region because of incoming industries in Finnmark.

T

"I'm not sure, because it is only on the map, on the planning stadium. But already things have happened here because of the military region they are developing. And people are arriving here because of that. It has been here since 1998 and last year they started to build a new one."

We feel that there is a strong cultural connection with the landscape here with the sea and people that are living here. Which is particularly visible in famous paintings of the extreme climate and lightning and the amount of people that come here.

T

"Many people are arriving here with their cameras and the bird watching is getting more popular. From now [April] till autumn its the hight season, but there are always some travelers that are coming here to watch the northern lights, nature and the people."

It is often argued that incoming industries help giving more opportunities to the local people. We wonder what the local perspective is.

T

"I don't think so much for the people that are living here if they don't have education. But some people are taking education. You know, they are going to Tromsø and the bigger cities in Norway and some of them are coming back. Because, we already here have public offices."

Vardø has known a great population decline in recent history because of the collapse of the fish industry and a lot of young people have moved south. Before our interview **T** told us that there were (or are) plans about a new receiving oil terminal coming to Vardø.

T

"You know, people are happy and positive. Getting new industry, you know, people are positive to that."

Climate change is happening about 2 to 3 times faster in the Arctic, altering the landscape and sea life in the Barents Sea: "what is your opinion, do the changes impact the community?"

T

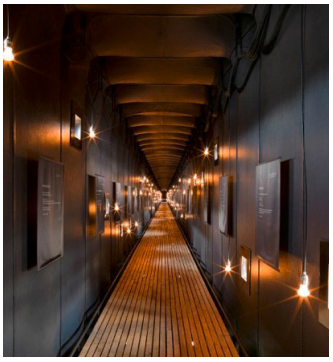
"Ah, last summer we had two weeks with a very warm plenty. 20 degrees every day one day 29. I don't have anything against it."

The interview illustrates that people are happy with any development in the town, either being industrial or more service related. The fact that tourism and military activity is positively influencing the return of more skilled workers, ensures more job opportunities for locals, being it that in other cities like Hammerfest, local residents often do not benefit as much as temporary or migrant workers.

Figures

◀ 5.87 'Natural resources belong to the people', painted on building in Vardø.
Made by authors 2019





12:00

Walking throughout town we notice some vacant buildings, as well as a new municipal building with swimming pool. On the western side of the island are the main two attractions, exemplary the history of this town. The Vardøhus Fortress on the western side of the island, is one of the main attractions on the island. Serving as an military outpost - even up today - the grounds have been of great importance in defending and administrating the northern part of Finnmark.

In the west - along the jagged coastline of Vardø - rests the Steilneset Memorial. The 130 meter-long structure seems to be hovering above the ground as it is upheld by a steel cables and a wooden structure. Both structures have been built to commemorate the 90 - Sámi and Kven - people that were evicted and burnt at stake here in the 17th century. While the wind is howling outside, there is a certain calmness inside. There are 90 small windows through which you can barely look outside. Trials written on canvas show that the discrimination and colonization dates back centuries.

13:30

When driving towards Kirkenes we experience the Varangerfjorden in a different light. The road takes us along Kiberg, a small fishing town just 10 minutes from Vardø. On top of the hills are some left-over bunkers from the second world-war, unfortunately they are currently inaccessible.

15:00

We stop ate Varangerbotn, a small village at the very back of Farangerfjorden. The regions along the coast used to be inhabited by the coastal Sámi. But as explained earlier the sea Sámi were heavily assimilated during the “Norwegianization” period. The Varanger Sámi Museum communicates the history of these Sámi, but unfortunately we are out of luck, the museum closes at 15:00. The region around Tana are the only coastal areas where the sea Sámi still reside.

16:00

At the southern shore of the Varangerfjorden we observe many reindeer along the road. Due to the close proximity of the borders - with Finland and Russia - Siida’s have their winter pastures along the southern banks of the fjords instead of inland. In just a few weeks the reindeer will migrate to the northern Varangerhalvøya Peninsula west of Vardø. The variety of the landscape



Figures

▲ 5.88 Inside of Steilneset memorial - designed by Peter Zumthor, Vardø.
© Andrew Meredith

▲ 5.89 Installation by Louise Bourgeois.
Made by authors 2019

◀ 5.90 Njávdánjohka frozen river.
Made by authors 2019

◀ 5.91 Reindeer along the Neiden- og Munkefjord nature reserve.
Made by authors 2019

▶ 5.92 Steilneset memorial, Vardø.
Made by authors 2019

change from minute to minute; bare rock landscapes interspersed with snowy, ice fjords and rivers.

17:00

In Neiden, we pass another museum; the Ä ‘vv Skolt Sámi museum. The Skolt Sámi are the indigenous groups originally residing in the border regions between Norway, Russia and Finland. However, as we will later discover, most of them moved to Finland during the Soviet period. Mining industries now occupy these border regions. After sending up our drone we discover that we are residing next to a gigantic frozen river, the Njávdánjohka (image 3 of documentary stills). Before heading to Kirkenes we make one last stop at Neiden- og Munkefjord nature reserve. Big ice sheets - from the Njávdánjohka river - end up in the fjord and present a spectacular sight. A reindeer herd along the water are one of the best shots we made with the drone (see image 4 of documentary stills).

20:00

We arrive in Kirkenes; a modern city which owes it existence because of the close proximity of the border with Russia and the Sor-Varanger copper mine in Bjørnevatn. When we arrive the city seems a ghost town. Since a lot of Norwegians left and Russians travel back to Russia - because they celebrate Easter at another time. Recently Kirkenes is gaining a lot of attention from both Chinese and European investors as it resides at a strategical arrival point in the Arctic for hydrocarbons, minerals and cargo. A proposed new rail connection to the Baltic sea is to expand the harbor. The Chinese presence is increasingly visible through signing and a Chinese gate (see figure on the right). But more on the Arctic Corridor in ‘Inari - Karasjok - Leppäjärvi’.

Documentary

Vadrø - Kirkenes was the second longest journey. Vardø was a good example of a town in crisis because of the fish industry decline in 2017. It showed us another side of life here along the coast, with big uncertainties in both fish and tourism industry. The interview of Torbørn is primarily used in the documentary to give a counter voice to the main narrative and illustrates that a lot of people in these declining coastal towns are eager to get new industry. The first half we traversed the same route as the evening before. In the southern area of the Varangerfjorden we mainly shot natural landscapes and reindeer - as these were the only winter pastures we crossed.



Figures

◀ 5.93 Harbor in Kirkenes.
Made by authors 2019

▶ 5.94 Industry in Kirkenes.
Made by authors 2019

▶ 5.95 Documentary stills.
Made by authors 2019




Torbjørn
Vardø resident
- people are positive to that.
1

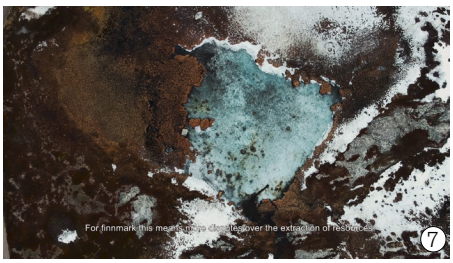

Kirkenes
Port and mining town
2


3

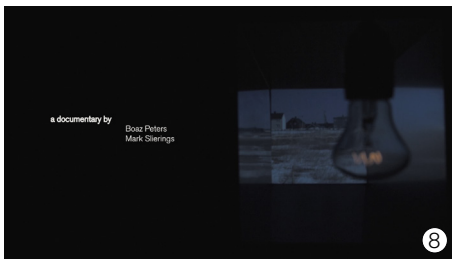

4


5


- and a quite fragile system of people moving out, -
6


7


9


a documentary by
Boaz Peters
Mark Slierings
8


1
3
5
2
4
6
7
2
4
8
4
2
9
00:00
12:43

Kirkenes - Nikel - Zapolyarny

Thursday April 18th | 10:00

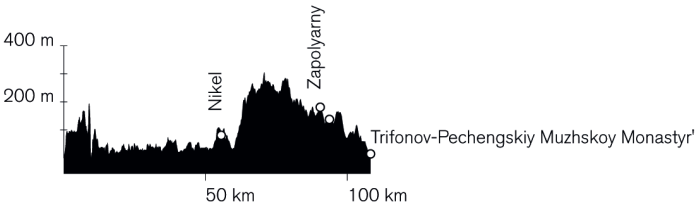
The military airport near Kirkenes reveals the presence of the Norwegian-Russian border when you arrive here (see map below). While the town is literally empty of people - because of Easter - the few people we encounter are Russian. We are picked up at 10:00 by our tour-guide Iliyana for a one-day trip to Russia, to the towns of Nikel and Zapolyarny. The Russian border is a 15 minute drive, and Iliyana explains to us that many people crossing the border are Russians who can shop visa-free in Kirkenes. After crossing the border it still is a 20km ride to leave the restricted area. Large green outposts - protruding from the forest around us - reveal the old military presence along the Iron Curtain during the Cold War.

11:00

The absence of trees are the first signs of nearing Nikel. The small industrial town literally exists because of what its named after - the nickel mines and smelters. We visit a small chapel at the edge of the barren landscape surrounding the factory. The priest is leading a prayer, and the serenity inside is in stark contrast to the wastelands outside. Illiyana tells us that many men do not age over 50, but that most people are content with the life here.



Nickel plant faces closure, locals fear their town is doomed



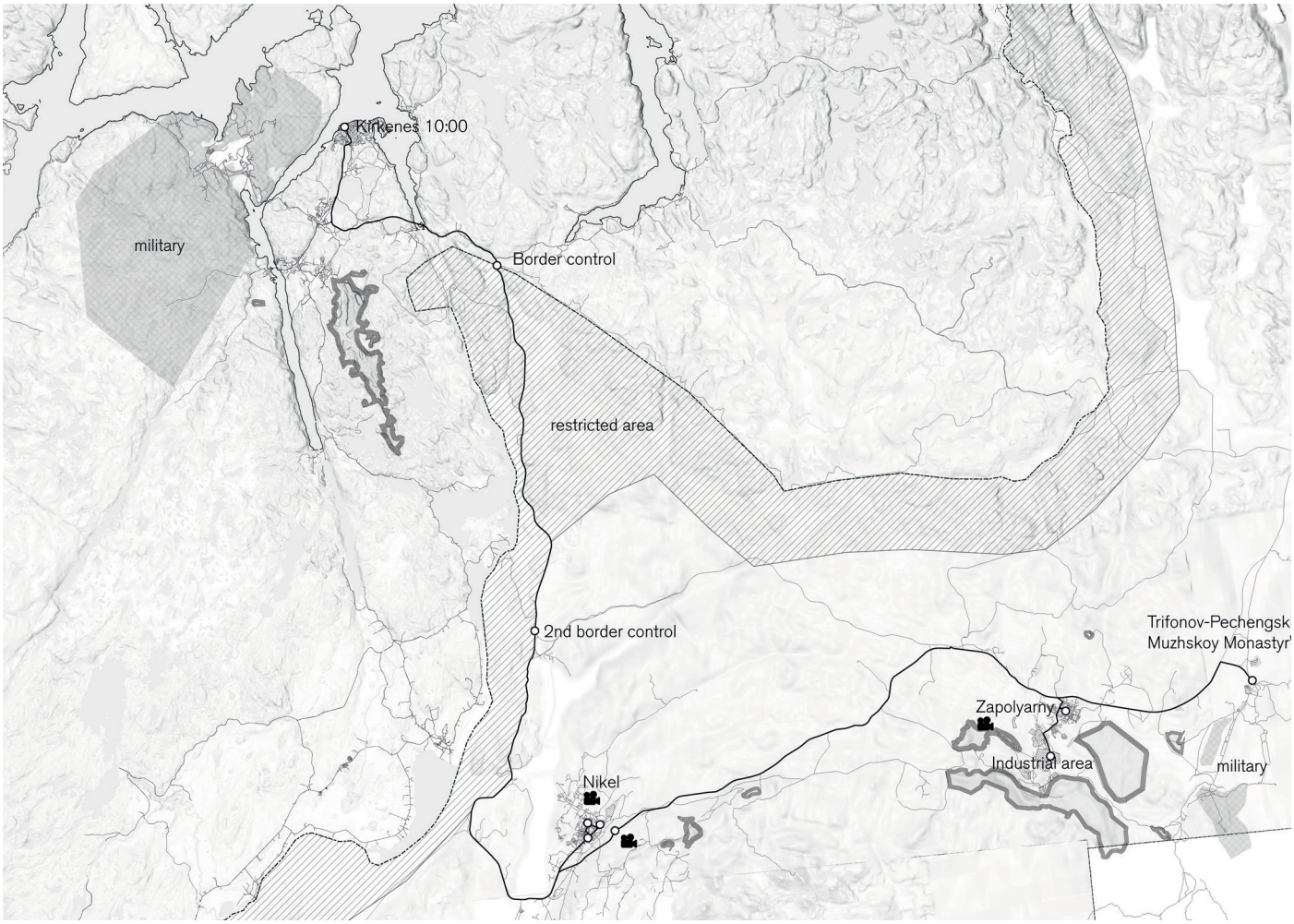
Figures

▲ 5.96 News cover of November 8th, 2019 in the Barents Observer.

◀ 5.97 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.98 Traversed route from Forsøl to Børselv.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.99 Nornickel's Nikel smelter in Nikel, Russia.
Made by authors 2019









5.100 A ceremony in the Orthodox Tserkov' Prepodobnogo Trifona Pechengskogo church, Nikel, Russia.
Made by authors, 2019.

12:00

We are heading towards a small building between the Soviet blocks, and to our surprise we enter a small museum. After the museum lady proudly explained the regional history - as well as the legendary cosmonaut, Yuri Gagarin - we enter a modern room where Nornickel has sponsored a exhibition about the local mining history. It reveals how hard Russia is trying to keep up with modernity, but fails to do so in many economic and social aspects.

Recent developments show how fragile life is here; Nornickel announced that it will close down all activities in Nikel, without any warning or backup plan. And Moscow is shutting down indigenous rights groups, thereby silencing their voices. "The Arctic and its resources mean a lot to Russian business and its budget. That's why companies look at indigenous minorities as a barrier to their activities"[1].



13:00

We drive for another half hour and arrive in a slightly bigger city Zapolyarny. After lunch in the only restaurant and hotel, we go to the town hall where most communal activities take place; from a small market, to dancing and music lessons. Illiyana explains that the local cinema has been long gone and that for the real thing one has to go to Murmansk, only 300km away.

15:00

Although not directly visible, Zapolyarny is surrounded by multiple open-pit mines and an industrial area approximately the same size as the city. When driving towards - the now restricted - industrial zone, we see how local workers are waiting on a bus. We get the feeling that Iliyana is hesitant in showing us this side of the region. We leave Russia with mixed feelings - invoking either anger or helplessness - we wonder if our professional field could help resurrect the regions' barren landscapes after the industries will leave.

Documentary

Russia features a small part of the documentary. The interview with Atle revealed that the problems regarding indigenous groups and oil, gas and mineral extraction are far worse in Russia. We therefore decided to couple his lines by explaining that governmental decisions have a big impact on local conditions - in Norway similar factors are at play, although thanks to the democratic system the worst scenario is avoided.

Citations

[1] The Moscow Times. (2019, November 7). Russia Shuts Down Arctic Indigenous Rights Group.

Figures

▲ 5.101 News cover of November 12th, 2019 in the Barents Observer.

▼ 5.102 Documentary stills.
Made by authors 2019

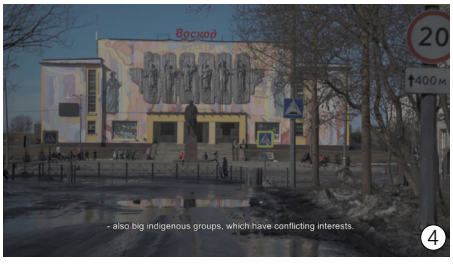
▶ 5.103 A Russian Orthodox priest at the Trifonov-Pechengskiy Muzhskoy Monastyr' near Zapolyarny.
Made by authors 2019

▶ 5.104 Two Russian workers having lunch in the restricted industrial park in Zapolyarny.





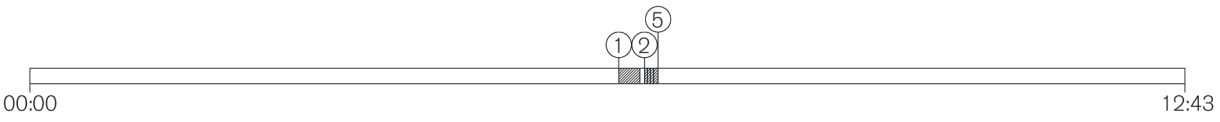






"If you look at Russia, you will find even more interesting conflict of interest between traditional groups, indigenous peoples and industrial interests. You will find huge oil and gas resources, both of the coast, but also on land, and you'll find also big indigenous groups which have conflicting interests."

Atle Staalesen, Barents Observer.





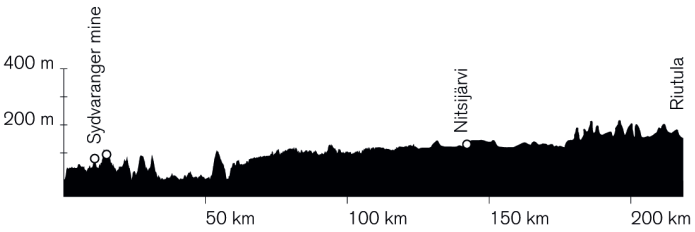


Kirkenes - Inari

Thursday 18th 2019 | 18:00

We leave Kirkenes, pass by a small town called Hesseng and drive into the town of Bjørnevatn some 15 minutes (?) later. A town which is particularly interesting because of the Sydvaranger iron mine, which is situated here. Early growth of both Kirkenes (because of its processing plant and port) and Bjørnevatn before the World Wars is due to the development of the mine since 1906. After the wars the company became predominantly state-owned till it's bankruptcy in 1996. During this time, large subsidies and infrastructure developments helped the growth of the towns of Bjørnevatn, Hesseng and Kirkenes. The mine opened between 2007 and 2015 once more, this time under the flagship of the Australian company Northern Iron Ltd.

The area is to a large extend defined by its complex history as border region, and what was at some point in time a multi-ethnic region. Prior to the mine, a significant portion of the population - comprising of the indigenous (Skolt) Sámi and Kven people - traded their goods peacefully with the Pomors in Russia and the Finnish and Norwegian people. To an extend related to the development of the mine, today the residents identify as primarily Norwegian and Russian (as part of a cross border strategy following the fall of the Soviet Union).



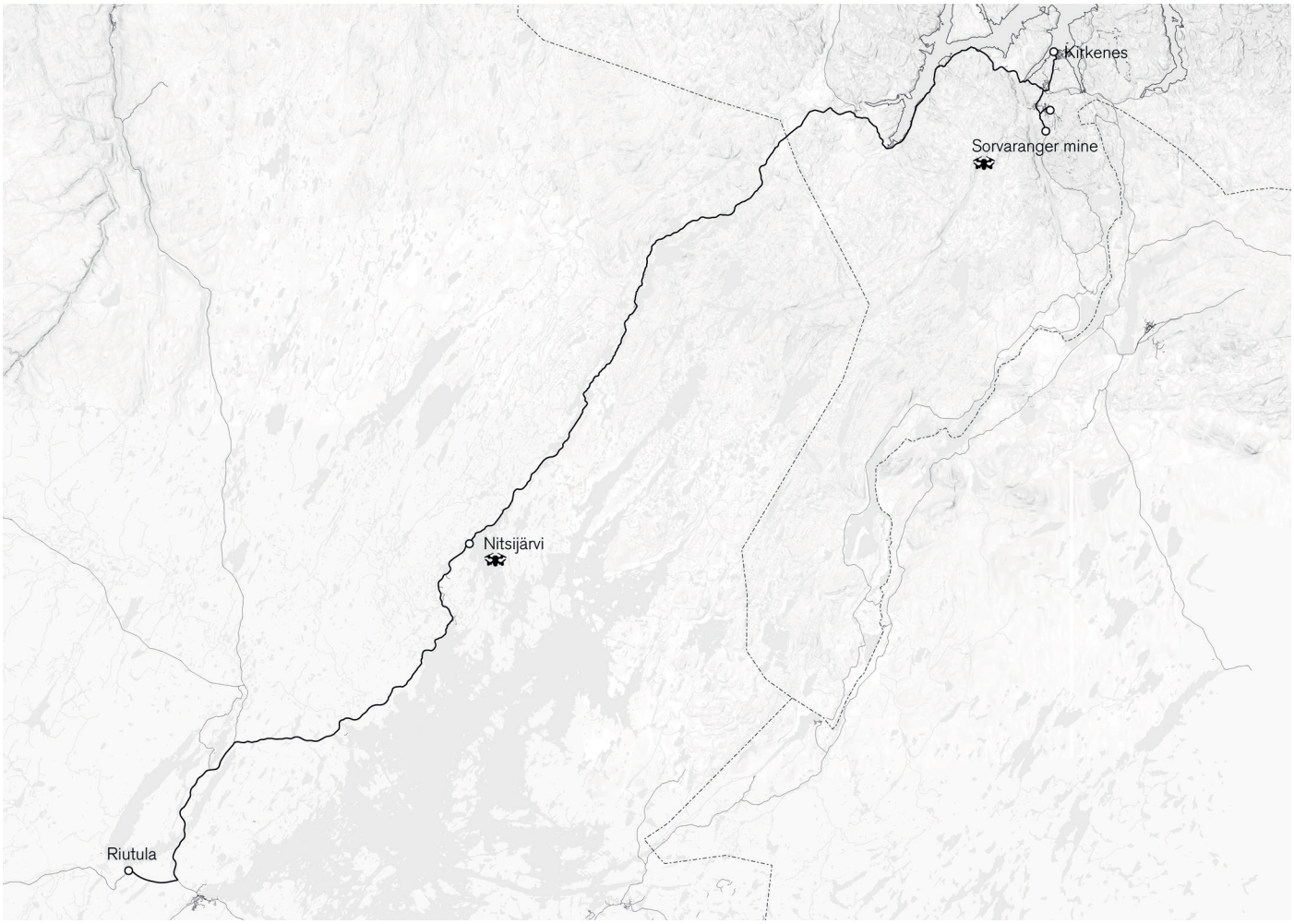
Figures

◀ 5.105 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.106 Traversed route from Krikenes to Inari.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.107 Sydvaranger mine in Bjørnevatn.
Made by authors 2019

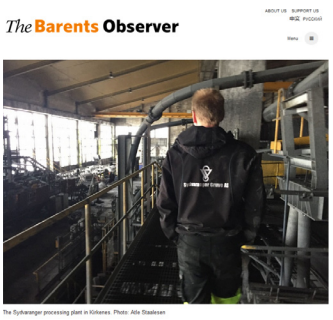
▶ 5.108 Statue of a miner posing in the center of Bjørnevatn.
Made by authors 2019











The Sydvaranger processing plant in Kirkenes. Photo: Atle Staalesen

Iron miners set for a restart in Kirkenes

A statue of a miner posing bravely, next to a bus stop modeled like a mine entry, reveals the nature of the direct surroundings today, a mining area. Ambitious plans to reopen the mine, and surround Bjørnevatn with high mountains of waste rock, have been accepted. Included in the license to operate is a permission to dump chemicals - derived from the extraction of ore from the rocks much like the Nussir-case - into the Bokfjorden, just outside of the Kirkenes harbor. Unlike the Nussir-case public resent towards the plans are near zero. The tradition of an operating mine nearby seemed to weigh higher against the disadvantages.

We're surprised that we can just drive up to the mine without a fence or people stopping us, perhaps because it is Easter. After we send a drone up in the air, the sheer size of the mine becomes clear. The main ore body - also carrying the name of the nearby town - Bjørnevatn is by far the largest pit, comprising of three parts. More to the south - in the so-called south field - development only started after 1980, yet this area comprises of some 6-8 open pits that together have roughly the same length as the Bjørnevatn open pits. The total length of the mine is around 8 kilometers.

We see another possible stop just around half-way and decide to go there to get a better picture of the south field. From here remnants of the once great Bjørnevatn lake can be seen, now covered mostly under mountains of mining waste.

20:30

When twilight starts, we cross the border and drive into Finland. The landscape around us changes from steep barren mountains to flat hills with low pine trees. It is a welcome sight after the past hectic days. The region, officially called Lapland - or Lappi -, is derived from Lapp, the name Scandinavians ascribed to the Sámi people. Nowadays the Sámi consider Lapp to be a denigratory term, and they prefer the area to be called Sápmi[1].

Apart from a few houses the landscape seems empty of any human interventions. The only stop we make is at Nitsijärvi, a frozen lake which is part of large system of lake Inari. It stretches from Inari to the border with Norway (see map).

Documentary

Only footage of the Sydvaranger mine made it into the final edit of the documentary. The footage is dispersed throughout the documentary as the best example of an open-pit mine in Norway. Combined with information about the mine it is a good example of what kind of impact it has on the landscape. The miner-statue perfectly resembles how these industries are exemplified; as heroic adventures.

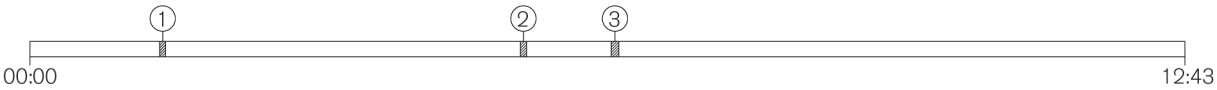
Figures

◀ 5.109 Frozen lake (Nitsijärvi), serving as highway for snowmobiles.
Made by authors 2019









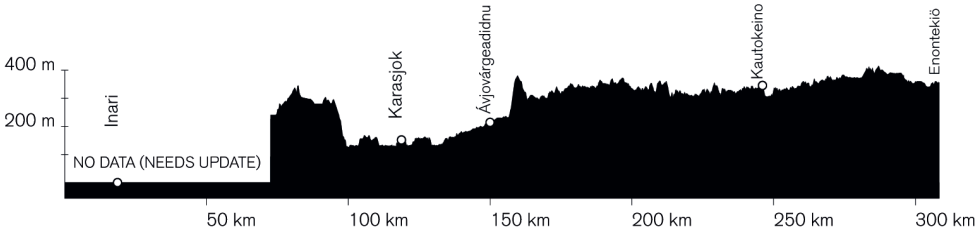
Inari - Karasjok - Leppäjärvi

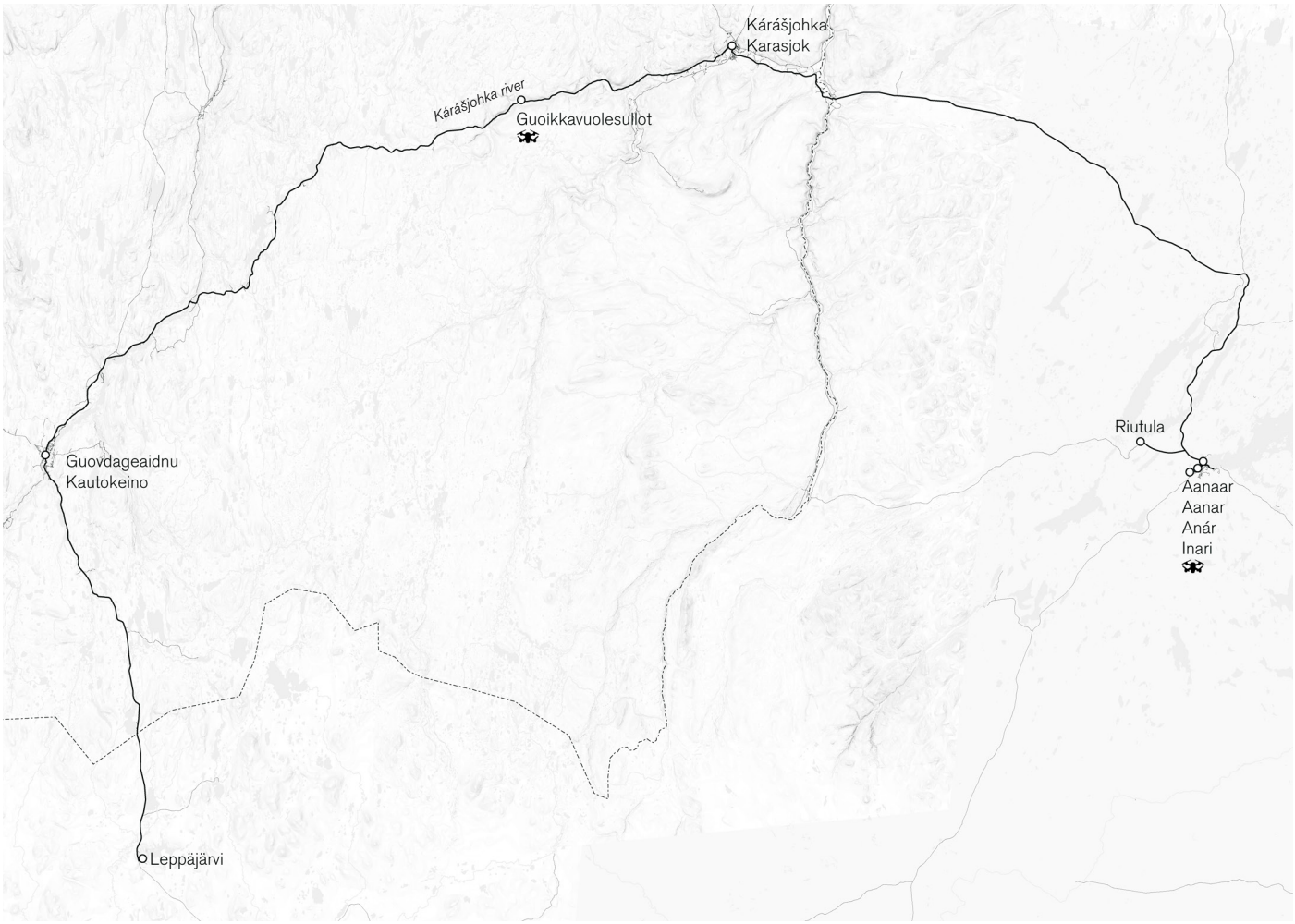
Friday April 19th 2019 | 10:00

Inari is the largest - but scarcely populated - municipality in Finland, resides next to lake Inari and is considered to be the center of Sámi culture in Finland. When driving towards the Siida museum we see - even though its Easter - a tourist bus just leaving the parking lot. It shows that this part of Finland is popular for tourists who want to experience Lapland. The museum itself revolves around the Sámi history, but particularly about the seasonality of the environment and how they use the landscape for both herding and fishing as part of nomadic life. It is the first time we learn more in depth about the techniques, as articles (in English or Norwegian) are hard to come by.

12:00

When driving around in Inari, it doesn't feel like you're in a Sámi town where the Finnish Sámi Parliament is residing. After a big population decline the village is now growing as more tourists - particularly from east Asia - come in winter time. The local economy is benefiting and reindeer herding is not the main source of economy anymore. The municipality is also believed to have big deposits of minerals and ores. Where local authorities in Norway often choose to develop jobs and big revenues out of this, Inari has successfully withstand extractors[1].





Citations

[1] Alajärvi, M., & Rasmus, L. (2019). «Why don't they ask ordinary Sámi?»– Arctic railroad has an impact on many local people in northern Finland.

Figures

▲ 5.110 News cover of March 18th, 2018 in the Barents Observer.

◀ 5.111 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.112 Traversed route from Inari to Leppäjärvi.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.113 Juutua Suspension Bridge over the Juutuanjoki river.
Made by authors 2019







There is however one big concern regarding industrial development; the *Arctic Railway*. As part of the *Arctic Corridor*, the project aims to connect the Baltic Sea with the Barents Sea, and strengthen economic benefits from cargo transport from Asia, as well as oil, gas and mineral developments in the Arctic. The planned railway will cut right through the heart of Lapland, thereby splitting Siida's used by reindeer herders. The Sámi Parliament and herders have criticized the plans, as there have not been any consultation whatsoever about the chosen route[1]. In late 2019 the government of Finland has withdrawn from the project, as the project is social-economically not sustainable. As of now, Finest Bay Area Development Oy - a private company - is willing to invest into the project[2].

15:00

We decide to have a short hike to Juutuanjoki river (figure 5.113, previous page). Along the route, Finnish people are enjoying camp-fires in open huts. Places like Inari have attracted young people - and many families who want a second home - to buy a house here as it was cheap, nature in the backyard and recreation is close-by.

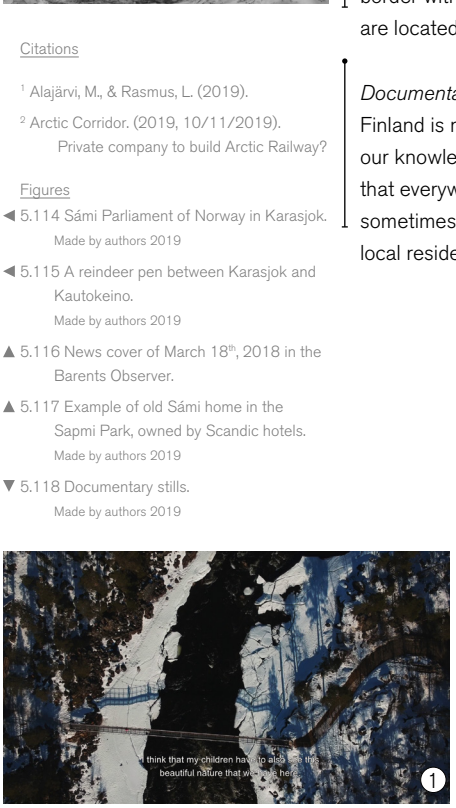
18:00

Back in Norway we pass Karasjok, the Sámi capital - home the Sámi Parliament - of Norway. Unfortunately everything is closed, and the local Sápmi park - owned by the Scandian hotel - looks thrillingly abandoned. We wonder if this is another 'standard' museum in the heart of Sápmi.

The drive alongside the Kárášjohka river is long. The area between the karasjoka river and the border with Finland could be considered the heart of Sápmi, where most valuable winter paster are located. An abandoned reindeer pen (figure 5.115) is one of the few signs left by ...

Documentary

Finland is not covered or mentioned in the documentary, but having been there has broadened our knowledge about the issues of the Sámi and Arctic communities in general. It seems that everywhere you go, industrial development is in a direct or indirect way influencing - and sometimes - splitting local communities. The lack of transparency towards, and consultation of local residents seem to be widespread.



Citations

[1] Alajärvi, M., & Rasmus, L. (2019).

[2] Arctic Corridor. (2019, 10/11/2019). Private company to build Arctic Railway?

Figures

◀ 5.114 Sámi Parliament of Norway in Karasjok. Made by authors 2019

◀ 5.115 A reindeer pen between Karasjok and Kautokeino. Made by authors 2019

▲ 5.116 News cover of March 18th, 2018 in the Barents Observer.

▲ 5.117 Example of old Sámi home in the Sapmi Park, owned by Scandic hotels. Made by authors 2019

▼ 5.118 Documentary stills. Made by authors 2019





Leppäjärvi - Kautokeino - Leppäjärvi

Saturday April 20th

Kautokeino - or Guovdageaidnu - is a small town in the heart of Sápmi. During our stay there were a lot of festivities surrounding the Sámi Easter Festival; a week long festival to celebrate Easter and the Sámi culture. As the librarian in Tromsø already told us, the Sámi are quite religious. It is therefore no surprise that the festival originated as a celebration of weddings, confirmations and christening, and slowly evolved into the festival as it is today. It includes concerts, theatre, exhibitions, market, duodji (Sámi handicraft), art, cinema and reindeer-racing.

13:00

When arriving in Kautokeino, the festival is well under way. We decide to go to the Diehtosiida (Sámi University), where an exhibition is displayed by a Japanese photographer Koji Tsuda. The Japanese followed and photographed the Sámi from 1974 to 1986. As we later found out, this was the period where the "Norwegianization" act came to an end as Sámi activists were protesting for their rights. These protests were for a large part started by the protests against a dam in the Alta river, but more on that under 'Leppäjärvi - Alta.'

We decide to go to the Sámi Festival center where we have our first Bidos (reindeer soup). Unfortunately we discover that the reindeer races have been cancelled. Luckily, we received a phone number of a local reindeer herder from Siv and Per, Aslak Sokki. Aslak will pick us up at the local Thon hotel to give us a small tour at his tourist company.

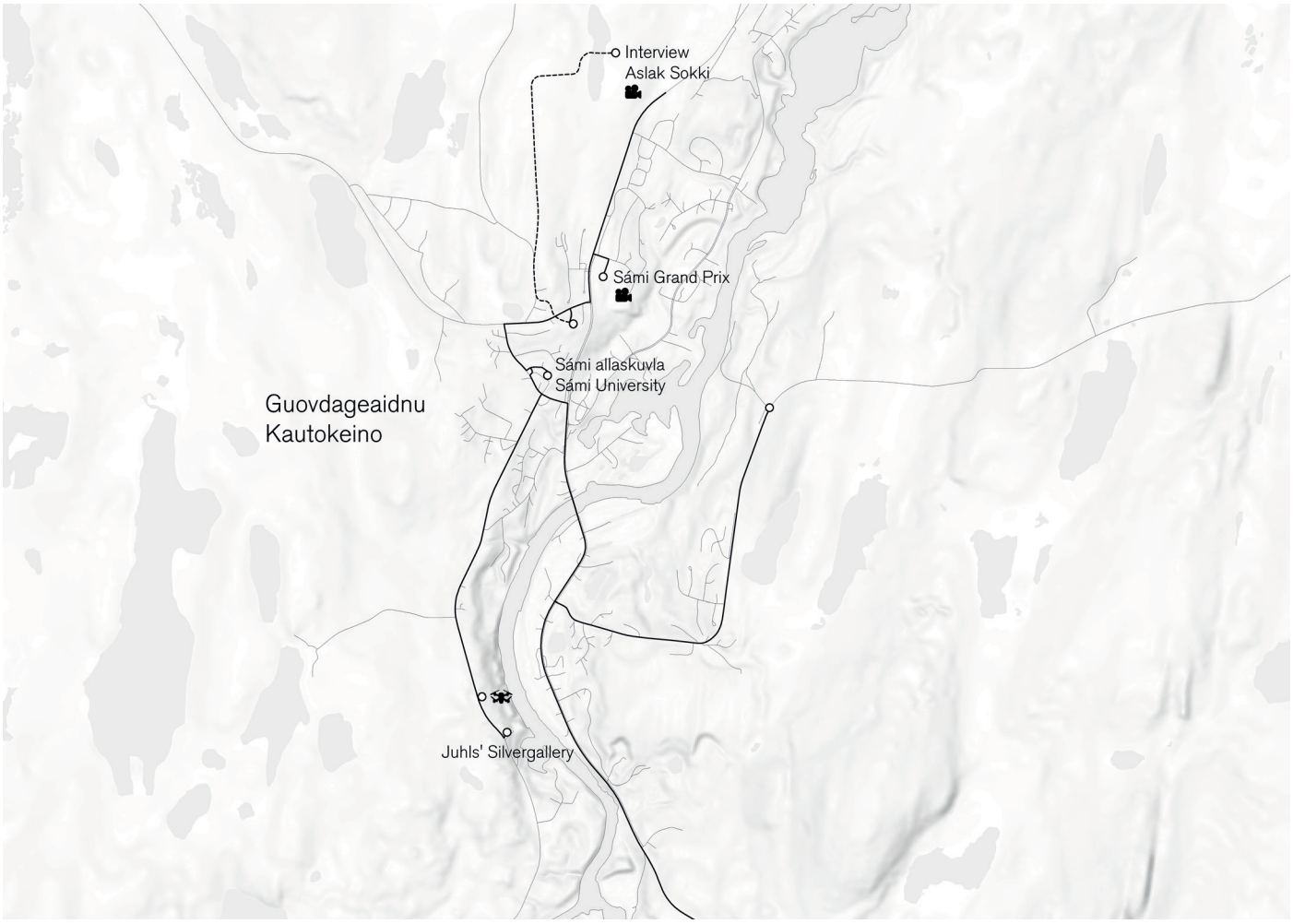
15:00

We are picked up by scooter mobile. Among us are an Iranian man and Norwegian women from Svalbard who are looking into arranging guided tours around Finnmark. This is perfect, as the

Figures

▼ 5.119 Traversed route from Inari to Leppäjärvi.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.120 Kautokeino, seen from the South.
Made by authors 2019





atmosphere is therefore a little less touristy. We head into the traditional Lavvu where Aslak Sokki and his niece explain us shortly some things about the Sámi culture. After another bowl of Bidos, his niece chants a personal Yoik for us. The traditional Yoik is believed to be one of the oldest forms of music in Europe and as Somby explains, Yoiks are an important part of their culture;

> There are Yoiks for persons, animals and land. In Saami tradition it was very important for a person to have a yoik, just as important as being given a name. Yoiking a landscape or an animal probably had a similar ritual significance. Even for the trained ear, it is difficult to hear the difference between an animal's yoik and a person's yoik. The reason is simply that people, animals and land are not as distinct in the Saami mind as in the western European mind. Ethics that apply to fellow humans also apply to a great extent to animals and land, or fellow animals and fellow land, so to speak. Thus, just as one cannot own a fellow man, one cannot own a «fellow» animal or «fellow» land.[1]

It illustrates again how drastically their world-view differs from western perspectives and how close they are with their environment.

Aslak explains that his first and foremost reindeer - the one in figure 5.121 - is the leader of the pack and that the herd is very trustworthy towards him. Without him the herd would panic. Most of the reindeer he uses here are white, because they are very calm and lazy. As we already noticed, most reindeer that wander around roads are also white - male - reindeer. Brown reindeer - especially females - are herded on the pastures. We also discover why the reindeer racing has been cancelled; the antlers have started to grow again, causing much pain for the reindeer.

Summary interview Aslak Sokki:

After the tour and ride on a sled, we have time to ask some personal questions. We quickly set up the camera. The start of the conversation is about the cultural connection of herders with the landscape. Around Finnmark there seems to be a strong connection with the landscape.

AS

"You see in Kautokeino you have time to listen to the nature, that's the most important for us. Because nature doesn't care about us, we have to take care of nature. And we have to listen to what nature is telling us, we have to look for those signs. I tried to live in the big cities, but that wasn't my life because it was too many buildings, too many sounds. "

"In large parts of Finnmark herders still migrate throughout the year, do you often go towards the sea or towards other place in Finnmark?"

AS

"We are like nomads. In the wintertime my reindeer herd will be 100 kilometers east up to Finnish border. But in the summertime then we move our reindeer herd to the coast in Troms, so then we are at the sea. We have many homes, but most of time we are in Kautokeino."

From our research we learned that within Siida's - reindeer pastoralistic districts - different families share the same areas throughout the year. Up to 2007 there have been conflicts with the government about the use of Siida's by the Sámi, and - because information is hard to get by - we wonder if herds still use these.

AS

"Of course, we have to follow the traces of our grandparents and great grandparents. But the reindeer are showing us the way, they know where they should go in wintertime and also in the wintertime, you just keep following. We just herd them at the same time."

"Is it becoming harder to herd or to find the right pasture for the reindeer?"

Citations

[1] Somby, A. (1995). Joik and the theory of knowledge.

Figures

▶ 5.121 Aslak Sokki with his favorite reindeer. Made by authors 2019

AS

"We know where we should be, but sometimes it's very hard to herd the reindeer against predators. So we have to watch over for the reindeer all the time so they don't kill all the reindeer. And the industries try very much to come to our areas, but we don't want them. But I know that it will probably happen a few years from now. Because the government is saying we are putting new industry there new, new industry there, we don't care about the Sámi's, we don't care about the reindeer herding, we want more minerals. That's not good us, for us Sámi people. And for our kids either because they're going to take over the reindeer herding after us. But the industry will destroy so much areas, that we can't herd our reindeer there. We try to take care of the next generation, what will happen then, and it's very sad for us."

"We found out that there's some different perspectives on the incoming of the industries, well mainly in places along the coast."

AS

"We're like splitted people. Someone will have that industries and fifty percent don't want to have that industry. And I don't want it, those industries. Even at the coast either, because I know, these people they work to fish, and that's very important for us also. My cousin is actually fighting against it, because they have reindeer in the Repparfjord - the Nussir case - and they know the people that live and fish there. They don't want to lose their work because of some minerals."

"Has climate change affected your reindeer herding or do you think it will impact?"

AS

"We have seen many changes. We didn't have so much snow this year. And we had a really different winter as it used to be. Suddenly it can get really warm for 2 days, then it gets very cold. But normally in all January, February, maybe half March it used to be very cold inland. If you're thinking about 10 years ago. But now its so much changing with the weather. And I also see it in the reindeer, they're also changing with the weather. But we have to get used to it, we can't do nothing with that."

Aslak hints at a very important point here. Most herders are not that concerned about the









changing climate, because reindeer can be very flexible. But this flexibility asks for bigger and flexible pastures which they can use. And these particular areas are threatened by new industries.

After the interview Aslak thanks us. He says that we are one of the very few people who actually did our research well and ask the right questions. Most people documenting - through filming - are mainly interested in their culture and do not have the right research background. We're glad that we could be of any help.

19:00

In the evening we are heading to the Báktehárji Idrettshall where the Sámi Grandprix will be hosted. The event is being broadcasted live on national television and consists of two parts; a Yoik and a song contest. When arriving at our seats, we discover that there are two Dutch people behind us, who turn out to be making a documentary as well. We exchange our experience and they are surprised that we are doing this from a research background. The Grand Prix is a warm experience, where the cultural differences between the different regional backgrounds are wonderfully visible.

Documentary

The past few days have been intense, although most towns we visit are quiet because of Easter, the presence of the Sámi and their natural connection is strongly felt land inwards. From our visit in Kautokeino, the meeting with Aslak quite remarkably showed that a lot of herders are forced to seek revenues from other activities, as herding is under pressure of capitalism. Although not visible in the documentary, the children playing in the background amplified his worries for future generations in the north - as most of these industries only provide jobs for a short time. We were quite enthusiastic about the reindeer racing, as we hoped to interview more people in an informal setting. But the Sámi Grandprix - becoming more popular every year - also seemed to provide a good insight into their culture. The earlier example of industrial development in Gørtsund Fort - in the Troms area - is combined as a contrasting sequence throughout the documentary.

Figures

◀ 5.122 Winner of the Yoik context at the Sámi Grandprix, Kautokeino.
Made by authors 2019

◀◀ 5.123 Picture taken Sokki Adventure with in the background a Lavvu.
Made by authors 2019

◀ 5.124 Painted pillars in the Sámi University, Kautokeino.
Made by authors 2019

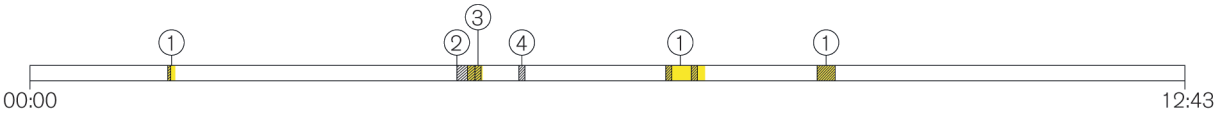
▼ 5.125 Documentary stills.
Made by authors 2019











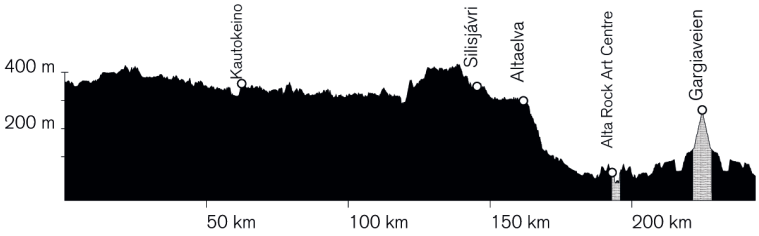
Leppäjärvi - Alta

Sunday April 21st

The journey today will take us from the Finnmark plateau of Finnmark to the coastal city Alta. Since we are traveling in an almost straight line, the section below gives a good impression of terrain we are traversing. Towards the coast the terrain is getting more mountainous before descending, hence the in-lands are protected from the harsh winds and thick covers of snow in the winter. This is the very reason that reindeer - and thus Sámis - originally reside inland.

13:00

We ride over the mountain range and pass lake Silisjávri, where the presence of snow-mobile routes are again visible on the ice surface. In the winter this means of conveyance is preferred because roads are often inaccessible. In fact, these climatic and landscape features have - for a large part - ensured the Sámi to escape the reach of colonizing forces along the coast in the past centuries.



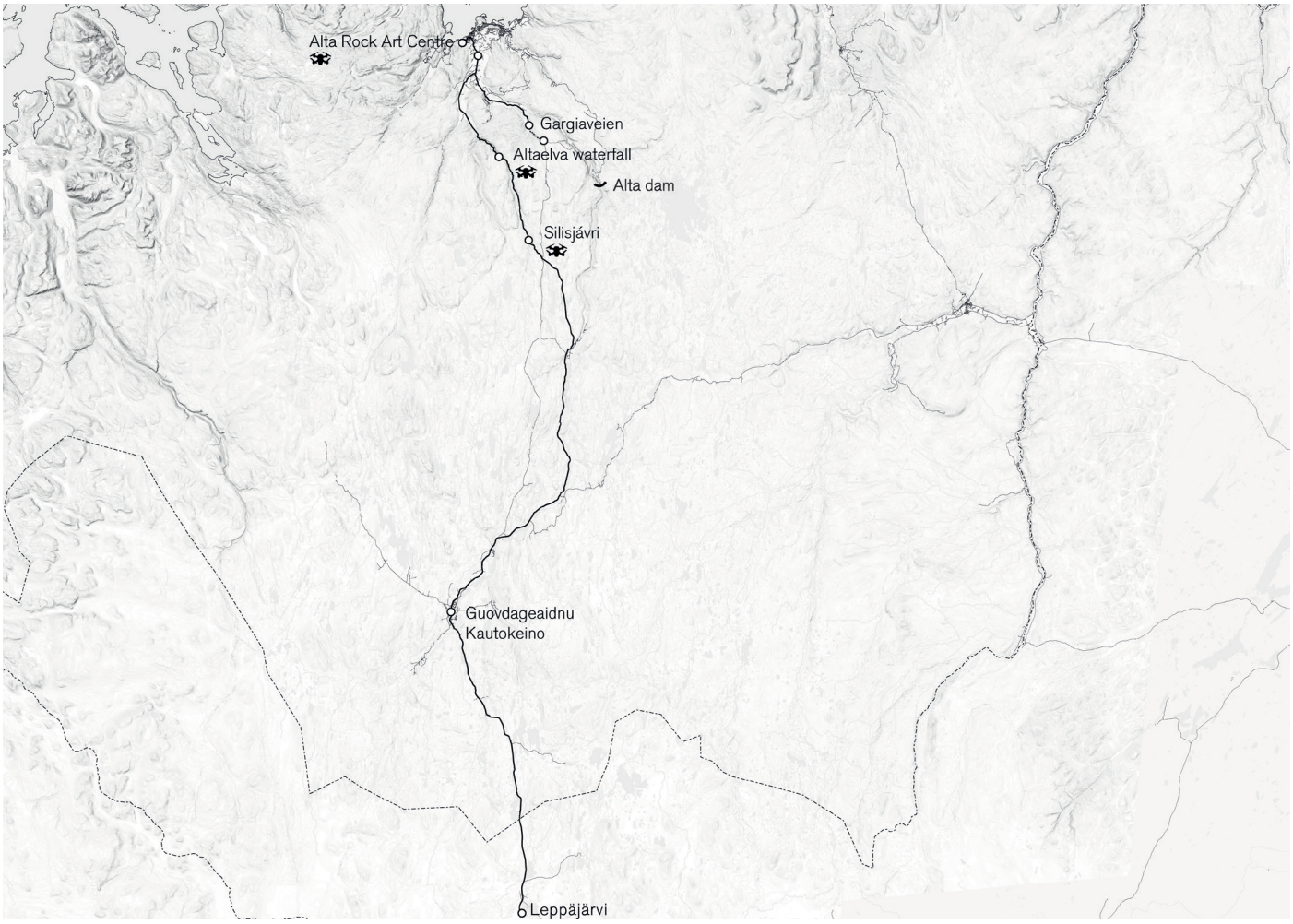
Figures

◀ 5.126 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019

▼ 5.127 Traversed route from Inari to Leppäjärvi.
Made by authors 2019, based on height data from Kartverket 2019

▶ 5.128 Lake Silisjávri, near Masi.
Made by authors 2019

▶ 5.129 Rock carvings at Alta Rock Art Centre.
Made by authors 2019







14:00

We slowly ascend along the Eiby river between the mountains and come across a frozen waterfall (see documentary stills). After a quick stop, we descend with great altitude towards Eibydalen. We are surprised by the sudden change from a snowy-winter landscape to a green valley, full of large pine trees. The small river we have followed flows over into the Alta river, and enters the sea in Alta. The city is presents itself as the place to experience the northern lights in Norway.



17:00

After settling along the Alta river, we head towards Hjemmeluft where the Rock Carvings Center is located. (see figure 5.132) The World-Heritage site seems closed, but we decide to walk along the coast-path anyway.



> The Rock Art of Alta, with its thousands of paintings and engravings, is an exceptional testimony of the aspects of life, the environment and the activities of hunter-gatherer societies in the Arctic in prehistoric times. The wide range of motifs and scenes of high artistic quality reflect a long tradition of hunter-gatherer societies and their interaction with landscape, as well as the evolution of their symbols and rituals from approximately 5000 B.C. to about the year 0[1].



It is believed that these rock carvings were made by ancestors of the Sámi, but this is not proven fully proven. Although the genetic origin of the Sámi is still unknown, it appears that they are a blend of European Hunter Gatherers and the Ancient North Eurasians[2], making their culture very relatable with these prehistoric hunter-gather societies. Nevertheless the carvings have a deep impression on us, especially the fact that many of these habits - for a great part - managed to survive thousands years in Sámi and other indigenous cultures.

21:00 - Alta protests

In the evening we decide to walk towards the Alta Canyon, a 1,5 hour walk from Gargia over the top of the Grønnåsen ridge. But as the dark kicks in, thick snow cover limits our movement - as we sink to our hips in the snow. 40 years ago, these grounds were the center of heavy protests against a dam in the Alta river. The Alta controversy "became a symbol of the Sámi fight against cultural discrimination and for collective respect, for political autonomy and for material rights"[3].



Citations

[1] Unesco World Heritage. (2004). Rock Art of Alta.

[2] Wikipedia contributors. (2020). Sámi history.

[3] Minde, H. (2005). Assimilation of the Sámi-implementation and consequences

[4] Briggs, C. M. (2006). Science, local knowledge and exclusionary practices: Lessons from the Alta Dam case.

[5] Alta Museum. (2019). The archives of the protest movement against the damming of the Alta-Kautokeino water system.

Figures

▲ 5.130 Sequence of different landscapes within 7 minutes drive from each other. Made by authors 2019

◀ 5.131 'Let the river live', protesters at the Alta against the Alta dam. © Alta Museum

▶ 5.132 Documentary stills Made by authors 2019

The dam's impacts on reindeer herding, salmon and river quality constituted environmental burdens that were borne by Alta residents, without crucial state consideration of the resources' environmental and identity values. The project was, in many ways, an extension of Norwegian modernist and development ideologies that had long defined hydropower projects both in Norway and abroad, as well as relegating Saami populations to politically marginal status[4].

The protests ended up being a question of the rights of Sámi people and indigenous populations, both national an global[5], ultimately ending the "Norwegianization" policies in 1981. In the end, the project was constructed at a reduced scale, saving the Alta Canyon for flooding.

Documentary

From this day, particularly natural shots from the landscape and the Art Rock made it into the documentary. Unfortunately, we were unable to reach the Alta Canyon, but the stories have been of great importance in understanding the history of environmental protests in Norway. It amplifies the stark contrast between the preservation of the rock carvings and the allowed destruction of the livelihood of the Sámi. The recent case of the Repparfjord is a good example of this - sadly still existing - paradox. These stories have been the building blocks of the documentary, although they did not directly narrated.









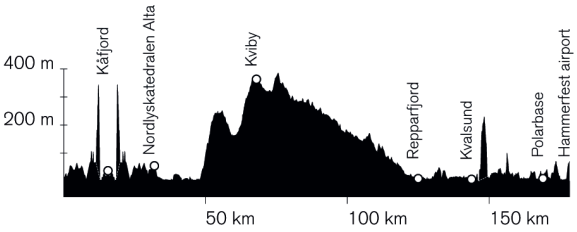
5.133 View from the Alta Rock Carving museum.
Made by authors, 2019.

Alta - Hammerfest

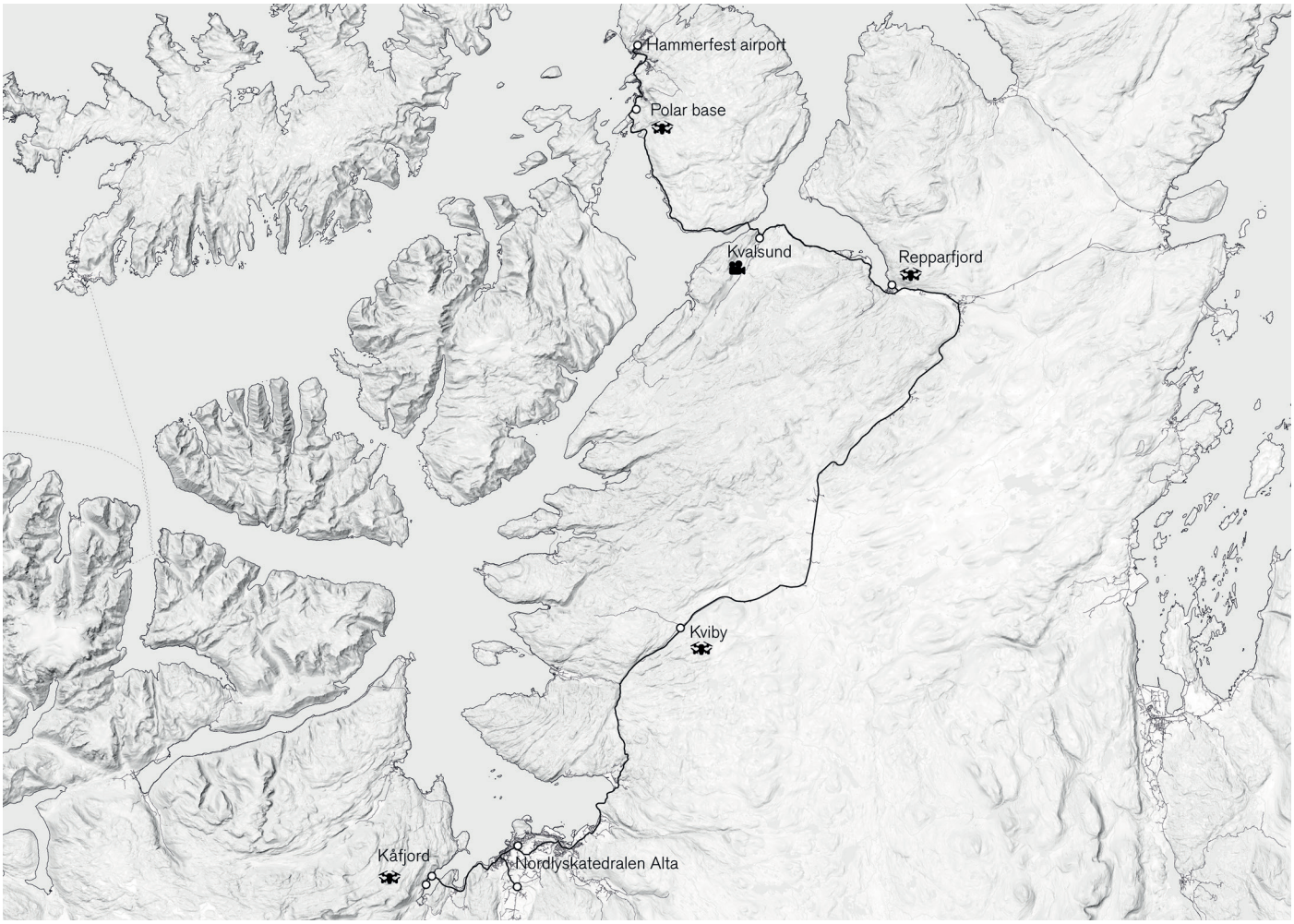
Monday April 22st | 11:00
We start our last day in Finnmark in Kåfjord. The famous fjord is known for the fierce battle - and sinking of the German battleship Tirpitz - in the 2nd world war and the Alten Copper Mines. The mine - founded by two Englishman - was operating from1826 till its exhaustion in1909.

12:30
After a short visit to the center - and Northerns Lights Cathedral - of Alta, we head for Hammerfest again. The first stop is on a mountain range just outside of Alta, where great packs of snow still cover the landscape. We slowly descend towards the Repparfjord.

13:30
The second time in the Repparfjord we film the salmon spawning delta, with in the distance the - as of 2020, soon to be opened - copper mine. In Kvalsund we make a short stop to get some last impressions of the small town. In 2020 the municipality of Kvalsund and Hammerfest have merged. We have a gut feeling that with this cooperation the municipalities can work better together to attract industrial development. Kvalsund is hoping to house these new workers.



Figures
◀ 5.134 Section of traversed route.
Made by authors 2019, based on height data from Kartverket 2019
▼ 5.135 Traversed route from Inari to Leppäjärvi.
Made by authors 2019, based on height data from Kartverket 2019
▶ 5.136 Kåfjord Copper Works ruins.
Made by authors 2019
▶ 5.137 Thick snow cover at Kviby.
Made by authors 2019

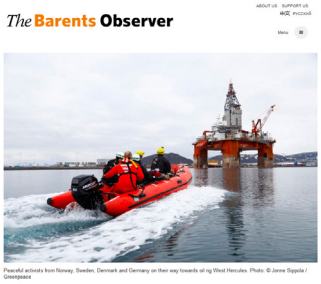












Activists advanced on Arctic oil rig

15:00

On the way to Hammerfest, we discover that the West-Hercules is still docked at Polar Base in Hammerfest. Returning from the trip, the grand gesture of this structure is invoking overwhelming emotions. As we later discover, the rig will explore new licenses for Equinor in the northern parts of the Barents Sea. Later that week, activists from Greenpeace enter the rig, demanding a stop on drilling in the Arctic - of course without result. But as locals have expressed in interviews, they don't like the southerners coming in and demanding a stop on these important economic activities for Hammerfest.

Documentary

> *"Norway is a very petroholic country. The government in Norway has a strong interest in developing mineral resources and oil and gas. And also the biggest political opposition groups has the same, but there is at the same time a growing discourse, both locally and on the national level on how to handle these issues. Like climate change issues, indigenous peoples, and so on."*
>
> Atle Staalesen, Barents Observer.

From the opening shot to complementary footage under the narration of the documentary. We wanted to highlight - how insignificant it may seem in the vast landscapes - that industrial development invokes controversial problems both for local indigenous groups, as well as what they leave behind when the industrial activities stop.

Figures

◀ 5.138 Local working on his boat, Rypefjord.
Made by authors 2019

◀ 5.139 West-Hercules oil rig, docked at Polar Base.
Made by authors 2019

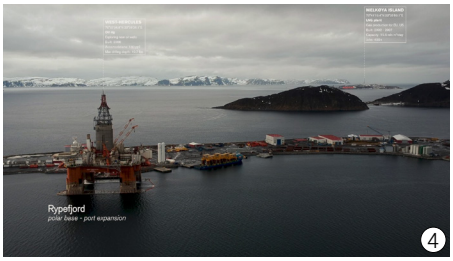
▲ 5.140 News cover of April 29th, 2019 in the Barents Observer.

▼ 5.141 Documentary stills.
Made by authors 2019



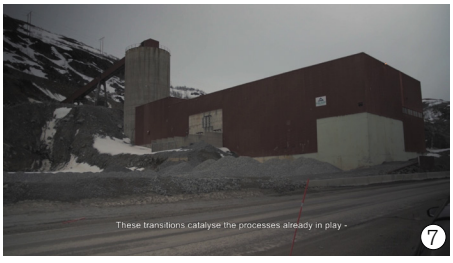



















P



Tromsø

Tuesday April 23th, 2019 | 13:00

The last day of our trip. We visit the Norgen Arktiske Universitetsmuseum and the Polar museum, both part of Tromsø University. We were biased into thinking that the museums would propagate the non-indigenous side of history, skirting the question of traditional ownership of the land. However, we were pleasantly surprised by the exhibition of the University museum. From geological facts to cultural stories, it explained the North from different sides. Insofar, even a extensive exhibition about the Norwegianization history of the Sámi.

One topic we want to highlight is the ongoing debate about overgrazing in Finnmark. In the museum this is explained as a consequence of too many reindeer on grazing lands and an increase in off-road driving. However, as Benjaminsen et al. suggest, "the narrative of overgrazing functions as a type of myth - an enduring 'social fact', whose narrative reality is in large part decoupled from its supposed scientific basis"[1]. The museum highlights that traditional husbandry might have prevented overgrazing, but this is made difficult through industrial development and husbandry policies aimed at herd reduction.

The last stop of our field trip is the polar museum, which is about historical polar explorations. As Bernice Noteboom explains in her book "Arctica",

> These stories [...] sensational by the amount of courage and patience that the polar hunters had, but also shocking by their enormous ignorance and arrogance. [...] They were undoubtedly more driven by their adventurous spirit than they were after wealth. [an huge discrepancy to the current situation] but most simply craved to gain fame or to plant the flag of their home country [first][2].

The heroism in these narratives of exploration are outdated and over-exaggerated. Though these exploration have increasingly been put in a different light, the heroism lives on in the world of oil and gas expeditions, as various videos and the book Snøhvit show; the same strategy has been used to hoist people in the North to believe in the goodwill of these industries. As we have discovered, this is very disputable.

Citations

[1] Benjaminsen, et al. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway.

[2] translated from Noteboom, B. (2018). *Arctica - Mijn biografie van de noordpool.*

Figures

▼ 5.142 The Polar museum in Tromsø.
© Alta Museum

▶ 5.143 The fjord landscapes, seen from the air.
Made by authors 2019


AFFR
.NL
ARCHITECTURE FILM FESTIVAL
ROTTERDAM
NORTHBOUND
ARCHITECTURE FILM FESTIVAL ROTTERDAM
FRIDAY OCTOBER 11TH - 19:00
LANTARENVENSTER
a documentary by
BOAZ PETERS
MARK SLIERINGS
under the framework of
TRANSITIONAL TERRITORIES
graduation studio
AFFR
OFFICIAL SELECTION
2019
ARCHITECTURE FILM FESTIVAL
ROTTERDAM
"We only have one nature.
This is not something we can buy."
Aslak Sokki


AFFR
.NL
ARCHITECTURE FILM FESTIVAL
ROTTERDAM
NORTHBOUND
ARCHITECTURE FILM FESTIVAL ROTTERDAM
FRIDAY OCTOBER 11TH - 19:00
LANTARENVENSTER
a documentary by
BOAZ PETERS
MARK SLIERINGS
under the framework of
TRANSITIONAL TERRITORIES
graduation studio
AFFR
OFFICIAL SELECTION
2019
ARCHITECTURE FILM FESTIVAL
ROTTERDAM
"We only have one nature.
This is not something we can buy."
Aslak Sokki

Documentary NORTHBOUND

"This documentary is about the most northern state of Europe, Finnmark. If this state would be a city it would rank 6th on the list of biggest cities in Norway in terms of inhabitants, yet the people are stretched out over an area slightly bigger than Denmark. The ground houses a lot of mineral riches, and it is the primary landing place for new oil and gas explorations in the Barents Sea. Sea ice recession in the Arctic furthermore greatly increases trade possibilities with China, cutting down the traditional Suez route by several days. A new projected railway line through Finland connects the in Finnmark situated harbor town Kirkenes to the Baltic States and further down to Central Europe. But what will this rapid industrial transition and economic expansion mean for local culture? How will the indigenous Sámi, the only remaining officially recognized indigenous peoples of Europe and their inseparable connection with herding reindeer, cope under this transition? Will Finnmark thrive under the coming industries or subdue under its destruction? Already the issuing of permits (like one in the Repparfjord in the municipality of Kvalsund) is causing the inhabitants to be divided over whether to choose for preservation of a natural condition, or exploit the landscape for economic growth and job development.

With this in mind we left to make a documentary along the several small villages, and the majestic stretched out landscape of Finnmark. Along the road trip we documented people's perspectives on the industries and life in Northern Norway, many fascinating fjords, large numbers of reindeer and already existing industries. We were struck by the amount of processes which are going on, but which don't meet the eye at first glance. Locals in general seem to be extremely divided, invoking either anger or hope, when talking about industries. What helps for the industries is that the greatly stretched out landscape morphology, allows them to operate in a more covert way. Globalization is pervasive, and it is profoundly affecting local cultural livelihoods."

Figures

▲ 5.144 Poster made for the AFFR selection. Made by authors 2019

◀ 5.145 Poster made for the AFFR selection. Made by authors 2019

https://vimeo.com/339203320
Password: Northbound2019

BK-Expo (18-06 – 30-06)

The Northbound documentary was first showcased on the Transitional Territories exhibition in BK Expo. For the Transitional Territories studio this was the chance to exhibit the work done during the year. The exhibition was meant as the collective end of the work for the studio and featured the graduation projects from around the North Sea, were students were asked to show the poetry behind the project, supported through imagination and narrative. Projects were divided over several tables (Territory, Landscape, Urban, Island) according to the theme of the graduation project. All projects reflected upon the political, economic and ecologic shifts of the North Sea and surroundings.

Figures

▼ 5.146 Documentary display at the Transitional Territories Studio exhibition in June 2019.
Made by authors 2019

▶ 5.147 'Northbound' being displayed on the big screen.
Made Jesse Peters 2019

▶▶ 5.148 Live Q&A at the AFFR.
Made by Thomas Antony Dillon 2019



Architecture Film Festival Rotterdam (LantarenVenster, 11-10)

The theme of the Architecture Film Festival in Rotterdam - Lost in Transition – fitted perfectly with Northbound. Especially regarding the quick transition of the Arctic is causing strong tensions in Finnmark. The documentary was portrayed together with 690 Vopnafjörður (Karna Sigurðardóttir, 2017) and It's not Silence (Joonas Salo, 2018) in a block of documentaries portraying life through Arctic shifts. 690 Vopnafjörður captures a remote Icelandic village struggling with population decline while It's not Silence portrays life in the near abandoned Soviet village of Pyramiden on Svalbard.

12th Budapest Architecture Film Days (KÉK & Toldi Cinema, March 8th 2020)

The documentary 'Northbound' has been selected to show at the Budapest Architecture Film Days in Toldi Cinema. In a block together with the documentary 'Melting Souls' (François-Xavier Destors, 2017) it is set to show on March 8th. Metling Souls is about the "vortex town" of Norilsk - situated in central Russia - and captures the dismal poetry of one of the most isolated and toxic cities on Earth.







Conclusions

The documentary, we argue, is a counter narrative to existing structures of story telling in the north. As Reinert (2016) explains:

> The nation is embarked on an epic (re)conquest of the north, a magical adventure of wealth and riches to rival that of the oil finds. At trade shows and conferences, in editorials, interviews, and televised debates, politicians, magnates, developers, and entrepreneurs conjure the north as a vast frontier, a repository of unrealized wealth—a landscape replete with rare earth and precious minerals, awaiting only the transformative labour of human enterprise to yield its hidden riches[1].

Norway profiles itself as a green-social state, but in the making of the documentary we uncovered a new face of this Scandinavian country. The north is a vast frontier, with complex, interdisciplinary problems. Various disciplines are taking different perspectives on the issues in Finnmark, leaving the sociopolitical landscape fractured. The vast landscapes of Finnmark, seem quite empty at first glance. However, during our field trip we discovered that the meta-level of social, environmental, economic and cultural uncertainties are strongly interlinked, illuminating the sociocultural fragility of Finnmark.

The most striking insights were obtained from the interview with Siv Merethe Sara and Per Alf Sara. Siv Merethe explained to us that the future of Finnmark depends largely – if not fundamentally – on new improved ways of communication and a re-evaluation of the most important values. The making of the documentary and the journal is one of our answers to their issues. It has pushed us to refine and shape the complex issues to a wider audience, thereby also training ourselves into the communication to officials and residents of these places.

As we argued with the Knowledge Argument, new first person knowledge is needed - especially - in regard to Traditional Ecological Knowledge, to get a holistic view of the territory. This asks for a broad analysis, incorporating especially perspectives currently neglected or not well understood in and through Western science. If indigenous issues cannot merely be understood through general scientific knowledge, mapping is not a sufficient tool to translate and consider these problems. One method to understand this is through film making. According to Aufderheide (2007), film making can tell us something worth knowing about, while it is also grounded in life[2]. These inequalities cannot simply be mapped, it requires conversation and it requires the urbanist to be there in order to understand the place.

However, we are conscious that documentary making as a medium does have it limitations, in a sense that it is for a large part (our) reflection about the realities in Finnmark. Therefore we turned to the making of the journal to subjectively - but foremost - objectively validate our story, and be as transparent in our motivations and intentions into further research. For both of us the fieldtrip, documentary and journal has been the base of our project. Insofar, that Boaz is mainly focusing on communicative issues on industrial impact on reindeer herding on Kvaløya, and Mark's focus on value creation in Finnmark. Ultimately the journal can be seen as a mental mind-map, a database from which we pick pieces, to elaborate on in our project.

The documentation of the field trip - through the documentary making and the journal - aided us with a tool to start investigating these issues literally in the field, while at the same time starting a discussion on western perspectives. It is only when we start to incorporate traditional forms of knowledge into decision-making, that we can make fair policies and design. We might be able to produce change and shift in relation to where we are positioned as researchers/viewers in the world. Going to Finnmark has inspired us greatly for our own theses, and we have been able to inspire others too, as is already apparent in new graduate projects.

Citations

[1] Reinert, H. (2016). About a stone: Some notes on geologic conviviality.

[2] Aufderheide, P. (2007). Documentary Film: A Very Short Introduction.

Figures

◀ 5.149 View from Steilneset Memorial on Vardø.
Made by authors 2019

References

05. Field Trip & Documentary

Alajärvi, M., & Rasmus, L. (2019). «Why don't they ask ordinary Sámi?»– Arctic railroad has an impact on many local people in northern Finland. Retrieved from https://thebarentsobserver.com/en/arctic/2018/05/why-dont-they-ask-ordinary-Sámi-arcticrailroad-has-impact-many-local-people-northern

Alta Museum. (2018). The archives of the protest movement against the damming of the Alta-Kautokeino water system. Retrieved from https://www.altamuseum.no/en/altas-nyeretids-historie/samlingene/altasaken-arkivet

Arctic Corridor. (2019, 10/11/2019). Private company to build Arctic Railway?a. Retrieved from https://arcticcorridor.fi/

Aufderheide, P. (2007). Documentary Film: A Very Short Introduction.

Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway. Norsk Geografisk Tidsskrift-Norwegian Journal of Geography, 69(4), 219-229.\

Berkes, F. (2012). Sacred Ecology, Routledge. New York & London.

Briggs, C. M. (2006). Science, local knowledge and exclusionary practices: Lessons from the Alta Dam case. Norsk Geografisk Tidsskrift-Norwegian Journal of Geography, 60(2), 149-160.

Ellefsen, K. O. (2018) Keynote - Karl Otto Ellefsen. RSD6. Available at: https://vimeo.com/246274276.

Jacobsen, A. R. (2010). Snøhvit, the history of oil and gas in the Barents Sea: Statoil.

Johnsen, K. I. (2016). 'Land-use conflicts between reindeer husbandry and mineral extraction in Finnmark, Norway: Contested rationalities and the politics of belonging', Polar Geography, 39(1), pp. 58–79. doi: 10.1080/1088937X.2016.1156181.

Minde, H. (2005). Assimilation of the Sami-implementation and consequences. *Journal of Indigenous peoples rights, 3.*

Nida-Rümelin, M., & O Conaill, D. (2019). Qualia: The Knowledge Argument. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy (Winter 2019 ed.): Metaphysics Research Lab, Stanford University.

Nilsen, T. (2018). US and Norway upgrade eye on border to northern Russia. Retrieved from https://thebarentsobserver.com/en/security/2018/11/us-and-norway-upgrades-eyenorthern-russia

Nisbet, M. C., Hixon, M. A., Moore, K. D., & Nelson, M. (2010). Four cultures: New synergies for engaging society on climate change. Frontiers in Ecology and the Environment, 8(6), 329-331.

Noteboom, B. (2018). Arctica - Mijn biografie van de noordpool. Amsterdam: Prometheus.

Pink, S. (2015). Going forward through the world: Thinking theoretically about first person perspective digital ethnography. Integrative Psychological and Behavioral Science, 49(2), 239-252.

Reinert, H. (2016). About a stone: Some notes on geologic conviviality.

Sámi Week. (2020). Sámi week. Retrieved from https://www.msm.no/en/arrangement/Sámiskuke/

Schreiber, M. (2018). The Arctic's Indigenous peoples bear a disproportionate burden of the world's response to climate change, leaders say. Retrieved from https://www.arctictoday.com/arctics-indigenous-peoples-bear-disproportionate-burden-worlds-response-climate-change-leaders-say/

Somby, A. (1995). Joik and the theory of knowledge. W: M. Haavelsrud (red.), Kunnskap ogutvikling, 14-16.

The Moscow Times. (2019). Russia Shuts Down Arctic Indigenous Rights Group. Retrieved from https://www.themoscowtimes.com/2019/11/07/russia-shuts-down-arctic-indigenous-rights-group-a68088

Tromsø Havn. (2014). Tromsø Havn 2014. Retrieved from https://www.youtube.com/watch?v=V5xAevT-aHE&feature=emb_logo

Turi, E. I. (2019). RNNR-127. Retrieved from https://www.ourcommons.ca/Content/Committee/421/RNNR/Evidence/EV10314373/RNNREV127-E.PDF

Unesco World Heritage. (2004). Rock Art of Alta. Retrieved from https://whc.unesco.org/en/list/352/

Wikipedia contributors. (2020, January 14). Sámi history. In Wikipedia, The Free Encyclopedia. Retrieved 15:01, January 25, 2020, from https://en.wikipedia.org/w/index.php?title=S%C3%A1mi_history&oldid=935762392

Wilder, B. T., O'Meara, C., Monti, L., & Nabhan, G. P. (2016). The importance of indigenous knowledge in curbing the loss of language and biodiversity. BioScience, 66(6), 499-509.

Sámi naming and landscape understanding

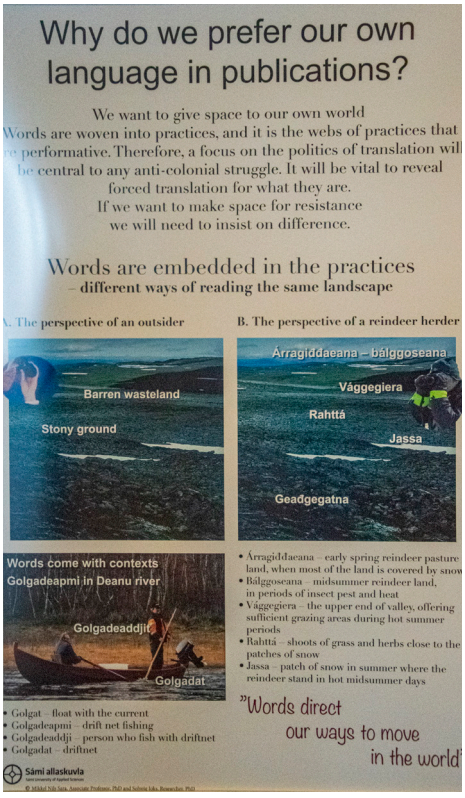
The island of Kvaløya is called Fála by the Sámi. Throughout the island it is visible that most places have aside the Norwegian name, also a Sámi name.

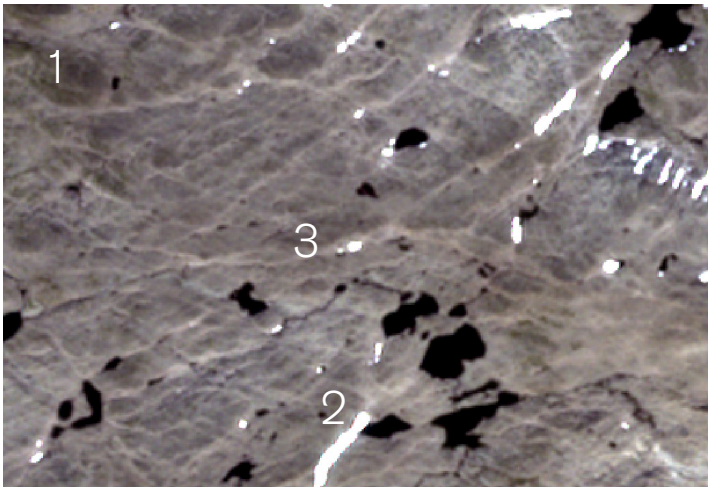
Most of the names used on the island are Norwegianized, and created because settlers do not know the deeper history of the island. This problem of "namelessness", as Marie Palmer reflects on the mining development in Kvalsund, could intimately be tied to the pressing question of why locals are supporting projects that harm the very land they live on (Reinert, 2019). This has to do with the fact that Sámi children would grow up speaking Norwegian in the past. As can be seen on the map on the right, there are numerable places on the island which only bare a Sámi name. This is already a good development, and it is important to keep their language alive and strengthen it on the island.

As the examples below show, this limit of language is also visible when it comes to the naming of the landscape. While in English and Norwegian a landscape is typified as one name, there could be a multitude of explanations about the landscape in Sámi. This understanding will be reflected throughout the analyses of the reindeer movement on the island.

Category 1: 'bare rock'
Sámi
1. Rahttá - shoots of grass and herbs close to the patches of snow
2. Jassa - patch of snow in summer where the reindeer stand in hot midsummer days

English
3 Stony ground





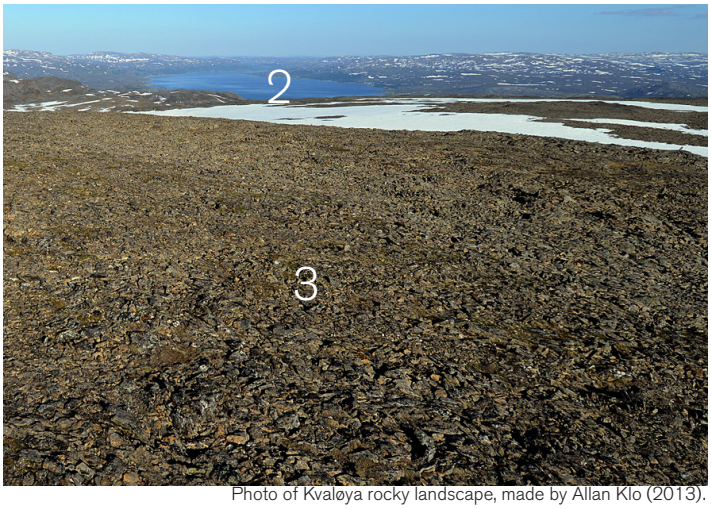


Photo of Kvaløya rocky landscape, made by Allan Klo (2013).

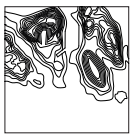

Mylingen
Kvalfjorden
Fállevuonna
Melkøya
Hammerfest
Rypefjord
Lávželuokta
KVALØYA
FÁLÁ
Kvaløya
Fálá
Strømsneset
Rávdnjenjárga
Akkarfjord
Áhkárvuotna
Svartfjellet
Muvrarášša
Boazorášša





Minister of Extraction

Boaz Peters
R26M+G5 Mongstad
Norway



North Sea Parliament
Berlagezalen
Julianalaan 134
2628 BL Delft
Netherlands

7 December 2018

Dear Parliament members, dear all,

We live in a world where we consume products, knowledge, jobs and experiences more than ever before. This social behaviour has a huge impact on the earth as we know it. We can even say that we have entered the Anthropocene, or better; the Capitalocene.

The Capitalocene was invented with the colonisation of distant territories, its resources were produced for some of the North Sea countries. This form of colonisation is the source of capitalism and capitalism is the source of resource extraction. Thus, we can state that resource extraction is the beginnings of the climate variations we are experiencing today. But where are these extraction sites? Whose lands? Whose authority? What do they extract? How is this moved? And most importantly, what is the impact? These are the fundamental questions for everyone to think about.

Our minds have been focussed too much on our cities. We need to shift our focus towards the total scope of the planetary urbanisation. Virtually everything has become urban. Everything we do, we consume, we see comes from distant invisible places. We have become far-removed from the origins of our products and the territories of resource exploitation. These territories of extraction need to be explored and explained spatially.

Currently, Norway is the richest country in Europe in exporting raw commodities. Additionally, the opening of the Arctic sea gives it a unique trading position. The implosion of settlements in the South have caused an explosion of resource extraction in Norway over the past decades. To maintain its economic growth, Norway is redirecting its attention to mineral extraction. Since oil and gas are the main source of income, this entails a significant economic and political shift. In this project I will focus on the urban and environmental changes that lurk around the corner; the results of an increase in resource extraction and the logistics that it entails along the West Coast of Norway. I will be looking at both new and old territories shaped by oil and gas extraction. Currently, most extraction takes place in the south and north of Norway. These sites create types of extraction in the extreme conditions in Norway and therefore demand new site-specific infrastructure.

The questions posed earlier are fundamental for understanding the current global urbanisation. Presumably, we will not be able to change the system in which we operate, but if we want to, we need to address the government's first. Since we, as industrialized West, are responsible for the concepts in place, we should take the lead. The intent is to contribute to this new paradigm and the methods in place today, going towards a transition in climate change and our behaviour in the future.

Sincerely,

Boaz Peters

Figures

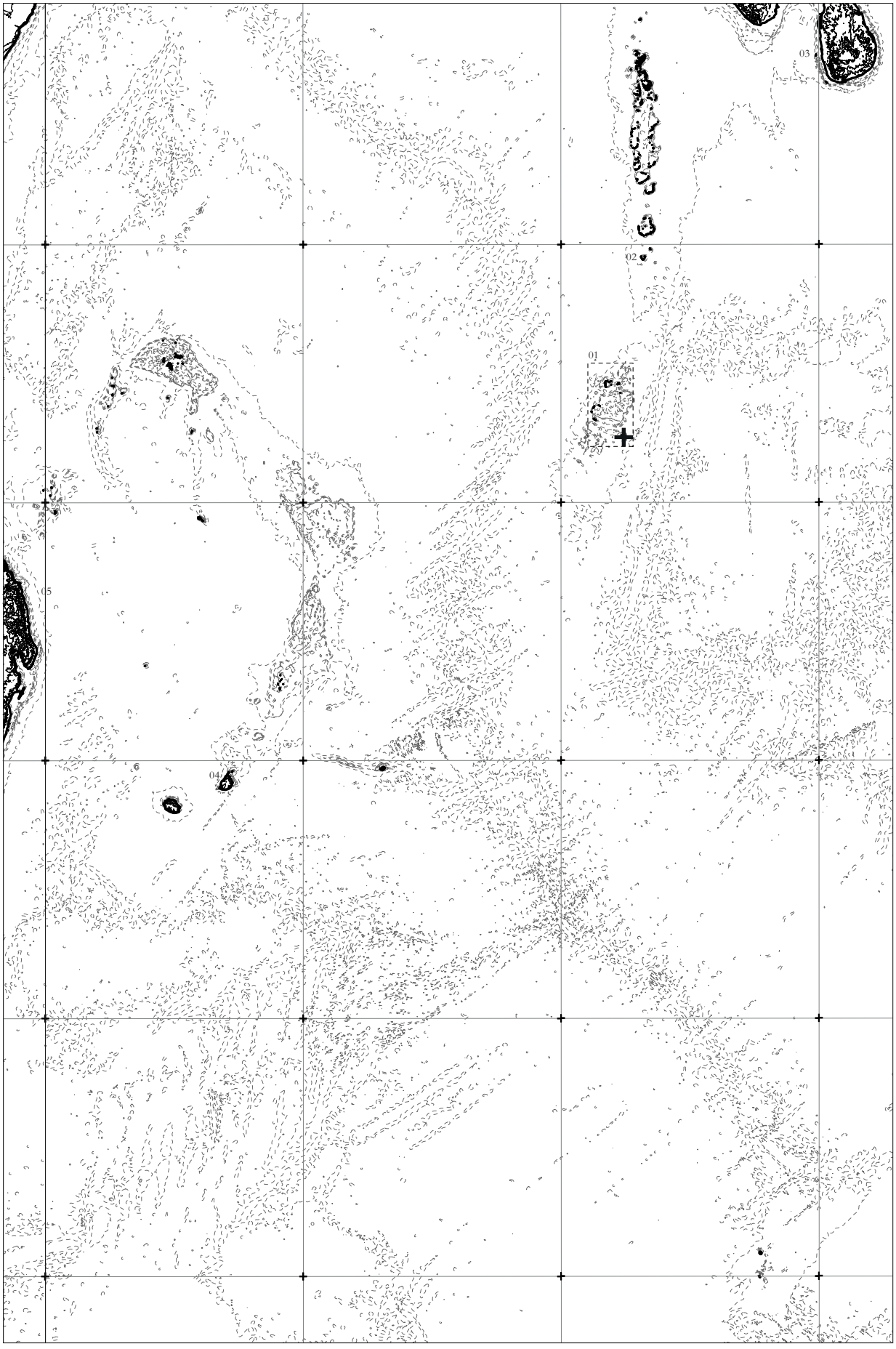
◀ 1.31 Reclaimed Power.
Altered painting of Peder Balke by author 2018

▶ 1.32 Letter to the Parliament of the North-Sea, Transitional Territories symposium.
Made by authors 2018

The British Indian Ocean Territory is an overseas territory of the United Kingdom, situated in the Indian Ocean. The territory has been part of the British Empire since the 18th century. The Islands have known a fluid history with various occupations from the past up to recent times and it resides next to a large refraction zone in the Indian Ocean.

Brittish Indian Ocean Territory
Geographic Scale. Oceanic Island.

01 British Indian Ocean Territory
02 Malidives
03 Sri Lanka
04 Mauritius
05 Madagascar



0

~1110 km

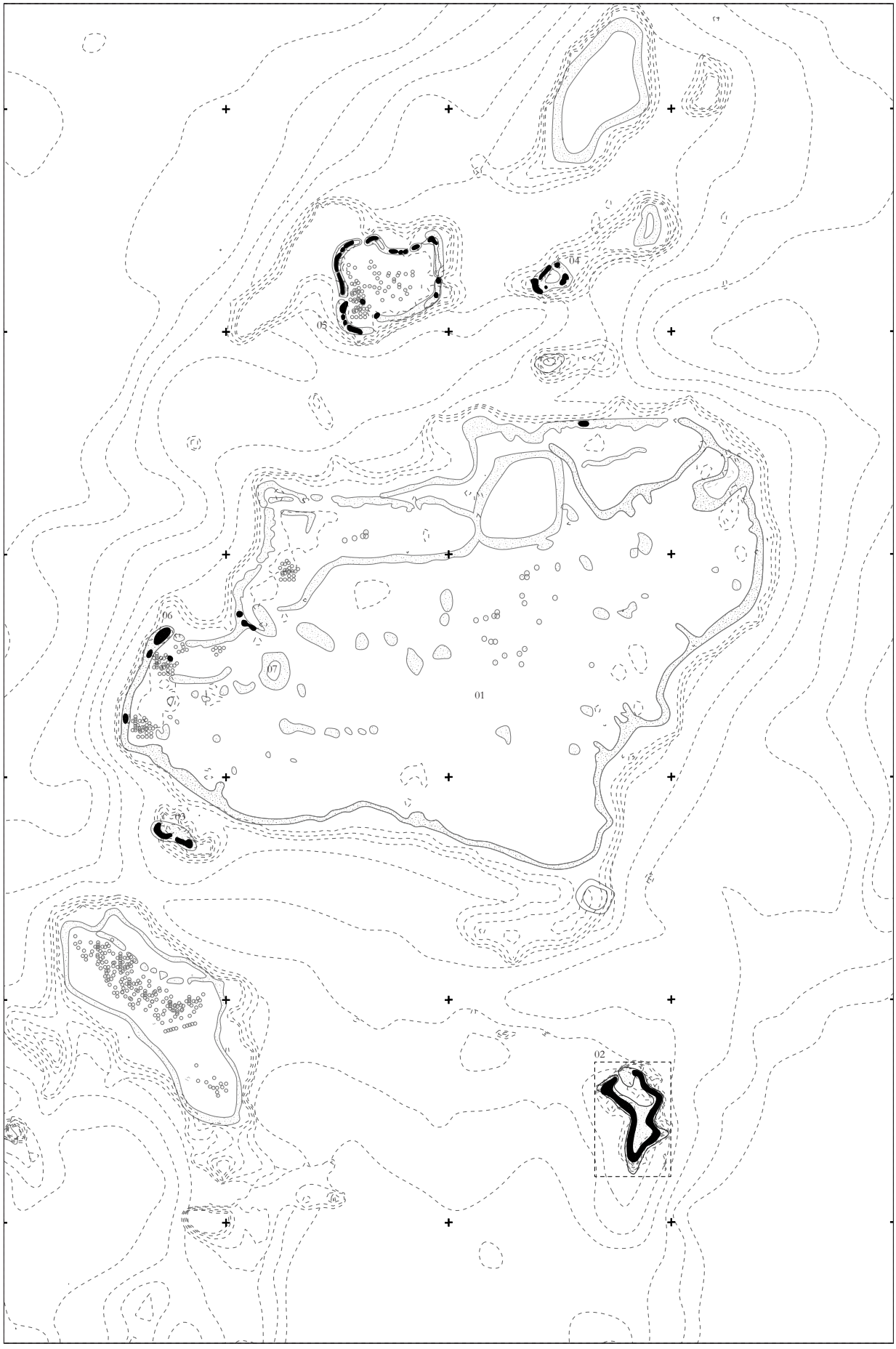
7.1848 S, 72.2440 E

The Archipelago territory consists of seven atolls with over 1.000 (small) islands. Each atoll is built upon the leftover of coral reef. The sea level rise will actually decrease in this area due to its geoid location. The fluctuative projection of this future imply that new land will be created, by both this phenomonon and the sedimentation within the lagoon and banks.

Diego Garcia is the biggest and only habited island in the South, where a military base was constructed from the 1960s onward.

Chagos Archipelago Islands
Group of Banks and Islands

01 Chagos Bank
02 Diego Garcia
03 Egmont Islands
04 Salomon Islands
05 Peros Banhos
06 Three Brothers
07 Reef



7.1848 S, 72.2440 E

A disruptive military landscape was created in the 1960s when the local inhabitants were displaced again to establish a new joint military base for the United States and the United Kingdom.

This altered reality had great effects on the island of Diego Garcia. The island was extended inland to make room for an airstrip and harbor. Marine ships now anchor and waste the lagoon, which only refreshes in cyles of about 20 days.

Other atolls were abandoned and left over to the fluid landscape of the sea again, where the reef is protected against human intervention.

Future depletion of the water will result in more land and less water in the lagoon of Diego Garcia, which will create and reconstruct new (altered) natures.

Up to this day, the native inhabitants, once brought here by the British, are unable to return to their homeland due to the disruptive territorial vision of the United Kingdom.

Diego Garcia

01 US Military Airbase
02 Marine quay
03 GPS Satellite Control Base
04 Reef



| 0 | 3.7 km

7.1848 S, 72.2440 E

