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The Will to Drill - Mining in Arctic Communites

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The book is dedicated to our two colleagues Vladimir Didyk and Allan Sande, who were both enthusiastic participants in the project, and who both sadly passed away during the project period.

Preface

This volume is the main result from the project The Arctic as a Mining Frontier (ARCTICFRONT), financed by the Norwegian Research Council's Miljø 2015 – programme. The project started in 2014, in a period where nations and investors look to the Arctic for resources and prosperity. The high prices on minerals made mining strategies pertinent and prospects for the industry were positive. During the 3-year project period, the prices dropped, but the global attention on the arctic still prevailed. The studies in this book illustrate the complexity and uncertainty Arctic communities face when mining projects are concerned, and thus how demanding it can be to remain focused on securing sustainable development. This anthology is a selection of chapters on social, political and environmental challenges connected to mining in the arctic. The chapters are tied together with an overall introductory chapter and a theoretical chapter, and finally with a summarizing chapter at the end. The main part of the volume is however made up of *'Arctic stories'* told by the researchers – based on their fieldwork and analysis of meetings with individuals and communities and their relationship to mining activities. As the Arctic experiences with mining differs, we thus find in this volume stories from communities with long mining traditions, others with hopes of becoming just that, and also communities where concerns about what mining activities could bring overshadows the potential benefits from mining. The chapters all reflect upon too how mining companies, managers and politicians seek – successfully or not – developments that may ensure sustainability.

The purpose of the book is to be both informative, critical and analytical. The book as a whole can be read as one *complex* and multifaceted analysis of the arctic as a mining frontier, or as separate single in-depth case analysis. We also firmly believe the volume will also be suitable as a textbook in social and environmental studies.

The editors wishes to thank the researchers, the informants and other key collaborators, and particularly the mineral cluster Mineralklynge Nord, for their contributions and assistance. The editors wish also to thank Manjusha Nalamolu, Catalina Sava and not least Margaret Deignan at Springer for their relentless sup-

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Bodø, Norway

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Chapter 1
Mining and Arctic Communities

Ingrid Bay-Larsen, Berit Skorstad, and Brigt Dale

Abstract This book focus on the connections between mining activities, knowledge politics and the valuation of landscape in selected case sites in Russia, Greenland and Norway. In our opinion, it fills a lacuna in the academic literature on mining activities in the north with its specific focus on the interrelated aspects of industrialized development and environmental concerns. This includes exploring the way that politics can help solve environmental problems by paying attention to the way particular knowledge systems (both scientific and public) influence environmental and developmental policies, and how landscape and its value as recreational or occupational space, or harvesting ground, is recognized in the context of mineral extraction and commercialisation processes. The book scrutinizes the way that concepts such as "sustainability" and "sacrifice zones" can be utilized in describing the mining activities and their economic, ecological and social footprints, as well as the political and scientific processes which make mining activities possible. Further, we aim to investigate the interconnectedness between the power to define the meaning and content of these concepts and the way they evoke moral and politicized conclusions as well as analytical ones.

Keywords Pathways to sustainability • Mining industry • Landscape • Environmental and social values • Arctic communities

1.1 Introduction

Minerals and metals have structured human interaction and identities for thousands of years. Scholars who write books like this one in 2018 depend on computers containing aluminium, arsenic, barium, beryllium, cadmium, chrome, cobalt, copper, gallium, gold, iron, lead, manganese, quicksilver, palladium, platinum, selenium,

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silver and zinc (Svensen 2015). The digital revolution has created a situation where electronic devices are at the core of any enterprise, and are vital in almost all governance-related activities and interaction, as well as being essential to the way we understand and make use of our natural surroundings, be it natural resources to be extracted or landscapes to be enjoyed. The reality we are facing today cannot be perceived or addressed without making use of electronic equipment and technologies. There is no way to plan for a future sustainable society without seeing minerals and metals as key components in social and economic interaction. Moreover, the Arctic communities analysed in this book are in some way or other connected to individuals and organizations in every corner of the world through minerals, and the mining industry is expected to play a major role in the Arctic states in the decades to come.

The rural regions of the north have served as a pool for the extractive industries for centuries, which indicates that the perception of the Arctic as a resource frontier is not new. Resource extraction, be it the hunting of marine mammals in the seventeenth century or later oil, gas and mining industries, have involved the continual removal of Arctic resources from the scarcely populated Arctic regions to southern regions. These metals and minerals have formed the basis for the establishment and sustained existence of large cities and small communities, securing investments, employment and social and economic development in northern countries and regions for centuries, including Siberia, Sweden, Finland, Canada, Spitsbergen, Norway, Alaska and Greenland. Industrial exploitation of minerals and metals has been an important foundation for livelihoods for many in the Euro-Arctic region. From the middle ages to the mid-twentieth century, the gold standard fixed the values of currencies (to a standard amount of gold). This accompanied and supported the industrial revolution and an unprecedented economic growth of the European market. With exponential economic and social development, demand for minerals soared, along with demand for the energy to be found in coal, then oil and gas. Metals, minerals and hydrocarbons became the main pillars in structuring global economic and social development, from the green revolution in agriculture, to urbanization, transport and infrastructure, upon which international trade and markets as well as societal development now hinge.

Today the gold standard has been abandoned, but the value of minerals and metals are still multi-faceted and are reflected across different societies and markets. The mineral economy is fundamentally unstable in its continuous cycles between booms and busts, leading to unforeseen and abrupt changes in investments and employment in cornerstone enterprises in industrial communities (Hayter 2000). The search for mineral resources to support growth has increased in intensity, in parallel with construction booms and a general rise in consumption (Jürisoo and Nilsson 2015). The global economic crisis in 1972 and the subsequent decline in demand for minerals resulted in the closure of many mines in the Arctic region. After the year 2000 though, increasing demand for iron, copper and rare earth minerals from Asia and Europe led to improved profitability and a renewed interest in both previously utilized (but not totally exhausted) deposits and for new prospects. Consequently, several mines reopened as the price for copper increased from USD 3000 to USD 10,000 per ton, between 2000 and 2011 (Metalprices.com 2016).

At the same time, the combination of minerals market fluctuations and internal political developments led Greenland to develop proactive national strategies concerning mining, focusing on the future potential for earnings and subsequent (economic) independence from Denmark.

Economic fluctuations and environmental degradation generate numerous challenges related to local socio-ecological systems and subsistence taking place in Arctic landscapes. Therefore, the economic, social and environmental sustainability of the mining sector, the interplay between landscape and communities has often been challenged (Storm 2015). It is against this backdrop that our book is set; why do municipalities want mining projects and how do they position themselves to gain more benefits than drawbacks from the mineral industry? In this book, we will present case studies from three Arctic countries – Norway, Russia and Greenland. Together they represent a variety of projects, players, perspectives, management schemes and political realities that will guide our analysis towards a broader understanding of such processes. The Euro-Arctic population is highly diverse, consisting of five nationalities and a variety of indigenous and other ethnic groups, each holding their own linguistic, economic and cultural structures that often cut across national states' economic and political boundary lines.

Nature-based (subsistence) livelihoods and primary industries (such as agriculture, fishing and hunting) still form the economic foundation for many populations and settlements of this region. It is evident that mining, primary sectors and subsistence are very different economic activities that all have a substantial influence on people's livelihoods and will continue to do so in the future. While the mining industry is capital intensive, international and organized into large companies, the Arctic primary industries (agriculture, hunting and fishing) are often represented and organized through small individual operators. Yet for even more people, access to nature and natural resources are important well beyond the mere economic gains they may provide. For indigenous communities in particular, recreation and access to fish, game and berries are seen not only as beneficial in terms of income generation, but are also tied to specific practices that constitute identity and belonging. The potential multiple and combined effects on socio-ecological systems makes the mining industry a good case for investigating how political and managerial decisions on the exploitation or protection of mineral and landscape values are established, and what values count in these processes.

1.2 Recent Developments in Mining Policies

The growing international demand for metallic and energy minerals in industrial production has led to a mining renaissance, although the one-sided optimism spurred by increasing prices recently has had some setbacks (Metalprices.com 2016). Even though the strong optimism (and consequent high prices) of the 2010s has been replaced by a somewhat soberer realism, most countries controlling

mineral resources have made efforts to secure their place in the market by modernizing their legislation and bureaucracy. This is also true in the north, where all the Scandinavian countries – including Greenland – have recently renewed their political focus on the mineral industry, whilst Russia has continued to rely on mineral (as well as hydrocarbon) extraction as one of the main activities in their northernmost regions. As this book seeks to address, there is a need to explore and understand the close links between the cultural and local historical context in which arctic mining takes place, and the macro- political, strategic and international aspects of these projects. The recent decade of increased focus on mineral extraction in the Arctic has been reflected in legislative reforms, White Papers and strategy documents from the Arctic states themselves.

Recoverable mineral resources are a matter of national concern for all countries in the Arctic, including the three countries that are particularly in focus in this book. In Northern Norway, a new wave of investment in mining is taking place, and the region now hosts 18 mines. The region is rich in mineral resources and the interest for extraction in addition to the market for gold, copper and iron is rapidly growing. The government issued a new mineral law in 2010, replacing five other laws and followed it up with a mineral strategy in 2013. With the strategy, the government aimed at a comprehensive mapping of the mineral resources embedded in the Norwegian subsoil, as well as focusing on education, research, environmental concerns and access to and facilitation for foreign investment and capital (see also Chap. 3).

In the Murmansk region of Russia, mining has been central for at least a century, but a new federal government ecological policy implemented in 2012 has put new restrictions and obligations on the industry, which in turn has met the new legislation with strong resistance. It will therefore be of interest to analyze how and to what extent this new government policy is reflected in management practices, and whether it will affect the efforts of the mining industry to minimise environmental degradation. The issuing of a new law "On the subsoil" in 2000 represents a desire to uphold and even strengthen government involvement in mining issues and in securing benefits for society. In Greenland the need for new revenues and incentives to slow down outmigration means that the mining industry is gaining in importance. New mega-projects are being planned, and the offensive spurs both enthusiasm for potential economic growth and concerns for potential irreversible environmental and cultural changes. Both on-going and potential future mining activities may influence local usage and valuation of surrounding landscapes in Greenland. The Mineral Resources Act of 2009 was passed in Inatsisartut (Parliament) in January 2010, followed by reforms which delegated the power to negotiate terms and agreements for mining companies to exploit mineral resources to the municipal level (Rosing et al. 2014; Greenland oil and mineral strategy 2014–2018).

In an otherwise sparsely populated part of the earth, the establishment and maintenance of the mining and metallurgical industry has also served as an effective way to claim sovereignty for the Arctic states. The geopolitical developments in the North foster a new era where exploitation of natural resources is at the top of the political and economic agenda of Arctic states and companies. This high priority of mineral policies is thus expected to be central to the socio- economic and demographic development of the region, also in the future. The Arctic Council has over

the last few years confirmed its position as an important venue for deliberations, discussions and agreements concerning future exploration of resources in the Arctic. As the Arctic Council is a soft-power institution, a considerable focus has been on regional and local community development, research, and environmental monitoring programs (Hoel 2009; Nicol and Heininen 2014; Young 2009). Strategic work under the auspices of the Arctic Council working groups – AMAP and SDWG[1] in particular – has paid attention to global, national, regional and local impact from mineral extraction. Mining is perceived here as an activity with both positive repercussions and negative consequences for local communities, leading to policy advice that highlights the importance of governmental control as well as a focus on corporate social responsibility in mining operations; advice that is reflected in the Kiruna Declaration (AMAP 2013). The AMAP programme focuses on environmental pollution from mining operations and the threat this represents to human health in the Arctic (as described for instance in the assessment reports on mercury (2011), persistent organic pollutants (PoPs) (2009), acidifying pollutants (2006) and heavy metals (2002), see http://www.amap.no/data). These reports aim to describe the current state of pollution in the Arctic and to give policy advice for a sound usage and disposal of dangerous pollutants. In this sense, the AMAP programme has over the years provided an important framework for pollution issues.

1.3 Pathways to Sustainability

Planning and management of landscape and mining happens in an institutional and administrative setting where power and mandate are distributed across local, regional and national/federal scales. Yet, the Arctic countries differ in their mineral resources, demographic and socioeconomic structures as well as mining policies and management institutions (Nenasheva et al. 2015, #1302). The future socioeconomic and sustainable development of the EuroArctic region thus forms an arena for the coming together of highly variable and diverse economic, cultural, political and historical discourses. This meeting takes place in Arctic landscapes, which are also research foci in this volume. Landscapes as a physical phenomenon contain both natural living and organic resources such as pastures and animals, as well as dead geological material, like minerals, mountains, rocks etc. Landscapes also provide vast intangible and immaterial values to humans, for example connected to cultural and recreational activities, or as intertwined with people's identity, sense of place and ability to shape and associate meaning to such activities or lives in general. Both the physical and spiritual attributes of the arctic landscapes are being shaped by the wide range of actors and activities taking place. The new trends likewise represent a test for global sustainability and the vulnerability of the

[1] AMAP stands for the Arctic Monitoring and Assessment Program, whilst SDWG is an abbreviation for Sustainable Development Working Group. See http://www.amap.no/ and http://www.sdwg.org/ – accessed November 11th, 2016.

high north institutional arrangements. As we will see, these do not necessarily follow standard planning procedures, techno-scientific know-how and economic valuation, but rather illustrate the unstructured, messy reality in which actors interact, with their diverse interests, beliefs, knowledges and values.

1.4 Trade-Offs for Sustainability and Sacrifice

Mining processes not only deplete minerals, but may also impose severe damage to natural landscapes and resources that are needed to maintain everyday life both locally and globally. The modern type of mining, which often requires open mines or mountain top removal, needs to recognize the existence of biophysical limits to extraction in order to maintain support from society – locally and at other levels. The renaissance of mining industries has resulted in different types of conflict between the mining industry and other interest groups, including farmers, reindeer herders, local communities, environmental non-governmental organizations (ENGOs) and indigenous peoples. These conflicts reflect diverging values, knowledge, world views, and economic output. The mining industry, especially open pits and landfills, have an extensive footprint and huge impact in landscapes and ecological systems at the local level. Mining processes necessitate intervention in natural landscapes and may also lead to the degradation of the surrounding environment in the form of mountain top removals, deposits of mine cuttings, release of chemicals in soil and water bodies such as rivers, lakes and fjords, and air pollution. Consequently, mining potentially damages local (including indigenous) ways of utilizing the landscape for subsistence, livelihood, recreational purposes and the like (Iakovleva et al. 2012). The cumulative and long term effects of these processes may turn mining sites into what has been called ‘sacrifice zones’ (Lerner 2010; Fox 1999). The irreversible effects of mineral extraction on landscape, water reservoirs and biodiversity make the areas unusable for other purposes in a long-time perspective. Access to these areas, and their multiple use, is set aside, or sacrificed, for present and future generations.

At the other end of the spectrum, recent developments in global markets, including international standards for sustainable mining, including certification, and ethical products such as the Fairphone, may reflect an increasing awareness among consumers about mining’s environmental footprint. Concepts like corporate social responsibility (CSR) and social license to operate (SLO) have also pushed the agenda for positioning the mining industry in a wider societal and cultural setting (Fonseca 2010; Koivurova et al. 2015). In the Norwegian *“green shift”* discourse, minerals and metals are key component in developing technologies for green energy and the transformation to a low-carbon society. The batteries in a Tesla electronic car demands 10 kg lithium, in addition to cobalt, nickel and carbon. Copper is an essential component in wind turbines; solar cells are made of silicon and rare earth metals (Andersen 2013; Svensen 2015). Environmentally clean and low-carbon energy is in everyone’s interests, especially if we have the global aim of meeting the

requirements set out in the Paris agreement on the reduction of climate changing gases, which was signed in 2015 and entered into force on November 4th, 2016. But who wants to sacrifice their surroundings to serve these global purposes? The landscape may be changed forever, water perhaps polluted, and large volumes of crushed rock must be stored somewhere, in a fjord tailing deposit or onshore, often leading to irreversible changes in ecosystems and ecosystem services. The dilemma is complex, and its implications diverse, and it is our opinion that this diversity should be illuminated also from below, from the viewpoint of stakeholders involved in or indeed influenced by it.

Thus, the future sustainable development of the EuroArctic region forms *multiple* arenas and processes for planning. Debates about sustainable mining are revealing conflicts both about how to define sustainability and about the environmental impact of mining (Kirsch 2009; Ramirez-Llodra et al. 2015; Leach et al. 1999). And not least the issue reveals the way scale matters: Can mining for minerals push the global transition to a low-carbon society in the right direction, and at the same time ensure sustainable development within Arctic mining communities?

1.5 Structure of the Book

This book is made up of eleven chapters addressing the complex relationship between the mining industry, sustainability and local communities in the north. In the second chapter of this volume, the authors (Skorstad, Dale and Bay-Larsen) elaborate upon the analytical and conceptual frameworks behind the reasoning that runs throughout the chapters, as well as their interrelationships. Sustainability, sacrifice zones and legitimacy are the basic concepts in our understanding of the communities which are striking a balance between landscape degradation and environmental pollution on the one hand, and prospects for welfare and labour on the other. Our point of departure is that the local perceptions and site-specific valuation of landscapes and natural resources are critical to inform our analyses of whether an arctic mining site will become a sacrifice zone or a sustainable mining operation. The diversity of knowledges is therefore central to many chapters, as are governance systems and formal planning procedures. By analysing the multiple trade-offs involved, some of the pathways for sustainability, legitimacy or sacrifice in Arctic mining operations are revealed.

The establishment and management of mining sites are subject to multiple bodies of law that are implemented through formalized planning procedures. In Chap. 3, Gjertsen and colleagues give an overview of the governing systems for mining operations in the three countries. These governing systems constitute a formal framework through which values and associated knowledge are processed. However, this framework (including the legal system, public administration and formal planning procedures) change according to international, national and federal environmental policies and new standards for environmental impact assessments and stakeholder rights, to mention a few. This also goes for the role of science and other forms of

knowledge in mining-related decision-making. Moreover, the framework is continuously developing according to new policies following trends in the global market for minerals, and prospects for exploration and investments. The chapter gives a brief overview of the current status of terms such as sustainability, global reporting systems and social license to operate. Procedures for stakeholder involvement are described, including public hearings and requirements for the incorporation of scientific, indigenous and local knowledge. In numerous ways actors, organizations and mining companies participate in these processes through which mining policy and formal agreements are being set and evolved. An interesting point emphasized is the role of the mineral industry in the EuroArctic region as a community builder.

In Chap. 4, Goes and Skorstad address the mining industry's efforts to achieve sound environmental performance based on standards set by the industry itself. Like many industries that are responsible for environmental risks and pollution, mining companies are expected to take a lead on social and environmental sustainability through corporate responsibility initiatives such as environmental accounting. Nowadays, society, NGO's, consumers and business partners, demand that the mining industry comply with environmental norms that go beyond legal obligations, for example by disclosing environmental performance and the impact of production processes on the environment. The authors of this chapter claim that Norwegian mining is underdeveloped in this regard. Along with the literature, Goes and Skorstad argue that the question is no longer whether companies decide to report such environmental information but *how*.

In Chap. 5, Bjørgo gives us insights into how interdependencies between local authorities and mining companies change over time. Drawing on data from three northern Scandinavian communities affected by mining projects, Bjørgo's study explores how municipal actor networks manage interdependent relations with multinational mining firms by using hands-on and hands-off meta-governance tools. The three municipalities studied have different strategies. While two are typical hands on in their approach, the third applies mainly hands-off strategies through facilitation. Bjørgo's findings highlight in an interesting way how interdependency can be a multifaceted and variable phenomenon. Different parties structure, and are at the same time structured by, institutions that facilitate negotiated interaction between the parties. Another important factor is that the participants in the dialogue must meet to explore possible win-win opportunities. However, the chapter also demonstrates that collaborative arrangements exist in the shadow of the global market, highly dependent on mineral prices and the demand for minerals.

Chapter 6 brings us to the Kola Peninsula and the industrial town of Kirovsk at the foot of the Khibiny mountains. Together with the Lovozero massif in the east, these mountains represent an unusual landscape phenomenon on the Kola Peninsula that is mostly covered by lowlands, marshes and lakes. The mountainous landscapes in Khibiny were home for reindeer herders (Komi, Nents, Sami) until mineral exploitation started in the 1930s in a rich apatite-nepheline ore. Kirovsk city was established to provide living conditions for people working in the mining industry. The companies provided social services like education, health services, communal infrastructure, and welfare to the citizens. More than 20,000 people were employed

by the mining industry at its height (in the 1980s), although this number decreased after the town-forming mining enterprise was privatized in 1993. Currently two open-cast and two underground mines are in operation. Today the mountains are also popular for recreational activities. In addition to mining, winter tourism is evolving as a viable and growing economic activity in Kirovsk municipality. Although the Khibiny mountains are being used for multiple purposes, the mining industry greatly outweighs other values connected to these mountains that were identified in the course of this project. Among the most discussed issues over the last fifteen years is nature protection and the possible establishment of Khibiny National Park. In this chapter, Didyk and colleagues give a thorough description of the sustainability achievements in mining operations in Kirovsk, including remediation strategies to address legacy pollution.

In Chap. 7, Rasmussen and Gjertsen describe and analyse outmigration from small towns and villages in South Greenland. The study shows how the initiation of new megaprojects in Greenland spurs enthusiasm, as it potentially provides jobs and economic opportunities, as well as concerns relating to the prospect of environmental change and unwanted pressure on traditional livelihoods and practices. On the one hand, the desire to reduce dependency on Danish financial support, with a view to achieving full independence, is used as an argument for the opening of new mines, and the favouring of the economic value of a specific natural resource over less objectifiable, non-economic values in nature, landscapes and cultural aspects of subsistence livelihoods. On the other, environmental concerns and principles concerning indigenous rights to land, resources and the ability to maintain culturally significant practices lends argument to those more concerned with these projects. Three development projects in South Greenland are of particular concern in this chapter: The Nalunaq gold mine in Nanortalik, The Kvanefjeld uranium deposit, and the "Kringlerne" rare earth deposits in the Narsaq/Qaqortoq region.

Chapters 8 and 9 take us to Finnmark county in Northern Norway and the two cases of Kvalsund and Guovdageainnu (Kautokeino). Chapter 8 provides an analysis of the role of knowledge in the debate concerning the Nussir mining project in Kvalsund. Dannevig and Dale describe the controversial government decision to allow a fjord deposit of mineral waste from the planned copper mine in Repparfjord. The authors show how the question of whether the proposed copper mine will alter or undermine the values found both on land, where the mine activities will take place, and in the fjord where the tailings will be deposited, is a matter in which different values, perceptions and knowledge are evoked in order for different actors to articulate their position on the matter.

In Chap. 9, Magnussen and Dale analyse the processes leading up to a surprising no-vote from the municipal council to the reopening of a mine in the Biddjovaggi mountain area in Guovdageainnu. The authors suggest that there are two important backdrops for understanding this decision; one is the divide between those involved in reindeer herding and those who are not, the other the distinct differences in understandings of landscape values and natural resource values that exists between local and national decision makers. The basis for the divide is thus the struggle over rights to use of the land and landscape as a core controversy, into which mining

investors placed their suggestion to reopen the mine, in effect closing off an important calving and separation area for reindeer and a good hunting and gathering ground for the settled and visitors. The authors thus conclude that the mining issue became controversial because it further complicated an already controversial subject; the matter of who holds ownership – or rights – to land; a controversy that cuts through the Sami population in Guovdageainnu as well as creating judicial and managerial problems between traditional Sami (reindeer herding) management schemes and Norwegian ones.

In Chap. 10, Risvoll and Gjertsen take us to the local community of Sulitjelma in Northern Norway, which is a former mining community facing renewed industrial interests on local mineral resources. The chapter uses a narrative approach to examine how people who live near the mining site describe their situation and how this compares with presentations of the same case by commercial mining interests and local/municipal authorities. Central to the new development is the perception of Lake Langvatnet as a sacrifice zone. Seen as part of the bigger picture, this sacrifice might be viewed as the price for securing some semblance of sustainable development for the local community in a wider landscape context. As such, the case does not conform to any clichéd notion of a pristine Arctic wilderness sacrificed on the altar of economic development, but shows that local cultural contexts are important for understanding the developmental scope of mining initiatives and local perceptions of sustainability. In the case of Sulitjelma, the developmental discourse starts within a context of proud mining traditions, not pristine natural landscapes.

In the final chapter Dale and co-editors return to the basic question of the book of why local communities want mining operations or why they sometimes don't. The inherent paradoxes and trade-offs related to social, economic and environmental sustainability in mining operations are summarized across chapters and case communities. These comparisons show how certain dimensions seem to be shared across the communities, whereas other rationales for (not) facilitating mining operations seem to be more site-specific. The chapter also revisits the question of local sacrifices related to industrial operations, and irreversible environmental degradation in terms of landscape encroachments, loss of cultural heritage and severe pollution. In conclusion, the authors argue that future mining operations in the Arctic must strengthen (1) planning procedures that integrate multiple knowledge systems and local stakeholders in an early phase, (2) competence and administrative capacity in local communities in the face of large-scale extractive industry operations, and (3) our understanding of the cyclical nature of extractive industries, as well as the multiple pathways to sustainability.

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Chapter 2
Governing Complexity. Theories, Perspectives and Methodology for the Study of Sustainable Development and Mining in the Arctic

Berit Skorstad, Brigt Dale, and Ingrid Bay-Larsen

Abstract This chapter seek to frame different relevant theoretical concepts that are currently used to shed light on the question of sustainable development as it relates to mining. It elaborates upon multiple conceptual and theoretical frameworks that are employed throughout the chapters in this volume, and the relationships between them. Our analysis of mining within a sustainable development framework requires a complex set of theoretical understandings and concepts. These are discussed here in order to provide a foundation for the analytical chapters that follow. The basic concepts analysed in this volume are 'sustainability in mining', 'sacrifice zones' and 'legitimacy'. Implicit in our analysis is the understanding that mining communities and mining projects need to deal with the complex understanding and valuation of landscapes and nature. This complexity can, of course, be understood by applying a number of different theories, of which we will present only a few. Some common threads that emerge from these different theoretical approaches include the importance of effective communication, the need to incorporate, acknowledge and understand diverse forms of knowledge, and the fact that legitimacy can be established in many different ways. This chapter, then, explores some of these perspectives.

Keywords Sustainable development • Sacrifice zones • Legitimacy • Mining • Valuation of landscapes • Knowledge production

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2.1 Introduction

Mining activity is described as both a salvation and a curse for Arctic societies. For Arctic communities it can open the possibility for new jobs and growth, while meeting society's growing need for minerals. At the same time, the mining industry is criticised based on environmental concerns, for lacking long-term perspectives, for developing local projects without local knowledge and for a lack of information sharing, poor communication and relations to (often disadvantaged) stakeholders (Buxton 2014). Hence, one of the biggest challenges of the industry is to be able to meet the demands for environmental protection and sustainable development.

Sustainable development has been an ideal for planning, management and politics in the Arctic since the release of the 1987 Brundtland Commission report *Our Common Future* (also known as the Brundtland Report).[1] The concept has endured despite, and also because of, its vagueness, which allows for multiple understandings and interpretations. The Brundtland perspective suggests that it is possible to have economic growth while also addressing environmental and social concerns across generations. The principles for balancing these three considerations are vague and work needs to be done to resolve the classic conflicts between economic growth and environmental protection, risk and security, benefits and burdens. Politically and scientifically, the vagueness of content and blurred boundaries of the concept, makes it difficult to assess whether a particular development trend is sustainable or not. Thus, almost 30 years after the Brundtland Report, politicians are ambiguous about the interests, values and knowledge on which to base their development-related political decisions. Moreover, the notion of sustainable development is constantly evolving with new interpretations and applications of the underlying concept, described by Leach et al. (2010) as a process of "… endless repackaging of old initiatives as 'sustainable'" (2010: 40).

That being said, we recognize that the term 'sustainable development' – in all its vagueness and complexity – has been particularly prominent in mining and development debates in the Arctic. The importance of this debate is due to mining's obvious implications for the landscape and environment, and because the Arctic is rich in natural minerals and at the same time an ecologically fragile region. The pressure on mineral-bearing Arctic regions is growing due to the ongoing and increasing need for minerals in our technology-dependent society. The need for minerals also means the possibility of substantial revenues for the mining industry and the regions where the minerals are found.

It is this combination of ecological and social vulnerability, as well as the potential to make considerable profits, that puts certain parts of the Arctic at risk of becoming what has been called «sacrifice zones». The concept describes an area where nature and people are sacrificed for economic gain or national interest (Endres 2012; Fox 1999; Hedges and Sacco 2012; Scott 2010). Its particular focus is on the uneven distribution of benefits and burdens related to large industrial projects with

[1] See for instance the Arctic council's "Ottawa Declaration" from1996.

environmental impacts. In this perspective, typically the ones bearing the burden- the 'sacrificed people and environment' – seldom have a voice in the case. The concept also refers to sacrifice zones created as a result of military activities and the industrial exploitation of poor and disempowered communities and regions (Bullard and Johnson 2000). The health and environmental issues combined with little gain from the activity, lays the foundation for interpreting them as sacrifice zones.

A research study on mining in the Arctic is relevant to sustainable development debates for several reasons. First, there is the question of whether extraction of non-renewable resources can be sustainable in itself. Secondly, there is a need to analyse how particular notions of sustainable development influences power and decision making. Thirdly, one should thus ask whether and in what way the people living in the Arctic are taken into consideration. Fourthly, there is also the question of the social and environmental legitimacy of the mining industry on multiple levels, as the need for minerals in times of transition – and therefore its positive role in securing a sustainable future – is often emphasized.

Through several case studies of mining projects in the Arctic, we consider how governance strategies balance different interests, values and forms of knowledge through the lens of sustainable development. The main aim of this volume is therefore to study the close relationship between mining development and environmental and social concerns. The book also considers whether and how policy tools and systems can prevent environmental damage by facilitating knowledge exchange and broadening the valuation of 'landscape'. The latter understood as a geographical area with certain features, often related to nature and human interplay, both actual and perceptual (Antrop 2005), or "…an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Antrop 2005, p. 23). By using the concept 'landscape' instead of nature or ecosystem, we want to demonstrate the importance of the constructed social and human aspects of landscapes and natural environments, i.e. how they are perceived and valued. The perspective is thus mainly anthropocentric, in contrast to an eco-centric perspective. This is not a moral standpoint, however, but implies simply that we see landscape and nature as perceived by humans (Skorstad 2005). From this perspective, the value of a landscape is based on how humans and cultures appreciate and consider it. This does not mean, however, that landscape is seen only in terms of instrumental values; we also recognize the aesthetic, sentimental or emotional values that people associate with their natural surroundings. This will not however exclude the use of ecosystem services – provisioning services as type of benefits to people that can be extracted from nature. In the Arctic, we find that both hunting, fishing and gathering is a common way to supplement household; an integral part in a way of life that values both the instrumental and ontological qualities of landscapes.

This chapter presents a theoretical and methodological framework for analysing a particular version of sustainable development as we apply it to mining activities in the Arctic. It is important to stress that not all of the concepts in use in this volume are presented in this chapter, and not all of the concepts presented in this chapter are given the in-depth elucidation that they deserve. The reader will find that these analytical concepts are explored in greater depth in the relevant empirical cases (see

Chaps. 4, 5, 6, 7, 8, 9, and 10). The basis for the theoretical framework is sustainable development and sacrifice zones, but we link this framework to particular concepts of valuation, knowledge, power structures and interest-articulation. An important rationale behind the case studies has been to map stakeholders' valuation of social, ecological and democratic values nationally, regionally and locally. The purpose was to identify and discuss what an appropriate governance system that would prevent sacrifice zones in mining areas could look like, and how broadening valuation can promote sustainable development of mining in the Arctic. The use of highly developed impact assessment systems, deliberative processes and a broad valuations system, are examples of such governance systems with potential. The challenge is of course how to *measure* both sustainable development and sacrifice zones. The difficult question is when it is too much destruction of nature and/or livelihoods – and if so, then how do one measure 'too much'?

2.2 The Will to Drill: A Multiple Case Study

This book presents several case studies of the processes related to mining activities and governance in Russia, Norway and Greenland, as well as chapters on the political processes relating to mining in the Arctic. By including both communities where mining is planned, in the verge of being started and well established, the challenges and benefits of mining can be revealed. The goal is to discover what is unique to each case or context, but also to identify contrasts, similarities, or patterns across the cases and the ways in which they relate to our central theories and analytical concepts. Hence, the book itself is also partly open for comparison, aimed at examining the contexts and features of mining projects and communities. We strive for the "thick description" usually applied to single case studies, in addition to some comparative approaches in order to unveil patterns and contrasts.

This book is based on one main project[2], and several small research projects. The main project is the study of five different sites where mining was planned or ongoing. In addition to that, there is one extra site were re-establishing of a mine is discussed (Sulitjelma, se Chap. 10), and one additional study of one of the main sites (Kvalsund, see Chap. 5). The book also contains a study of the Norwegian mining industry's reporting system (Chap. 4). However, the main bulk of the chapters are case studies. A case study is a methodological approach that involves the in-depth exploration of a specific social system – in this analysis an established mining activity or the governance of mining. Case studies offer many advantages, in addition to the possibility to go deep, it also opens for the use of multiple research methods, which allow the researcher to 'triangulate' the research findings. In regards to opening up 'ways for discovery', case studies have a history of leading to new insights and assumptions that might not have otherwise been possible (Berg 2012: 339). By exploring one topic from several different angles and through triangulation—

[2] The project ARCTICFRONT, financed by the Norwegian Research Council.

comparing the results of interviews, field observations and document studies—the case study offers an opportunity to discover new questions and insights.

The authors of the chapters that follow have applied multiple forms of data collection to gather the information on how the local communities and their surroundings understand and see mining activities in relation to sustainability and landscape valuation. Each case is a separate entity in terms of place, governance and degree of mining development. Some of the cases relate to mining activity that has only been planned or proposed, while others have a well-established mining industry. The selection of cases is strategic and is based on their similarities and their differences. All of the cases relate to mining in the Arctic. However, while the case in Russia is a well-established mining development—though still under transformation from state-owned to private owned—the others are in the early stages of implementation, or relate to a re-opening process, or a particular decision-making process. The cases in Norway and Greenland are similar in the ways that both concern the challenges of balancing the different forms of use of the land or sea. They are however different in other ways. While Norway has had a strong and stable state and economy, Greenland is p.t. in the process of building a state and strengthening its independence from Denmark. All three countries allow interesting opportunities to look for different and similar strategies for conceptualising sustainable development and valuation of landscapes in the context of mining in the Arctic. In a multiple-case study like this one, the case itself is secondary to understanding a particular phenomenon (Stake 2013). Thus, by analysing several case studies, we can develop a more in-depth understanding of the phenomena than a single case can provide, not least shedding light on variety through comparison, as argued above. In the overall analysis (Chap. 11), we compare the cases, in terms of governance, decision making procedures, legislative parameters and practical implementation/ interpretation of knowledge, legitimacy and, importantly, the multiple interpretation of sustainable development that may influence decisions on mining development in connection to the cases investigated (see also Chap. 1 for brief introductions of the case studies).

2.3 Sustainable Development in the Arctic

> The Arctic is one of Earth's few remaining frontier areas. This huge area contains some of the largest known provinces of natural resources, including world-class petroleum-bearing basins, metallogenic provinces and mineral deposits, among them several of the world's largest diamond mines. Major new discoveries are still being made in the Arctic, both beyond the regions that are already well known and within provinces where there are already operating mines, where the use of modern exploration methods has revealed "new" ore bodies underneath surface Quaternary deposits or at greater depths in the Earth's crust. Increasing focus on, and development of the Arctic region creates a rapidly growing need for effective assessment of the resource potential of the region. (Smelror 2016: 1)

The narratives of the Arctic are influenced by a number of variables, including richness of natural resources, a cold climate, ecological vulnerability, and traditional and industrial use of raw materials from land and sea. The Arctic is often

described as a frontier; scarcely populated, with remote, dispersed, and (generally) relatively small communities. These communities are often highly dependent on scarce natural resources, and subject to the effects of geopolitical changes and global market trends, without being able to control them. Life in the Arctic is therefore often referred to as being *vulnerable* to changes in climate, geopolitics, natural resource availability and market trends (Turner et al. 2003). Hovelsrud et al. (2011) thus describes the Arctic as particularly vulnerable to both climatic and non-climatic (industrial, demographical and social) drivers that can give multifaceted effects (Hovelsrud et al. 2011: 115).

Studies have also shown that the Arctic is affected by decisions made both at different governance levels within the Arctic *and* at great distances from the Arctic. These decisions are often beyond the direct control of the inhabitants, but they affect social-environmental interactions, potentially giving rise to new vulnerabilities (Turner et al. 2003). At the same time, the Arctic region is frequently described as a periphery, a region governed by centres located further south (Hough 2013; Brox 1984).

Mining activity in the Arctic raises several economic, social and environmental questions. Is it profitable? If so, for whom? Does it give local communities a worse or better life, or just a different life? Do mining companies and governments take the people living in the Arctic into consideration when planning mining activities, and if so – in what way? Can mining activity, traditional living and a healthy environment live side by side? How can a vulnerable Arctic ecology be safeguarded so as to cope with the side effects of extractive industries? The relationship between these concerns are often seen as conflictual, but can also be understood in a less linear sense, as a complicated dialogue about valuation and knowledge relating to landscapes and life forms. The hegemonic narrative that mining projects rely on is that there exists a certain positive correlation between mining and economic growth. A common argument for the extraction of minerals is that it produces commodities that hold value and most of these products are important in the continued growth of the global economy as vital components in a variety of products. However, this argument is not the primary focus here, as we will focus our attention on local and national political decision-making processes and how local concerns and understandings about the place of mining in their lives influences these decisions.

The assessed risks associated with the *negative* impact of mining on the environment and on alternative industries and the use of nature and landscapes are important however; but likewise the possible positive ripple effect on employment, wealth creation and government income to secure welfare. We acknowledge the dilemmas that local, regional and national authorities face, and will apply concepts that are frequently (but not always consistently) used to analyze government interpretations and grounds for decision-making. In the following section, for the sake of conceptual clarification, we will describe how the concepts *sacrifice zones, sustainable development* and *legitimacy* will be used in this book.

2.4 Mining, Sustainable Development and 'Sacrifice Zones'

Sustainable development is defined in the Brundtland Report "Our Common Future" as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland 1987). In the 1990s a related definition of sustainable development, developed three areas of concern are basic to any development process – ecological, economic and social (ICLEI 1996; Connelly 2007), Brundtland 1987). The 1990s version emphasised the need to achieve a balance between the environmental, economic, and social pillars of sustainability (Murphy 2012; Connelly 2007). In the first UN documents about sustainable development, the goal was to find a way for 'third world' countries to develop, and was mostly concentrated around the political will to employ long-term thinking when extracting natural resources (Brundtland 1987). Importantly, the need for economic growth was not a question but a premise, and the natural environment was seen as a pool of resources for humankind to use, bearing in mind that it is not all for the present generation to use. Thus, the new consideration introduced by the term 'sustainable development' at this point was the inter-generational perspective. Sustainable development is very often illustrated with its three pillars of economy, environment and society represented by partly overlapping circles or in a triangle (Connelly 2007). In the centre of the triangle, we usually find a position labelled 'sustainability', as it takes in interests, valuations and goals from all three of these areas. The link between the economic, environmental and social areas is communication and governance, or the lack thereof. Shared perceptions, values and goals would, ideally, prevent conflicts and promote sustainability. However, in extractive industries such as mining, the process of development planning always runs the risk of property conflicts, resource conflicts and development conflicts (Campbell 1996). Even today, however, the meaning and associated objectives of the social pillar remain vague (Murphy 2012:97), as the mining sector typically ascribe their activities to the overall and general definition of sustainable development, thus:

> … the goal should be to maximize the contribution to the well-being of the current generation in a way that ensures an equitable distribution of its costs and benefits, without reducing the potential for future generations to meet their own needs. The approach taken to achieve this has to be both comprehensive – including the whole minerals chain – and forward-looking, setting out long-term as well as short-term objectives. (IIED 2002: XVI)

Mining involves the extraction of non-renewable resources from the ground, and is therefore problematic to define as ecologically sustainable in itself, as the very basis for production (the ore in the ground) inexorably diminishes. In addition, mining necessitates human intervention in nature, and leaves its mark in landscapes. For these outputs to become useful as mining sites, processing requires the production of large amounts of waste, including gravel, dust and sand, as well as chemicals that are used in the process of separating valuable minerals from rock. These physical processes have environmental, economic, social and cultural consequences. Environmental – as landscape, flora and fauna are impacted by land encroachments

and piles of mining waste, air and water pollution. Economic – not only in the sense that mining may stimulate economic growth and provide important raw industrial materials and valuable metals to society, but also in the potential resource dependency it might create or the loss of alternative income sources. And finally, it has social and cultural impacts, as mining may influence living conditions and policy making in either positive or negative ways. Indeed, it may change the way that local communities are able to relate to their surroundings, and might even trigger changes in how people see themselves and constitute their own identities (Parekh 2008).

One way of clearly indicating that a mining development is perceived as unsustainable is to label it a "sacrifice zone". The labelling of mining sites as sacrifice zones has galvanised the critics of mining, including environmental organizations, civil rights movements and indigenous populations. As such, the use of this term has become part of the increasing concern about the sustainability of mining activities (Hedges 2012; Fox 1999: 35; Endres 2012: 6; Lerner 2010: 10). Several studies from the US and Canada have focused on the lack of justice in situations where mining companies gain permission for radical interventions, such as mountain top removal and valley fillings (Fox 1999). The interventions have in some cases been so radical that a particular site has been described as "a place that is written off for environmental destruction in the name of a higher purpose, such as the national interest" (Kuletz 1998: 31).

The concept of "sacrifice zones" originated in the debates over designated militarized zones used for nuclear testing after the Second World War. (Davis 1993; Kirsch 1997, 2010). In the decades that followed, the concept was used to describe environmental and social justice concerns in specific areas. Because the populations living close to such sites are often characterized by a particular demographics (Bullard and Johnson 2000), these analyses focused (in the US, especially) typically on the variables race, income, home ownership, health and education level (Bullard and Johnson 2000; Hedges and Sacco 2012). The concept thus evokes a notion of power, in the sense that those sacrificing something must hold some sort of control over what is sacrificed, and that the actions performed in the sacrifice zone are a result of particular political or economic decisions through which relations of power are manifested. The relevance of this concept in discussions of mining and sustainability is thus the potentially uneven distribution of the costs and benefits of the mining activity. While the mining corporations make profits, the local communities may not always reap the benefits but are lumbered with a new set of burdens, related to human health, environmental degradation and threats to the preservation of culture and ways of life. (Carrington and Pereira 2011; Fox 1999; Endres 2012; Lerner 2010).

In this way, the literature on sacrifice zones sits within a theoretical framework of conflict theories and critical perspectives. Typically, the lens of sacrifice zones is used to criticize governments, corporations and industry for not taking the needs and values of local people and nature into account, and is thus a tool for articulating a critique of power (Hedges and Sacco 2012; Lerner 2010; Endres 2012). The concept of sacrifice zones is also closely connected to environmental injustice and the uneven distribution of power and capital. Bourdieu's distinction between economic,

social and cultural capital is relevant here (Bourdieu 1983).[3] Sacrifice zones are often labelled thus in cases where national or regional government and big business take advantage of people who are both politically and economically powerless (Bullard and Johnson 2000; Fox 1999). Through different analytical frameworks, the cases in this volume reflect an overall concern mirrored in Bourdieu's work, and his concepts are applied in Chap. 11, in an overall analysis of all cases in this volume.

Several studies of sacrifice zones have focussed on the need to empower local communities (Lerner 2010; Bullard and Johnson 2000). This aligns with our understanding of valuation and the integration of different types of knowledge. It is important, however, to emphasize that in our view, there are potential "sacrifices" that have been (or may be made) that is not necessarily emblematic of a total destruction – for example the health and environmental issues of fenceline communities or the uneven distribution of exposure to pollution (Bullard and Johnson 2000; Lerner 2010). In cases where the authorities knowingly approve pollution that is harmful to a certain area, the area can be regarded as having been 'sacrificed', even though the area, objectively speaking, is still habitable, despite a heightened risk attached to it.

Stuart Kirsch (2009) has argued that interpretations of the notion of sustainable development over the years have been more oriented towards how economic development can be pursued with due regard for environmental and social considerations. This shift to a focus on economic aspects has enabled the mining industry to claim that their activities can be sustainable. Mining can of course also be seen as unsustainable because it leave behind scarred and ruined environments. Yet, the scarred and ruined environments might be avoided or ameliorated: Avoided if the mining is not open cast mining and is producing based on best available technology and with an absolute minimum of chemicals used; ameliorated if post-project restoration takes place in adequate proportions.

2.5 Sustainable Development and Legitimacy

An industrial project's legitimacy is connected to the concept of sustainable development through, as we see it, four types of legitimacy, relating to economic, social and environmental concerns. To understand the relation between sustainable development and legitimacy we need to further understand these concepts. This book's perspective is to show how, in our case studies, "sustainability refers to explicit qualities of human well-being, social equity and environmental integrity" (Leach et al. 2010: 5). Therefore, it is also important how these qualities are defined and by

[3] In short, social capital is related to social networks and closeness to existing power structures, while cultural capital can be linked to various elements such as knowledge, political competence and education. Economic capital is related to aspects such as income and land ownership.

whom; in short – whose values count and what inclusion or exclusion criteria are invoked in decision-making processes (Foucault & Gordon 1980: 2, Dean 2010).

Instead of pursuing one general definition of sustainable development, then, this book aims to show how different values and forms of knowledge are taken into account in decision-making, depending on the social, cultural, economic and ecological setting. In addition, the relationship between environmental protection and social justice may be of mutual benefit. For example, a high level of environmental protection can enhance social justice – for instance in terms of preserving culturally -important landscapes and ecosystems. At the same time environmental protection can hamper social justice, for instance when national authorities protect a geographical area due to its pristine natural environment, whereas local communities want access to resources, (economic) development, jobs and new opportunities.

The mining industry in the Arctic needs to build legitimacy in the eyes of society, in the political sphere, and in relation to the market. Legitimacy here refer to a form of 'acceptance', whether it is active support or passive consent; it might exist for different reasons and to different degrees. This means for instance that you can accept the existence of mining because the decision to go ahead was based on a democratic process, because you will make money out of it, and/or because it is part of a local tradition. The latter is typical for communities with previous mining activity.

Analytically it is useful to ask how and why an institution or activity is accepted in a community. It is helpful to distinguish between political legitimacy and legitimacy in a broader sense. As David Held (1987) outlined in regard to political legitimacy, there can be degrees of obedience from 'coercion', to 'tradition', 'apathy', 'pragmatic acquiescence', 'instrumental acceptance', 'normative agreement' and finally 'ideal normative agreement' (Held 1987, p. 238). Ideal normative agreement legitimacy does not only rest on a normative foundation such as respect for the authority of the state. Rather, it also requires a consensus through an open deliberative communicative process (Jentoft 2000). While Held saw the latter two forms as the only two example of 'real' legitimacy, we argue that analytically both 'tradition' and 'instrumental acceptance' can be useful to understand how the mining industry secures societal support or a social license to operate in a region. All though Held uses the phrase tradition more in a Weberian sense – as tradition-based power, but also legitimacy based on a wider sense of the concept, a broader understanding of the notion of legitimacy, based on sociological concepts, can be useful. Suchman (1995) defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman 1995: 574). These are all different yet related activities and instruments that both the mining industry itself and the relevant political institutions use in addressing social and environmental conflicts related to mining activities. They are therefore also attempts to place mining within a framework of sustainable development and legitimacy.

Criticism of mining activities, and extractive industries more generally, is based on several arguments and positions, of which we will focus on two. Primarily, the industry is criticized for degradation of the natural environment and thereby local people's health and wellbeing. Secondly, it is often criticized for the displacement

of local and traditional business and livelihoods, such as agriculture, reindeer herding and fisheries. These two critical points relate closely to the rights of indigenous peoples, their way of life and traditional sources of income. Public perceptions that mining projects lacks social and environmental concern have led to strong attacks on the industry as a whole (Fox 1999; Kirsch 2010; Lerner 2010; Hedges and Sacco 2012). The picture painted is often one where multinational mining corporations ignore the interests of local stakeholders, extract resources and leave behind a destroyed landscape, often operating on a "fly in fly out" basis, which results in little gain for local incomes or the local labor market. These adverse perceptions of the typical mining project have resulted in low levels of democratic and environmental legitimacy for the industry (Prno 2013:36).

Due to stories and experiences like this, the legitimacy of the mining industry is challenged by environmentalists and in local communities (Salmi 2008; Cashore 2002; Suchman 1995). As earlier mentioned, one question whether it is at all possible for mining to be sustainable (Prno 2013). Can the extraction of non-renewable resources be managed by applying sustainability principles? The basic question concerning legitimacy is how an industry with such a negative reputation still can be accepted in rural Arctic communities. Mining companies often meet strong environmental counter-power from NGOs, and the governments at the local or national levels are required to address the concerns of the NGOs and local communities by implementing various sustainability measures. In the past decade, we have also seen a process of increased use of market-oriented policy instruments by companies themselves, turning to the public as concerned consumers to gain legitimacy; a process regarded as the privatization of governance through different types of labelling systems and reporting regimes (Cashore 2002; Prno 2013).

As political legitimacy is about acceptance and approval of an institution or a decision, some have argued that this question has to be answered primarily based on procedural features that shape these institutions and underpin the decision-making processes. Others argue that legitimacy depends—exclusively or at least in part—on the substantive values by which that legitimacy is measured (Peter 2010). In other words, political legitimacy is based either on the process of decision-making or on the outcome. However, some democracy theorists see both outcome and procedures as important. A relatively new but related concept is that of 'meaningful consultation' (Wilson 2016) which also refer to dialog based processes to meet stakeholder's claims.

High levels of *procedural* legitimacy in public consultation and decision-making can counterbalance the non-desired consequences of mining activity. This legitimacy can also be found outside the political system. In environmental sociology and political studies on environmental policy, another type of legitimacy has come to the surface – the legitimacy based on non-governmental or hybrid public-private governance systems (Buchanan 2002, 2007). Legitimate authorities outside or partly outside government have become increasingly common, especially in environmental management. Public-private partnerships, stakeholder participation schemes and independent labelling of goods and services are can be seen as part of these governance institutions, which have a high degree of acceptance and approval by both communities and governments. The legitimacy of these non-governmental

institutions is said to be based on a sociological understanding of legitimacy (Buchanan 2002). This means, "an institution is legitimate in the sociological sense when it is widely believed to have the right to rule" (Buchanan 2007: 3). This type of legitimacy – using stakeholder participation, consumer approval or a company or industry's own standards can be based on procedural legitimacy and instrumental approval. They can also base their legitimating on reference to "international standards", including the standards of the International Organisation for Standardisation (ISO); the Global Reporting Initiative and other transparency and reporting initiatives; and UN instruments and global conventions (such as the Aarhus Convention) which require participation from NGOs, indigenous peoples and other local stakeholders. At the same time we have seen the mining industry develop its own standards for sustainable development and corporate social responsibility (CSR), as well as guidance on securing a 'social license to operate'.[4] Many of these initiatives have been developed to help the industry secure legitimacy for its activities. Non-governmental legitimacy, in its political form, can be based on accepted procedures and/or outcomes, but it also exists in the form of common cultural consent, based on reason, knowledge or identity (as discussed above).

In sum, in a study of mining, legitimacy may be divided into acceptance based on outcomes, procedures and/or common cultural grounds. An industrial project's legitimacy is connected to the concept of sustainable development through, as we see it, four types of legitimacy, relating to economic, social and environmental concerns. The UN advice, shared by many others, is to incorporate both scientific knowledge and indigenous, traditional and other local knowledge (UN 2001). To increase legitimacy mining companies thus need to address the following four challenges: Firstly, does the development actually contribute to economic growth and social welfare in the region (social legitimacy)? Secondly, does this development take environmental concerns into account (environmental legitimacy)? Thirdly, does mining fit with to the community's cultural identity, practices and knowledge (cultural legitimacy)? Finally, the fourth question concerns procedural legitimacy: Does the process of decision-making involve adequate stakeholder and community involvement, thus enabling social justice and democratic values to influence the decisions made? One of the main concerns of this book is how the mining industry meets the requirements established in our framework for assessing social, environmental, cultural and procedural legitimacy. We can also consider whether one type of legitimacy can make up for the lack or absence of the others.

In a mining project, the question of legitimacy is closely related to levels of knowledge among people who are forming opinions about the industry, and the types of knowledge that are incorporated into decision-making. In the next section, we will discuss in more detail the relevance of knowledge in debates on mining and sustainability, particularly in the Arctic context.

[4] Some of these initiatives are in particular IRMA (The Initiative for Responsible Mining Assurance), EITI (The Extractive Industries Transparency Initiative), ICMM (The International Council of Mining and Metals), but also various CSR initiatives and certification schemes, the Responsible Jewellery Council, World Gold Council, etc.

2.6 A Narrative Approach to Sustainability

Acknowledging multiple, normatively-defined sustainability goals is, one essential basis for governance approaches that contribute to equity and social justice (Leach et al. 2010). Rather than employing a broad normative definition of sustainability (Brundtland 1987; Leach et al. 2010) argue that sustainability can be understood by focusing on particular goods and services valued by particular groups (ibid). In this book, we are concerned with how to specify what might be called "versions of sustainability". These versions are found by understanding the particular properties and flows of resources valued by particular social groups in pursuit of particular goals, and the different forms of traditional and scientific knowledge that these groups employ in the pursuit of these goals.

Leach et al. (2010) show how actors produce narratives that frame systems and their dynamics in particular ways, and that promotes particular goals and values, and justifies particular governance pathways (Leach et al. 2010). In the process of learning, communicating and making decisions, people do not just add new information to a loose accumulation of mental images of knowledge that matters. Instead, human cognition works through storytelling, and narratives come to represent mental models that aid in making sense of observations (Bruner 1987). In these narratives scientific knowledge is merged with local and experience based knowledge, and so becomes embedded in a comprehensible format for individuals and communities, in a more 'life-like' manner (Paschen and Ison 2014). Typically, then, narratives about landscapes are situated within a 'wide repertoire of environmental stories' (Daniels and Endfield 2009: 215) that shapes and represents the way landscapes are valued. These narratives can be articulated in many ways, both by officials and scientists displaying how they see the landscape in question (based on *their* ontological world view), or by individual actors and communities, constructing a narrative, a social memory to inform perceptions of the past and perceived future possibilities (McIntosh et al. 2000; Daniels and Endfield 2009). These narratives derived from networks, may resemble discourses, emphasizing long-term goals relating to social structures and institutions, land use and environmental change, local knowledge and livelihoods. As outlined by Bjørst (2016) investments in Greenlandic mining are also investments into particular spatial development futures for local communities. These sustainability pathways are co-constructed by politicians, the media, NGOs, the mining sector as well as local stakeholders.

The constructed nature of narratives means that different plotlines are drawn from the same facts. Investigating how different stakeholders frame the issue at stake, thus reflects an ontology where system boundaries, dynamics, functions and outcomes are always open to multiple, particular, contextually positioned and subjective assumptions, methods, forms of interpretations, values and goals (Leach et al. 2010). Exploring narratives as a methodological approach is valuable for co-producing empirical material and for making value judgments about what and who is included and excluded and what issues, questions and solutions are being prioritized (Leach et al. 2010). The various forms of levying pressure put on the process of construction

of such narratives from powerful actors and institutions then work to strengthen ideas of stability, underplaying longer term, less controllable dynamics.

The key to unwrapping these processes, then, lies in studying and analysing practices and arrangements that involve flexibility, diversity, adaptation, learning and reflexivity, as well as highlighting and supporting alternative pathways within a progressive politics of sustainability.

In the analyses of decision-making relating to mining in the Arctic, in terms of the processes through which landscape value is perceived, translated and formalized, we assert that the ways in which actors and activities are organized and empowered is of major importance. This includes how multiple knowledge systems, valuation schemes and actor preferences are generated, translated and applied in the planning and management of mining activities. Knowledge production is based not only on scientific and technocratic worldviews; we acknowledge that there are many different types of knowledge. The different cases show that this is taken into account in varying degrees in the management of landscape in mining regions.

In their lives, people shape and are shaped by their surrounding landscapes: physically, by cultivating and building it, and imaginatively, by applying aspirations and fantasies to it (Robertson and Richards 2003). In coupled social-ecological systems, the interdependencies and co-construction of landscape values therefore closely relate to people's engagement in the world, their activities and tasks, their desires and wishes for the future (Adger 2000; Berkes and Folke 1998). Thus, landscape values connect to and are constituted through combined social and natural processes and structures. The Arctic landscapes of Greenland, Russia and Norway are diverse, ranging from alpine fjord landscapes to tundra, glaciers and highlands. So too are the human settlements, livelihoods practices and social conditions in the regions. This book therefore recognizes the multiple ways in which humans use and relate to their natural surroundings, and how this influences the mineral industry and its activities.

Our broad valuation scheme enables an understanding of landscapes as holding economic, social, cultural and ecological value and a focus on how it matters in mining issues. We can see economic and social value in its minerals for exploitation, as well as its other natural resources, for fishing, farming and pasture. The landscape also has cultural value in the way that it supports traditional forms of natural resource use, such as fishing, hunting and gathering, activities that are also important for the preservation of language and heritage. The cultural value of a landscape might also derive from spiritual and sacred places within the landscape. In terms of ecological value, a natural landscape is also an ecosystem whose biodiversity and ecosystem services might be highly valued. Finally, landscapes also have social and cultural value as places for hiking and other types of recreational activity. When an area is opened up to extractive industries, these values and stakes are important to describe in order to provide the basis for future land-use management. This introduces a number of other intriguing questions: in what form does knowledge about ecosystem services and landscape values appear?

2.7 Power as Exclusion and Inclusion of Knowledge

According to Clarke et al. (2002), knowledge must be thought of as salient, credible and legitimate in order to influence policymaking. *Salience* is being established when actors perceive knowledge to be relevant to the political agenda and social planning. *Credibility,* according to Clarke et al. (2002) is established when an actor perceives knowledge to be in line with the scientific method and the search for truth. Natural sciences, often related to positivistic scientific traditions, perceive the search for truth as taking place in an external reality – nature (Asdal 2005). Descriptive facts about ecosystems, structures, relationships and functions are derived through observations and measurements. The ideal is to build an objective knowledge base about natural phenomena and to identify causal relationships within an ecosystem (Aase and Fossåskaret 2010). This might be, for example, identifying causal explanations of environmental problems stemming from mining, as a foundation for developing clarifications to these problems.

Knowledge credibility is closely linked to knowledge legitimacy. Scientific knowledge has had a particularly high legitimacy and influence in efforts to put environmental issues on the international agenda (Hannigan 2006.). This is because a policy that is perceived as being based on a common reference outside public administration is given greater legitimacy. As Wilson observes, "when the administration will coordinate human behaviour and decision-making across sectors of society and interests, 'indisputable facts' make it easier for management to work because it gets people to commit" (2010: 37). Knowledge that is perceived as objective, value-neutral or universal can therefore provide greater legitimacy to political decisions, particularly in the eyes of bureaucrats and planners. There is often a preference for expert knowledge to be in the form of quantifiable facts presented as objective truths. This can also be the case in moral or practical matters, where there is considerable scientific uncertainty or lack of knowledge (Wilson 2010). To establish the legitimacy of knowledge that builds on people's subjective experience and reflection can be challenging.

Legitimacy is also an issue in the relationship between knowledge producers and society in general. According to this perspective, to be considered legitimate, knowledge must also be perceived as independent and meet society's values, including justice, dignity and ethics (Clarke et al. 2002). Furthermore, transparency about institutions and actors, the financing of knowledge production, the interests of those doing the financing and their relation to the knowledge producers, is critical to attain legitimacy.

The governing of natural resources is embedded in political practices that permeate modern societies, practices that ultimately aim to govern through the utilization of particular knowledge systems. This regime of practice necessitates having a system in place aiming to include relevant actors, stakeholders and knowledge producers. The governing of these resources requires also ensuring that the knowledge produced through such processes is found to be relevant for political decisions. Thus, a process of inclusion and exclusion is a vital part of any management

process, seeking – somewhat paradoxically – both to include actors and stakeholders on a broad scale while simultaneously to compress, extract and adapt the resulting knowledge to the needs and aims of the politicians who in their turn will base their argumentation on it. In this process, many argue, uncertainties and disagreements are downplayed through a process by which "… powerful actors and institutions… 'close down'… uncertainties and ambiguities and obscure the importance for policymaking of divergent 'expert' framings" (Leach et al. 2010: 51). These truth-telling practices, aiming at governing mentalities (meaning understandings of how the world works), reflect a power/knowledge nexus that includes processes of inclusion and exclusion of particular knowledges and experiences (Dale 2016); in short – a particular governmentality (Dean 2010).

In mapping landscape values, however, it is also important to define the landscape in terms of *subjective* values, including experiences, aesthetics, knowledge, education, and vulnerability, and not only its quantifiable qualities. This form of knowledge is not subject to objective proof or causal explanation, but to explanations of how or why nature is perceived as valuable or meaningful to humans (Aase and Fossåskaret 2010). Such a practice is indeed culturally determined and based on people's experiences rather than an external reality. Qualitative social scientific approaches thus base truths on human experiences, feelings and thoughts. Following this line of thought, *human perceptions* are the only thing we know is real, and therefore true. Here we see the interrelation between the 'material landscape' and the 'subjective experience landscape' (Ingold 2000). We also recognize that "the landscape is constituted as an enduring record of – and testimony to – the lives and works of past generations" (Ingold 1993, p. 152).

In the cases presented in this book, we find that knowledge about landscape nature appears in multiple forms: as written analysis, political statements or hearing statements and as narratives based on experience of land-use practices (Ingold 2011). Furthermore, they also appear as oral statements to us researchers or as techno-scientific productions of formalized assessments, aimed at filling the need for knowledge in co-management and governance processes. The aim in the empirical chapters that follow, then, is to understand how these different forms of knowledge are included or excluded in management processes relating to mining operations, and how they interrelate and influence the political debates and decisions.

As mentioned above, some forms of knowledge are seen as more valid and trusted than others. The attributes assigned to particular types of knowledge are established through social and political processes and practices, and are subject to power relations. Another aim will be to show how these processes have unfolded. Furthermore, we ask to what extent we find that there are diverging or similar criteria at play in the different cases when it comes to the decisions being made. Here it is important to recognize that the decision makers in each case may hold very different positions and thus are subject to very different regimes of practice, as they are indeed – through their implicit and explicit performance of power – "… governing the practices of inclusion and exclusion of knowledge" (Dale 2012: 141).

Thus, in an analysis of the findings presented, the case studies will explore to what extent governmentality processes intentionally exclude particular types of valuation and knowledge. If so, why are some types of knowledge excluded? Do processes of objectification and quantification derived mainly from a techno-scientific methodology systematically exclude particular kinds of knowledge and valuation? Finally; to what extent is trust in the knowledge produced for the sake of managing natural resources – science in particular – a variable of importance in decision-making?

2.8 Theoretical Perspectives: A Summary

The case studies from Norway, Russia and Greenland presented in this volume represent a variety of mining operations, actors, perspectives, management schemes and political realities. The analyses of the empirical findings are guided by multiple theoretical perspectives from the literature of sustainable development and sacrifice zones, and how these are entangled with legitimacy, valuation of landscape, knowledge production, and the science-policy nexus. This chapter has sought to highlight and pull together different approaches followed independently by the authors; approaches that will be synthetized in the last chapter of the book. The overall framework for the analysis is sustainable development, seen as processes that consider economic, social and environmental aspects of human life and well-being. The concept of sacrifice zones is seen as a contrast to sustainability in the literature of mining operations, as it addresses both environmental degradation and damage to the social well-being of humankind. But rather than seeing these two concepts at opposite ends of a spectrum, the authors perceive both as being determined by human perception. A mining project, where some level of environmental degradation is an unavoidable outcome, can represent both sacrifice and sustainability at the same time, depending on the perspective of the observer and the scale at which the project is observed. This book aims, though, primarily to explore the question of mining and sustainable development through context-specific studies of the case communities, taking into consideration local traditions, lifestyles, particular project management systems, planning procedures and the role that various knowledge systems play in the local debates.

The following chapters investigates how mining projects and the mining industry more widely challenge different sites in different ways, leaving local governments, often under economic or national pressure, to take important choices for the future. Legitimacy and sacrifices becomes important in these choices, which seldom are based on certainty but on multifaceted, often vague ideas of sustainability, and hope for economic growth, and fear of possible sacrifice and loss of landscapes and traditions. Governing sustainably means to govern for the present and the future. We hope this volume will contribute constructively to the ongoing debate on mining in the Arctic, and that its contribution may inspire actors across the Arctic to engage in how perceptions of their region is shaped, constructed and managed; perceptions that ultimately shape potential Arctic futures.

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Chapter 3
Institutional Conditions in Arctic Frontiers: The Case of Mining in Greenland, Russia and Norway

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Abstract This chapter presents the main features of the different institutional and legal settings in Greenland, Norway and Russia, and how these frame the management of mining activities, particularly in relation to sustainability. The common denominator for Greenland, Norway and Russia is that mining activities have developed within continually evolving national structures in terms of formal legislation and governance institutions, as well as in response to the impact of new societal discourses on mining. The way in which these changes have played out, the degree of societal change, and the way national policies connect with the mining industry in light of these changes does however differ between the three countries.

The transformation of the Greenlandic context must primarily be understood in light of the transfer of power and responsibilities from Danish to native Greenlandic rule, influenced by the need to generate revenue to support independence. By contrast, mining in the Norwegian context has in recent years been characterized by a renewed interest in the sector on the part of a relatively stable national government, influenced by the imperatives of an emerging post-petroleum era. Meanwhile, the changes in Russian society over the last few decades are certainly profound, and there is clear evidence of new sustainability-related elements being introduced into the mineral legislation. Nevertheless, the environmental protection measures applied to the Russian mineral sector are weaker and the governance tradition is clearly more centralised than is the case in Greenland or Norway.

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Keywords Arctic mining • Mining governance • Comparative institutional analysis • Mineral industry legislation

3.1 Introduction

This chapter provides a common backdrop for understanding and comparing the case studies presented in the following pages of this book. The aim is to present the main features of the different institutional and legal settings in Greenland, Norway and Russia, and how these frame the management of mining activities, specifically in terms of how the issue of sustainability is approached in planning procedures, and the role played by knowledge, scientific or otherwise. As outlined in Chap. 2, the concept of sustainability in relation to mining is multifaceted and is rendered even more complex when viewed in a comparative, cross-national perspective. A key objective for this chapter, then, is to frame this complexity within these national contexts. Thus, the notion of sustainability is not seen as an objectively definable entity, but rather as a concept operationalized by specific legislation and governance structures, which are subject to change over time.

Notably, the governmental and administrative structure varies considerably between the three countries. Russia's federal structure is a significant contrast to Greenland's 4-municipality structure for example, while Norway's 3-tires of government (national, regional and local) falls somewhere in between. Likewise, there are slight variations in how the ownership to mineral resources is viewed; in Russia the fundamental principle is state ownership, while in Norway there is a distinction between minerals belonging to the state and those belonging to private land owners. In Greenland the Self-Government authorities have assumed the right to utilise the mineral resources found below ground.

However, one of the most important institutions regulating mineral resource activities is a voluntary environmental management system, which is now implemented across all three countries – ISO 14001. Compliance with this certification standard means that the mining companies independently manages its environmental issues, beyond legislative requirements. This voluntary initiative is thus an important component of companies' environmental policy.

3.2 Mining in Three National Contexts

3.2.1 Mining in Greenland: An Evolutionary Process

Resource development in Greenland has been characterised by a pragmatic approach to adjusting regulations since the colonial times, before Home Rule, after Home Rule was established in 1979, and more recently since the Self-Government Act was

introduced in 2009. This approach is still important in resource management today, as this chapter will demonstrate.

As a result of the mass migration of cod to Greenland during the 1920s, fishing had already become the dominant economic activity before World War II. However, the most significant socio-economic changes took place after World War II, as a result of efforts to modernize the economy. The G50 plan of 1950 was based on the idea of modernizing the commercial fishing sector, which was expected to eventually transform Greenland from an underdeveloped economy to a modern one (Rasmussen, 2005). In the first instance, this was expected to be done through private investment. But due to a lack of private investors and indeed any interest at all from the private sector, a revised plan – the G60 plan – focussed instead on the role of the public sector in the development process. It laid the foundations for an institutional and infrastructural framework, which in many ways is still reflected in today's society. In these plans, however, the potential use of mineral and energy resources was more or less absent (Rasmussen 2000).

In 1964 the Grønlandsrådet – or Greenland Council – was established to administer and promote industrial development in Greenland. The Council comprised five members from mainland Denmark and five members from Greenland (Nielsen et al. 1970). In 1975, local administration was transferred from the Danish state authority to Greenland's municipal councils, and finally Home Rule became a reality on May 1, 1979 with the creation of a parliament – Landstinget – with the authority to legislate on matters regarding the future of Greenland.

The principles of the mining regime in Greenland were set out in the Greenland Home Rule Act (1978) and specified in the Mineral Resources Act (1978). Opinions were divided on both the Greenlandic and the Danish sides. This regime is based on the fundamental principle of joint decision-making, mutual veto rights and equality between Danish and Greenlandic authorities. To provide an organizational framework, a Joint Committee on Mineral Resources in Greenland was established, consisting of six to ten members, one half represented by the Home Rule government and the second by the Danish government. The Joint Committee was delegated the task of following developments in mineral resource exploitation in Greenland and making recommendations to the government and the ministers in cases covered by the joint decision-making arrangement. The daily administration of mining activities was initially delegated to a dedicated executive agency, which played a key role in the implementation of the joint Danish-Greenlandic decisions (Pagh Nielsen and Breinholt Larsen 1985). Both the Danish and the Greenlandic sides had broadly welcomed the mining scheme and the unity and harmony this arrangement brought to the interpretation of the legal framework and concepts, and this mood characterized the general working atmosphere in the Council.

Until 1998 the Joint Committee office was located in Copenhagen, but from 1st July 1998 the Bureau of Minerals and Petroleum (BMP) in Nuuk became the Greenlandic authority responsible for the management of all mineral and energy resource activities, as well as the promotion of Greenland's mineral potential to the international mining industry. The BMP and the Danish government were at this time given the joint authority to grant licenses for prospecting, exploration, and

exploitation of mineral resources under the Mineral Resources Act. The BMP ran the secretariat for the Joint Committee on Mineral Resources in Greenland. Moving the office from Copenhagen to Nuuk was done in recognition of the fact that Greenland's stake in future mineral and energy resource exploitation was much higher than that of the Danish government, and would therefore be better managed in close interaction with the Greenlandic Home Rule government. But it was still in a position where the office in Greenland would comply with the framework established through the Joint Committee. Subsequently, the Mineral Licence and Safety Authority (MLSA) was established (2013), replacing the Bureau of Minerals and Petroleum. The MLSA is currently the overall administrative authority for mineral resource activities, including mining, power generation, pipeline construction, and underground storage.

3.2.2 Norway: Renewed Importance, New Discourses

Historically, the mining industry has been important for Norway's economy and has also formed the basis for other industries. Primarily located in outlying regions, the industry is comprised of companies engaged in the extraction of coal, iron ore, and certain other industrial minerals. The importance of the mining industry in Norway has diminished in recent decades. However, high mineral prices, improved infrastructure, the technological possibility of marine waste storage, and the need to phase out Norway's reliance on petroleum extraction are factors that have stimulated increasing interest in mining, even though estimates of the economic potential of the mining industry are contested. Norway's mining industry is small in the overall economic picture, and the total effect of increased mineral production on GDP, both nationally and regionally, is considered to be limited.[1] In 2011, the mining industry comprised 833 operators with more than 6,000 employees, distributed across 1,104 mines and quarries (these figures do not account for the employment provided by companies subcontracted to the operators, e.g. transportation and maintenance services). The industry traded for NOK 12.4 billion in 2011; exports accounting for 60% of this figure.[2]

A major part of the domestic consumption of minerals is linked to the use of crushed stone and gravel for construction purposes. However, metallic ore, industrial minerals and coal make up a greater share of exports. The four major export products from the mining industry in 2011 were iron ore concentrate, coal, ground calcium carbonate and crushed rock. Other important export minerals are stone blocks (primarily larvikite), ilmenite (titanium ore), olivine, nepheline syenite and quartz/quartzite.

The ownership structure of the Norwegian mineral industry has undergone a significant transformation over the last few decades. In the post-war era the degree

[1] Joint Norwegian Ministerial Report: "*Framtid i Nord*" ('Northern Futures') (2014).

[2] The Norwegian Ministry of Trade and Industry: Strategy for the Mineral industry (2013).

of public ownership was high, but by the late 1980s this had changed. Today, the Norwegian state has ownership only in *Store Norske Spitsbergen Kullkompani AS* (SNSK). SNSK has two fully owned subsidiaries: *Store Norske Spitsbergen Grubekompani* and *Store Norske Gull*. Extraction of coal takes place in Svalbard under the management of *Store Norske Spitsbergen Grubekompani*, while *Store Norske Gull* operates exploration projects in Svalbard and in Northern Norway.

Most of the large and export-oriented mining companies operating in Norway today are wholly or partially owned by foreign interests. However, this picture is somewhat different in the northern parts of Norway: The *Rana Gruber* company is wholly under Norwegian ownership, *Nussir ASA* is 70% owned by Norwegians and *Sydvaranger Gruver* is owned by an Australian company, in which Norwegian interests hold the majority of the shares. Foreign ownership is also common for companies dealing with industrial minerals, but several North-Norwegian companies are again domestically owned.

During the last 30 years the discursive context, and consequently the policy context, of mining in Norway has been subject to considerable change. Issues relating to the potentially negative environmental effects of mining are increasingly a focal point for the Norwegian discourse on mining. Along with this, issues relating to a broader debate on the social responsibilities of mining companies have emerged more prominently. The primary environmental concern is related to the disposal of waste rock. Addressing these environmental concerns, the government's current mineral strategy emphasizes increased knowledge on disposal solutions, particularly regarding the use of waste disposal at sea, along with efforts to establish forums for contact between authorities, environmental NGOs and various industry stakeholders. The government has also acknowledged the need for better guidelines on planning for subsequent use or restoration of areas where mining has taken place, also advocating the use of backfilling as a more environmentally friendly waste disposal strategy. Underlying this is a perceived need to address the challenges posed to the industry relating to their reputation in the eyes of local communities, and the industry is expected to further develop ethical guidelines, and to establish 'best practice check-lists'.

However, in an analysis of the governance challenges relating to mining and the environment in Norway, Fauchald (2014) argues that the approach being employed to address environmental concerns is out of step with the challenges posed by the increased focus on mining in Norway. For example, Fauchauld identifies several weaknesses related to the Norwegian regime's reliance on local authorities in mineral mining cases. He also suggests that the division of competence between local authorities and the national mining and environmental authorities is 'unclear', while some key public authority players lack clear duties to impose and enforce environmental regulations. A key observation is that the environmental regulatory framework "*does not significantly strengthen the position of stakeholders with diffuse interests or weak bargaining power*" (*ibid*: 65.). However, this is a proposition that is primarily based on an assessment of the legal framework, and consequently needs to be supplemented with empirical evidence. Several chapters in this book relating

to the Norwegian context do exactly that, and are commenting on this debate through analysis of several ongoing political processes, relating to different phases of mining projects.

3.2.3 Russia: Continuity in Spite of Changes

In Russia, the industrial revolution in the late eighteenth to the early nineteenth century served as an incentive to increase production of minerals, and the abolition of serfdom in 1861 enabled the use of hired labor in the mining industry. The increasing demand for mineral resources spurred a diversification of the extractive industries, forming independent sectors; coal, iron ore, oil, gold and others. In 1913, Russia ranked second in the world in terms of oil production, the fifth in production of cast iron.

In 1917, after the October revolution, the oil, gas and mining industries were nationalized. The task of industrializing the Soviet Union demanded an accelerated development of the extractive industries, including the newly industrialising areas of the country's North and the Arctic (Norilsk, the Murmansk region, the Komi Republic, the Magadan region, and the Republic of Yakutia).

During World War II the Soviet Union lost more than 60% of its coal production capacity in Donbass (the Donetsk coal basin), the territory occupied by Nazi Germany between 1941 and 1943. This was partially compensated during the war by development of the coal industry in Kuzbass (the Kuznetsk coal basin), the Pechora basin, the Urals, and in other eastern regions.

In the postwar period the mining industry was quickly restored due to the widespread use of open pit mining. However, Russia's transition to a market economy had a negative impact on the mining industry in general. Several hundreds of unprofitable mining enterprises were closed, mainly coal mines and those companies whose products were not in demand on global markets. The export-oriented enterprises of the mineral industries were privatized, and many of these have become the largest in the world today (JSC "Norilsk Nickel", JSC "Lukoil", JSC "EuroChem"). Most fuel and energy companies, as the main contributors to the budget, remained state-owned (PJSC "Gazprom" NK "Rosneft" and others).

Currently, the extractive industries in Russia comprise a set of sectors engaged in exploration and extraction of minerals, as well as primary processing. These include energy raw materials, ores of ferrous and alloy metals, non-ferrous metals, chemical industry materials, industrial raw materials, non-metallic building materials, and hydro-minerals (extraction of underground mineral waters).

In recent years, Russia has begun to exploit huge reserves of mineral resources in new areas of the Arctic, resulting in the revival of geological exploration in some of the most remote regions such as Chukotka and the Taimyr Peninsula. Besides the huge reserves of oil and gas, the Arctic regions of Russia contain about 10% of the world's reserves of nickel, about 19% of the platinum group metals, 10% of titanium, and more than 3% of zinc, cobalt, gold and silver (Bortnikov et al. 2013).

Today, Russia is the main producer of nickel in the Arctic (up to 14.25% of the overall global production). Russia has 3.3% of global reserves of cobalt, while the Russian production of cobalt in the Arctic comprises 5.8% of the overall global production. Russia holds 100% of Arctic tin reserves, and the Arctic reserves make up half of Russia's total reserves (Bortnikov et al., *ibid*.). The Russian share of Arctic tungsten is close to 43%.

3.3 Legal Frameworks and National Policies

3.3.1 Greenland Taking Over Responsibilities

The Greenland Self-Government Act, passed by the Danish Parliament on June 12, 2009 recognises that the Greenlandic people are a people under international law with the right to self-determination. The Act is based on a desire to promote equality and mutual respect in the partnership between Denmark and Greenland.[3]

According to the Act, the revenue from mineral resource activities in Greenland generally accrues to the Greenlandic government. However, the Act also states that Danish subsidies to Greenland will be reduced by an amount equal to half of the revenue over and above 75 million DKK. In subsequent years the subsidies would be regulated in accordance with the increase in the general price and wage index of the budget that year.

In the transition from Home Rule to Self-Government, rules governing the regulation of mineral and energy resources were inspired by the Danish government's agreement of 22 December 1992 with the Faroe Islands on mineral resources. This inspiration is also clearly reflected in the Greenlandic Government's Act on Mineral Resources (the Mineral Resources Act) of December 7, 2009, according to which Greenland has the right to possess and exploit its own mineral resources. This includes: prospecting, exploration and exploitation of mineral resources for export; underground storage and other mineral-relating underground activities; the utilization of energy from water, wind or underground sources; and the construction and operation of pipelines.

According to the Mineral Resources Act, the Government of Greenland may also carry out scientific and practical studies and mapping of mineral resources. The Geological Survey of Denmark and Greenland (GEUS) and the National Environmental Research Institute of Denmark (NERI) may conduct research of particular relevance to mining exploration in Greenland, in order to fulfil the Danish government's obligation to make such research available for the Government of Greenland according to the Act.

Act No 6 of 5 December 2008 on the Greenland Mining Fund is important for MLSA as it underpins long-term considerations in the use of mining revenues.

[3] Act no. 473 of 12 June 2009.

Mining revenues have been invested by this Fund in the interests of security and to ensure the highest possible rate of return. The Fund has been used to cover further investments in mining and raw materials. The longer term aim is to benefit Greenlandic society more widely.

3.3.2 Norway: An Integrative Legislative Approach

In Norway, the extraction of minerals is primarily regulated by the Minerals Act,[4] the Planning and Building Act[5] (usually implemented through local area plans) and the Pollution Control Act.[6] However, environmental considerations are also *integrated* into sector-specific legislation and the decision making procedures of relevant authorities.

As Fauchald (2014) points out, however, there is no *specific* requirement that environmental issues be taken into consideration when property owners enter into agreements with explorers or when the mining authorities grant expropriation or extraction permits, beyond general rules outlined by section 2 of the Minerals Act (requiring the consent of land owners or users if environmental damaging activities are undertaken).

The mining authorities are nevertheless *allowed* to impose conditions in order to avoid or mitigate environmental damage when permitting expropriation (sections 37 and 38 of the Minerals Act), and a broad range of environmental conditions can be imposed in the expropriation permit.

A key aspect of the Norwegian Minerals Act is the formal procedures for exploration and exploitation of mineral resources. The basic premise is that anyone is free to search for minerals on someone else's land. Surface processing is allowed to the extent necessary to prove the existence of mineral deposits. Processing which does not cause significant damage to the landscape can be undertaken without consent from land owners or land users. The land owner might be the state or a private landowner, or in the case of Finnmark County, it might be the Finnmark Estate.[7] Finnmark is thus a unique geographical area in the Norwegian context, in that specific rules apply when mineral extraction activities relate to Saami interests (Finnmark could be considered the Saami heartland on Norwegian soil).[8]

[4] Act of 19 June 2009 No. 101 relating to the acquisition and extraction of mineral resources (the Minerals Act).

[5] Act of 14 June 1985 No. 77: The Planning and Building Act.

[6] Act of 13 March 1981 No. 6: Concerning Protection against Pollution and Concerning Waste.

[7] The Finnmark Act transferred 95% (46,000 km^2) of the area in the Finnmark county in Norway to the inhabitants of Finnmark county. This area is managed by the Finnmark Estate agency (FeFo). FeFo is a landowner enterprise which owns and administrates 95% of the land and natural resources in Finnmark.

[8] Within the Saami reindeer herding districts *outside* of Finnmark the reindeer herders are considered to have the same rights as land owners regarding notification and information. Within the county of Finnmark, surveying for mineral deposits requires a written notification to the Saami

In order to further explore and/or exploit any mineral deposits that have been discovered, the developer will require an agreement with the land owner or exploration rights granted by the Directorate of Mining. In the event that such exploration involves extensive sampling of minerals, a special permit from the Directorate of Mining is required (normally limited to a sampling mass of 2000 m^3). Before such a permit is granted, the application for test sampling is submitted to the local municipal authorities for comment. The Directorate is also obliged to inform municipalities, county authorities, and the County Governor before actual sampling work begins. This process applies regardless of the ownership of the mineral resources (private land owners or the state).[9] If the exploration work involves the use of motorized vehicles, a special permit is required from the municipality in question, as well as the land owner. If the land owner does not agree to exploration, the developer can apply to the Directorate of Mining for expropriation rights. This can also be done if the land and minerals are owned by the state.

If commercially profitable deposits are found, *exploitation* rights must be granted. Exploiting mineral deposits owned by a *private* land owner requires an agreement with the land owner in question, or, if such an agreement is not reached, expropriation rights can be granted by the Ministry of Trade, Industry and Fisheries. Exploitation rights to mineral deposits owned by the *state* are granted by the Directorate of Mining if the applicant can prove the likelihood of the resource in question being commercially profitable (within a reasonable time). Legal permission to use a piece of *land* (for processing facilities, etc.) is further required in order to start commercial mineral extraction. If the developer cannot reach an agreement with the land owner on the purchase or leasing of an area of land for such facilities, they can apply to the Ministry of Trade, Industry, and Fisheries for expropriation rights. This presupposes that the area in question has the appropriate designation (as an industrial land use zone) within the existing local area plan, as established by the local municipality authorities.

Any total mass extraction of more than 10,000 m^3 requires an operational licence granted by the Directorate of Mining (all commercial extraction of natural stone is obliged to have such a licence; test extraction limited to 2000 m^3 does not require one). Operational licences can only be granted to operators with exploitation rights. The area of operations is defined in the license, which means that the applicant needs to have the necessary clarification in place regarding the land use designation. At a minimum the area proposed for mining activity needs to be designated for

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Parliament, the Finnmark Estate Agency (FeFo), and the regional reindeer herding authorities. In the county of Finnmark the right to survey for state owned minerals (see footnote on mineral ownership), and the right to take samples during exploration, require a special permit from the Directorate of Mining.

[9] The Minerals Act distinguishes between minerals belonging to the state and those belonging to the land owner (§7). Minerals belonging to the state: Metals with a specific weight of 5 g/cm^3 or more, including chromium, manganese, molybdenum, niobium, vanadium, iron, nickel, copper, zinc, silver, gold, cobalt, lead, platinum, tin, sink, zirconium, wolfram, uranium, cadmium, thorium and ores of such metals (not including alluvial gold). Additionally, the metals titanium and arsenic and ores of these, as well as pyrrhotite and pyrite are state owned.

resource extraction in the land-use section of the municipal plan, and preferably in an approved municipal area plan. The Directorate of Mining will withdraw operational licences if commercial activity is not implemented within 5 years, or if activity is suspended for more than a year. However, the Directorate also has the authority to grant exemptions from these timelines.

The Pollution Control Regulations define the detailed requirements to support the Pollution Control Act, and determine the acceptable pollution limits, including for mineral dust and water pollution, noise pollution, and requirements for handling finely grained mineral waste. The Regulations also mandate commercial operators to implement monitoring and measuring programs, as well as procedures for registration, documentation and storage of information. The Pollution Control Regulations are enforced by the County Governors, who are obliged to supervise any permits granted on the basis of the Regulations.[10] The County Governor also has the authority to grant exemptions from the rules and requirements of the Regulations. Local municipalities can, however, lay down more rigorous requirements in the local area plan than those stated in the Pollution Control Regulations. These will then take precedence. Special permits based on the requirements of the Pollution Control Act may be necessary if the mining area and its surroundings are regarded as particularly vulnerable, or if there is already similar activity in the area. In such cases, too, pollution limits should be clarified in the local area plan.

Additionally, the Regulations on the Water Management Framework (the 'Water Regulations') include environmental quality standards that are relevant for mining. The quality standards established by the Water Regulations are implemented through conditions written into pollution permits.

The extraction of mineral resources may also have an impact on cultural heritage sites, some of which may be automatically protected by law. The Cultural Heritage Act[11] poses particular requirements regarding the documentation of cultural heritage sites and objects in planning processes or in cases where such sites might suffer damage. Those surveying for mineral resources are required to notify the cultural heritage authorities in advance about activities that might affect protected sites or objects. 'Sizeable' planning processes should also clarify in advance whether planned activities are likely to have an impact on cultural heritage sites. This obligation to notify the authorities is considered to have been fulfilled by reporting to the County Governor.

If protected sites are in danger of being destroyed as a result of the planned activities, the Directorate of Cultural Heritage has the authority to grant dispensations to allow for the destruction of the site. The issue must be resolved in accordance with the local regulatory planning processes, and cannot be delayed. The cultural heritage authorities at the county-level (which would generally assess the matter) report the case to the Directorate when local planning drafts are released for

[10] The County Governor issues pollution permits for non-metallic mineral extraction, while the Norwegian Environment Agency (a directorate) issues pollution permits for state-owned minerals, primarily metals.

[11] Act of 9 June 1978 No. 50 Concerning the Cultural Heritage.

public consultation. If dispensation is deemed a possible solution, the Directorate can give instructions for further documentation, e.g. archaeological excavations (paid for by the developers). If a dispensation cannot be granted due to the value of the cultural heritage site or object in question, this amounts to a formal objection to the proposed plan. The municipality can then either shelve the proposed plan or submit it to the Ministry of the Environment for a final decision.

3.3.3 Russia: Legislative Amendments

In the Russian mining industry economic relations are regulated by a complex and developed system of interconnected legal acts (including the Federal Laws "On Subsoil", "On Production Sharing Agreements", "On the Continental Shelf of the Russian Federation", and further legislation passed by the federal regions). The Russian legislative framework for the extractive industries is composed of many legal acts that have not yet been integrated into a unified Code of Law, unlike many other countries that are rich in mineral resources and are actively using them (Vasilevskaya 2007).

The basic law in this field is the Federal Law "On Subsoil," which is one of the first laws of Russia's recent history. It was adopted in 1992, the year when the Russian Federation became an independent state, at the start of the transition from the Soviet centrally planned economy to a market-oriented economy. The President, the Government of the Russian Federation and the regional authorities are responsible for the management of mineral resources. The functions of executive management and regulation of mineral resource development are fulfilled by the Ministry of Natural Resources and the Environment and its specialized units, which perform supervisory and control functions.

Economic relations in mineral resource development are determined by the following institutions: (1) ownership of the subsoil, including minerals; (2) exploration and exploitation procedures; (3) safety of extractive industry operations; (4) protection of the subsoil; and (5) the system of royalties.

The Constitution of the Russian Federation, which was adopted in 1993, established the principle of private ownership, including private ownership of land (Art. 35, 36). However, Russia's subsurface mineral resources did not undergo a radical change in ownership relations. In accordance with the Constitution, which describes all natural resources as "the basis of life and activities of the peoples living in the area," the state ownership of subsurface mineral resources was retained.

In Russia's recent history the period from 1992 to 1993 was known as the "parade of sovereignties" when several autonomous regions, including some northern ones (the Republics of Karelia, Komi, and Sakha (Yakutia)) proclaimed their sovereignty and established ownership of the subsurface mineral resources within the boundaries of their territories. This move followed the signing of the Federal Agreement in March 1992, an order which aimed to update federal relations and to preserve the historically established state unity of peoples of Russia. The agreement provided a

foundation for the division of powers between the federal bodies of executive power and the authorities of the sovereign republics and regions, stating that the use and disposal of mineral resources was governed by both the Russian Federation and its regions.

Thus, the current Constitution of the Russian Federation recognizes two forms of state ownership of mineral resources: the federal center and the regions. Municipalities in Russia do not own any subsurface mineral resources. Powers of local district governments are limited to ensuring compliance with socio-economic and environmental laws and regulations and defending the interests of the local population. Local authorities control the use and protection of mining areas during mineral resource extraction and have the authority to suspend the work in the event of violations of the law.

The justification for Russian mineral resources remaining in federal ownership is that they provide the country with strategic and scarce mineral resources, the availability of which influences its national security. In this respect Russian legislation does not differ from that of other countries (Vasilevskaya 2007). There is an official list of strategic and scarce types of mineral resources, which can be amended by a decision of the federal authorities. For example, today scarce mineral resources in Russia include bauxites, manganese ores, uranium, fluorspar, chrome ores, titanium, and zirconium, and the country imports these minerals rather than exploiting their own resources. However, the regions now only have mineral rights to common minerals (such as sand, clay, gravel, gypsum, and dolomite). An exception is only made for diamonds: 100% of payments for use of diamond deposits go into regional budgets (the Republic of Sakha (Yakutia) and Arkhangelsk region).

The institution of "joint jurisdiction" of the mineral resources means that, regardless of the ownership, tax and non-tax payments for mineral development are distributed between the federal budget and the regional budget. For example, currently 60% of revenues from the mining tax in the region (except oil and gas) go to regional budgets and 40% go to the federal budget. For oil and gas 100% goes to the federal budget. The federal government has also established the exclusive right of federal ownership of minerals on the continental shelf, the exclusive economic zone and outside Russia on the territories under its jurisdiction. One hundred percent of the payments from the users of mineral resources found in these areas go to the federal budget. The predominance of the institution of state ownership of mineral resources has led to a high centralization of federal government power in mineral resource development, which is also applied to all its other institutions.

Currently in Russia there are two systems of access to mineral resources: permissive (licensing, auctions and tenders) and contractual (by concession or "Production Sharing Agreement").

The general trend in licensing and concessions is an increased focus on developing market relations. In general, at the moment, the procedure of accessing mineral resources is still over-centralized, i.e. all the powers are concentrated at the federal government level (Nikitina 2009). For example, a license for any use of mineral resources (except common minerals) can only be obtained from the Ministry of Natural Resources and the Environment; which usually takes from 2 to 3 years and

involves considerable transaction costs. Permission for concessions can be obtained only after approval by the Russian Parliament.

Increasing attention has been paid to sustainable resource use and conservation of mining areas due to the mining companies' negative and often irreversible impact on the environment and ecosystems. Consequently, the environmental legislation categorises all extractive industries as "environmentally dangerous industries" (Federal Law "On Environmental Protection" 2002).

The law "On Subsoil" basically describes the requirements for conservation of mineral resource extraction areas and sustainable management of natural resources, the observance of which is controlled and supervised by two federal executive bodies: The Federal Service for Environmental, Technological, and Nuclear Oversight (*Rostekhnadzor*) and the Federal Service for Oversight of Natural Resource Management (*Rosprirodnadzor*). There are regional divisions of these federal bodies in every region of the Federation. Sustainable natural resource management is regulated by both mineral legislation and environmental legislation. The Federal Law "On Environmental Protection" is the principal law relating to sustainable natural resource management. In addition, the legal norms on sustainable use of mineral resources are closely interlinked with other types of environmental legislation, especially land, forest and water legislation.

Environmental requirements in the mineral legislation have been continuously updated. For example, in 2014, it was prohibited by law to dispose of production and consumption wastes in the catchment areas of groundwater bodies and in areas where groundwater is used for drinking water.

One further peculiarity of mineral resource management in Russia should be noted. This is the combining of the environmental oversight and mineral resource development functions in a single executive body, the Ministry of Natural Resources and the Environment. One of its units, the Federal Agency for Mineral Resources (*Rosnedra*), issues mineral licenses and develops standards for mineral resource development. As noted above, the other unit, *Rosprirodnadzor*, carries out environmental oversight. This has led to frequent conflicts of interest between environmental safety and economic development. An example of this is the conflict between JSC "North-West Phosphorous Company" and the establishment of Khibiny national park described in Chap. 4.

3.4 Management in Action

3.4.1 Greenland: Changes in the Institutional Structure

The merging of Greenland's 18 municipalities into four in 2009 delegated more responsibility from the highly centralized Home Rule (later Self-Government) authorities to the local level. The administrative organization of spatial planning can be performed in a myriad of ways, and changes and adjustments may be necessary

from time to time. This has led to a renewed discussion about conflicts and common interests between the Parliament and the four large municipalities. This discussion has become a very important factor in current debates relating to the increased focus on mining.

In addition to the structural reform from 18 to 4 municipal entities, the reform also included a new division of responsibilities. The idea was that more responsibility needed to be shifted from the Parliament to the municipalities and the reasons for the large municipalities were that they should be of a size which makes the increased task burden possible, both in terms of resources and capacity. The rationale is primarily operational: the shift out to the municipal level means that, despite the new larger municipal units, administration has been moved closer to the people. Planning responsibilities, especially relating to land management, have been moved from the national to the municipal level. In particular, the intention is that binding planning details should be decided at the municipal level rather than at the national level.

The ties to Denmark are still more or less intact, as indicated in the report "To the benefit of Greenland" (The Committee for Greenlandic Mineral Resources to the Benefit of Society 2014). There is a need for Greenland to increase revenues in order to maintain and ensure the welfare of its population. But the report also shows that none of the outlined scenarios indicate immediate options for withdrawing from the Danish realm. The block grant from Denmark acts as a stabilizer for Greenland's economy, which would reduce overheating in times of large natural-resource revenue, but compensating for periods of decline in this type of revenue. This reduces the so-called "boom and bust" scenario experienced in other countries. This can also help stabilize society.

Through the connection with Denmark, Greenlanders also have free, unrestricted, and in some cases preferential access to education in all relevant subjects and at all levels (*ibid*). Greenland therefore has considerable opportunities for building the skills that are essential for creating lasting value for society through mineral resource development. According to the report, the block grant continues to be paid, while reforms have begun (*ibid*). In the most likely scenario, Greenland will need to retain almost the full block grant from Denmark, although slight reductions would result from the Self-Government Act's provisions for the distribution of revenues from the extraction of mineral resources. Additional revenue is also likely to be required to maintain the current public budget. With an economy based on natural resources, the block grant could function more and more as an economic stabilizer and less and less as a subsidy. The report concludes (ibid, p.26):

> Thus we see no great danger that Greenland will suffer from the resource curse as seen in a number of African countries and elsewhere. On the other hand, we also conclude that Greenland must initiate a political discussion about the type of society that it wants in general as quickly as possible, and that the natural resource wealth fund and comprehensive structural reforms should be established and safeguarded.[12]

[12] Transparency Greenland's 2012 'Integrity study on the public sector in Greenland' came to the same conclusion, but highlighted risks (e.g. nepotism) and the need for better public consultation (Nordic Consulting Group 2012).

3.4.2 Norway: Negotiating Complexity and Administrative Feebleness?

The extraction of mineral resources in Norway is to a large extent subject to market self-regulation, i.e. the commercial actors regulate themselves. The Norwegian authorities aid in the mapping of resources and by making the necessary planning clarifications, but do not seek an active part in connecting commercial interests to specific resource locations, deferring to market neutrality and fair competition between commercial interests. Mineral extraction activities are nevertheless required to be in accordance with public land use planning. Such planning occurs at the local municipal level as well as at the regional level.

Local municipalities are responsible for formulating municipal planning strategies in which important local development trends are assessed, and where the municipalities' planning needs (including inter-municipal planning and participation in regional planning processes) are mapped out. Mining can be an important issue for many municipalities; hence the need to address this in local planning. An issue for the local planning strategies, particularly in small municipalities with limited planning resources, would be to decide whether to allocate attention and resources to area planning or specific municipal plans related to mining. In general, mineral extraction would normally be included in an area plan rather than in specific plans relating to mining. As previously mentioned, local authorities can rarely assert direct control over the specific areas in which mineral extraction takes place. The mapping of resources and negotiation of access to mineral areas are generally arranged through dialogue between the land owners and commercial interests. Consequently, municipal planning relating to mining activities needs to be done in close collaboration with these actors. On the other hand, there are still potential legitimacy issues at stake – especially when the environmental effects of mining are considered. As the Norwegian cases in this volume illustrate, the potential for local conflict might not primarily be found between local authorities and industry actors, but rather between municipalities, land owners and industry interests on the one hand, and local inhabitants and/or organised environmental interests on the other.

If new or expanded areas for mining activities are proposed in the municipal area plan, this requires a separate impact assessment. As the local planning authority, the municipality is charged with the responsibility to formulate planning programs, coordinate planning proposals and initiate impact assessments. However, the municipality can require any stakeholders who submit proposals to the area plan to provide further information as the basis for an impact assessment. The area plan would normally also provide guidelines for the areas adjacent to the designated mineral extraction area regarding other forms of commercial activity or issues of safety and nature protection.

The local authorities' area planning is further specified and operationalized through *zoning plans* where the areas in question are mapped and a set of specified regulations applied to those areas. According to the Planning and Building Act, large building and construction sites are subject to specific zoning. This would

apply to most mineral extraction sites. However, if the overarching area plan is deemed to contain enough detail, operational issues may be addressed in the licence granted to the developer and/or in their plans of operation. In the case of zoning plans, limits to the extractive sites would be specified (in terms of the depth and width of mines), and regulations would be established for building construction, as well as road, safety and environmental standards.

Furthermore, *cooperative* plans might be necessary at the local level if mineral resources are found across several municipalities. Even if specific plans have to be approved in each municipality, a joint inter-municipal plan would be regarded as a way to secure an integrated approach to the exploitation of the mineral resource in question. For example, this might entail weighing up reasonable extraction volumes against the potential impact on the surroundings, and establishing similar regulations across municipalities in relation to matters such as operational hours and noise pollution.

So-called *regional planning strategies* were adopted as new planning instruments at the regional level in Norway in 2008, and are currently the only *mandatory* planning element at the regional level. The Norwegian counties constitute the regional planning authorities and as such are charged with the responsibility for leading the process of formulating such strategies. The regional planning strategy should account for important regional development trends and challenges, assess long term development possibilities, and prioritize among issues needing further planning efforts, e.g. by establishing an operational *regional plan*. In cases relating to particularly important or contested areas, the counties can make a formal *planning decision* (involving companies and the Directorate of Mining in the process), banning specified development efforts for a period of up to 10 years.

As mentioned above, the county of Finnmark represents a unique area due to Saami interests. Accordingly, the Saami Parliament has established guidelines for the consideration of Saami interests in the context of applications for changed land use pertaining to outfields in Finnmark. Applications can be denied if Saami interests are not considered, or the application can be granted on specific terms. In the application process, the Directorate of Mining gives the land owner (i.e. the Finnmark Estate), the Saami Parliament, the relevant municipality and the regional and local reindeer herding authorities' equal rights to be heard in the decision-making process. If the Saami Parliament or the land owner opposes the application, the decision is left to the Ministry. If the Ministry grants the application, any further complaints are finally decided upon by the Government in a Cabinet meeting. Additionally, the same regulations that otherwise apply to surveying and sampling state-owned minerals also apply to applications for exploitation rights and operational licenses for all proposals for extraction exceeding a total mass of 10,000 m^3.

Thus, environmental concerns need to be addressed in the system governing mining development in Norway via a complex mesh of public institutions. As shown, the Norwegian regime emphasises the empowerment of local municipalities and environmental authorities when it comes to decision-making power, procedural functions and securing the rights of participation in decision-making. However, a thorough exposition of the challenges and pitfalls of the Norwegian regime appears

to be lacking and requires further analysis. Fauchalds (2014) view is that there is limited possibility for the mining authorities to impose environmental requirements unless the developer needs an operating license or a plan of operations. If so, the mining authorities can enforce environmental regulations. However, there is no explicit *duty* for them to make use of this power.

While this claim seems less than well substantiated, Fauchald nevertheless concludes that the Norwegian regulatory and administrative regime established to address environmental concerns is not up to speed with the challenges posed by the revival of the mining sector. The main argument is that the reliance on local authorities is the Achilles heel for integrating environmental concerns. Small local administrations are, in Fauchalds view, ill-equipped to deal with the complexity of industrial development schemes in the mineral sector, especially in terms of taking into account all relevant interests. Added to this, what is seen as an '*unclear division of competence between local authorities, mining authorities and environmental authorities*' (*ibid*.) is likely to increase costs for mining companies and fragment the responsibility to ensure that environmental concerns are appropriately addressed. A third problem identified by Fauchald is the devolution of power to public authorities without clear duties to impose and enforce environmental requirements and conditions. '*This decreases predictability for all stakeholders, increases the possibility of bargaining, and may thus increase the possibility of lowering the costs of mining companies, potentially with environmentally harmful consequences*' (*ibid*.). The inbuilt flexibility of the Norwegian legislation and governance system may then be counter-effective when attempting to integrate environmental concerns. Others have also pointed out that underlying this, there is a general, and persisting, challenge of coordinating the Planning and Buildings Act – as the main legal instrument of local authorities – with the more sector-specific legislation (Hanssen et al. 2015).

One possible conclusion might be that the current regime promotes bargaining between public authorities and stakeholders, but fails to significantly strengthen the position of stakeholders with diffuse interests or weak bargaining power. However, as already mentioned, such a claim needs to be substantiated. In the following chapters, this proposition will be tested through empirical research, aiming precisely at understanding the way in which a multitude of actors and stakeholders are involved (or not) in the decision-making processes.

3.4.3 Russia: Degrees of Centralism

In Russia, the state policy strategy on mineral resource development is determined by the federal government. The current document determining the strategy in this area is the "Fundamentals of the state policy on mineral resources and subsoil use", approved by the Government of the Russian Federation in 2003 (Fundamentals 2003).

Strategic guidelines for federal policy development are provided by the "National Security Strategy of Russia to 2020", which is updated every 6 years. Strategic

goals of the state policy include sustainable use of mineral resources in the interests of national economic development. Federal target programs are essential tools for implementing the state policy on mineral resource development. First of all, these are the state programs (State Program "Reproduction" 2014, State Program "Protection" 2014). These programs are mainly funded by the federal budget and can be partially funded by the regional budgets and extra-budget funds. Such co-financing is provided for activities and investment projects that are implemented in the interests of the regions.

Regional authorities have the power to influence policy development and implementation only in respect of common minerals, and in this they follow the priorities and direction of the federal policy. Policies are implemented via regional programs for mineral resource development and environmental protection, which have been established in all northern regions of the federation. It is difficult for the regions to participate in similar federal programs as this requires co-financing, which is problematic due to the shortage of funds in regional budgets – a typical feature of the financial situation in Russia's regions.

Regional programs are also funded as a rule on the basis of co-financing from several sources, including regional and local budgets, and support from enterprises and organizations. These regional programs are characterised by low levels of funding, lack of monitoring of effectiveness, small numbers of investment projects, frequent postponement of activities and, in general, the failure of measures to resolve environmental problems in the region.

A significant deterioration of the economic situation in Russia in the second half of 2014 was related to the fall in world prices for mineral raw materials (especially oil and gas) as well as the geopolitical crisis which led to reduced budgets for all state programs. However, some major areas of mineral resource policy have not been affected, namely efforts to augment reserves and maintain levels of mining in developed regions; organization of geological exploration in new areas and the development of non-traditional and difficult-to-extract minerals. Activities in these areas are at the same time an integral part of the State Program of socio-economic development of the Russian Arctic, which was adopted in May 2014 (State Program "Arctic" 2014). This means that the mineral investment projects that are most important for national security in the Russian Arctic will continue.

In 2014, changes were made to the Federal Law "On Environmental Protection", providing for the introduction of a new system of environmental regulation and the requirement for industry to adopt "technical standards of the best available technologies" (Alieva 2014).

The transition to the new system of environmental regulation is directly related to mining companies, most of which are among the 80 companies in the country that have the greatest negative impact on the environment. The Federal authorities have identified 30 environmentally hazardous industrial enterprises, which will have to start implementing the best available technologies from 2017. Identifying the best available technologies, including international ones, began in 2014. However, the imposition of sanctions and, in particular, the refusal of some countries such as Canada to sell technologies, machinery, and equipment to the oil, gas and mining

industries in Russia, have hampered implementation of the transition plan. This has meant a greater focus on enhancing the development of Russian equipment and technologies for exploration and extraction of minerals.

The most important management tool in mineral resource development is the licensing system, i.e. the uniform procedure of granting licenses for mineral extraction, to ensure implementation of state mineral resource programs, ensure national security, and protect the economic and environmental interests of the population. A license can be issued as a result of a tender or auction (Regulations on the Procedure for Licensing 1992; the Federal Law "On Subsoil" 1992).

Rosnedra or its regional bodies submit proposals for tenders and auctions for use of subsoil plots of federal importance to the Government, make a list of subsoil plots offered for use, and agree on lists of subsoil plots of local importance. If a mining company makes use of research organizations in developing mining or processing technologies, these organizations also need a license for such activities, making it easier for an investor to buy the technology abroad. If a mineral license is transferred, it is subject to renewal. It is prohibited to transfer the right to use a subsoil plot of federal significance to a legal entity with foreign investors. Without a license, land owners and lease holders are permitted to mine common minerals not registered on the federal list, construct underground structures for their needs at a depth of up to 5 m without blasting operations, and produce and exploit household wells and boreholes.

The main criterion for granting rights to use subsoil plots, is the amount offered as payment for acquiring this right. While other criteria also apply (scientific and technical level of the program of resource development, the timing of its implementation, contribution to socio-economic development of the area, etc.), the deciding factor at auctions is the amount of money offered by a developer to develop the plot under auction. In practice, this gives the advantage to large mining companies and promotes monopolization of the market of mineral raw materials.

Only after receiving the mineral license and officially obtaining a geological or mining allocation can one get permission to lease the land owned by the state or the municipality. The lease agreement is concluded by the developer with the land owner, depending on the form of land ownership. If the land is federally owned, the owner is represented by the Ministry of Economic Development and its regional bodies. If the ownership is regional – the executive body of the region, and if the ownership is municipal – the local municipal authorities.

The managerial oversight function for mineral resource development consists of three interrelated parts: registration, control and oversight of the implementation of the law. Documents and legal acts (including those adopted in the regions), as well as the activities of mineral resource developers are subject to control and oversight.

The state environmental oversight includes activities aimed at prevention, detection and suppression of violations of the environmental legislation by all mineral resource developers through inspections and mitigation measures (Federal Law "On Protection" 2002). Oversight includes state oversight of geological exploration, sustainable use, and protection of the subsoil. The state environmental oversight func-

tion is divided into federal and regional functions. The list of entities subject to the federal environmental oversight is determined by the Government. The latest list of entities under the federal state environmental oversight was issued in 2009. It includes all the major mining companies, regardless of ownership. Federal supervision is usually carried out by regional bodies of the Federal Agency for Mineral Resources, which are established in all regions, and regional oversight is carried out by regional bodies of natural resource management.

3.5 Impact Assessments, Knowledge and Politics

3.5.1 Greenland: Strategic Impact Assessment

As of 2010, Greenland, as part of the Danish Realm, has agreed to comply with the EU protocol on Strategic Environmental Impact Assessments (SEA). Such assessments have been in the pipeline for the European Union since 1996 and the protocol was approved in 2001 by the EU Council with its Directive 2001/42EC. It became binding for EU member countries in 2004. The SEA is officially defined as a process aimed at assessing the possible effects of sector policy, policy planning, action programs and other strategic documents and regulations on the environment[13]. This process analyses direct or indirect environmental impacts and how they would affect the human environment, natural environment, biodiversity, climate, landscapes and material values. An SEA provides the opportunity, at an early stage of planning and elaboration of a strategic document, to examine the possible effects of implementation, and to select the best alternatives.

This integration of EU approaches has had several implications Relating to local community involvement and participation. The SEA requires the involvement and collaboration of the private sector, NGOs, citizens' groups and other non-institutional organizations or individuals interested in or affected by the management of the activity that is subject to an SEA. The structures to achieve participation in an SEA may – but do not always – include steering groups of key stakeholders, general forums that meet regularly, technical panels, newsletters and various topic or issue groups as required.

An EU Directive[14] sets the minimum requirements for carrying out strategic assessment of effects on the environment, as well as defining the necessary plans and programs. This does not affect Greenland as a member of the EU (Greenland followed Denmark into EU when Denmark became member in 1972, but left the EU in 1985), but through a *commitment* made by Greenland at the time that Denmark signed the protocol.

[13] SEA and Integration of the Environment into Strategic Decision-Making, Final Report, May 2001 http://ec.europa.eu/environment/eia/sea-support.htm

[14] EIA Directive 97/11/EC.

The interpretation of the protocol and how it affects the implementation of assessments are, like in the other EU member states, not just a matter of complying with the overall aims, but modifying the details according to national specifics. For instance, Greenland has developed specific guidelines on Social Impact Assessments (SIA) established in 2009. According to these guidelines, the SIA process for mineral projects in Greenland should fulfil several objectives. The process should engage all relevant stakeholders in consultation and public hearings and provide a detailed analysis of the social pre-project baseline situation as a basis for development planning, impact mitigation, and future monitoring. The project proponent needs to submit a description of the public participation carried out during the SIA process along with plans for public participation throughout the life of the project.

Furthermore, the SIA needs to provide an assessment based on the baseline data that have been gathered, in order to identify both positive and negative social impacts at both the local and national levels, and to optimize positive impacts and mitigate negative impacts from the mining activities throughout the life of the project.

A *Benefit and Impact Plan* should be developed with proposals of programs and how these will be implemented in order to maximize development opportunities and mitigate negative impacts. A *Monitoring Plan* should propose approaches on how to monitor the effects of the Benefit and Impact Plan regarding parameters, time frame etc., and suggest priorities for the various monitoring approaches. An *Evaluation Plan* shall propose how to evaluate the monitoring results and whether major adjustments to the Benefit and Impact Plan need to be made.

The final SIA report should include a description of the social baseline conditions, including conditions in local communities and in Greenland more widely, including any changes anticipated before the project commences. Quantitative parameters should be used where possible. The report presents and analyses alternatives or comparisons of feasible alternatives to the proposed project design, including how the community and Greenland would possibly develop if the project is not realized. The potential positive and negative social impacts should be outlined, in quantitative parameters where possible, including development opportunities and mitigation of negative impacts. Relevant local, regional or national development plans should be taken into consideration.

A detailed check list for the preparation of an SIA depends to some extend on the project (e.g. type, size), environment (e.g. coastal, pristine, rich in wildlife) and proximity to settlements (e.g. isolated from settlements, within commuter distance of settlements, next to settlements). How this is implemented in “real world terms” is discussed further in the Greenland Case Study (Chap. 5).

3.5.2 The Vague Quality Requirements of Norwegian EIAs

The Norwegian Biodiversity Act[15] came into effect in 2009 and contains regulations pertaining to protected areas and the sustainable use of nature. Decisions regarding mining activities that may have a negative impact on nature should be knowledge based, and the regulations on sustainable use should form the basis for any decisions. Decisions concerning the extraction of mineral resources will inevitably have an impact on nature; indeed, the resource itself *is* nature. Consequently, the Biodiversity Act will be applicable, and establishes certain environmental-legal principles that should be adhered to:

The principle of *knowledge based decisions* is specified in terms of the content and scope of knowledge that is required to make informed decisions. The requirement for knowledge – particularly the procurement of *new* knowledge – obviously increases in cases where the impacts on the natural surroundings are expected to be severe. This knowledge should form a part of the decision-making process from the outset, and up to the final decision being made in a particular case.

In the event that the knowledge base is insufficient for assessing the possible impacts on biodiversity, the *precautionary principle* should be brought to bear. This implies that avoiding damage to nature should take precedence in cases of uncertainty, or if the mining activity in question is associated with considerable potential risks. As a consequence, licences would not be granted or would be granted on specific terms. Furthermore, the knowledge on which decisions are based should be incorporated via an *encompassing and integrative approach* to assessing the impact of the mining activity. This means that the activity must be viewed in the context of other current and planned activities in the area. If the mining activity is likely to have a negative impact on an *ecosystem*, the impact on the entire ecosystem should be assessed, not just the specific mining area in question.

In practical terms, the knowledge required for decision-making would in most cases stem from the environmental impact assessments (EIAs) carried out prior to the start of mining activities. The mining developers are themselves responsible for commissioning and financing EIAs. The EIAs should provide a broad assessment of the aggregated effects on society and the environment, and the specific provisions are laid out in the *Regulation on Environmental Impact Assessment for plans pursuant to the Norwegian Planning and Building Act*.[16] The criteria for what constitutes a 'good' or passable level of knowledge in the EIAs, however, remain vague. Neither are there clearly defined requirements as to the competencies of those who are carrying out the assessments. However, the municipal zoning plans can also specify requirements to the EIA. Consequently, the local council has the opportunity to define the content of the assessments that are to be carried out.

[15] Act of 19. June 2009. No. 100.

[16] EIAs are required when the extraction exceeds more than 2 million tons of material, or if it affects an area larger than 0.2 km^2.

Possibly due to the vagueness of the quality requirements for EIAs, there has been a considerable amount of controversy around the quality of information that is provided in EIAs. This is partly blamed on a lack of relevant competence on the part of local authorities – or indeed their possible reluctance to validate the knowledge produced by the mining companies and/or their consultants. This suggests that the principles of knowledge-based and precautionary decision-making might fail to stand up against the realities of local democracy. A further questionable light is cast on these principles, when one considers that the municipal decision to approve a mining company's proposal to open up a mining site within a new zoning plan takes place *before* any (formal, scientific) knowledge production is initiated.

3.5.3 Russia: Towards New Concepts and Stakeholder Involvement

In Russia, EIAs are regulated by the "Regulations on assessment of the impact of planned economic and other activities on the environment in Russia". The EIA procedure includes several stages. The "early stage" includes public hearings on investor intentions and the results of preliminary environmental assessments. At such public hearings, the public is acquainted with the scientific organization which will carry out the full scale EIA financed by the investor.

Up until recently EIAs in Russia have been based on a procedure developed under the Soviets in the 1980s, stemming from a theory of ecological modernization dominated by the so-called "economic scenario." According to this, ecological modernization is a direct consequence of the engineering and technology development that takes place under the influence of economic factors. Therefore, the methodology applied in EIAs is dominated by an assessment of *economic damage* caused by the environmental impacts of an investment project.

Currently other scenarios of ecological modernization are being developed, which reflect increased environmental concerns. Primarily, they take into account the increased role of local municipalities and NGOs in local community life, and the environmental responsibilities of mining companies. In this regard, the previously applied methodology of EIAs is out of step with the increased focus on environmental issues in modern Russian society.

There are examples of less than satisfactory outcomes of EIA processes. Mining companies strive to save money on the EIA procedure and to reduce the costs of mitigating negative impacts on the environment. There are many cases of poor implementation of the preliminary assessment, or the EIA as a whole, while public opinion of the project is not always taken into account.

To overcome the disadvantages, new draft Regulations on EIAs were developed in 2014, including a section on responsibility for improper implementation of the procedure. In addition, in order to meet the requirements of the Espoo Convention

(ratified by Russia), a section was added on "Features of environmental impact assessment in a transboundary context" (Draft Resolution 2014a, b).

The investment projects of environmentally hazardous companies are obliged to undergo a federal-level EER process. Regional authorities are excluded from participation in the federal process – their representatives may only attend meetings of the expert committees without voting rights.

The final version of EIA materials is submitted for public consultation, including public hearings, according to the Federal Law "On Environmental Expert Review". The EIA must pass through an Environmental Expert Review (EER) process at the federal or regional level. The EER panel takes into account the results of public consultation when they are analysing the project documentation. If the EER panel approves the EIA, then they issue a final decision, which establishes the environmental protection measures required during project implementation. An independent public expert review can be carried out in parallel by NGOs (or independent researchers), on the initiative of citizens and NGOs, as well as on the initiative of local authorities.

The activities of mining companies are subject to three types of monitoring: state, public, and scientific. State monitoring in the northern regions is provided by the regional department of the Federal Service for Hydrometeorology and Environmental Monitoring (*Rosgidromet*); NGOs carry out public monitoring; and scientific monitoring is done by regional and federal scientific organizations. NGOs should carry out monitoring at their own expense, which often makes such monitoring difficult to organize. The previously common source of financial support to environmental NGOs – foreign grants – became much more difficult to use following the special requirement of 2012 that NGOs using foreign funds be classified as "foreign agents."

However, environmental organizations are trying actively to influence state environmental policies. At the regional level, the contribution of environmental organizations to addressing social and environmental issues is even more important, especially in regions with an unfavorable ecological situation. For example, in the Murmansk region, the main focus of NGOs' work is the protection of the environmental rights of the local population in cases where mining and other companies violate environmental regulations.

At present the state acts as the leading player in reducing the negative impact of mining companies on the environment and in the introduction of scientific EIA methods. A significant role is also played by companies that have voluntarily implemented the ISO 14001 environmental management system, as well as NGOs who engage in public monitoring.

3.6 A Baseline for a Comparative Perspective

The following chapters present case studies framed in different national contexts. As this chapter shows, these national contexts share some features but also diverge considerably in some respects. One could argue that the common denominator for Greenland, Norway, and Russia is that mineral resource activities have developed within constantly evolving national structures; both within formal legislation and governance institutions – as well as having to adapt to the impact of new societal discourses on mining. The way in which these transformations have played out does however differ. The degree of societal change, and the way that policies connect with the mining industry in light of these transformations are also unique to the three national contexts.

The transformation of the Greenlandic context must primarily be understood in light of the changes made to the structure of governance institutions; at the heart of this is the incremental – and still ongoing – transfer of power and responsibilities from Danish rule to native Greenlandic rule. The process of establishing a form of Greenlandic independence is crucial to understanding the role played by the mining industry in Greenland, both in terms of their contribution to the Greenlandic GDP and ultimately as part of a fundamental driver for national independence. At the same time, however, Greenland is, by way of Denmark, closely integrated into a European framework unlike Norway, and, particularly, Russia. This is perhaps most clearly evident in the approach to environmental assessments.

Mining in the Norwegian context has in recent years been characterized by a renewed interest, perhaps even more so when taking into account the emergence of the post- petroleum era. As such, mining represents part of an alternative future in terms of national financial revenues. Nevertheless, the discourse framing the mineral industry has changed considerably compared to previous decades. The environmental discourse affects the mining industry in a way previously unheard of. Mining might be an economic strategy for the post-petroleum society, but it is not devoid of environmental concerns, albeit not on the same global scale as the current oil- and gas industry (although mining can trigger more controversies and social issues at a local scale because of its relation to land use). The question remains whether the environmentally integrative approach to legislation, and an emphasis on decentralized and local decision-making, is up to the task of securing environmentally sustainable mining and, hence, a legitimate mining industry. Critical voices are certainly making themselves heard.

The transformative societal processes in Russia over the last few decades are certainly profound – considering the transition from a centrally-planned system to a market economy, the efforts to consolidate governance institutions at home and the redefinition of Russia as a player on the global stage. The way in which these transformations influence the Russian approach to mining is, perhaps consequently, not easily defined. On the one hand, mineral legislation is incorporating more environmental protection elements. Likewise, an increased focus on stakeholder involvement in development processes is being adopted. Nevertheless, elements of

continuity and path-dependency certainly exist. The new environmental approach is in its infancy, and in terms of governance and the adherent decision-making structures, the centralist governance tradition is certainly recognizable when compared to the Greenlandic and Norwegian contexts.

The following case studies in this book will shed light on just how these different national contexts frame and influence mining development, decision-making and the way that issues of environmental sustainability are addressed.

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Chapter 4
Legitimizing Business?: Environmental Awareness in the Norwegian Mining Industry

Sander Goes and Berit Skorstad

Abstract This chapter discusses proactive environmental management practices in the mining industry in Norway. Compared to its neighboring countries, Norway's mining industry is relatively underdeveloped and faces increasing societal demands for social responsibility and sustainability. Environmental management systems and voluntary environmental reporting are common ways for the industry to meet these demands and to increase its legitimacy. Society's demands are assumed to be related to processes of environmental reform as outlined by the Theory of Ecological Modernization, but we also present theories criticizing this perspective. Some argue, for instance, that a focus on environmental reform draws attention away from the 'sacrifice zones' that are created in areas of heightened environmental pollution. We examine the efforts of mineral producers in Norway to realize the industry's ambitions in "sustainable mining" and "green mining" and conclude that despite individual attempts to make the industry more sustainable, this is far from being achieved. Environmental management practices appear to be more reactive than proactive and hence have not yet been able to meet society's demands.

Keywords Voluntary environmental reporting • Legitimacy • Proactive management • Environmental management standards • Ecological modernization • Sacrifice zones

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4.1 Introduction

Like most companies operating in environmentally sensitive industries, mining companies are facing increasing demands to demonstrate greater social and environmental responsibility. Society no longer regards mining companies as "responsible" simply by paying their taxes and complying with the law. Nowadays, society demands compliance with norms that go beyond legal obligations, for instance, by disclosing environmental performance data or by establishing an environmental management system based on internationally established standards and assured by an independent third party. Studies suggest that extractive industries, especially those operating in sensitive ecosystems, face the strongest pressure from society to reduce the environmental impact of their activities (Gray et al. 2001; Vormedal and Ruud 2009: 209). Proactive environmental management thus becomes not only an instrument to achieve ambitious environmental targets, but also an opportunity for "legitimizing" business, as producers seek a social license to operate. A mining project with a social license has obtained "...the broad, ongoing approval and acceptance of society to conduct its activities" (Prno and Slocombe 2012: 346).

Contemporary society demands much greater accountability and a higher degree of transparency with regard to the ecological and social footprint of a company's operations. In an attempt to overcome skeptical stakeholders such as environmentally sensitive consumers, local communities and investors interested in the firm's risk profile, companies disclose environmental information[1], previously regarded as sensitive, and seek to comply with standards for environmental management systems such as ISO 14001 and EMAS.[2] Environmental reporting and environmental management systems are tools to link environmental challenges with business practices and the company's strategy and policy. The motivations for environmental reporting and the implementation of environmental management standards are widely discussed in the academic literature (Vormedal and Ruud 2009; Milne and Gray 2013; Lodhia and Hess 2014; Vries et al. 2015). These motivations vary from a genuine interest in the environment to the notion that "it pays to be green" (Weber 2007: 200). This chapter addresses the question of whether the mining industry in Norway is genuinely concerned about its environmental reputation and therefore in some cases goes beyond what it is legally obliged to do. This perspective differs from the classic "command-and-control" approach, whereby the industry simply follows the rules enacted by the legislator.

[1] Environmental disclosure is by Berthelot et al. (2003: 1) defined as "the set of information items that relate to a firm's past, current and future environmental management activities and performance... and the past, current and future financial implications resulting from a firm's environmental management decisions or action."

[2] EMAS stands for Environmental Management and Audit Scheme and like the International Organization for Standardization (ISO)'s 14001-series, is an internationally recognized standard for environmental management.

A growing global concern for the impact of our lifestyle on our environment has resulted in several waves of environmentalism (Mol 2001: 48–55; Carter 2001: 132–133). Analysis of this phenomenon stands in contrast to the extensive literature emphasizing the lack of environmental consideration among managers, investors and authorities, resulting in environmental degradation and pollution of ecosystems (Schnaiberg and Gould 1994; Whitmore 2006; Lerner 2010). Steve Lerner's (2010) study of "sacrifice zones," discussed later in this chapter, is a good example of such a perspective. Within this and other similar analyses, environmental concern or ecological awareness on the part of companies are often perceived as "window-dressing" or "greenwashing", in other words a way to gain public legitimacy for their business activities. For instance, Cho and Patten (2007) argue that rather than being a meaningful attempt at social accountability, disclosure of environmental information becomes an instrument to create an image of social responsiveness that may not correspond to actual performance. Thus, in the context of our study of the mining industry in Norway, can we observe a proactive attitude among mining companies with a systematic focus on preventing pollution rather than cleaning it up (the 'end-of-the-pipe solution' mentality)? Or do we instead observe a more traditional 'hands-off' attitude, whereby compliance with formal regulations is regarded as sufficient and environmental concern is not an integral part of the production process beyond what is required by the law?

These questions should also been seen in light of the debate over whether the term "sustainable development" is considered a disguise or not. Once defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987: 43), more recently the term seems to be used rather to legitimize operations which otherwise would be regarded as unacceptable by the public. As such sustainable development could be used to frame an activity that may start (or proceed) as long as it has no impact on the environment beyond what the ecosystem itself is capable of dealing with. As there is a lack of consensus over the interpretation of the term "sustainability", there is a fear that "sustainability" has become a catchword, in the same way that "globalization" and "capitalism" did according to environmental sociologist Arthur Mol (2001: 25).

Transparency and reducing the ecological footprint of mining operations are of major importance for the Norwegian mining industry. Publicly sharing environmental information in a systematic, open and transparent manner is an important part of what Mol (2009: 223) calls the institutionalization of environmental considerations and interests in the political, economic and socio-cultural spheres. The opposite – environmental deinstitutionalization – takes place when the institutions responsible for environmental reform such as laws, governmental agencies or civil society are weakened, downsized or simply disappear, as it has been argued, was the case in Russia between 1991 and 2005 (Mol 2009: 225; Hønneland 2010: 43 – see chapter three for a more detailed overview of transformative societal processes in the mining industry in Russia). According to the official strategy for the Norwegian mineral industry, the mining sector should be "proactive" and realize the objective of being "among the world's most environmentally friendly" (Norwegian Ministry of Trade and Industry 2013: 50–56). Operations, therefore, must be carried out in an

"environmentally responsible and sustainable manner" (Norwegian Ministry of Trade and Industry 2013: 56). To achieve this, "green" or "sustainable" mining – here to be understood as a process going beyond practices of "window dressing" – is identified by the industry itself as one of its main challenges for the future.[3]

Hence, the objective of this chapter is to discuss environmental management. As such, we leave aside other issues of corporate responsibility, such as employee health and working conditions and safety or the "red environment" (in other words the H and S in EHS-management).[4] Similarly, this chapter does not address land use conflicts between corporations and indigenous populations (but see Chap. 9).

The data discussed in this chapter are based on an analysis of official documents – mainly governmental strategies and online environmental/sustainability reports. In addition, four semi-structured interviews were held: two interviews with representatives of mining companies; one with a representative of a consultancy agency and one with two representatives of the Norwegian industry association Norsk Bergindustri. The interviews and document analysis are, however, supplementary to the primary analysis based on desk-reviews and observations made as a participant in several network meetings and conferences where themes considered relevant for the development of the mining industry in (Northern) Norway were discussed. Norsk Bergindustri is the industry association of the mining industry in Norway whilst the Mining and Mineral Cluster is a forum where actors involved in the – mainly Northern Norwegian – mining industry meet on a regular basis. The focus of this chapter is the proactive environmental management of existing operations in Norway – and Northern Norway in particular – rather than the potential environmental impact of future operations.

This chapter starts with an overview of the theoretical framework of Ecological Modernization followed by a brief outline of the work of scholars who criticize this approach. The second part of our study discusses two examples of proactive environmental management: voluntary environmental reporting and the establishment of environmental management systems.[5] Neither of these is currently required according to Norwegian legislation and hence, they are examples of an attitude that goes beyond what the law requires. The chapter finishes with a discussion of environmental awareness in relation to the mining industry in Norway and addresses some of the future challenges that the industry will need to deal with in order to (further) institutionalize environmental management practices.

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[3] As emphasized for instance during the GeoNor-conference in Mo i Rana, Norway in March 2015.

[4] EHS is an abbreviation for Environment, Health and Safety and is widely understood as a management practice for dealing with environmental protection, occupational health and safety in relation to working conditions.

[5] By "reporting" we mean the release of environmental information and performance data that identifies the company in question such as tonnes of emissions, water consumptions per unit of product, financial contributions, accidents, fines etc. Voluntary reporting according to for instance the latest Global Reporting Initiative (GRI) G4 guidelines, should not be confused with the obligation to report on "environmental information concerning undertakings (operating conditions etc.)" according to Chap. 4 of the Norwegian Environmental Information Act which, according to § 1, is an attempt to make environmental information publicly accessible.

4.2 Sustainable Development or Sacrifice Zones?

Before discussing whether we can observe a proactive attitude among the Norwegian mineral producers that goes beyond what is required by law, we start with a brief outline of the debate that has influenced environmental sociology for more than two decades. As outlined earlier, a proclaimed increase in environmental awareness – including a more proactive attitude rather than focusing solely on complying with existing legislations – is strongly related to theories emphasizing the environmental reform of our society such as the Theory of Ecological Modernization. This theory acknowledges how processes of globalization can result in environmental degradation – such as "a race to the bottom" where multinational companies are searching for host-states with the lowest environmental requirements. Also and perhaps more importantly, the theory considers how mechanisms for environmental reform are triggered through the same processes (Jänicke and Weidner 1997; Spaargaren et al. 2000; Mol 2001). Scholars of Ecological Modernization argue that the latter has been understated in most contributions to environmental sociology. Instead, they claim, neo-Marxists, environmental justice movements and the treadmill of production-scholars have overemphasized the "devastation of our ecosystem" and the inability of our society to prevent this (Schnaiberg and Gould 1994; Christoff 1996; Pepper 1998; Lerner 2010).

The main objective of the Ecological Modernization School, according to Mol (2009: 224), is to understand and explain forms and outlooks of successful environmental governance and management. Ecological Modernization Theory suggests a process of re-embedding the ecological dimensions of economic practices within the institutions of modernity. This process is supposed to redirect economic practices to become more ecologically sound (Berger et al. 2001: 58). The environmental reform proclaimed by scholars of Ecological Modernization has been discussed (and heavily criticized as we will discuss later in this chapter) since American Sociologist Fred Buttel (1992) outlined some of its first principles in the early 1990s. According to Mol (2001: 22), however, it was Anthony Giddens (1990: 64) who first linked globalization with environmental issues:

> Ecological problems highlight the new and accelerating interdependence of global systems and bring home to everyone the depth of the connection between personal activity and planetary problems. (Giddens 1990: 64; cited in Mol 2001: 22)

Giddens' perspective is based on the fact that environmental pollution is not limited to state-borders. Rather, our ecosystem is frequently affected by pollutants far from their source of origin. Internationally recognized standards for environmental management as well as the global reach of the operations of environmental NGOs – exemplified by Young Friends of the Earth Norway's protest against Nordic Mining's planned disposal of tailings in the sea – are examples of the globalization of environmental issues. Scholars of Ecological Modernization also address the need to understand the success of environmental protection and reform by arguing that an institutionalization of environmental interests, ideas and considerations has been ongoing since the 1990s. This development cannot be explained, they argue,

simply by establishing and enforcing environmental regulations, creating governmental departments that deal with environmental issues or signing international environmental agreements on which many national regulations are based. Ecological Modernization can be observed only after a structural transformation of environmental interests throughout all levels of modern society: from consumers to producers and from politicians and the authorities to the watchdogs of society such as green NGOs.

Hence, environmental awareness would be integrated into society's production processes and in some cases even regarded as an asset or opportunity to meet the rising demands of consumers and business rather than a troublesome additional cost. Mol (2001: 101) calls this "the internal logic of environmental policy": the fusion of economic institutions with environmental performance. Goldenman (1999) and Bridge (2004: 223) emphasize the environmental guidelines and conditions imposed by EU directives and international financial institutions such as International Finance Cooperation (IFC), the European Bank for Reconstructing and Development (EBRD) and the Equator Principles Financial Institutions and discuss how these institutions influence the decision-making processes of multinationals.[6] Thus, Ecological Modernization is understood as a process that goes beyond the establishment of environmental regulations, impact assessments or laws, and instead observes a proactive attitude among producers where being green is the norm rather than the exception.

As such, scholars of Ecological Modernization argue that the institutional transformations observed in the last decade of the twentieth century can "no longer be interpreted as mere window dressing, or viewed in exclusively apocalyptic terms" (Mol 2001: 53). On the contrary, environmental awareness has moved beyond practices of window dressing and marginal corrective measures as (ibid: 95). Mol argues that image-building should correspond to actual environmental improvement, as the ecological footprint of production activities is reduced in order to avoid reputational damage.

Thus, rather than appealing to strong governmental institutions that translate environmental policy into strict regulations that need to be enforced accordingly – as observed in more classic "command-and-control perspectives" (see for instance Tittle 1980), scholars of Ecological Modernization argue that the key to environmental reform is no longer exclusively in the hands of nation-states. Instead, supranational treaties, business networks and producer-consumer relations facilitate the increasing role of non-state actors.

Generally, Ecological Modernization has been heavily criticized by environmental sociologists for its "too optimistic" and "capitalistic" world-view and that because the idea is based on the implicit assumption that market actors are environmentally conscious and will prefer "green" producers (Christoff 1996). As to environmental reports or management standards, it has frequently been argued by stakeholders that these are one-sided documents written with the objective of

[6] The Equator Principles, established in 2003 by a group of commercial banks, outline a set of commitments and procedures for assessing the social and environmental risks of a particular project.

providing the company or industry with a green label for being "environmentally responsible" without effectively dealing with the core of the environmental problem, i.e. what is known as the practice of "window-dressing". Second, Ecological Modernization tends to focus the discussion on the impact of existing production processes rather than dealing with our lifestyle, as argued by Schnaiberg and Gould (1994), or addressing the question of whether to allow particular activities at particular sites at all (Lerner 2010). As such, the discussion bypasses the opportunity to reject certain activities regardless of their proclaimed "sustainability". Moreover, Lerner (2010), Fox (1999), and Whitmore (2006) among others illustrate the lack of a proper dialogue between producers and communities and observe that the "end-of-pipe" school of thought is prevailing among producers instead of the proclaimed ecological *modernization* of society. Ecological Modernization, moreover, has been criticized for its narrow focus on a small group of states located in Western Europe whereas proclaimed processes of environmental reform have gone considerably slower – or even completely failed – in most other parts of our world (Christoff 1996; Pepper 1998; Mol 2009). The failure to observe processes of environmental reform outside Western Europe is to a certain degree acknowledged by scholars of Ecological Modernization themselves (Mol 2009). The latter study concludes for instance that the institutionalization of environmental reform is lagging behind in Russian society – in spite of an increased engagement with sustainability matters as shown in Chaps. 3 and 6 of this book.

To offer a contrast to the optimistic market outlook of Ecological Modernization, we find it necessary to discuss in more detail alternative perspectives emphasizing the victims of industrialization. Below we briefly introduce the "environmental justice movement" (Sandweiss 1998; Bullard 2005) and "sacrifice zones" (Lerner 2010; Scott 2010) as examples of perspectives claiming that the ecological impact of production activities is unequally distributed across race and economic class. These authors argue that the wealthier segments of society have the financial muscle to protect themselves against the impact of production processes and that an alleged "environmental reform" – whether we speak of pollution laws, governmental policies, voluntary environmental reporting or management standards – fail to protect the well-being of communities living close to production sites.

Mining activities might have a physical impact not only on the landscape but also on nearby environments – depending on the kind of materials produced, disposal techniques and background values (Bridge 2004: 211). Insufficient concern for the consequences of waste disposal, contamination of surface water, dust and noise disturbance has resulted in human and natural tragedies, especially for those living close to mines (Lerner 2010; Scott 2010; White 2013; Bland 2014). These communities are portrayed by Lerner (2010) and Hedges and Sacco (2012) as "sacrifice zones". The term "sacrifice zones" is used to describe particular areas inhabited by "fenceline communities" (Lerner 2010: 3), i.e. the low-income and minority populations who are exposed to disproportionately elevated levels of hazardous chemicals as a result of mining or other industrial activities (Lerner 2010; Scott 2010). The term "sacrifice zones" seems to refer to the land use decisions made by (local) politicians and public managers to allow particular industries into particular areas of

a city, county or state, accepting the ecological impact of these activities at the same time as the tax revenues and job opportunities these activities may offer.

The studies above question the environmental reform of society by illustrating a lack of environmental concern from among others mineral producers for local communities and the limited opportunities for those living in sacrifice zones to get access to environmental data from mining companies. Sharing environmental information with local communities through private initiatives such as voluntary environmental reporting or through certified environmental management systems, as discussed later in this chapter, could build trust and stimulate interaction between producers and fenceline communities. Whilst voluntary environmental reporting is understood as the disclosure of environmental data, environmental management systems are a way for companies to integrate their environmental targets into the company strategy in a way that is at least semi-transparent, through standards that are recognized by third parties. Publishing or disclosing environmental data in itself, however, is not sufficient. If the disclosed information lacks credibility in the eyes of the reader, the attempt to disclose it will be regarded as nothing more than "window-dressing" – as explained above – and hence another example of the failure of environmental reform as statements about the company's concern for the environment are not followed up by commitment.

Regardless of how they are perceived by the public, proactive initiatives such as environmental reporting and management standards could be good examples of environmental reform (e.g. by increasing transparency), or bad examples because they fail to address the question of whether or not to allow polluting activities in sensitive areas as the fact of the activity itself taking place has already been accepted. A proper application of the precautionary principle – which is celebrated as one of the major achievements of international environmental policy by scholars of Ecological Modernization – should not allow activities such as the handling of large volumes of hazardous material near residential areas. Instead, "the health of the people who reside near these unofficial dumping grounds is often sacrificed" (Lerner 2010: 176). So, instead of dealing with the roots of our environmental problems (i.e. overconsumption, excessive use of natural resources), we continue our lifestyle and clean our conscience by making sure that the activity is "green" (through reporting and by applying management systems). Whether this is true remains to be seen but we argue nonetheless that it is important to acknowledge the limitations of corporate initiatives – especially for those living in fenceline communities – when we analyze such initiatives in more detail below.

In the next two sections, we aim to illustrate the differences between Ecological Modernization and those more skeptical of environmental reform – as outlined above – by applying these lenses to voluntary reporting of environmental data and integrated management systems. We then discuss whether these practices represent true ecological concern and environmental reform (in line with the thought expressed by scholars of Ecological Modernization) or whether such developments are considered window-dressing or greenwashing. In other words, we consider whether there is a failure to integrate production activities with environmental awareness,

and therefore in our view the voluntary initiatives are primarily used to legitimize production activities. In the concluding section, we relate both examples to the Norwegian mining industry and consider whether mineral producers in Norway demonstrate a proactive attitude by going beyond what they are legally obliged to do, by publishing environmental reports or implementing a certified, externally assured environmental management system.

4.3 Environmental Reporting

Determining whether society considers environmental reporting a transparent way of disclosing environmental information with regard to production processes or whether the information provided is perceived as biased, misleading or distorted, is challenging. The criticism from organizations and/or stakeholders is often normative and depends on the objective of the individual or organization in question. The views of environmental NGOs about environmental reports published by mining companies are assumed to be different from those of the industry itself.

The disclosure of environmental data is in many cases not required by law and hence voluntary. Whether the information is in the form of sustainability reports or environmental reports covering a particular year of production, the popularity of disclosing environmental information is increasing (KPMG 2008). Marshall and Brown (2003: 87) argue that the question is no longer *whether* companies report environmental information but *how*. This fact is mirrored in the mining sector where according to KPMG 40 out of 44 of the world's major mining companies report environmental data (Fonseca 2010: 358). More recently, however, the emphasis seems to be on integrating sustainability into business rather than increasing the number of published environmental reports (SustainAbility 2015).

Generally, environmental reports are regarded as a valuable tool for communication in a globalized world where corporate-stakeholder relations are characterized by power imbalances and mistrust (Poncelet 2001). Isenmann and Bey (2007: 123–124) – following the perspective of scholars of Ecological Modernization – argue that the distribution of "green glossy brochures" is no longer sufficient as more substantive high quality information is required to meet the increasing demands for credibility and reliability. Nowadays, few companies receive credit from the wider public purely for reporting environmental information. According to this perspective, a process of dialogue between the firm and environmental NGO's has in many cases replaced the one-sided reporting of the early days. The motivations for voluntary reporting are, as discussed earlier, self-interest, legitimacy and pressure from mining associations (Berthelot et al. 2003; Marshall et al. 2007: 46; Fonseca 2010: 358).[7]

[7] Mining associations in Canada and Australia in addition to the International Council on Mining and Metals aim to promote environmental reporting among its member organizations.

Those more critical towards the notion of environmental reform observed by scholars of Ecological Modernization such as Pepper (1998) and Whitmore (2006), would argue that environmental or sustainability reporting is a matter of window-dressing because it is based on a framework that fails to take into account the mine-affected communities and is predetermined by the industry itself. It remains to be seen whether voluntary reporting is successful at building legitimacy in the eyes of the public. However, critical voices would see this as a way to gain support for future expansion of their activities, without necessarily integrating environmental management into the production process. The content and clarity of these reports – in terms of the production process, whether subsidiaries are included and the data excluded from these reports – are frequently debated between those arguing for the credibility of environmental reporting (Isenmann and Bey 2007: 123; Marshall et al. 2007: 43–47) and those more skeptical of sustainability reporting (Whitmore 2006; Owen 2007). The same skepticism is addressed towards the external assurance provided by "independent" actors such as KPMG or Ernst and Young, and guidelines and standards for environmental reporting.[8] A transparent dialogue in the environmental report itself, for instance between NGOs, local communities and representatives of the mining company could alternatively increase the credibility of environmental reporting.

4.4 Environmental Management Systems

The ISO 14001-series and the Eco-Management and Audit Scheme (EMAS) guidelines are the most well known and widely implemented standards for environmental management systems. Environmental management systems provide insight into the environmental impact of the production process such as natural resources consumption, use of hazardous material, emissions, discharges and waste generation, and often include environmental targets for continuous efficiency improvement, including internal procedures to monitor deviation from these targets. The system monitors the company's environmental performance over time and can be communicated to different stakeholders. When companies comply with the guidelines relating to a particular standard – often confirmed by an external audit – the company in question receives a certificate (for instance, ISO-14001:2004).

Compliance with these standards is voluntary and many of the guidelines go beyond what is written down in the formal regulations at national level. Certification is not necessarily the main objective since many standards are implemented for the benefits they can provide to the organization itself (King Jr. in Sroufe and Sarkis 2007: 10). A number of studies (Weber 2007; ISO 2015) suggest that besides internal benefit and benchmarking, firms pursue certification by ISO 14001 or similar standards because of customer expectations, positive publicity, reduced insurance

[8] An example are the GRI sustainability reporting standards established by Global Reporting Initiative.

premiums and a sense of responsibility towards their stakeholders. By contrast, Bennett and James (1998) and Fonseca (2010: 359) illustrate the weaknesses of environmental management systems (or standards) in terms of uncertainty of comparability of information indicators and the credibility of external assurance. It is therefore important to emphasize that production processes are not necessarily "sustainable" even if they are certified by ISO 14001.

As with environmental reporting, environmental management systems are frequently discussed among academics and practitioners, often with regard to the quality of performance indicators, audits and verifications, environmental targets and the measurability of these targets. Scholars of the Theory of Ecological Modernization would argue that these management standards enable a certain degree of integration of environmental awareness with production processes. Those arguing that environmental reform is a myth would instead claim that the standards on which these systems are based are "too voluntary" and will therefore not be unable to bridge the gap between reality and what stakeholders expect. The following section will discuss the application of these theoretical considerations in the context of the mining industry in Northern Norway.

4.5 Environmental Awareness in the Northern Norwegian Mining Sector

The objective of the second half of this chapter is to discuss the strengths, weaknesses and challenges in voluntary environmental reporting and environmental management systems in the mining sector in Norway – and Northern Norway in particular. Both practices go beyond what firms are legally obliged to do and are therefore considered to be indicators of Norwegian mining companies' proactive attitude to environmental awareness. Despite the country's considerable mineral potential, the mining sector in Norway, and Northern Norway in particular, is relatively underdeveloped compared to its neighboring countries Finland and Sweden (Bodø Science Park 2012: 12). Furthermore, the environmental policies of internationally operating and stock-listed mining companies is assumed to differ from those of smaller local companies (such as many of those operating in Northern Norway) as the former are more exposed to scrutiny from NGOs and international financial institutions. Finally, the impact of mining activities on the environment depends on the type of minerals that are produced (industrial metals, dimension stone, building materials, crude iron or energy minerals) and obviously the processing and disposal methods used.[9]

The Norwegian industry association Norsk Bergindustri was founded in 2008 and represents approximately 80% of the total annual production of stone and gravel and nearly all Norway's producers of dimension stone (such as Larkivite and iron

[9] After the bankruptcy of Sydvaranger Gruve in 2015, Northern Norway is known mainly for the production of industrial minerals and crude iron.

ore) and industrial minerals. An analysis of their website shows that as of January 2016, only 4 out of 32 members located in Northern Norway disclose environmental data.[10] These four companies published publicly accessible online environmental (or sustainability) reports in 2014: Elkem (without assurance), Franzefoss Minerals AS (without assurance), Store Norske Spitsbergen Kullkompani AS (without assurance), and Veidekke ASA (no assurance but based on the GRI reporting framework.[11] In 2015, only 5 companies out of the 214 members of Norsk Bergindustri based throughout Norway published an environmental or sustainability report on their website.[12] An examination of the objectivity or representativeness of the indicators of these few published reports is beyond the scope of this analysis. The low number of reports suggests, nonetheless, that reporting of environmental information is currently a relatively rare phenomenon for most actors in the Norwegian mining industry. A survey sent to all members of Norsk Bergindustri at an earlier stage in 2010 shows that only 6 out of 114 members located throughout Norway stated that they published environmental information (Norsk Bergindustri 2011: 70). Note that we distinguish online statements of commitment from environmental reports which we regard as a more detailed analysis of the production process and the impact of this process on the environment.

The same can be concluded with regard to certified environmental management systems. Few mining companies in Norway that are member of Norsk Bergindustri have an externally assured environmental management system. Parts of the production process of NorFraKalk AS, Miljøkalk AS and Verdalskalk AS (owned or partly owned by Franzefoss Minerals AS), and Franzefoss Pukk AS, however, are assured according to the ISO 14001:2004-standard. Part of NorStone AS's production activities in Sandnes in the southwestern part of Norway were in compliance with the same standard until 2015. Our point is not to criticize the mining companies for a lack of proactive environmental management or environmental concern but rather to observe that the number of integrated management systems and the availability of voluntary environmental reports to a certain extent reflect the "sustainability" or "green" ambitions of the mining industry in Norway. Their attitude seems to be characterized more by a "command-and-control" approach – where the main focus is on complying with existing legislations imposed on them by the law in order to avoid sanctions from authorities – instead of a proactive attitude.

[10] Northern Norway includes the three most Northern counties in Norway (Nordland, Troms and Finnmark). We searched and mapped environmental and/or sustainability reports with regard to the production year of 2014. Note that the industry association's members not only include producers of minerals but also service companies and consultancy agents. Veidekke Industri AS is the owner of Finnmark Sand AS and Helgeland Pukkverk whereas Elkem is reported to be the owner of Salten Verk.

[11] G3.1 guidelines, level C.

[12] In total 214 organizations were registered as a member of the industry association Norsk Bergindustri in 2015. We searched and/or mapped environmental/sustainability reports with regard to the production year of 2014.

4.6 Transparency?

> Transparency, honesty and accessibility are extremely important and valuable. Communication of environmental and safety-related information to stakeholders is a core-task and good relationship with the local community, exemplified by warnings prior to particular activities, press releases and information meetings around the facility is essential in order to build trust[13]

In the mining sector, not unlike other sectors, a few companies are ahead of the others in terms of a proactive approach towards environmental management practices and contemporary ecological challenges, such as tailings disposal, the production of less waste rock and dust, and the way that these are communicated to the outside world. Unfortunately, the environmental reports published by Franzefoss Minerals, Elkem and Veidekke ASA show limited signs of a dialogue between environmental NGOs, local communities and mining companies – a phenomenon that recently became more popular in similar reports of the oil and gas sector operating in Norway.[14] However, there is more transparency in relation to these challenges today than there was 10–15 years ago. LKAB's formalized dialogue with environmental NGO Bellona, presented and discussed during a meeting of the Mining and Mineral Cluster Norway in Trondheim in June 2015, is a good example of this development.

The Mining and Mineral Cluster Norway and Norsk Bergindustri play an important role in the process of increasing transparency. Such umbrella organizations have the potential to play a more active role in the future, for instance with respect to communicating environmental data such discharge of tailings at sea, which is considered controversial by outsiders, or the development of national guidelines for environmental reporting. As noted earlier, however, there is a gap, even within these associations, between companies publicly disclosing information on the status of compliance with environmental regulations (such as Franzefoss Minerals in their 2014-sustainability report) and the more closed milieus where individual companies are reluctant to publish any environmental data whatsoever. The approach among the latter could be seen as a more traditional one where "sensitive" environmental information is hardly shared with the outside world because of the fear of a negative response. The disclosure of environmental information – not to mention an integrated environmental management system – is instead seen as an additional troublesome cost rather than an opportunity for benchmarking or the foundation for a dialogue with society. But more importantly, it is up to individual companies to deal with issues (or opportunities) with regard to transparency in the absence of pressure from industry associations or authorities.

[13] Representative of a major Norwegian mining company, Mining conference March 2015.

[14] See, for instance, the latest sustainability reports of Royal Dutch Shell and BP.

4.7 Sustainable Mining?

A number of studies (Whitmore 2006; Fonseca 2010; and to a certain extent Lerner 2010) have questioned the term 'sustainable mining', for instance, by emphasizing the paradox of considering an activity such as mining for non-renewable resources as being in any way "sustainable" (Bridge 2004: 233). The term sustainability, however, is interpreted differently among different stakeholders in the Norwegian mining industry. The Norwegian authorities state that mining needs to be "sustainable" with a focus primarily on the extraction activities (Norwegian Ministry of Trade and Industry 2013: 56). By contrast, Norsk Bergindustri argues that the term "sustainability" needs to be seen in a broader perspective, taking into account the full industry lifecycle from producer to consumer, while also considering the environmental practices of foreign regimes. The Mining and Mineral Cluster Norway has as one of its main goals to work together with its partners to strengthen the development of a future-oriented industry, based on sustainability and social responsibility. In order to achieve this, the group prioritises, "the development of a sustainable and green industry by promoting environmentally friendly, safe methods in all parts of the mining process."[15] It is beyond the scope of this study to explore these interpretations in more detail but so far we conclude that, despite increased transparency, there is no coherent understanding of the term "sustainable mining" or "green mining" (Bodø Science Park 2012: 37) nor is there a coherent strategy or target for the mining industry to achieve this. As discussed above, it is rather up to individual companies to develop their own "sustainability" policy. One of our interviewees emphasized that as of 2015 there is no structural environmental (management) strategy for the Norwegian mining sector. Our research data suggests that there is a driver for improving the environmental performance of the mining industry, but for several reasons from the current stage of sector development to a lack of pressure from the authorities, business partners and consumers – a proactive attitude to addressing ecological challenges seems to be the exception rather than the rule. An initiative by the Norwegian Ministry of Trade and Industry (2013: 56) to establish a "check-list" of "best practices" regarding search operations, exploration and production of minerals and disposal and use of chemicals has so far not resulted in concrete guidelines. Best practice, moreover, does not necessarily imply that the activity in question has no impact on the environment and is "sustainable". On the contrary, "Best practice" or "Best Environmental Practice" – not to be confused with the term "best available technology" – are rather vague terms that could be understood as recommended procedures or methods that should minimize the environmental impact, for instance by significantly reducing the discharge of copper in surface water systems, while simultaneously taking into consideration the financial costs.

[15] Retrieved from Mining and Mineral Cluster Norway's web page http://www.mineralklyngenorge.no/home (accessed January 2016).

A proactive approach, for instance involving the establishment of indicators and guidelines for environmental reporting, could be a first step to mapping the environmental performance of companies in the mining industry while simultaneously increasing the transparency of the production process. The Mining Association of Canada (MAC), for instance, has a coherent and structured approach to achieving "sustainable" mining, with its initiative Towards Sustainable Mining (TSM). In an attempt to imbue the term sustainable mining with more substance, this initiative has been established as a mandatory set of tools, indicators and targets for MAC members. Progress on meeting these targets needs to be published annually with the overall objective of improving the environmental and social performance of the industry. The results of this program are externally verified every 3 years.

4.8 Beyond Law and Regulations?

Our research suggests that in Norway, instead of a proactive attitude that prioritises practices that go beyond the requirements of the law, complying with the current pollution regulations seems to be the primary focus. Pollution of the environment in Norway is regulated by the Pollution Control Act (1981). The pollution control authority may issue a permit for activities that pollute the environment (Pollution Control Act, 1981, Cpt. 3 § 11). Certain mining activities cause pollution and therefore need a permit which may include standards for the type and quantity of material that may be emitted into the environment, statutory notices and particular activities that are required such as samples that have to be taken. The permission to pollute is specified in the "regulations relating to pollution control (Pollution Regulations); part 8: Permission to pollute"[16]. The Norwegian Environment Agency is responsible for enforcing the requirements contained in the permit.

Times are changing and so are environmental regulations. Whereas environmental regulations can never be too strict for some, others would argue that contemporary industry is conducting its activities in a much more environmentally sound manner as ecologically friendly methods or substances replaced the dirty practices used 20 years ago.[17] However, as management systems or environmental reports are no guarantee for a sustainable production process or a continual improvement of environmental performance, the same could be argued with respect to laws and regulations even when they are followed to the letter.

[16] http://lovdata.no/dokument/SF/forskrift/2004-06-01-93/KAPITTEL_10#KAPITTEL_10 (Accessed December 8. 2015).

[17] More energy-efficient flash smelting technologies or biohydrometallurgy, reducing SO_2 emissions significantly, are examples of technological innovation for pollution prevention in the mining industry.

4.9 Conclusion

This chapter has considered whether we can observe a proactive attitude among Norwegian mineral producers that goes beyond what is required by the law. The chapter could also be seen as a discussion on whether environmental management practices in the mining industry can be understood according to the perspectives offered by the Theory of Ecological Modernization or whether terms such as sustainable mining are used to legitimize mining in the eyes of the wider public rather than reducing the environmental impact of mining activities.

In the eyes of scholars of the Ecological Modernization Theory, Norway would be a nation-state where environmental reform can be observed both with the adoption of eco-labelling and the rise in eco-management practices, and as one of the first countries in the world to establish its own environmental ministry in 1972. Others, such as Lerner (2010) and Whitmore (2006), however, would argue that this proclaimed "reform" is merely an attempt to consider the environmental challenges posed by business, without successfully integrating environmental management with actual business practices, in other words "greenwashing" or "window-dressing." The theory of Ecological Modernization has also been criticized for its structural inequality in terms of access to natural resources (i.e., clean water, air and soil). Lerner's (2010) tragic stories of "sacrifice zones", as outlined above, are a valuable counterweight to such "optimistic" theories, especially in terms of how industries can have an impact on nearby environments and the well-being of local people.

On the one hand, the mining industry creates economic benefits (although even these are sometimes disputed) Despite of economic benefits, although disputed (see or Kremers 1986; Whitmore 2006: 310–311). On the other hand, large-scale mining activity causes a number of adverse impacts on local communities and ecosystems. Compared to its neighboring countries, the mining sector in Norway – and Northern Norway in particular – is relatively underdeveloped, since most of the opportunities for mineral production are (as yet) under-utilized. Moreover, the formal procedure to obtain a license necessary to start extraction of mineral resources is time-consuming and complicated (Bodø Science Park 2012: 8).[18] It is reasonable to assume that these factors influence the environmental management practices of mineral producers. So far, instead of a more systematic approach, the industry seems to be making a rather unsuccessful effort to transcend its "bad image" in public debates, particularly in relation to the opening up of new areas for exploration.

A systematic approach is yet to be developed as it is up to individual companies to give substance to their own environmental policy. As a result few companies publish environmental data or have an integrated and externally assured

[18] The final permission is given by the Norwegian Directorate of Mining with the Commissioner of Mines at Svalbard, while the formal procedure – from the permission to search in a particular area until the license to operate – may take up to several years and includes approval from several authorities.

environmental management system. We may conclude that there is more transparency about the environmental impact of mining operations today compared to 10–15 years ago. However, in order to improve the environmental performance of the industry a more systematic and proactive attitude towards environmental management is needed, rather than the current traditional approach where the main focus seems to be on compliance with the written laws. Such a more proactive attitude gives stakeholders access to environmental data, enabling them to compare this with data from other producers and to put pressure on the company in question if environmental targets are not met, hereby contributing to a continuous improvement of the environmental performance of the mining industry. Mining companies need to look beyond that the law dictates, in attempts to (further) reduce the impact of their operations on ecological systems. Despite brave efforts of individual companies such as Franzefoss Minerals, Elkem and Veidekke ASA, few companies in the mining industry in Northern Norway include this perspective in their current strategies and focus instead on the requirements imposed on them by the authorities.

Our analysis suggests that it is the responsibility of the authorities to design an effective normative framework in which the rules of the game are established. So far, unfortunately, the integration of environmental management systems and the publication of voluntary environmental information seem to demand resources that the mining industry in Norway does not have. However, the long road from the mines to the consumers of minerals and the lack of direct pressure from activists as a result, may be a reason why companies in the mining sector have not been very proactive so far.

A more proactive approach should not be limited to pollution standards or enforcement strategies. Society needs to avoid taking compliance with "tough environmental standards" for granted once a decision has been made to allow mining activity in a particular area, or in Lerner's terms to assign a "sacrifice zone." Moreover, the public should not assume that these standards would ensure a sustainable or green production process overall.[19] A more proactive approach, therefore, would be a valuable step towards integrating environmental awareness with production processes and give substance to terms such as "sustainable mining" or "green mining."

[19] As frequently claimed by politicians, lobbyists and representatives of the mining industry. For instance in relation to the 'tough' environmental requirements which Nussir ASA needs to comply with after gaining permission to start operations in Kvalsund in the Northern part of Norway ("*Tillater gruvevirksomhet i Kvalsund*" http://www.miljodirektoratet.no/no/Nyheter/Nyheter/2015/Desember-2015/Tillater-gruvevirksomhet-i-Kvalsund/, accessed December 8th 2015, and "*Får dumpe gruveavfall i Repparfjorden*" http://www.nrk.no/finnmark/nussir-far-dumpe-gruveavfall-i-fjorden-1.12692957, accessed December 8th 2015).

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Chapter 5
Metagoverning the Interdependence of Municipalities and Mining Companies in the Scandinavian Arctic

Frode Bjørgo

Abstract The aim of this chapter is to investigate how three Arctic municipalities affected by mining projects use metagovernance tools to explore, construct and manage interdependent relations with mining companies. The existence of interdependency is a basic premise of governance networks. However, the current debates about governance networks have paid scant attention to how such interdependency actually comes into existence and how network participants can maintain interdependent relations over time. The chapter highlights the differences between the strategies employed by the three municipalities. While two of them resort to highly interventionist methods and participate actively in the dominant governance networks, the third municipality mainly applies hands-off strategies focused on facilitation. The findings show that interdependency is a multifaceted and changeable phenomenon, which different parties can construct and manipulate. In order to do so, institutional designs that facilitate negotiated interaction between the parties are important. The parties must meet in order to explore win-win opportunities. These insights contribute to a better understanding of how municipal actors can contribute to more sustainable development in local communities hosting mining projects.

Keywords Interdependency • Collaborative governance • Governance networks • Mining • Metagovernance

5.1 Introduction

Community development is a key objective of local governance, and economic growth and population growth usually have a privileged position on the political agenda (Jones and Bachelor 1993; Kantor and Turok 2012). Big mining projects offer a rare opportunity to pursue such governance objectives in remote Arctic

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communities, and Arctic municipalities therefore seize these opportunities almost without exception (but see Chap. 6). However, when a multinational mining company enters an Arctic municipality, we can expect not only a profound change in the local economy, but also a change in the composition of governance processes, as the mining company will have a strong influence on the governance objectives pursued.

In recent decades, we have witnessed a proliferation of collaborative governance arrangements at the local level (see, for instance, Ansell and Gash 2008; Pierre 2011; Torfing et al. 2012). This is also true in the far north (see, for instance, Stetson and Mumme 2016). New modes of local governance have a different configuration of actors than previously, as a plethora of organized interests is involved, often crossing the public/private divide. However, business is quite often thin on the ground in the Arctic region and even though not-for-profit-organizations can contribute substantially to modern governance, local governments often have a rather limited choice of collaborative partners (Pierre 2015, p. 33). Local authorities must therefore regulate and direct possible governance networks that include or in other ways involve an interested mining company.

According to governance theory, interdependency is a basic requirement in order for governance networks to function. However, one cannot take such interdependency for granted. Instead, one must sometimes 'clarify, emphasize, and even construct relations of interdependency between the interacting actors' (Torfing et al. 2012, p. 128). Economic growth is an undisputed policy goal for many communities. A mining company may spur such growth, provide employment and generate tax revenue, making the local government dependent on the private business activity. The local government also has a range of resources of interest to the mining company. Indeed, some of the powers entrusted to local authorities clearly make the mining company dependent on the will of the local government, with the approval of zoning plans being the most obvious example. However, there are many more potential interdependencies between a mining company and its host community than the few examples mentioned above, at least theoretically. Put differently, local governments need to explore, construct, and maintain potential interdependencies between the relevant actors in order to secure well-functioning governance networks that safeguard public interests. Such a strategy constitutes the core role of local governments in local governance.

The aim of this chapter is to investigate the concept of interdependency between a municipality hosting a mining project and the mining company. With a starting point in network governance theory, I compare different metagovernance strategies used to explore, construct and manage municipality/company interdependency in local governance networks. The purpose of the chapter is to direct attention to challenges that municipalities face when cooperating with mining firms in governance networks and to answer the following question: how can local government use metagovernance strategies to explore, construct and maintain interdependency?

Empirically, the chapter investigates three Arctic municipalities that have chosen different strategies for engaging a mining company in their attempts to increase influence and boost local benefits. While two of them resort to highly interventionist

methods and participate actively in the predominant governance networks, the third municipality employs a more cautious approach by mainly applying hands-off strategies focused on policy and resource framing. However, although the municipalities make efforts to invest in infrastructure, reduce long distance commuting and secure the future of the local community, in two of the cases these efforts prove to be no match for international market fluctuations.

The first section of this chapter examines dependency and interdependency in a Scandinavian Arctic context. It then goes on to describe interdependency in governance networks, before presenting the concept of metagovernance. The fourth section presents the method, followed by an analysis of the three Scandinavian municipalities and a summarizing conclusion.

5.2 Dependency and Interdependency in Scandinavian Arctic Mining Communities

Peripheral areas are characterised by relationships of dependency (Eskelinen and Snickars 1995; Rokkan and Urwin 1983). The problem of dependency is also well known from the literature on extractive industries. For instance, mono-industrial resource towns have been characterized as '*addicted*', '*cursed*' or '*trapped*' (Hayter 2000, p. 302). As they are dependent on a single commodity for employment and wealth-creation, price slumps in the world market can have dramatic consequences. Wilson (2004) has likened the boom and bust resource cycles to a roller-coaster ride, going up and down in line with mineral prices – and, we might add, remote communities risk the bumpiest ride.

However, in contrast to remote communities in Greenland and the less developed regions of Siberia, mining projects in many parts of Norway and Sweden may fit into an already established wider local economy. In the more mature mining regions of Scandinavia, the mining industry has become an integral part of a wider economy that has secured long-term economic spin-off effects locally and regionally, and made infrastructure improvements possible (Haley et al. 2011, p. 38). Through decades of mining, the local residents developed strong loyalties to the mining company, which in many cases was state-owned. For its part, the company provided physical and social infrastructure and built hospitals, schools and sports facilities. The result was a company/community relationship characterized by a strong sense of common destiny and interdependence deeply embedded in the community (Dale 2002). At the same time, state ownership led to extensive hierarchical structures where the central government made the decisions about local development to an extreme degree (Nyseth and Waldenström 2007, p. 133).

However, mineral extraction has changed since the heyday of state-owned mineral companies in the post-war period. Increased mechanization and improved methods of extraction and transportation have progressively led to more expeditious strategies for natural resource extraction (Carrington and Pereira 2011). Striking a

balance between the company's need for economies of scale and the host community's interest in a longer and steady operation period is often difficult and can lead to tensions. Potential conflict between the host community and the extractive enterprise is further fuelled by the use of non-resident workers, with the production cycle often partially based on a commuting workforce. Such commuting arrangements can lead to 'fly-over' effects where jobs, tax revenue and economic development end up in cities far away from the host community (Cheshire 2010; Storey 2001). While the state once dominated the scene as coordinator and in many instances also owner, a plethora of corporate players, ranging from junior exploration companies to big multinational companies now operate in a competitive international market. Transnational companies react quickly to fluctuations in mineral prices by opening or closing mines, making operations less predictable (Dale 2002, p. 10).

At the same time, the municipalities hosting mining activities have come to play a more prominent role in the governance of mineral resource extraction projects (Kemp 2010; Prno and Slocombe 2012). In part, this is because the national government has opted for a less direct role in the development of rural communities (Tennberg et al. 2014; Aarsæther 2010; Aarsæther and Bærenholdt 2001). While the dominant governance regime in post-war Scandinavia was characterised by trust in the state's capacity to solve whatever problems there were, the present state is much more reluctant to intervene and redistribute resources to enhance local development. Instead, local governments are expected to compete for resources, investments and residents in order to pursue their own development projects (Lidström 2011, p. 274; Pierre 2011). The increased significance of the role of local municipalities in mining activities can also be partially explained as a subset of new corporate commitments to stakeholder engagement, corporate social responsibility and sustainable development (Heikkinen et al. 2016; Kemp and Owen 2013; Koivurova et al. 2015; Suopajärvi et al. 2016). Reduced assistance from the central authorities and greater company focus on stakeholder relations have coincided with a broader governance shift in Western society, paving the way for new, locally based collaborative forms of governance in mining communities.

In the Scandinavian system of government, municipalities have wide-ranging responsibilities and an institutional structure that make them key players in their local communities. Although the responsibilities of each tier of government vary slightly between Norway and Sweden (see Baldersheim and Rose 2011, p. 288; Lidström 2011, p. 267), local government plays four key roles (Bukve 2012): first, the democratic role as a decision-making body is fundamental to local government. Second, as providers of most public services, Scandinavian municipalities control vast financial resources. Third, municipalities have a key role in societal development, pursuing different development agendas. Finally, municipalities are part of the public administration. In combination, this means that the support of the local government is indispensable for mining projects. Not only do municipalities have the power to decide whether or not to allow mining projects in their area, due their authority over the zoning issues that are critical for new mining projects (Nygaard 2015, see also Chap. 8), but their responsibility for service provision and their ability to influence higher levels of government mean that Scandinavian municipalities

are more powerful than municipalities tend to be elsewhere. However, even though Scandinavian municipalities have a strong position, they do not have absolute power. Different societal processes, such as the increasing complexity of policy problems and a more fragmented public sector, have led to a growing consensus that no single institutional actor can govern alone. Hosting a big mining project will undoubtedly challenge the institutional capacity of the municipality. Thus, to increase their steering capacity, local governments must often pursue collaborative strategies in concert with non-governmental actors. This is also highly relevant for municipalities affected by mineral extraction projects. As Aarsæther (2010, p. 109) states: 'The issue of handling natural resources in negotiations with outside actors is crucial to local level development.'

To summarise, mining is not new to Scandinavian municipalities, but the contextual complexity has increased due to the globalisation of the mining industry and the evolution of the role of local municipalities. Even though Scandinavian local governments enjoy a privileged position in terms of financial resources and highly developed institutions, hosting mining projects represents a challenging endeavour that often calls for collaborative governance arrangements. However, at least theoretically, such collaborative forms of governance rest on an assumption of interdependence. Consequently, the question of whether local governments can explore, construct and maintain interdependent relations with a mining company is highly relevant.

5.3 The Concept of Interdependency in Governance Networks

The concept of interdependent institutional actors is found in various academic fields, including foreign policy (Keohane and Nye 1977), organizational studies (Casciaro and Piskorski 2005; Pfeffer and Salancik 1978), exchange theory (Coleman 1990) and game theory (Fudenberg 1991). Interdependence is also a defining aspect of governance networks.

Torfing and Sørensen (2007, p. 9) define a governance network as:

> …a relatively stable horizontal articulation of interdependent, but operationally autonomous actors who interact through negotiations which take place within a regulative, normative, cognitive and imaginary framework that is self-regulating within limits set by external agencies and contribute to the production of public purpose.

Although interdependence is thought to be a key prerequisite of governance networks, the concept is often used in a shallow way, as a standard element of a standard definition of networks. Moreover, even though scholars mention imbalanced and asymmetric interdependency relations, interdependency is generally perceived to be something to strive for. Few attempts have been made to explain how a state of interdependence can come into existence. An exception is found in Hertting's (2007) analysis of network formation. Hertting makes an analytical distinction

between resource dependencies and dependency relations that produce strategic externalities. What do these concepts mean?

According to Hertting (2007, p. 48), resource dependence is a common but also crucial concept. Every organization is dependent on some critical resources, and these resources are often controlled by other actors. A mining company controls capital that can be invested in a municipality in decline and spur economic growth. This municipality will thus be dependent on the mining company. On the other hand, Scandinavian municipalities make the final decision on zoning plans and can therefore decide against allowing industrial developments such as mining projects (Fauchald 2014; Nygaard 2015). The mining company is thus dependent on the municipality.

One may argue that institutional actors would prefer a situation where the other institutional actor is dependent on them without themselves being dependent on the other. In line with this, a unilateral dependence on the other actor constitutes a worst-case scenario. In this ranked order of outcomes, an interdependent relationship stands out as a compromise and, for most municipalities hosting a big corporate player, also the most realistic one. As interdependent actors, the management of the resource exchanges will be of utmost importance for both the municipality and the mining company. Thus, while one-way dependency relations tend to lead to hierarchical modes of governance, interdependency is more likely to stimulate the formation of stable network relations.

Dependency relations that produce strategic externalities are not based on resource exchanges, but are generated because the outcome of actor A's actions is dependent on what other actors do. Actor A controls the resources necessary to bring about their own preferred actions, but the outcome of these actions is influenced by the actions of other actors. When the capacity of different actors to implement their preferred actions is dependent on strategic choices made by other actors, it becomes necessary to ensure coordination and to control exchanges. For instance, a mining company can control the means necessary to extract and export iron ore, but at the same time be dependent on reputation and some form of local legitimacy, which to a certain degree can be granted by local elected representatives (Suopajärvi et al. 2016).

For interdependent but operationally autonomous actors, governance networks are preferred because of the possibility of withdrawing. Participation being voluntary, each actor is free to leave the network if they do not find the cooperation to be advantageous. However, the threat of leaving is only credible when an actor has at least some chance of effecting a preferred action on their own. Hertting (2007) notes that the formation of governance networks therefore is more likely between actors who are not completely interdependent.

The capacity to act alone can be present without the actor being aware of it, as can interdependency. Parties are often unable to recognize mutual dependence because of assumptions made about the other actor. In times of conflict, stereotypes and false premises may be substantial barriers to a more collaborative approach. Drawing attention to the ways in which two or more institutional actors are mutually dependent is thus sometimes necessary. Emphasizing and even constructing relations of interdependency can therefore be a meaningful way to metagovern governance networks. This is thus a pivotal task for local leaders (Ansell and Gash 2008, pp. 554–555).

5.4 Exploring, Constructing and Maintaining Interdependency Through Metagovernance

Governance networks are self-regulating entities that cannot be steered by traditional hierarchical and bureaucratic means. However, some form of steering or regulation is necessary if the networks are to function as producers of effective and legitimate ideas and solutions (Torfing et al. 2012, p. 122). Stimulated by debates that question both the democratic implications of governance networks and the effectiveness of such governance arrangements, interest in how governance networks can be regulated has been growing. Although scholars disagree on whether the capacities required for regulating governance networks are distinct from the tools of government applied in hierarchical organizations (Agranoff and McGuire 2001; Vabo and Røiseland 2012), the concept of *metagovernance* has gained prominence in the literature, both theoretically (Kickert et al. 1997; Kooiman 2003) and empirically (Bell and Park 2006; Haveri et al. 2009; Hovik and Vabo 2005).

Generally, metagovernance is understood as a specific form of 'governance of self-governance' that involves deliberate attempts to facilitate, manage and direct governance networks in a non-imperative way (Sorensen and Torfing 2009; Sørensen 2007a; Torfing et al. 2012, p. 122). As this calls for a central position vis-à-vis the policy problem in question, public authorities are considered particularly suited to engage in metagovernance, backed up by their resources, democratic legitimacy and formal authority (Klijn and Koppenjan 2000).

Various forms of metagovernance are available to actors seeking to steer self-regulating networks. Here we may distinguish between hands-off and hands-on approaches. While the former locate the metagovernor outside the network, the latter refer to a form of metagovernance in which the metagovernor is in close interaction with the network. A further distinction focuses on whether the metagovernor intervenes to change the content of the self-regulation or concentrates on facilitating how the network functions. Utilizing these two dimensions, (i.e. 'hands-on or hands off' and 'degrees of intervention') Sørensen (2007b) extracts four different forms of metagovernance: policy and resource framing, institutional design, network facilitation and network participation.

Policy and resource framing is a hands-off form of metagovernance with a low level of intervention. Through this framing, the metagovernor defines the scope and bounds of the autonomy granted to the network. While policy framing is done by formulating certain political objectives for the network, resource framing relies on the metagovernor's ability to define the financial latitude available to the network. If a network realizes the goals set by the metagovernor, keeping within its budget, the network proves itself worthy of the metagovernor's trust. However, framing is a wider concept that involves more than mere management through objective-setting and fixed-sum budgeting. A metagovernor can also use it to remind network actors that they are working in a hierarchy or to stress the extensive mandate given to the network.

Institutional design is another hands-off metagovernance approach. The strategic design of institutional structures is a more interventionist form of metagovernance that seeks to promote certain outcomes of the self-regulation. Depending on how they analyse institutions, scholars have emphasized different aspects of institutional design. From a rational choice perspective on institutional design, the metagovernor should focus on creating incentive structures that encourage the network actors to cooperate. Strong incentives can promote mutual dependencies among network participants, for instance if solutions must be endorsed by all actors in order to be valid. Metagovernance based on sociological institutionalism will place greater emphasis on 'storytelling' and the need to establish shared norms and identities. A shared worldview among network participants can help to identify possible threats to the network and unite the actors in a discursively defined interdependency.

Network facilitation is a hands-on metagovernance approach promoted by theorists who perceive conflicts and internal distrust between network participants as major threats. The metagovernor will need to devote considerable time to facilitating constructive interaction and to preventing friction from developing into harmful conflict. This is a non-interventionist way of metagoverning, as the actual content of the network governance is beyond the metagovernor's mandate. The purpose is achieved as long as the network functions well and contributes to the fulfilment of public goals.

Network participation is a hands-on metagovernance approach that involves high levels of intervention. The metagovernor may choose to join the network and take part in the negotiated interaction to secure continuous and close interaction with other network members. This will also generate insights into how the other forms of metagovernance strategies in use are working, enabling the metagovernor to replace or adjust the tools as necessary.

The different metagovernance tools can thus be utilized to influence interactive forms of governance, for example networks comprising a municipality and a mining company. Furthermore, different tools can be used in different phases of metagovernance. First, the parties need an exploration phase in order to determine whether they possess resources of fundamental interest to the other actors. In order to explore possible interdependencies, the parties must meet and exchange visions and objectives as well as any needs they might have. Such an exploration phase forms the basis for attempts to construct interdependencies. Knowing what another actor needs or wants can make it possible for actors to position themselves as the solution to the problems of other actors. Constructing interdependencies does not only mean a focus on the perhaps complex ways in which two or more actors are interdependent, but also on how to create ties that bind. Finally, in order to maintain interdependent relations, other metagovernance tools might be needed.

Theoretical explanations about why governance networks need metagovernance and descriptions of how to achieve it may differ quite substantially from the exercise of metagovernance on the ground. Whether or not municipalities can use such networks as tools to explore, construct and maintain interdependency is also an open question. After a short description of the methodology of the study, I continue with an analysis which aims to illustrate how the conceptualization of metagovernance can help us to identify and explain how municipalities manage multilateral policymaking when hosting mining megaprojects.

5.5 Method

The empirical data in this article were collected as part of a research project investigating the role of municipalities in large-scale industrial projects in the High North. The research project focuses on the challenges that arise from a fundamental shift in the local economy and the consequences for local democracy, service provision and community development.

The sample is limited to municipalities in the Scandinavian High North, as the Scandinavian system of government and the Scandinavian welfare model is a basic premise in the research project. The mining projects in the sample were to be in the late planning phase or recently started. This yielded a sample of three case municipalities: the North Norwegian municipalities of Sør-Varanger and Kvalsund, and the North Swedish municipality of Pajala.

Data were collected through document studies of reports, municipal plans and project documents. Semi-structured interviews were also conducted with 38 political and administrative leaders. Respondents were chosen from a predetermined list of various political and administrative roles and functions, including mayor, chief administrative officer, opposition leader, head of schools, head of local health services, head of planning, financial controller and heads of various political committees. Some variation in roles and titles was accepted, in view of differences in the organizational apparatus of the municipalities. As the research project concentrates on the municipal response, interviewees from the mining companies were limited to one representative from the top management. Due to the Northland Resources bankruptcy in Pajala, a former chairman of the board was interviewed instead of the appointed liquidator. In sum, this list provided a sample of interviewees with extensive knowledge about local governance and municipality/company relationships.

5.6 Kvalsund

Kvalsund municipality is located in the northernmost part of Norway. After years of depopulation, it now has around 1000 residents. Although a considerable percentage of the workforce commutes to petroleum-related jobs in the neighbouring municipality of Hammerfest, Kvalsund needs to offer potential newcomers alternative employment.

Since 2007, the mining company Nussir has drilled for copper in the municipality, focusing on deposits that were identified during a brief mining operation in the 1970s. In addition, the company has announced several discoveries of copper ore, gold and silver; the total value now adds up to billions of kroner. However, an environmental dispute over proposals to dispose of tailings from the mining project in the sea has prevented the mine from operating, and various stakeholders now await a formal decision about these proposals.

In general, local politicians support the company and its ambitions. Earlier estimates had indicated an operation period of about 20 years, now substantially extended due to new discoveries. Non-renewable resource extraction is not unfamiliar to the people living in Kvalsund. A mining operation that took place some decades ago and the recent petroleum-led boomtown experience in neighbouring Hammerfest have provided the local population with experience and knowledge about the ups and downs associated with extractive industries. They also learned about volatile and unpredictable world market prices in connection with the mine closure in the 1970s.

However, several of today's municipal leaders question both the social and the economic impacts of a possible short-term economic boom. Instead of creating an industrial adventure for local communities where ripple effects flow into the local economy, the current regulatory framework encourages fly-over effects: the burdens remain, while the benefits end up elsewhere. Several of the interviewees questioned the Norwegian tax regime for mining, which confines local tax revenue to property tax and income tax from residents. Uncertainty regarding the future ownership of the mine further complicates the picture. The current managing director is highly respected, but some fear his role will be diluted if investors buy the mine. Therefore, in order for the municipality to experience long-term growth from the mining project, the company will have to pursue its interests in ways that also promote those of the local community.

To secure local value creation and extended effects from the mining project, the municipality applied for and received central government funds allocated for local development in municipalities and launched a targeted project with this aim. A former chief administrative officer was appointed as project manager and began recruiting key stakeholders to a project steering committee. Participants in this steering committee (or governance network) included representatives from neighbouring municipalities, the county and the mining company.

The aim of the municipal project was to pool resources, support the mining project and secure a rapid, professional administrative handling of applications and requests, from the mining company as well as from other businesses. Local enterprises that could potentially operate as subcontractors and service providers to the mining project were of particular interest. The municipal project team was also given a supervisory role, so as to ensure that industrial development of the area evolved in a stable and predictable way. The mandate of the steering committee (governance network) was to set priorities and make decisions about the progress of the municipal project and to advise and assist the project manager. Participants were also required to anchor the project in their respective organizations or firms.

Was the project with its organizational design just another local development project aimed at stimulating economic development? Or can it be seen as an attempt to construct interdependence through various forms of metagovernance? It was probably both. The short-term goals of the project involved practical problem-solving, pooling resources to fulfil local needs. However, it is also possible to see the project as an attempt to integrate or even co-opt the mining firm into a network for promoting the interests of the municipality. A closer look at the various metagovernance tools employed shows both hands-off and hands-on methods.

The institutional design of the development project created an arena for joint problem-solving and deliberation between the affected municipalities and the mining company. Bringing together a cluster of stakeholders to serve as a steering committee was also a way for the municipality to ensure that key players were involved in problem-solving activities. Both the county representative and the neighbouring municipalities were important in that regard, but probably not as important as the mining company. Bringing the mining company to the table and having it participate in problem formulations and proposed solutions made it more committed to and intertwined with the host municipality, increasing the mutual dependency.

One of the issues of pivotal interest to the municipal leaders was the need to build new housing for potential newcomers. A mine operated by fly-in fly-out workers would be a worst-case scenario for the municipality as this would seriously reduce the broader impact of the mine and minimize the municipal tax revenue. Therefore, network participants made considerable efforts to formulate a plan for housing and a detailed description of the various organisations' responsibilities in implementing the plan. As a senior municipal official puts it:

> The managing director of the mining company participates in the steering committee. Here we have worked out a plan for building houses in our municipality. In addition, we have defined what the responsibility of the municipality is and is not when it comes to building houses.

In addition, the governance network served as an arena where key local stakeholders could draw attention to their resources, thereby helping to explore and clarify resource dependencies. Closer interaction with the neighbouring municipalities strengthened the ties within the region and promoted regional solutions to the future needs of the mining company. As a participant in the network, Kvalsund municipality could monitor and direct the policy agenda by providing leadership and presenting arguments to support its position. Thus, one could say that the municipality used network participation as a hands-on, interventionist metagovernance instrument in taking up their role as the dominant node of the network.

5.7 Pajala

Pajala municipality is located in the northeastern part of Sweden, near the Finnish border. A steady decline since the 1950s has severely reduced the number of inhabitants, who now number around 6300. Primary industries, such as forestry and agriculture, no longer employ a sufficient number of workers. One of the interviewees describes the past decades as

> (…) 50 years of retraction. The political discussion was all about how to downscale in the best way possible. From time to time, we clutch at a straw popping up, but restructuring and downscaling was the refrain. Then, suddenly, in 2006 everything changed.

Mining has been an important industry in the region for decades, and people from Pajala have commuted to the communities of Kiruna and Gällivare to work in

the iron-ore mines there. There is also a known iron-ore deposit north of the municipal centre, Pajala, but extraction has not proved profitable. However, in 2006, a Canadian company, Northland Resources, decided to invest in the deposit, developing a massive mine. This investment signalled an economic boom for the local community and the demographic situation improved. Unfortunately, the mine filed for bankruptcy in 2014, and Pajala is again experiencing depopulation.

During the period of growth, the local government in Pajala established a development company jointly owned by municipal agencies and local private companies, including the mining company itself (the local companies collectively owned the majority share). The board comprised representatives from local companies and the mayor.

The development company ran a project entitled 'The future of Pajala'. With substantial funding from the EU and regional authorities, the network began promoting the small town of Pajala as a hub for mining-related industrial entrepreneurship and prosperity in the north-eastern part of Sweden. According to representatives from the development company, the main task for 'The future of Pajala' was to level the playing field between the big mining company and the small municipality. By aiding the municipality, the network assured the speedy completion of important infrastructure projects. Recruitment and housing of workers were also of particular importance as the municipality feared long-distance commuting.

The mining company and the development company cooperated closely and had almost daily discussions in the initial phase. As a foreign company, the mining company needed help to understand the political and regulatory landscape of Sweden. The development company was happy to provide such guidance. A former board member, representing the municipality, puts it this way,

> We helped them find their way through the bureaucracy. Since they were Americans and Canadians, they were not familiar with the Swedish authorities. The municipality has really supported them, finding ways.

According to several of the interviewees involved in the development company, compared to the municipal council, the network provided a less restrictive platform from which to pull strings and exert influence. For the individuals involved, guiding the mining company through the bureaucratic jungle was easier when acting as a development company representative than as a local politician. However, the mining company gradually increased its own competence and knowledge of politico-administrative procedures. Most of the licenses and discharge permits were granted, and the construction phase was coming to a close. Progressing into an operational phase, less frequent encounters replaced the daily discussions between the network and the mining company. However, this did not result in a more passive network. Instead, network members kept lobbying for new infrastructure investments, arguing that new roads and railroads would lower productions costs, reduce local impacts, such as noise and dust, and thus reduce the negative impact of the mining project on society and the environment.

The network in Pajala resembles what Kvalsund municipality wanted to establish. The 'Future of Pajala' and the development company were strong players with

extensive connections to various authorities and decision makers. Continuous efforts to make the most of it, as one of the key participants said, created a strong tie between the municipality and the mining company. These efforts continued after the initial phase when the relationship was at its closest. In retrospect, the aspirations to nurture a close relationship with the mining company led to other issues being given a lower priority. One key participant in the network reflects on the symbiosis between the local network's ambitions and the ambitions of the mining company:

> The agreement was complete. And in hindsight, what we should have done, both we as elected representatives and the development company, was to develop a more diversified economy and make sure that more sectors were involved in the rapid and profitable development. We prepared for, helped the mining company and took care of industrial development (…). But we should have said that, ok, the mining company follows its own chosen path, and we shall of course help them and make our priorities heard, but we cannot focus exclusively on them. We should have cooperated with others as well. But I guess we worked to capacity and did our best.

Almost all interviewees emphasized the development company and the 'Future of Pajala' project as a potent network where local elites, including succeeding mayors, and the mining company cooperated to embed the mining project in the local economy. The various mayors holding office during the mining company's 8 years in Pajala played an especially crucial role in bringing stakeholders together. The mayors facilitated dialogue and explored potential win-wins. They were also decisive in moving the collaborative agenda forward beyond the exploration and construction phase of interdependency and into more long-lasting relationships by expanding the scope of the collaborative process. The municipality started to critically assess its own welfare services in order to adapt services to the demands of the mine. For example, it planned to adjust kindergarten opening hours to shift work hours, even offering an all-night childcare service. Still, representatives from welfare departments complained about not being sufficiently involved in the municipality's strategic response to the mine.

Looking at the metagovernance tools employed, both hands-off and hands-on strategies come into view. First, the municipality clearly deployed policy and resource framing. Not only did the local government apply for funding in order to assist the progress of a decentered form of interaction, the 'Future of Pajala' network was also given a rather wide-ranging mandate, giving the network an opportunity to engage in a vast number of policy issues. Second, the name given to the network draws attention to the role of 'storylines' in shaping the interaction among network participants (Torfing 2012, p. 109). The storyline of the network as the provider and guarantor of a prosperous future is a strong one that commits the participants to local development. It also provides a condensed definition of important policy problems and can, over time, turn into a hegemonic discourse that is 'sedimented into concepts and institutional practices that are taken for granted by the network actors' (Torfing 2012, p. 109). Discursive storylines thus fall under the category of institutional design as they help develop shared norms and identities. With regard to hands-on metagovernance strategies, the political leadership obviously prioritized network participation. The mayor's position on the board signals

that the network has a legitimate role. Moreover, the considerable hands-on meta-governance also shows how the local political elite conceived of the network as strategically important to the municipality. By participating, the mayor could direct attention to vital resources that the municipality possessed and alter the policy agenda in line with municipal priorities.

In many ways, the network in Pajala is similar to the network in Kvalsund, although the former was in a more mature phase. However, the strong emphasis on storytelling in Pajala is a difference which we should not underestimate. The message that Pajala was an economic miracle in the woods of Northern Sweden was a strong one, present in almost all of the interviews. The future of the local community was juxtaposed with the future of the mining company. As the latter now is bankrupt, however, the question of the future of Pajala itself remains to be seen.

5.8 Sør-Varanger

Sør-Varanger is a municipality in the north-eastern corner of Norway, bordering Russia. With a population of approximately 10,000, it is an economic engine in the region. For almost a century, Sør-Varanger and the administrative centre Kirkenes were entirely dependent on the nearby iron-ore deposits. However, in 1996 the state-owned mining company shut down after a long period of low mineral prices and heavy losses (Viken and Nyseth 2009). Few believed that the mine would ever prove profitable again, but only 10 years after the shutdown, mineral prices skyrocketed due to the surge in the Chinese economy and the mine re-opened. The new ownership was quite different, however. Instead of being a subsidized state-owned company with a vast number of initiatives and sponsorships in the local community, the cornerstone company was now a company listed on the Australian stock exchange and accountable to its shareholders.

Compared to the patterns of cooperation found in Kvalsund and Pajala, the relationship between the Sør-Varanger municipality and the mining company is less systematized and comprehensive. Although the managing director and the mayor meet occasionally to discuss common problems, there are few examples of more institutionalized high-level cooperation. Instead, the municipal council has been supportive in financing a ‘business garden’, a cluster organization that functions as an arena for discussions, networking and project initiation. The municipality owns a small share, but compared to the development company in Pajala, the municipality plays a marginal role.

Several interviewees stressed that the municipality had been one of the founding partners of the ‘business garden’ when it was launched. The establishment of this organization had been a policy choice and was made possible by downsizing the municipal business and planning department. As such, the municipality had made substantial financial contributions in the first few years. However, as the ‘business garden’ evolved into a central hub or node for societal development, the municipality gradually became less involved. This development diverged from what some

public officials thought was at the core of municipal responsibility. A municipal leader puts it this way when asked about what strategic decisions he regretted:

> Looking back, I have wished for one or more employees to be free to engage in societal development. I have proposed this to the politicians over and over again, primarily linking the employees to trade and industry development, like a head of economic development. Then we could have been more proactive and built more alliances and networks.

Elaborating on a follow-up question on the role of the 'business garden', he said:

> The business garden has a very free role with many relationships with many stakeholders. I think it would have been more beneficial to society at large if the municipality had prioritized that role and spent resources on it. We have been missing that role in the municipal administration.

According to the mining company, the lack of arenas for concerted resource mobilization together with senior urban managers or politicians was a serious obstacle for the company. A leading representative of the company emphasised that he himself was partly responsible for not having achieved a closer cooperation. This, he said, hindered joint solutions to common problems:

> If we sit down together and try to find solutions, there is a better chance that we will have a sustainable business up here. But I feel that it is more or less like they ask us to do these studies and applications and then it is their call if you will get it or not. We do not have that kind of open and honest relationship where we could discuss these things.

The 'business garden' did not facilitate direct engagement between the municipality and the mining company. However, it was in charge of projects closely connected to the mining company's impact on the local community. The municipality co-funded several of the most important projects, such as projects addressing commuting issues and the attractiveness of the local community, thereby aiding networks engaged in policy formulation of great importance to the local community.

Compared to Kvalsund and Pajala, Sør-Varanger has chosen a strategy of independence rather than interdependence. Perhaps as a result of the shutdown 20 years earlier, local politicians have recognized that non-renewable resource extraction is by definition a time-limited endeavour. Put differently, the legacy of the first 90 years of mining is noticeable: only some remember the first boom, but everyone remembers the 1997 bust. The municipality has opted to work to diversify the local economy while the mine is still running, and industries like ship repairs, harbour facilities and tourism have flourished in recent years. A senior politician states:

> We are being careful not to become a mono-industrial town again. The mine is a very important player in our business sector, but they are not the only one, and we are not as dependent on the mine as we were before. Thank God. This means that we do not need to make decisions where the alternative is the complete destruction of our demographic profile and community development prospects.

Drawing on Hertting (2007), we can interpret this approach as a way of securing a viable exit strategy. This is advantageous not only when mineral extraction comes to a halt, but also in negotiations and decision-making processes involving the municipality and the mining company. One example is the dialogue conferences

that were held when the mining company applied to double production some years ago. If the company extracts the iron ore twice as fast, the lifespan of the mine will halve. Consequently, these types of questions are delicate when the mining company argue that a doubling of production will be necessary for the mine to be profitable. In the dialogue conferences, municipal representatives stressed that they were anxious to avoid a situation where the community ended up without sufficient economic benefits. Some of the interviewees argued that it was easier to have a critical stance towards the mining company when dependency was reduced. In other words, leverage was increased by reducing dependency.

5.9 Concluding Discussion

The three municipalities studied here employ different strategies for handling the interdependency between modern mining companies and the host community. While Kvalsund and Pajala have sought to integrate the mining company into policy formulation and problem solving, Sør-Varanger has chosen to weaken its ties to the mining company. Instead of keeping the company close, as in Kvalsund and Pajala, in Sør-Varanger it is hoped that distance and reduced dependency will benefit the municipality's policy goals as well as local development on a long-term basis. Even though it would be an exaggeration to claim that Sør-Varanger is not dependent on the mine, the strategy towards a diversification of the local economy could be interpreted as a strategy aiming to make the mine dependent on the municipality and not vice versa. This strategy thus represents an anomaly when compared to the governance literature that treats interdependency as an asset.

The local municipality is a participant in two of the networks referred to, in Pajala and Kvalsund. Local development policy is strategically important, so both municipalities opt for close interaction with the networks as a governance failure would be fatal. This calls for hands-on metagovernance (Torfing et al. 2012, p. 138). The municipal organization and various public officials have facilitated the networks by securing or providing the necessary funding and support, but have always coupled policy and resource framing with participation. This finding underlines the key role of local government in peripheral communities: public officials are in the midst of almost every project of a certain magnitude. By contrast, in Sør-Varanger the municipality has gradually moved towards hands-off strategies. Funding the 'business garden' as a strategic node has empowered local businesses and can be regarded as a way of constructing interdependent relations within the corporate sector. However, the effort has not come without costs as the municipality now lacks strategic resources and leverage. At the same time, the mining company representative in Sør-Varanger called for more cooperation with top officials in the municipality. According to this representative, the company and the municipality had not explored possible interdependencies to a sufficient degree. This statement focuses on the exploration phase of interdependency – the parties must meet to investigate whether they possess resources of vital interest to the other party.

However, the question remains: are these forms of creating interdependence robust enough to alter the company/municipality relationship in modern mining? The exposure to a deregulated global economy has redefined the preconditions for local governance traditionally exercised in the three northerly Scandinavian municipalities studied here. Even though we should be careful to imply that international exposure is something new in this region, the nation state today is more reluctant to cushion the economic pressures, thus making the future of a municipality more up to itself than was previously the case. As the interplay between state and society has been an ordinary component of the policy process in local government in these areas, the need to blend public and private resources is not a novel state of affairs. However, the trends in modern mining, with a more extensive production cycle, tend to reduce the embeddedness of the mineral companies in the local political economy. Thus, compared to the state-owned mineral companies, which nurtured a close relationship with the local community, the presence of modern mining companies is more volatile. This challenges the capacity of local political institutions. As Pierre (2011, p. 24) states:

> Overall, however, the pattern remains that cities lack the key political instruments to control very much of the economic foundation of their existence. Here lies a fundamental political and democratic problem; what are the normative and constitutional values of local self-government and autonomy worth when a private corporation single-handedly can significantly weaken the economic base of the city by relocating to another city, perhaps even another country?

Put differently, the corporate sector's decreasing commitment to place reduces the strengths of local political institutions. Still, we expect political institutions and elective offices to play a leading if not dominant role in local governance (Pierre and Peters 2012, p. 71). This is a consequence of the key resources that a municipality controls, such as the authority the municipality has as a formal level of government and its political support from the national parent parties, and the fact that few business plans can be implemented without these key resources. Even though mines cannot be relocated, modern mining firms can opt for a more or less detached role in the local community. This will affect the level of interdependency. The public/private interdependency will proceed as long as the companies must obtain the necessary licenses. However, when the licensing process is completed and the final permissions granted, the power base of elective representatives is reduced. Then power is not something local councillors can rely on as a given, but something they must increasingly fight to assert.

The networks described in this chapter can be considered arenas in which the municipality and the mining company meet, often together with a cluster of other stakeholders, to negotiate interactions in which municipal leaders strive for influence and commitments from the corporate leadership. However, no municipality bites the hand that feeds it. This gives private business a 'privileged position' (Lindblom 1977). Or as Pierre and Peters (2012, p. 78) state: 'even if there is a pattern of interdependence between city and business it is an asymmetric interdependence where business is more important to the city than *vice versa.*'

The goal of this chapter has been to further the understanding of interdependency as an important but often neglected concept in contemporary forms of governance, and to show how local municipalities hosting mineral extraction projects can use metagovernance tools to explore, construct and maintain interdependency. As demonstrated, the three case municipalities apply different tools and pursue different strategies. While two of them opt for close coordination, the third chooses a hands-off approach. However, juxtaposed with the cyclical turnaround in the international market, the attempts to construct long-term interdependency relations show signs of being soft strategies in a hard world.

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Chapter 6
Sustainability and Mining: The Case of the Kola Peninsula

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Abstract This chapter discusses sustainability issues related to two mining companies – JSC "Apatit" and JSC "North-Western Phosphorous Company" – in the towns of Kirovsk and Apatity in the Murmansk region of Russia. These companies have been exploiting apatite-nepheline ore deposits in Khibiny, the largest mountain massif on the Kola Peninsula. The main question posed here is how knowledge about environmental, economic, cultural and social values decision making and knowledge systems are applied in decision making. A case study of Kirovsk and Apatity was undertaken to further understand the local planning regime and sustainability in Kirovsk and Apatity, including environmental integrity, indigenous groups and their subsistence economy, community benefits, effective engagement, and mining companies' self-reporting on sustainability. The main challenges to sustainable mining are identified for the three major stakeholder groups – mining companies, local communities, and government authorities. The chapter concludes that perceptions of sustainable development in these Russian industrial towns are shaped by the dominant role mining industry plays on the Kola Peninsula in influencing the quality of life of local people and their perceptions of environmental concerns, including questions of pollution and landscape aesthetics.

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6.1 Arctic Mining in Kirovsk and Apatity

To many, sustainable development of the Arctic mining industry might sound like a contradiction in terms. Mining has been the backbone of the communities and cities in the Murmansk region since the 1930s and the environmental and social costs have been severe. At the same time, many also expect mining to be an increasingly important driver for the future development of the region, and there is a need to address critical issues relating to how mining can be done sustainably in this part of the Arctic. The focus of this chapter is the relations between mining activities, community development, environmental and indigenous concerns in the towns of Kirovsk and Apatity and their two neighbouring municipalities of the same name, located in Murmansk region in the far northwest of Russia. The chapter considers the positions and activities of various actors in the area surrounding the Khibiny Mountain Range, how they reflect upon the environmental degradation caused by mining operations, and how this is weighed against the economic benefits and social welfare that are supported by mining.

Kirovsk was established in 1929 and Apatity in 1935. The towns were established to provide homes and decent living conditions for people working in the mining industry and their families. These company towns shaped the everyday-life, education, health, networks, communal infrastructure, and welfare of their residents. In the peak years, more than 20,000 people were employed by the mining industry (Koivurova et al. 2015; Riabova and Didyk 2014). These mining operations though, with their intertwined city development and environmental impact, are located on land historically occupied by indigenous (mainly Sami) people, and for more than 20 years there have been efforts to establish a protected area in the Khibiny Mountains, but this has been continuously delayed by new mining operations.

This chapter presents recent ideas on sustainable mining and the social license to operate, and how these concepts apply to the two mining towns. One characteristic of modern Russian traditions is the influence of more than 70 years of communist rule and ideology (1917–1991). Among the surviving traditions of the Soviet period is an authoritarian type of governance, weak civil society institutions, and underdeveloped democratic decision-making procedures (Riabova and Didyk 2014). How do these circumstances influence vital elements of public policy development and the ability to reflect the interests, desires, values and preferences of citizens in planning processes and documents? Together with the other chapters in this book, the particularities of the Russian context may play out as an interesting arena for reflecting upon key assumptions and questions related to the ambitious goal of a sustainable future for Arctic mining communities.

6.2 Sustainable and Socially Acceptable Mining

What does sustainable development mean to mining enterprises and towns? An illustrative and interesting point of departure is the definition of sustainable mining presented by the Ministry of Energy and Mines and the Mining Association of British Columbia (Canada), as being "mining and mineral development that meets the growing needs of all communities while maintaining a healthy environment and vibrant economy for present and future generations" (MEM 2016). The Ministry of Energy and Mines applies several sustainability criteria in connection with their annual Mining and Sustainability Award. Among these are *environment* (actions are being taken to ensure the maintenance and strengthening of long term environmental integrity in the region of influence), *respect for indigenous peoples* (the project/operation respects the rights, culture and values of indigenous peoples), *benefits* (the operation must enhance the potential for creating economic, social and cultural benefits for the local community or region), and *effective engagement* (the relationships with those affected should be characterized by integrity and trust) (MEM 2016). In this chapter, we use these selected criteria for sustainable development to structure and frame the discussion.

The idea of sustainable mining is indeed contested. One point of departure for criticism is that mining of minerals is inherently and by definition unsustainable, and that sustainable development in extractive industries such as mining does not make sense in the same way as extraction of renewable resources such as fisheries, agriculture or forestry. Open-pit mines in particular will always alter the environment and the ecology of an area (Kokko et al. 2015). Thus, in the context of mining, sustainable development should be conceptualized according to ecological and other effects of the mining activity. Sustainable mining is therefore mining that is not ruining or undermining the overall ecological and life-supporting processes in the surrounding area. Only by linking sustainable mining to the reduction and minimization of negative impacts and the maintenance of the integrity of the surrounding ecosystems can the concept of sustainable mining avoid being a contradiction in terms. As stated by Kokko et al. (2015) ecological constraints set particular boundaries that cannot be passed without endangering the idea of sustainability, and economic and social sustainability are possible only within these limits. The relevant question here is therefore: how socially and economically sustainable can a given mining operation be, given the ecological impacts of mining?

A broader approach – and more in line with the mining companies' own understanding and application of the concept – is to put more emphasis on the social and economic elements of sustainable development, as articulated by the Brundtland Commission (WCED 1987:12):

> As for non-renewable resources, like fossil fuels and minerals, their use reduces the stock available for future generations. But this does not mean that such resources should not be used. In general, the rate of depletion should consider the criticality of that resource, the availability of technologies for minimizing depletion, and the likelihood of substitutes being available. Thus, land should not be degraded beyond reasonable recovery.

Here sustainability is understood in terms of environmental recovery and "reasonable" trade-offs between interconnected, but different and highly regarded concerns and values. This way of articulating sustainability resembles Leach et al.'s focus on the site-specific and subjective dimensions to sustainable development (Leach et al. 2010). Depending on the actors and their interests and positions, judgments over what is reasonable environmental degradation may vary considerably. Therefore, regional and national strategic, economic considerations may be used to justify mining activities with extensive or very negative ecological and other environmental effects. In our analysis, sustainable mining refers to mining that focuses on the sustainable development of *local communities* that might depend upon, and are highly influenced by mining companies. To assess and determine site specific sustainability criteria is therefore a democratic process, where multiple stakeholders must be represented. From the literature on participatory planning, the involvement of stakeholders enables the identification of their positions and interests, and allows agreement to be reached on critical issues (Armitage et al. 2011; Hovik et al. 2010; Webler 1995). This is a way to ensure broad support for the decisions taken, which largely determines the success of their implementation (Vik et al. 2011; Vatn 2007; Armitage et al. 2008).

When considering new mining projects, sustainable development is commonly dealt with through environmental impact assessments as well as social and cultural impact assessments (EIAs and SIAs; see Chap. 3) (Becker and Vancley 2003). Although these have evolved as separate practices, EIAs in many cases also include assessments of the social and economic impacts from mining. Critique has been raised that social and cultural aspects have been poorly handled during these processes in many cases (Lockie et al. 2008; Burdge 2002). Recent studies moreover suggest community-controlled impact assessments combined with negotiation of binding agreements between communities and developers. Here, local residents define critical aspects and insight about values and considerations related to positive and negative aspects of mining (O'Faircheallaigh 2017). This includes the wider political factors that must be addressed to shape the impacts of extractive projects.

The concept "social license to operate" (SLO) was coined from within the industry to conceptualise the notion that they need to get approval from the local community and wider society (Riabova and Didyk 2015). This concept explicitly addresses the host community's perception of the project or company, and is increasingly gaining momentum (see e.g. Boutilier and Thomson 2011). An SLO is present when a mining project is having a broad, ongoing approval and acceptance of society to conduct its activities (Prno 2013). Despite the use of the 'licence' terminology, SLO should not be understood as legal relationship between the company and the community. Rather, the license should be interpreted as a voluntary and self-regulated arrangement, established to maintain good relations with the local community (Kokko et al. 2015). Central to the SLO concept are three normative criteria: legitimacy, credibility and trust (Boutilier and Thomson 2011), mirroring key aspects of corporate social responsibility (CSR) (Kokko et al. 2015). Extant studies indicate that SLO is generally not a familiar concept in Russia, while corporate

social responsibility is used more widely (Riabova and Didyk 2014). Interestingly, CSR is perceived as a continuation of the USSR's practices with large state-owned companies that formed an important part of the social infrastructure (Kokko et al. 2015; Riabova and Didyk 2014).

Just like sustainable development and CSR, SLO is also a highly abstract concept, which needs to be interpreted according to time and place (Boutilier and Thomson 2011). If not interpreted and implemented in a transparent manner, efforts to establish an SLO, just like efforts to achieve sustainable development goals, may end up prioritising the interests of certain stakeholder groups, while constraining other interests, ideas, perceptions and expectations in the community. An SLO therefore depends on local people voicing their demands and concerns about the planned or existing mining activity. Typical demands might be to secure a greater share of the benefits, increased or improved participation in decision-making, improved working conditions or ensuring industry practices meet environmental standards (Koivurova et al. 2015).

As with CSR, company efforts to secure and maintain an SLO through support for social activities within the community are motivated by the desire to create a good image in the eyes of the authorities at all levels, to achieve a good reputation in the business arena, as well as to avoid conflict, protest, social tension which may lead to costs and delays (Kokko et al. 2015). The relationship to environmental and sustainability issues and concerns is rarely elaborated in the literature on SLO (but see Wilson 2016). In Russia, with a centralised and authoritarian political system, companies do not necessarily need to secure an SLO to make tough decisions with major consequences. Nonetheless, authoritarian political systems do still prefer their decisions to be supported and deemed legitimate by the local public. But in an authoritarian context with little public involvement it is less likely that local resistance, the failure to secure an SLO, or indeed the withdrawal of an SLO will jeopardize a project. In Russian company towns, like in other Arctic communities, negative environmental impacts from mining enterprises are considered against jobs and social services provided by the same companies. The rather short history of Russian environmentalism however, makes sustainable development less formalised and safeguarded than in other European countries (Oldfield 2002; Martus 2016). Thus, environmental values, standards and projects easily become subjects for negotiations between the Russian mining company and local stakeholders, including NGOs. Still, scholars claim that market mechanisms are the only method by which to facilitate corporate greening in federations like Russia (Crotty and Rodgers 2012).

6.2.1 Case Study Approach

According to the official statistics from the Murmansk government, the population of Kirovsk was 27.250, and Apatity population was 57.398 in 2012 (Municipalities of the Murmansk region 2014). The mining companies operating in both these

municipalities are extracting and processing apatite and nepheline concentrates from the world class deposits in the area. The company Apatit JSC was established in 1929 as a state enterprise, but has been a joint stock company since 1993 and is currently 100% owned by Moscow based PhosAgro, one of the biggest fertilizer manufacturers in the world. The second operation is by the relatively new North-Western Phosphorous Company (NWPC) that in 2007 started development of two deposits of apatite-nepheline in the eastern part of the Khibiny Mountains. NWPC is also among the biggest fertilizer manufacturers in the world. It was founded in 2005 by Acron, a large Russian fertilizer company, to create a new phosphate raw materials base in Murmansk region to supply its downstream facilities. Currently, the apatite concentrate is transported to fertilizer factories in central Russia and then exported abroad, while nepheline concentrate is delivered to Russian aluminium plants (PhosAgro 2016).

This chapter elaborates on earlier published material and conclusions from Didyk (2015), Riabova and Didyk (2014), and Koivurova et al. (2015). In addition to these insights, the chapter is based on empirical material that was collected with the use of multiple data sources and methods, including document analysis of legislative and strategic documents, a questionnaire, and several qualitative interviews. The questionnaire addressed individual perceptions and priorities of environmental, economic, and social values related to mining activities, expressed on the basis of their relative importance for the municipality. Sixteen people took part in the questionnaire survey, which was carried out during fieldwork in Kirovsk and Apatity in March 2015.

Insights about social values were also mapped at a stakeholder meeting with Kirovsk residents at the Apatite Mining-Geological museum, organized by the local research team. Here, the role of the mining industry in municipal development was discussed. The meeting in Kirovsk was attended by thirteen people, which may reflect a modest interest among citizens to participate in public participatory planning. Eight individual interviews were carried out with representatives of the municipalities, hiking organizations, indigenous groups, and tourist companies, and two group interviews were held with people representing three environmental NGOs (ENGOs) in Kirovsk and Apatity. It should be noted that no indigenous groups currently live or practice reindeer husbandry in the area covered by this study. There are however families and individuals of Sami origin living in Apatity and Kirovsk.

Unfortunately, the managers of the local branches of the companies did not make themselves available for interviews, but Apatit JSC provided a written response to questions sent to the CEO. In addition, data were collected during visits to the “Big Wood” downhill ski center, the art venue “Snow Village”, and the Koashva settlement in Kirovsk municipality. Finally, in-depth interviews were held at the Kola Science Center, Russian Academy of Sciences (KSC RAS), with four Russian experts in scientific disciplines that are significant for mining operations, including geology, industrial ecology and economics.

6.3 The Khibiny Mountains: Multiple Actors and Interests

Together with the Lovozero Massif in the east, the Khibiny Mountain Range represents a rare landscape phenomenon on the Kola Peninsula, which is mostly covered by lowlands, marshes and lakes. The mining operations and the city developments are located on land historically occupied by indigenous peoples. The region was inhabited mostly by the Sami people before mineral exploitation started in the 1930s. As a result of collectivization in the early years of the USSR, the Sami were largely resettled in several villages, such as Lovozero, without any compensation (Kokko et al. 2015). Most of the geographical names of mountains, lakes and rivers in the area are of Sami origin. For example, one of the largest mountains near Kirovsk city, the site of the downhill ski complex, has the Sami name Aikuaivenchorr, which means "mountain with head of mother of God". Places of socio-cultural significance connected to Sami values and lifestyle, such as former reindeer pastures and sacred landscapes, are thus also valued aspects of the Khibiny Mountains, even if the Sami no longer use the area actively. This identity and knowledge is still relevant for how some local people perceive and reflect upon environmental concerns, their levels of acceptance of landscape encroachments, and their assessments of open-pit mines. The mountains are the regional tourist brand as well as being sacred Sami culture monuments, and they attract many visitors. During the period of Soviet industrialization, the cultural values of indigenous peoples, landscape values and environmental concerns were all at stake. The largely Sami settlement of Lovozero (2.800 inhabitants) on the other side of the Khibiny Mountains from the city of Kirovsk is regarded as the "Sami capital of Russia" today.

Development of nature-based tourism in Kirovsk is seen by the local government and entrepreneurs as a promising strategy for economic diversification (Iakovleva et al. 2012). The Khibiny and Lovozero Mountains are cornerstones of the region's tourism industry. The natural beauty, good communications and access, and the relatively inexpensive character of recreational activities make the area popular also for more informal recreational hiking and skiing activities. There are no cabins in these largely pristine areas, so visitors bring tents and food when visiting the mountains.

Kirovsk is already the major alpine ski resort in Northwest Russia, and winter tourism in the Khibiny Mountains is currently evolving as a viable and growing economic sector. There are two downhill ski slopes in Kirovsk municipality. The largest one – the "Big Wood" downhill skiing center – is owned by Apatit JSC, and is a lucrative business for the company. The other is owned by Kirovsk municipality, but it receives financial support from Apatit JSC, which enabled the two slopes to be connected in 2014.

In Kirovsk and Apatity more than ten tour companies organize tours to the Khibiny Mountains with activities including downhill and cross country skiing, hiking, paragliding, snowmobile tours, and mineralogical, geological, and ecological tourism. The Snow Village is located at the foot of the Khibiny Mountains and is an indoor and outdoor ice and snow sculpture park. Here, many historical themes, figures and fairytales are illustrated and carved out of ice by Russian and foreign

artists. It was created as a brand to attract tourists from other regions of Russia and abroad as well as the local population. Apatit JSC also uses it for displaying its social responsibility credentials and emphasizing its uniqueness; the company frequently states that the Snow Village is recorded in the Russian Guinness Book of Records as the largest buildings made of snow and ice.

In Russia, people's right to free access to mountains and tourist routes is not protected by law. Due to expanding mining activities, individual and informal hikers that use the areas have experienced increased restrictions over recent years. The river valleys from where the Khibiny Mountains are accessed are now often occupied by fenced industrial lots and compounds. Several traditional access points have now become difficult to pass through, or have become places where trespassing is prohibited. According to the mining companies, the access is restricted for safety reasons.

A planning process to establish a national park in the Khibiny Mountains has been under way for more than 20 years. The mountains have many unique features and are critical habitats for plant species that are rare to the Murmansk region, and some of which are also on the Russian red list of endangered species. The planning procedure for Khibiny National Park is developing slowly though. In addition to protecting environmental values, the park is also expected to support social and cultural practices, including recreational activities. Geological tourism is growing and publications, maps and infrastructure are being developed (Voytekhovskiy and Miroshnichenko 2014). Ecological trails and routes through the beautiful landscapes are planned, with rest places for tourists.

6.4 Emergence of Kola Mining Communities

Although the Khibiny Mountains have been used for multiple purposes for hundreds of years, the mining industry currently outweighs all other forms of economic activity and sources of livelihood. The economic value of the natural landscape is dominated by a mining perspective and thus derived from the minerals and geological resources that can be exploited and the economic turnover and ripple-effects connected to all stages of this exploitation.

6.4.1 Industrialization and the Centrally Planned Economy

The close collaboration between public bodies and industrial (corporate) management in Kirovsk and Apatity evolved within the ideological and economic framework of the communist centrally planned economy. The first mining project in Kirovsk started at the end of the 1920s – the period of Soviet industrialization – because of communist leaders' ambitions to supply the young revolutionary country with raw materials and minerals. At this time, as noted above, the region was a very sparsely populated part of the Russian Arctic, inhabited mainly by the indigenous Sami.

Apatit JSC became the town-forming enterprise for Kirovsk, which in 1931 received town status and was named Khibinogorsk. During the Soviet period, the Apatit state enterprise controlled not only the industrial production, but also virtually the entire social sphere. Social infrastructure, housing and communal services, retail trade and catering, health care, sports, and culture were all provided by, and functioned as subdivisions of, the state enterprise. Several references were made by our informants to the strengths and achievements of this societal organization during the Soviet era. Winter sports and social welfare programs were often referred to. In terms of social license to operate, the company gained social acceptance during this time because of the support they provided to the community. Apatit JSC currently operates two open pit and two underground mines in Kirovsk municipality, as well as a processing plant (ANOF-3).

Apatit state enterprise was also the town-forming industry of Apatity, located just 20 km away from Kirovsk. Apatity got the status of a city in 1966 mainly because of the fast growth of population due to construction of the second apatite-nepheline processing plant (ANOF-2) and the establishment of a construction subdivision to further develop the company's production facilities. In 2012 the company accounted for more than 90% of Kirovsk's industrial production, and a significant part of the workforce in both towns is employed by the two mining enterprises. More than 36% (6.400 people) of Kirovsk work force (of 17.500) was employed by the company in 2012. In Apatity, 14% (5.000 people) of the total workforce of 35.000, were employed by Apatit JSC. In addition to mining, Apatity is home to the Kola Science Centre, a branch of the Russian Academy of Sciences, and is the largest scientific center on the Kola Peninsula with several thousand employees.

6.4.2 Post-Soviet Reforms and Liberalization

In 1993 the state enterprise Apatit was transformed into a joint stock company, Apatit JSC. When production plummeted to 25% of previous production during the 1990s, there was a deep economic crisis. Until then, the social policies of the company were made at the holding's headquarters in Moscow, far from Kirovsk. In 2002 the company was taken over by the PhosAgro holding group, which currently own 100% of the company's shares. Gradually newcomers from outside the community replaced the top management of the company. Another strategic shift in the mining industry, following Perestroika,[1] is the turn towards international and global markets and trade in equipment and technology. These changes made the mining industry more sensitive to Russia's trade balance and the exchange rate of Russian roubles. More recently, and because of the political tensions related to Ukraine, the Russian mining industry has been suffering due to western economic sanctions and a resultant lack of access to markets and technology. Consequently, the mining industry in

[1] Perestroika means restructuring and was together with glasnost (openness) central concepts in the USSR political and economic reform process in the 1980s.

Russia is in a situation where the global markets of natural resources display high price volatility, the exchange rate is disadvantageous, and sanctions affect technology transfer. Finally, the privatization of the mining companies also gave rise to policies that allowed the industry to lay off their employees, which is a big challenge for these mining towns.

In April 2013, Apatit JSC started a restructuring program to reduce operational costs and increase labour productivity. Most of the redundant staff were forced into retirement or got work with contracting companies. Thus, the total number of the company's employees dropped from 11.600 in 2012 to 7.100 by the beginning of 2015 (Didyk 2015). In the same period, the company transferred all its social facilities and infrastructure (the sports complex, the Palace of Culture, etc.) to the Kirovsk municipality, which considerably increased the burden on the municipal budget. This led Kirovsk to be listed as one of the Russian municipalities in the "most difficult socio-economic situation," among other single-industry towns or so-called "mono-profile" municipalities (Decree 2014; Didyk 2015).

Our respondents reported that the mining company traditionally demonstrated high levels of social responsibility towards its employees, as well as towards the local communities and municipalities of Kirovsk and Apatity. The strategic shift towards economic rationalization and the subsequent consequences are perceived as manifestations of deep conflicts of interest and values between the company and local communities and an increasing imbalance between economic interests and social responsibility. The company's changing strategies have induced major transformations that undermine local opportunities and prospects for social development. Local inhabitants therefore claim that the company's social responsibility has weakened, an observation that is also supported by Koivurova et al. (2015).

6.4.3 The Emergence of the North-Western Phosphorous Company (NWPC)

The economic reforms and market liberalization made it possible for other mining operators to challenge the monopolistic position of Apatit JSC. In 2005 the North-Western Phosphorous Company (NWPC) was founded as a subsidiary of the joint stock company Acron, a large Russian fertilizer manufacturer. Acron, which is a huge consumer of apatite concentrate, previously bought the concentrate from Apatit JSC. Due to disagreements with Apatit JSC over prices, Acron decided to establish their own mine in the Khibiny area. This new operator in the local labor market won a tender held by the Russian Federal Subsoil Resources Management Agency in October 2006 and acquired the mining license to develop two new deposits of apatite-nepheline ore. One was in Oleniy Ruchey (Kirovsk municipality), and one in Partomchorr (Apatity municipality). As part of the license agreement with the federal authorities[2], NWPC was obliged to support socio-economic develop-

[2] Federal Agency on Subsoil Use (under the Ministry of natural resources and ecology).

ment in the region. This included "to support the social sphere of Apatity by paying 18 million USD over 15 years" (point 4.5 in the agreement). In 2007 construction began at the mine and processing plant at Oleniy Ruchey. In 2012 production started in a combination of open pit and underground mines. Today NWPC employs about 2000 people, of whom more than 50% live in Apatity.

The new mining project created conflicts between several interest groups. First, Apatit JSC and NWPC became direct competitors, not only for apatite concentrate supplies in Russia, but also for workers and engineers. Although Apatit JSC did not apply for the tender that was won by NWPC, they had perceived the ore deposits in Oleniy Ruchey as their future reserves. Secondly, the establishment of the mine and the new processing factory created conflict with environmental NGOs since the processing plant was near the planned Khibiny National Park, which at that point was expected to be established in 2015. The conflict peaked in 2012 when the company proposed to build a road from the Partomchorr mine across the national park to the processing plant (see Fig. 6.1), which would literally split the planned national park in two.

To resolve the conflict, the Murmansk regional government established a joint commission with representatives of NWPC, NGOs and research organizations. Public hearings were not conducted during the planning and establishment of the new NWPC plants in 2006. In 2012 however, local NGOs organized a wide-reaching

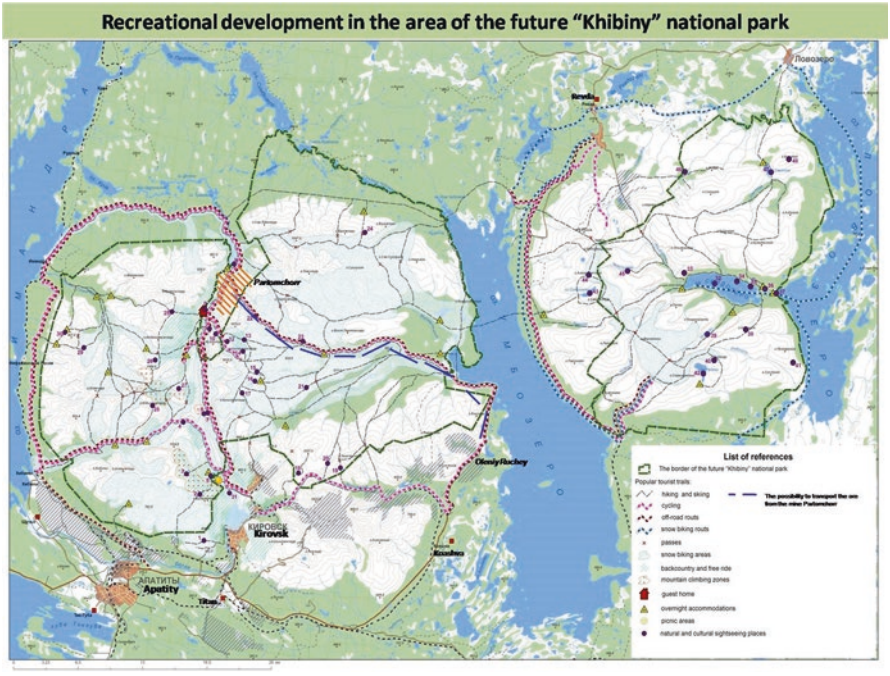

Fig. 6.1 Khibiny Mountains, the mines of Apatite Company and NWPC, and the cities of Kirovsk and Apatity

information campaign which led to lively debates in the local media. After hard negotiations, the company refrained from building the road through the planned national park, and decided instead to process the ore directly on the Partomchorr mine site.

A third conflict came about in spring 2014 when the local government of Apatity municipality sued NWPC for not fulfilling its social obligations as laid down by the state mining license to develop the Partomchorr deposit. These social obligations included annual financial transfers to municipal social welfare programs. By April 2015, after consideration of the case in the three courts (at the level of the municipality, the Murmansk Region and the North-Western Federal District), the decision was made in favour of Apatity municipality, and NWPC had to pay a sum equivalent to 6 million USD to the municipality for the period 2008–2014 (Mironov 2015).

6.4.4 Local Planning Regime

Existing federal legislation does not require municipal plans, and accordingly, not all Russian municipalities develop such strategic plans. However, in Kirovsk, a long-term development strategy – the "Strategy of Socio-Economic Development of Kirovsk Municipality to the Year 2020" – was approved by the Board of Deputies in 2011 (Kirovsk 2011). The document provides a comprehensive assessment of the current status and the main trends in the state of the environment, demographic processes, social welfare, the main economic sectors, development of natural resource potential, and budgetary provisions. The strategy includes a sustainability assessment of the current situation in the municipality. Here, the landscape values and recreational potential are defined as the town's main competitive advantage. The attractiveness of the Khibiny Mountain region is emphasized and used as the main argument for proposing the development of a large recreational and outdoor center in the municipality. Given the climatic and landscape conditions in the area, development of winter sports is regarded as having the best potential. To some extent the values displayed in the strategy therefore reflect the precious natural assets and the recreational and tourism potential of the Khibiny Mountains, as well as offering alternative prospects for municipal development to diversify the economy. At the same time, the local government does not see serious potential for conflict between further development of the mining industry and the development of a large tourist and recreation centre.

The socio-economic development strategy is one of the core planning documents for the municipality, and outlines its long-term goals, objectives, and priorities. The principal one is: "The development of human potential and increasing life quality of the population of the municipality, based on its sustainable social, economic and environmentally sound development" (Kirovsk 2011). It is interesting that the indicators used in the document do not address potential negative environmental impacts from the socio-economic development strategy which leans heavily on continued mining activities. The challenges related to utility services, such as maintenance of

housing, water supply, and heating are perceived as the responsibilities of private management companies or homeowners, rather than the municipality. The problem of unemployment and lay-offs at industrial companies is an area of particular concern within the strategy.

Stakeholder involvement and public participation in socio-economic planning has been feeble and inattentive in Kirovsk. The strategy was mostly developed and written by staff of the economic department of the municipal administration, and the draft was never disseminated for public discussion and debate. As a result of the shortcomings of the planning process, the strategic socio-economic plan primarily reflects the core values, considerations and priorities of the municipal administration, rather than the community as a whole.

The local authorities in the two mining towns seem to have largely ignored the importance of public participation, the need to involve local communities in development planning, and active participation in the implementation of the strategic objectives of the municipality. A significant number of our informants stated that there is no guarantee that the authorities would consider either the opinions of the public or independent experts and environmental organizations when they were making management decisions relating to mineral extraction or processing.

6.5 Dynamics of Sustainability in Kirovsk and Apatity

As described earlier in this book, the concept of sustainability and sustainable development must be interpreted not only according to time and place, but also to the relevant stakeholders. What is considered sustainable, acceptable, and legitimate cannot be derived outside of communities and culture, i.e. a particular frame of reference. On the other hand, the concept is not all relative, without any ultimate standards or requirements. If a mining activity is threatening or ruining the surrounding ecosystem it cannot be labelled sustainable, acknowledging that what 'threatening' or 'ruining means will of course differ.

In this section, we will present the perceptions of sustainability expressed by the Russian mining companies and various representatives of the mining communities of Kirovsk.

6.5.1 Environmental Integrity

For the respondents in this study, environmental integrity referred to the need to preserve the environment from ecological degradation, contamination of ecosystems, and landscape encroachments, as well as the need to preserve recreational values and access to mountain areas. In general, environmental integrity was perceived as salient and quite significant among the respondents in the survey. Interestingly, only a small fraction of the respondents indicated that the current

ecological situation needed to be improved. This might be explained in several ways. One is connected to the fact that multiple measures had already been taken to improve environmental and ecological conditions in the cities. Several measures had also been introduced to mitigate the heavy pollution from mining activities. During individual interviews, informants explained how Apatit JSC had organized re-cultivation and measures to reduce dust at a disused apatite-nepheline processing factory (ANOF-1) close to the center of Kirovsk. Future plans included establishing a public park with playgrounds for children on the former industrial site. At the same time, respondents expressed dissatisfaction with the work style of the new leadership of Apatit JSC, who had become more reluctant to communicate on many issues related to the development of their business and the municipality. In 2012, NWPC created a bio-geo-barrier to restore damaged land on the slopes of roads and dams (NWPC 2016). This was carried out in close collaboration with technological experts from the Kola Science Center. Riabova and Didyk (2014) found that the central role of Apatit JSC in all spheres of the municipalities' life generated loyalty and public trust towards the company among the citizens of Kirovsk and Apatity. This might be related to and partly explain the apparent acceptance of the massive environmental degradation following the mining activities, including destruction of parts of the surrounding landscape.

Other informants support the perception that environmental integrity is acknowledged as being something important by the mining companies. Representatives of environmental organizations were asked questions about knowledge, considering natural values, decision-making procedures and the mining companies' compliance with the principles of sustainable development. The head of a local environmental organization evaluated the environmental policy of Apatit JSC as "moderately positive" and that of NWPC as "neutral". Several informants, including the ENGOs stressed how mining was the foundation for their very existence, indicating how notions of pristine nature and a totally clean environment, were out of the question from the outset. At the same time, the environmentalists noted that more could be done by the companies, taking into account their potential to protect the environment and to restore damaged areas.

In the interviews, we were interested in the residents' views on the recreation value of the landscapes around the two towns. The hiking and skiing organizations, small-scale tourist companies, as well as individual hikers, expressed great concerns about access restrictions. This was particularly the case regarding development of the Partomchorr deposit. In the survey, outdoor recreation was ranked high by the majority of respondents. At the same time, several of the respondents reported no interference from the mining companies with their outdoor recreation activities, which is interesting taking into considerations the conflicts connected to Khibiny Natural Park. Thus, the access restrictions caused by the mining companies were not the highest priority for the survey respondents. Most respondents confirmed that they were faced "with minor restrictions or inconveniences due to activities of the mining companies". Tourist companies also reported that they had encountered access problems. These statements however, correspond to the way local government assesses mining-related impacts on the municipality and its prospects. Namely,

while the municipality recognises some local concerns and some harmful effects of mining on the environment, these are not seen as detrimental, as they are not impeding the establishment of a major tourist and recreation center, nor hampering the city's sustainable development.

Certain activities related to subsistence and food provision are closely related to recreational activities in the Khibiny Mountain landscapes. In Russia people commonly pick mushrooms, berries or other wild plants, or they go fishing or hunting, or they grow vegetables, fruits and herbs at their *dachas* (gardens in the countryside). Most of our respondents were seasonally engaged in such activities. Their motivations were either additional food security for the family or recreation, or both. For some, such activities also represented an additional source of income. These findings are confirmed by other studies of the region, showing how growing fruit and vegetables, picking mushrooms and berries, and fishing are popular activities among the local population, contributing to their rather modest living standards (Gushchina and Polozhentseva 2012). Representatives of municipalities and environmental NGOs stressed how NWPC's transportation of apatite concentrate had given rise to many complaints from local people. Noise and dust from the Titan railway station, where the concentrate is loaded, causes great inconvenience near many residents' dachas.

6.5.2 Indigenous Groups and Their Subsistence Economy

According to Russian EIA regulations, mining companies are obliged to provide archaeological assessments, prior to operations, in order to identify historical and cultural values, and avoid damage to these. Per sources at the Kirovsk museum of mining and geology, there have been several cases where these requirements were not thoroughly fulfilled by the mining companies. Early damage to cultural heritage took place at a time before legislation was in place, and Apatit JSC can therefore not be directly held responsible for this damage. At the same time, current planning procedures and EIAs are in many cases still ignoring the requirements for archaeological surveys. This is a clear violation of sustainable mining legislation, which should be addressed by the company's future management.

Interviews at the mining and geological museum revealed that at the time mining operations first started up in Kirovsk there were Sami settlements and several cultural monuments – sacred places – in the area. Because of the industrialization and colonization of the territory in the 1920s and 1930s many Sami cultural monuments were destroyed – sometimes unknowingly and sometimes deliberately. Sami traditional livelihoods such as reindeer herding are given strong protection in Russian legislation. At the same time, when confronted with strong mining companies the protection of the rights of these small groups in practice turns out to be inadequate (Kokko et al. 2015). The Sami in the case study area are still not entitled to any compensation for the harm done to their cultural rights, as compensation can only be given to indigenous groups that have continued their traditional way of living (Nystén-Haarala et al. 2015).

6.5.3 Community Benefits

The local government stresses that local people's quality of life is a key dimension to achieving social, economic and environmental sustainability. This is expressed in the municipal socio-economic development strategy, and came out of the interview with the head of the municipal administration, and fully corresponds to the modern Russian view of the role and tasks of local authorities. This call is echoed in the questionnaire, the interviews and the review of the local media, showing how social services (health care and housing), as well as employment and entrepreneurship are among the greatest concern for the local population.

One of the most important community benefits in the region was the 1 billion USD in investments and transfer to the Apatity municipal budget, provided by NWPC in accordance with the Partomchorr field license agreement. In addition, there are expectations of tax revenues to the regional budget from the same mining operation. The Partomchorr site also brought expectations for benefits to the Kirovsk municipality, such as additional jobs for the locals and the revival of the crisis-ridden settlement of Koashva, situated near the newly developed deposits (Riabova and Didyk 2014). The traditional way of bringing social services to the public still lingers on from the Soviet era, when companies provided these benefits. The local government and residents still have high expectations towards the companies.

The tourism industry could potentially make a significant contribution to further local development in Kirovsk, although the industry still needs more financial investments, possibly from government and large businesses. Several informants reported that the winter tourism industry is weak and fragmented. Interestingly, and quite paradoxically, Apatit JSC has been a major force in winter tourism development and in the diversification of the local economy. When the company in a company town starts new businesses, this might further constrain diversification of entrepreneurs and the private business sector, as the economic and political control is still held by the company. Nonetheless, Apatit JSC provided financial resources and competence that would otherwise not have been made available for community development. Further development could certainly benefit from alliances and public-private partnerships with larger professional tourism companies outside the region.

6.5.4 Effective Engagement

The formation and expression of public opinion must be facilitated and secured by formal institutions to meet the goals of sustainable development. This requires development of civil society institutions as well as social capital. Therefore, local government and civil society must ensure public participation in ensuring that development of local communities is sustainable, in cooperation with the town-forming mining companies operating in the local area. Our analysis reveals that the participatory role of local government and the involvement of local people in

development-related decision-making are carried out inadequately in the case study municipalities. This is a substantial critique, as it is through the active expression of public opinions, values and interests, that pressure can be applied to government authorities and mining companies.

Neither Soviet traditions nor the current federal government facilitate or encourage development of a rich and vibrant civic society. The result is a lack of meaningful arenas and opportunities for public participation and other participatory measures. It is noteworthy that many of the interviewees still believed in dialogue with mining companies to find a solution to specific problems. The mining companies are regarded as having considerable power, resources, flexibility and influence on area planning and access policy. Some respondents even stated that the chances of resolving environmental issues are higher when dealing directly with the companies than with local or national government. At least this illustrates that the companies have considerable leeway to introduce voluntary measures and to engage in activities to gain or maintain their social license to operate. An additional reason for the low levels of public participation is that the mining companies are increasingly dominated by their head offices in Moscow. The remoteness decreases the companies' motivation and ability to include the local population in decision-making processes. The local population on the other hand, does not seem to expect to take part, or even consider taking part in such processes, as long as the companies deliver "the goods" to the local population.

The result is low levels of involvement of citizens in the policy-making and decision-making processes, which is especially evident at the local level. It also reduces public control over policy implementation. If one tries to assess the activities of Apatit JSC and NWPC by the sustainability criteria presented in our introduction by analysing their real actions, it becomes clear that their compliance with the main criteria for sustainable mining is insufficient. Their compliance with the criterion "effective engagement" is poor, regarding building relationships with local communities based on trust and dialogue, and consideration of the interests of local people in its activities. However, the problem is not only related to the companies, but also to the government at all levels, as well as the apparent lack of local and regional civil society organizations. Several informants stated that there has been low level of activity of citizens in terms of defending their interests, due to the weakness of civil society institutions.

6.5.5 Mining Companies Self-Reporting on Sustainability

According to the official websites of Apatit JSC and NWPC both companies claim to be paying serious attention to sustainable development and to ensuring compliance with the legislation on environmental protection. The annual reports of both companies actively use the terms "sustainability" and "sustainable development". PhosAgro issued a special "Sustainability Report", along with their annual report of 2013. This was prepared in accordance with the recommendations of the third

version of the "Global Report Initiative" (GRI 3.1) with the enclosure for the mining and metallurgical enterprises. Indicators of standard GRI 3.1 in this report are given for the 5-year period 2009–2013. Since 2014, the company decided to issue integrated reports that included the annual report and the sustainability report in one document. The 2014 Annual Report of Acron Group is called "Investing in Sustainable Development".

When analyzing the contents of these documents, one can notice that despite the presence of sections that reflect environmental issues and cooperation with local and regional communities, the interpretation of the concept of sustainability in the mining industry in these documents is different from the one we used in our theoretical discussion in this chapter. For example, in the Integrated Report of the PhosAgro Group for 2014, the section on the principles of management states:

> Many aspects of PhosAgro activities are based on the principle of sustainable development. First and foremost, this principle is implemented by maintaining food security at the international level: our fertilizers allow farmers to increase crop yields per unit of cultivated area and meet the global demand for food.

The argument put forward is that the company contributes to sustainable development in a global scale through the use of their products in food production.

The discrepancy between the two interpretations of sustainable development is interesting and illustrates the complexities of sustainable development. Can the end product's positive contribution to sustainable development in one part of the world, compensate for the negative local or regional environmental impacts of the mineral extraction in another? The interpretation of sustainable development, provided by Apatite JSC is first and foremost referring to the economic sustainability of the company, the interests of shareholders, and to maintain food security at the international level. This can be said to be a rather skewed definition of the sustainability concept.

The sustainability policies of the two companies are partly determined by the parent holding companies (PhosAgro and Acron). Acron, being the largest producer and supplier of mineral fertilizers to the global market, claims to fully comply with international corporate standards, including commitment to social and environmental responsibility and sustainable development (Acron 2016). That the company uses international food security as a central sustainability criterion implies that they justify local environmental cost and ecological degradation as a meaningful "exchange".

Both companies include sustainable social, environmental and economic development of the areas adjacent to mining. On the Acron Group's homepage there are several references to fulfilling environmental regulations and conditions at the Oleniy Ruchey site. These include regenerating bio resources and remedying environmental damage caused by the construction of the mine (Acron 2016). The company also states (Acron 2016):

> Under an agreement with the Kirovsk administration, NWPC actively participates in the social and economic development and improvement of municipal facilities in Kirovsk and Koashva. The Company invests in the repair of key infrastructure in Kirovsk, sponsors schools and hospitals and initiates charitable giving.

According to their website, this is subordinated to "charity". NWPC address sustainability issues under the headings "Environmental policy" and "Social policy" on

their homepage, where they present their policy, plans and achievements in these fields (NWPC 2016). However, the previously mentioned conflicts and grievances of the local population about both environmental and social policy at the local level, indicate that the company's sustainability measures are still in an early phase and that the score on sustainability is rather low.

6.6 Pathways to Sustainable Mining Through a Social License to Sacrifice?

6.6.1 Focus and Framing Across Stakeholder Groups

The task of achieving sustainable development and a social license to operate presents several challenges for all major stakeholder groups – mining companies, local communities, and government authorities. The main challenge for mining companies is to balance the objectives of increasing their competitiveness and economic efficiency on the one hand, and to implement the environmental requirements of legislation, as well as voluntary commitments to their corporate social and environmental policies on the other. Future challenges for the mining companies include increasing extraction costs of non-renewable natural resources as deposits are depleted. This greatly complicates the task of reducing costs. Secondly, given the current trend of strengthening the centralization and vertical integration of the manufacturing companies within large holdings, there is a risk of weakening attention to interests of local communities in the mining regions, as the headquarters and management agencies are localized elsewhere, outside the Murmansk region. The companies provide many social services in the communities, partly in response to requirements and expectations from the government, and partly to achieve support, popularity and an SLO in the communities and to continue a pattern of practice that originated in the communist era. In general, the companies have fulfilled many of corporate social responsibility elements related to economy and various infrastructure developments, but these achievements are threatened by the rationalization processes and the associated lay-offs, which increases the likelihood of the company losing their SLO.

The commercial companies' priority of economic interests is not surprising, and therefore the most critical social and environmental requirements for mining companies need to be supported by efficient government regulations. In the Russian context this task is, however, beyond the influence of the local communities, as it is determined by decisions of the state authorities. Despite the multi-faceted conflicts described above, the government of the Murmansk region actively supported the new mining project (led by NWPC). For the local community of Kirovsk the main challenges are associated with economic development of the municipality in the context of a single-industry economy. The companies' lay-offs will inevitably lead to potentially long term negative social and economic consequences. In response to this challenge, the local authorities are making efforts to diversify the economy.

Today, the most promising path is the development of the tourism industry based on the unique natural ecosystems and recreational potential of the Khibiny Mountains. The planned national park is a vital part of the tourism development plans for the region. The ways in which Kirovsk can balance the needs of NWPC and cost-effective mining operations on the one hand, and tourism and recreational interests, including public access, environmental and landscape integrity, on the other, are therefore critical to the sustainable development of Kirovsk town. Apatity is less dependent on the mining industry, and the situation is somewhat easier, but the municipality is dependent on mining-related employment as well as the income from the mining license agreement. The incompatibilities between the ecological, economic and social elements of the development are difficult to handle, and trade-offs and hard choices are required.

Challenges for the state government are at least twofold. First, institutional incentives that encourage companies to assist the sustainable development of local communities have been missing. Second, the regulatory environmental requirements necessary for facilitating more environmentally friendly and sustainable decision-making is fragmented. The legislation related to the EIA procedures needs to be strengthened to include most or all new mining projects as well as their social impacts. When asked about Russian mining regulations compliance with the principles of sustainable development, the situation must be perceived in relation to the Russian saying that says that "the severity of Russian laws is compensated by the optionality of obeying them". This means that Russian regulations may comply with the principles of sustainable development, while their implementation and compliance does not. Experts assert that the Russian environmental legislation, for example, related to discharges of pollutants into water, is more stringent than in many other countries. However, monitoring of compliance with these requirements is not ensured to an appropriate extent.

6.6.2 The Russian Pathway

This chapter has presented the fundamental role that geological resources have played in community development on the Kola Peninsula for Russian households and individuals, through generations, during multiple stages in both professional and private life. Perceptions of sustainable development in the Russian industrial towns analysed in this chapter, are unsurprisingly shaped by the dominant role the mining industry plays on the Kola Peninsula; for the inhabitants' quality of life, perception of environmental concerns, including questions of pollution and landscape aesthetics. Recent studies show how the mining industry and Apatit JSC for a long period of operation possessed the highest level of social license from local communities (Koivurova et al. (2015); Riabova and Didyk 2014). Being the main enterprise for Kirovsk and Apatity the company holds a rather long tradition of social responsibility. In recent years however, the deep restructuring of Apatit JSC and associated lay-offs and other negative social consequences, have resulted in a

significant decrease in the level of SLO down to "acceptance" (Koivurova et al. 2015; Riabova and Didyk 2014). For NWPC, the level of «acceptance» was identified only in Kirovsk, while in Apatity "acceptance" was not detected among the citizens. These findings are supported and strengthened by this study. The decrease can partly be explained by the conflicts with ENGOs, local authorities and the court process (ibid). This also reflects the Soviet traditions where the companies were a main part of the welfare system and delivered all kinds of social services in addition to economic ones. In such a setting, the economic elements of the sustainability concept easily outweigh the social and ecological.

When asked "under what conditions do you think you can sacrifice a part of the natural landscape to facilitate further mineral extraction?" an ENGO representative required two conditions to be fulfilled. First, the benefits for the population must be greater than the damage in the long term (50–100 years). Secondly, the landscape must be fully restored after the completion of the mining operation. According to the ENGOs, the projects implemented by Apatit JSC and NWPC are not justified since the two mining companies inflict too much damage on the environment, including environmental (landscape) losses.

The local inhabitants, decision makers and even ENGOs were seemingly prepared to sacrifice environmental and cultural value in the adjacent areas, to maintain and expand mining operations. This would lead to, according to our informants, not only jobs and livelihoods, but also general welfare and social services to people. This is an interesting observation in relation to the discussion of the concept of sacrifice zones and the trade-offs between social and economic benefits on one side, and ecological and environmental degradation on the other. The ways in which all actors, even ENGOs emphasize economic and social welfare at the local level, can be perceived as compensation logic. In the case of NWPC the economic compensation is built into the license agreements. When NWPC did not fulfil their economic obligations towards Apatity municipality and the municipality brought the case to court in 2014, the compensation logic became very clear.

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Chapter 7
Sacrifice Zones for a Sustainable State? Greenlandic Mining Politics in an Era of Transition

Rasmus Ole Rasmussen and Arild Gjertsen

Abstract Greenland is challenged by harsh economic realities. The exploitation of mineral and energy resources seems to be among the most obvious ways to address the challenges of ensuring a viable and sustainable future for Greenland and its communities. The economic issues are particularly important in relation to the ambitions of taking over responsibilities regarding other policy areas like foreign affairs, and monitoring and protection of fisheries rights where the Danish government is still in charge and paying the costs. Resource management in Greenland has been characterized by pragmatic approaches, not only to the managing of the living and renewable resources, but also in connection with the ongoing adjusting the regulations for mining. The block grant from Denmark acts as a stabilizer for Greenland's economy, reducing overheating in times of large natural-resource revenue as it is reduced when income from extractive industries are of a significant size. This reduces the potential for "boom and bust" scenarios occurring, as observed in other parts of the Arctic. Nevertheless, irrespective of whether one sees the Greenlandic discourse on mining as hegemonic or not in terms of future development, mining activities may have a potentially far reaching impact on various ecosystem services – and hence on these services' role as developmental alternatives or supplements to mining.

Keywords Arctic mining • Multi-level governance • Local government • Development strategies • Land use challenges

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7.1 Introduction

Mining has a long history in Greenland, extending more than two centuries back (Sejersen 2014; Pagh Nielsen and Breinholt Larsen 1985). In recent years it has become even more important due to the difficult economic challenges that Greenland is facing. With most of the available renewable resources utilized close to the maximum and some species being hunted even beyond this point; a collapsed market for seal products as a result of environmental campaigning; and dwindling world market prices for fish and fish-related products, the need for alternative livelihood options to ensure a viable and sustainable future for Greenlandic communities has become increasingly evident.

Indeed, Greenland's political ambition for greater autonomy by reducing economic dependency on Denmark increases the need for economic growth, and the exploitation of mineral and energy resources is one of the more obvious ways to address this need. This was further underscored by the transition from Home Rule to Self-Government in 2009 when measures to achieve greater independence and autonomy became something to be debated and decided within the Greenlandic Government, rather than the Danish Government.

Chapter 3 outlined important changes in the legal and the institutional framework for development and mining activities in Greenland by emphasizing specific laws and arrangements influencing both industry and communities. This chapter will focus in more depth on the institutional framework and environmental regulation for mining activities and the interaction, as well as potential conflicts, between different land-use interests.

In order to show the complexity of this, the focus here is on the situation in South Greenland, in the municipality Kujalleq, and the chapter gives an overview of the present state and expected futures of mining activities in this area. This is followed by an overview of the living resources and its exploitation in Kujalleq municipality. The fact that resource exploitation does not take place in territorial isolation but is taking place under conditions of interactions – positive, neutral or negative – means that these meetings of multiple functions need to be taking into account (Garcia-Blanco et al. 2013). Furthermore it is important to evaluate the community involvement in the process – an issue which is a requirement according to the Strategic Impact Assessment procedure (Hansen 2011; Kørnøv et al. 2011). A final monitoring takes place through the process of Territorial Planning which is subdivided in the Municipal Planning and the Greenland Overall Planning – both required to generate overarching overviews of land use activities and in this connection identifying potential areas of conflicts.

7.2 Governance and Institutions

As emphasized in Chap. 3, Greenland's approach to adjusting the regulations for mining has been characteristically pragmatic throughout the history of mining in Greenland, even after Self-Government was introduced. The evolution of this

process has involved different regimes of governance (as discussed in Chap. 3), and has been responsible for shaping not only the legal framework, but first and foremost the implementation of it.

The principles of the mining regime in Greenland was set out in the Act of Greenland Home Rule (1978) and specified in the Act on Mineral Resources (1978). It was based on a "historic compromise" where the Mining Scheme had a fundamental principle of joint decision-making, mutual veto rights and equality between Danish and Greenlandic authorities outlined in the political cooperation between the government and the ministers.

The Joint Committee office was initially situated in Denmark, but was moved to Nuuk in 1998. All major decisions continued to be taken jointly between the Greenlandic Cabinet and the Danish Government, and supported by recommendations from the Danish/Greenlandic Geological Survey (GEUS), the Danish National Environmental Research Institute (NERI), the Danish Energy Agency (ESA) and Greenland's national oil company, NUNAOIL AS.

The mining industry is in two respects very much an international industry. Firstly, owing to the involvement of multinational companies in the exploitation and processing of the minerals (Hansen et al. 2009), and secondly, owing to the international characteristics of the markets for mining products (Jungsberg 2014; Pagh Nielsen and Breinholt Larsen 1985). Industrial mining is therefore affected by the global economy. Moving the office of the Joint Committee from Copenhagen to Nuuk was done in recognition of the fact that Greenland's stake in future mineral and energy resource exploitation was much higher than that of the Danish government, and therefore decisions needed to be made in close interaction with the Greenlandic Government. However, the office in Greenland also needed to comply with the framework established through the Joint Committee. An important consequence of this transition is the fact that the potential conflict between different forms of land use and resource exploitation has become an «internal» matter for Greenland, and specifically for the Greenlandic Government. Subsequently the question of delegating some aspects of resource management to larger municipalities (following municipal reforms discussed below) has come up as a new strategic issue.

It is well known, however, that those who formally make a decision are not always the real decision makers. In cases where conflicts or different positions come up at the level of the Danish and Greenlandic governments, it is possible to clarify doubts through dialogue, and even re-negotiate the agreement between the two governments. The Greenlandic mining system has historically operated in such a way that conflicts are muted and direct confrontation avoided, at least when it comes to making final decisions. However, while Pagh Nielsen and Breinholt Larsen (*ibid.*) maintain that both mining companies and government – as central actors in the decision-making process – have skilfully played a moderating role in potential conflict situations, others point to fundamental shortcomings in the system through which mining is governed in Greenland. A joint report produced in 2014 by the University of Greenland and the University of Copenhagen, entitled 'To the Benefit of Greenland', points to a lack of transparency in decision-making processes as being "massively present" in Greenland when it comes to natural resource management, and that a more comprehensive and early citizen involvement in decision-

making is needed (University of Greenland and University of Copenhagen, 2014). This sentiment is also echoed by Hansen et al. (2009) and Hansen (2015a, b), who point to local people's lack of trust in the government's ability to protect their interests and to function as a strong counterpart to the power and influence of private companies. De Rosa (2014, p.VI) likewise identifies "a range of flaws connected to the present participatory process in Greenland", arguing that there is a need to establish new participatory forums.

Calls for greater public participation in decision-making have grown along with Greenland's increased political independence from Denmark. At the same time, however, the Danish-Greenlandic agreement also indicates that on both sides there is now a basic understanding of the need to maintain the system itself. These joint interests, like the mineral resource management systems themselves, have certain conservative elements, which contribute to its maintenance and continuity, as well as helping the parties to reach consensus in individual cases. The report "To the benefit of Greenland" (2014) indicates that these ties are still more or less intact, while also concluding that Greenland needs to increase its revenue in order to maintain and ensure the provision of welfare in the country. On the other hand, none of the scenarios outlined in the report indicate immediate options for withdrawing from the Danish realm. Greenland can still benefit from a variety of special and favourable boundary conditions. The block grant from Denmark is one of the most obvious of these. The block grant acts as a buffer, enabling greater political control over the consequences of market fluctuations (Rasmussen and Comtois 1997; Winther et al. 2006). This can also help stabilize local communities as there is a correlation between a wider economy based on natural resources and inefficient or poorly managed social and economic development at the national and local level.

7.3 Reforms and Controversies

The merging of Greenland's 18 municipalities into 4 in 2009 (the year that Self-Government was introduced) was an important part of a process of delegating more responsibility from highly centralized administrative bodies to the municipalities. This structural reform led to renewed discussions about both conflicts and common interests between the central government and the four new larger municipalities; discussions which have of course covered questions of how potential mining development is to be governed. An important issue in this regard is the identification of common interests and possible conflicts of interest which might be rooted in the new Greenlandic planning system (Hansen and Kørnøv 2010; Hansen 2015a; Hansen et al. 2016; Jensen 1998; Kommune Kujalleq 2014a; Rasmussen and Jensen 2016).

In addition to the structural reform from 18 to 4 municipal entities, the administrative reform also included a new division of tasks. The idea was that responsibilities needed to be transferred from the central government to the municipalities and that larger municipalities would be better equipped to take on greater responsibility, in terms of both resources and capacities. In regard to planning, land management

is a policy area where responsibilities have been transferred from the state to the municipal level. The municipal reform, in particular the fact that the results of delegating responsibilities have not met expectations, has opened up the potential for future conflicts because interests at the national level may diverge from those at the municipal level when it comes to costs and benefits of future mining activities.

The potential for mining-related conflict has also emerged in a more specific context. Since 1985, Danish policy has been to maintain zero tolerance of storing, processing and producing radioactive material within the Danish realm. Greenland's zero tolerance policy on mining radioactive materials was inherited from Denmark through the decisions taken by the Joint Committee (Vestergaard and Bourgouin 2012; Bjørst 2016). The Kvanefjeld site at Narsaq is, however, currently being considered for uranium and rare earth mineral extraction. Exploratory mining activities were shut down at this site around the time that Home Rule was established (in 1979) and with the full support of the new Home Rule government. The reasons for this decision can be seen as a combination of the Danish zero tolerance policy and the Home Rule development priority, expressed as "Living resources being the backbone of development in Greenland" (Rasmussen 2005a).

Then, on October 24th 2013, the Greenlandic parliament (Inatsisartut) voted to lift the decades-long moratorium on mining for radioactive materials (including uranium and rare earth minerals with uranium content), and thereby further opening up the country to foreign investors and new mining activities. This was met with public protest and demonstrations in the capital Nuuk. Protestors included sheep farmers from the area close to the proposed mine site, who emphasized the potential risk to their grazing areas posed by hazardous dust from mining and processing. After extensive negotiations between the governments of Denmark and Greenland an agreement relating to the uranium question was reached and ratified by the Greenlandic Government on January 21st 2016 and by the Danish 5 days later. The agreement referred to a number of international conventions related to nuclear safety and physical security that were found to apply to Denmark, but not necessarily including Greenland. An immediate obstacle related to the Danish Realm has thereby been resolved in what could be seen as a very pragmatic way, although this might trigger a major obstacle related to internal politics in Greenland.[1].

How this new challenge will be resolved remains to be seen, but it will most likely be influenced by recent political changes. In 2016, a new government coalition was formed of the parties Siumut, IA and Partii Naleraq, while the parties Atassut and the Democrats, who were part of the ruling coalition since the last parliamentary elections in 2014, have been thrown out of the coalition. The new coalition government has a solid majority behind it, as it now has 24 out of 31 parliamentary seats. The new coalition parties stated that Greenland is irrevocably on the road to independence, and this process requires not only political stability but also national unity. The parties have agreed to put forward proposals for a new constitution by the end of the current (2017) legislature.

[1] Critical voices in parliament emphasized at the time how the decisions has been a step-back in relation to the process of Self Rule because responsibilities in relation to these matters – which have already been taken home with Self Rule – are hereby returned to Denmark.

Clearly, whether or not to start mining uranium is a particular challenge as the three parties are in dispute over it. Siumut supports the extraction of uranium, while IA and Partii Naleraq oppose it. At this point in time, the new coalition agreed to postpone any decision on the matter to when a new application is submitted for uranium mining.

On a more fundamental level, however, the controversy relating to the debate on uranium mining might be attributable to "a discursive paradigm shift" on mining in Greenland, turning mining *in* Greenland into mining *for* Greenland, cementing mining as the primary road to development (Bjørst 2016). In essence this leaves the debate on whether mining could be a part of a sustainable future to pure semantics, as planning will be based upon a presupposition that a sustainable future for Greenland encompasses mining.

7.4 South Greenland Cases

Kommune Kujalleq – the Municipality of Kujalleq – is the southernmost municipality in Greenland, established during the reform of the municipalities by merging the three municipalities of Narsaq, Qaqortoq and Nanortalik (Fig. 7.1, map of South Greenland). The new municipality constitutes an area of approximately 53,000 km^2, with a population of 7088 (2014). Of these, 4838 people are of working age. The population is spread over 3 towns and 11 villages, with 71 per cent of the population living in the three towns. Within the municipality, there is an ongoing migration to the towns, and there is also a certain degree of continuous exodus from the municipality (Kommune Kujalleq 2014a; Rasmussen et al. 2010). Fisheries and sheep farming contribute to food security together with seal hunting and occasional whale hunting, and these activities also contribute to the economy of the municipality. A central problem is the fact that education levels are relatively low, which sets limits on what kind of development may be foreseen in the region (Kommune Kujalleq 2014b).

With its unique geology, southern Greenland is a region with great potential for mining, still not fully explored. The local government of Kujalleq municipality views the mining sector as a new growth industry, and international attention has been drawn to the unique mineral resources in the region, which has also led to increasing interest from foreign investors.

The municipal council has proposed a Community Strategy and Action Plan for mining activities in the municipality, which aims to realize the objectives of providing greater independence from the central government, increasing local competencies and promoting a more diverse economy. New mining projects should be planned and implemented, and local businesses and local workers would be trained, in order to to maximize community benefits from the mining sector, not only in the short term but also in the long term for future generations, with non-renewable resources and renewable resources utilized side by side (Kommune Kujalleq 2014a).

Kujalleq municipality has various ongoing, closed and planned mining projects. These include the Nalunaq gold mine, which was active from May 2004 to October

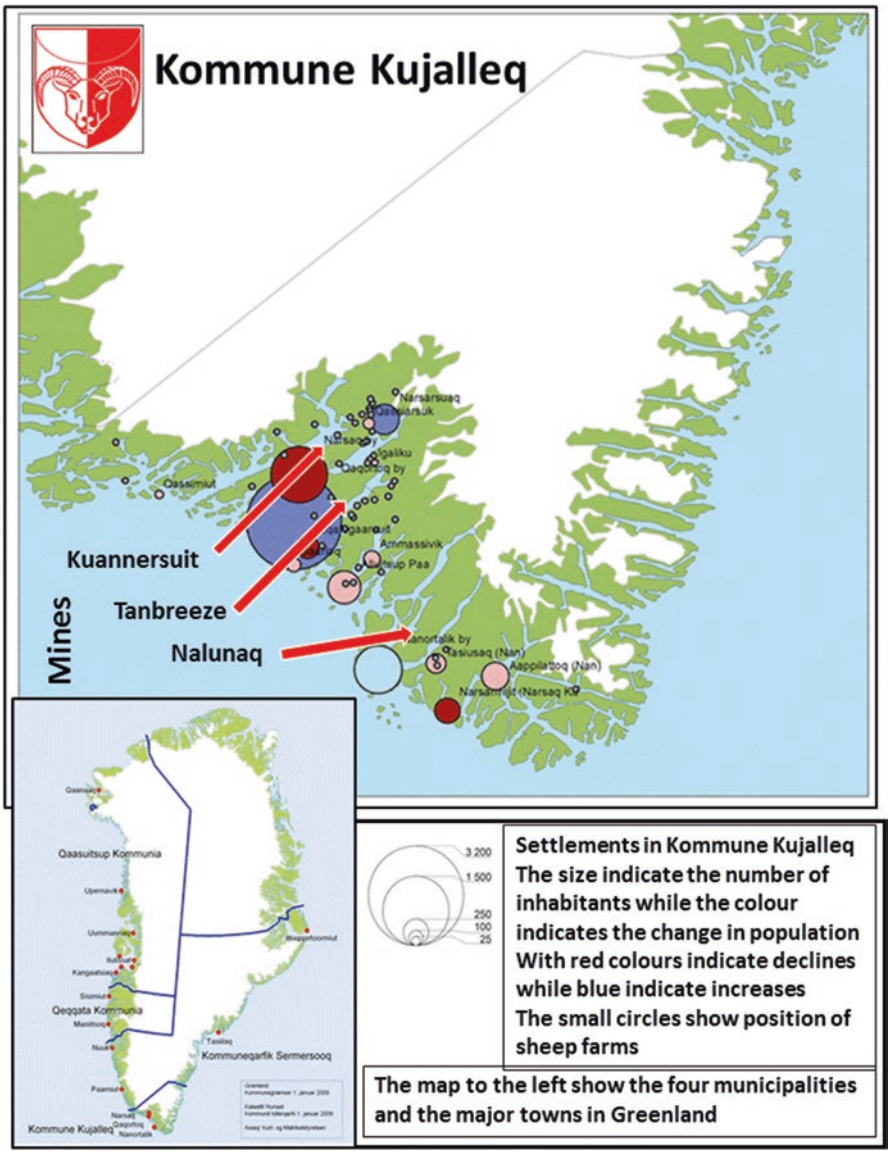

Fig. 7.1 Map of Greenland

2013 but was closed at the turn of 2013/2014. The Tanbreez mining project focuses on rare earth minerals, and a consortium has applied for an exploitation license. And finally, the Kvanefjeld Multi-Element Project is getting closer to submitting an application for an exploitation license. There are currently a total of 23 active exploration licenses and two active licenses to search for oil (Jensen 2014; Kommune Kujalleq 2014a).

However, in spite of many known high quality resources which in principle might serve as an economic base for Greenland in the future, the attempts by both national and multinational companies to launch a new economic era in southern Greenland have shown promise but only generated limited results (Jensen and Rasmussen 2016; Jensen 2014), as a combination of financial, logistic and managerial challenges has hampered progress.

In April 2013 a unanimous municipal council in the municipality decided on pursuing "A development that requires action and thinking of us all!". The cooperation agreement applies to the election period 2013–2017 (Municipality Kujalleq 2014b). It provides the framework for the development of the municipality, and is an essential prerequisite for achieving the overall goal which is to create good conditions for business development in the region. Still, while the municipal government is clearly interested in mineral resource extraction, the framework for taking decisions is quite blurred (Jensen and Rasmussen 2016). According to the Mineral Resources Act, the national government allows municipalities to collect and extract gravel, stone and similar minerals to be used locally as road and building materials, and thus allow allocation of land in cities and settlements for different uses. However, according to the same act, large scale activities with larger land-use requirements need to be approved by the government in Nuuk. A municipality can be fined for collecting or extracting minerals in an unlawful manner.

The municipal authorities are supposed to be a key party in all consultation processes related to mineral resource projects. A municipality may also take part in consultation processes relating to mining projects located in other municipalities. Municipalities thus play a central role in the preparation and evaluation of Environmental Impact Assessments (EIAs) and Social Impact Assessments (SIAs). Municipalities also play a central role in the preparation and implementation of Impact Benefit Agreements (IBA). IBAs are concluded between the Government of Greenland, the local municipality and the relevant company or companies. IBAs should propose programs and plans aimed at maximizing positive impacts and minimizing negative ones. The agreements should outline the timeline and relevant responsibilities for implementing the plans. The plans are considered as separate documents after the approval of the projects, and should be adjusted 3 months after the end of a calendar year (the first year after a full year of operation) to update the aims and objectives of the cooperation. This must be done in close cooperation with the relevant municipality and the Mineral Licence and Safety Authority (MLSA) (formerly the Bureau of Mining and Petroleum or BMP).

In Kujalleq municipality, a total of 23 exploration licenses for minerals are active, just as there are two active licenses to search for oil (Jensen 2014; Kommune Kujalleq 2014a). The three above-mentioned mining projects are described below.[2]

[2] Further details can be found in Rasmussen (2014a, b), Kommune Kujalleq (2014a), and Kommune Kujalleq 2014b.

7.5 The Nalunaq Mine in Nanortalik

Nalunaq Gold Mine A/S started gold production in 2004 (Jungsberg 2014). The deposit had a small tonnage and a great grade, with a total resource estimated to 440.000 tons of ore and with a potential production around 9,1 tons of gold. Further exploration licenses in the area suggest that there might be an additional resource of approximately 1, 7 million tons of ore equal to around 30 tons of gold. It is estimated that in case of re-opening the gold mine can have a lifespan of up to 10–11 years.

The deposit was found in 1992 and until 2007 Crew Gold Corporation owned 82.5% of Nalunaq Gold Mine A/S, while the rest was owned by NunaMinerals A/S. The first ore production was transported to Spain for refinement. In 2009 Crew Gold Corporation decided to sell the mine for 1, 5 million USD. The expenses of shipping the gold ore to New Foundland had increased significantly due to the rise in oil prices, and therefore Crew had problems in managing Nalunaq Goldmine A/S costs effectively.

The fully operational mine including camp and ship loading harbour facilities was then bought by Angel Mining Plc., who also invested in a processing plant using cyanide inside the mine producing the first cyanide based production in 2011 (Jensen 2014 with reference to NAMA Ltd). Again delays contributed to the financial challenges Angel Mining faced until the Nalunaq Goldmine A/S had to close due to a combination of several issues including difficult mining conditions and declining gold prices on the world market (Jensen 2014).

The camp was established in the valley at a distance of around 20 km from the town Nanortalik and due to the rather close situation to Nanortalik the interaction can be described as consisting of adjacent activities. Most citizens in Nanortalik were not directly involved or affected by the activities in the mine. Qualitative data indicate that the perception of the mine was rather positive with the opportunity for employment as the most important impact (Jungsberg 2014).Employment included approximately 30 employees encompassing persons on-the-job as well as the employees working from home. In July 2006 the company employed 79 persons, 10 of whom were residents of Greenland. Transport jobs, construction projects etc. was outsourced to a company based in Qaqortoq, and catering and cleaning was outsourced to a company based in Nuuk, involving 10–12 employees at the mine.

The terms ‘community’ and ‘local’ are relevant to consider since they are likely to portray a group of people as an entity (Svennevig 1997; Spoel and Hoed 2014). Considering local value creation there are big differences between those who have benefitted from the goldmine and those who have not. Those benefitting from the mine were local carpenter and plumbing companies, the hotels, and first and foremost the people who were employed by Nalunaq Goldmine A/S. The foreign workers were rarely visible in Nanortalik and it seems that the inhabitants only had noticed some Icelandic mechanics that occasionally had been spending time in Nanortalik town. Most of the foreign workers only showed up in Nanortalik if they needed to see a doctor or a dentist.

An issue of critique from the municipality has been the level of cleaning up after the mine was closed. The municipality had been promised a clean-up procedure where issues such as re-vegetation had been emphasized because it was intended to release a flock of muskoxen in the valley in order to increase attractiveness to the region both for hunting and for general tourism. Instead Angel Mining is in the process of re-opening the mine, which might represent an economic benefit for the municipality, and might enable a fulfilling of the first promises of landscape reconstruction and re-vegetation.

7.6 The Kvanefjeld/Kuannersuit Mine in Narsaq

Narsaq was an important place in connection with the Danish modernization of southern Greenland both before and especially after World War II. The town was chosen as the centre for the commercialization of the district through fishing and sheep farming. The town is situated at the heart of the Ilimaussaq Intrusion, a geological feature of Kvanefjeld Mountain. This area has a large diversity of rare earth minerals and a substantial amount of uranium. These resources could have made the town into a centre for large-scale industrialization decades ago if they had been exploited. But both prior to and after the establishment of Home Rule, the focus in the region has been on fisheries and farming. Becoming a centre not only for the local fishing industry, but especially off-shore fishing for prawns had a marked impact on Narsaq's economic performance.

However, Narsaq lost some of its standing following the municipal reform, when Qaqortoq became Kujalleq Municipality's centre for administration and education. The option of becoming a mining centre as part of Greenland's new economic plans has re-ignited ideas that could potentially provide a different future for the town. Originally the uranium resources were not considered for commercial extraction after the Danish government's decision not to pursue nuclear power as an option for national energy supply in the early to mid-1970s.

In Greenland, the Home Rule government's decision to halt plans for development of a uranium mine was supported for several reasons. The impact assessments that were carried out in conjunction with the general resource surveys showed a potential negative impact on several natural resources, such as blue mussels, found in the waters around Narsaq, while there were also concerns about potential mining-related health hazards for the population. The most important decision in this regard was the claim from the newly established Home Rule Government in 1979 that future development in Greenland "should be based on living resources", at which point all plans for mining uranium were abandoned. It is therefore only recently that the whole discussion of options for opening a mine in the rich Ilimaussaq complex has taken off.

Bjørst's (2016) analysis of the main narratives that emerged in the public debate on the mining of uranium points to conflicting storylines, "one promising boom and the other doom" (p. 39). The "boom narrative" in Narsaq is perceived by Bjørst to

be powerful inasmuch as it represents a shared belief between the mining company in question,[3] Kujalleq Municipality, the trade unions and the Government of Greenland, and one which begs retelling in the absence of any actual mining activity. This narrative is based on a logic "where mining equals jobs equals sustainable economy equals independence for Greenland" (ibid, p.39), to the detriment of exploring other development paths for Greenland. This is a government strategy also criticized elsewhere (de Rosa 2014) while questioning whether co-management and stakeholder involvement have been secured when discussing the future role of the mineral industry in Greenlands future.

7.7 The Tanbreeze Mine Close to Qaqortoq

The Ilimaussaq complex, which includes the Kvanefjeld deposit, also includes large deposits of rare earth minerals (with small amounts of uranium) at several other localities in the nearby "Kringlerne" mountains. The company searching for these minerals has been named Tanbreez, which is an abbreviation of the metals that they are proposing to extract[4] Tanbreez was established in 2010 by the Australian company Rimbal Pty Ltd. In 2001, they obtained a license to explore the proposed area and have subsequently carried out a number of exploratory operations in the area. The deposit is expected to yield more than 4.3 billion tonnes of ore, and therefore it could be in operation for generations. According to the company, the mining project will comprise an open pit mine, a processing plant, a port (with a heliport), a mine camp, a tailings deposit, and a system of roads connecting the facilities.

The processing of the ore would be quite simple and chemical-free, and would consist of a crushing plant followed by a magnetic separator – a process that utilizes the mineral's different attractions to magnetic fields. The use of magnetic separation could concentrate the onsite ore three to five times. The concentrates would be stored onsite before shipping. The initial plan is to mine approximately 500,000 tons of ore per annum (TPA). The first phases of development had been expected to take place during 2014 and 2015 but have been postponed several times for different reasons (mostly financial, but also due to delays in delivery of the required impact assessments).

In the construction phase the project would demand 30–40 workers at the beginning, a figure expected to increase to 120–140 during the summer months in year 1 and 2 of the construction. The operation phase would require about 97 direct employees, while catering and housekeeping would most probably be outsourced to local businesses. The majority of the employees would work 4 weeks on and 2 weeks off. According to the company, the most likely scenario is that the project

[3] Australian mining company Greenland Minerals and Energy (GME).

[4] Ta for Tantalum, Nb for Niobium, REE for rare earth elements and Z for Zirconium. Analyses of ore samples show that 1.8 % of the ore is Zirconium Oxide, 0.2 % Niobium Oxide, 0.5 % Light Rare Earths, 0.15 % Heavy Rare Earths and 0.02 % Tantalum Oxide.

would mainly attract workers who are already employed in other sectors. New jobs are desperately needed in the region, where there is an extremely high average age compared to the rest of Greenland; a very low percentage of young people below the age of 15; an unfavourable gender distribution with women making up as little as 39% of the population. All this indicates that the region has all the trademarks of a region in distress.

Given that the lack of jobs and opportunities is often seen as a major reason for outmigration from the region, it is not unlikely that the creation of new jobs in connection with the mines could lead to "back-migration" of people originally from the area to take advantage of new opportunities. In parallel, new job opportunities could result in the migration of skilled people from towns and villages in other parts of Greenland (Jungsberg 2014). An analysis of mobility in Greenland was conducted in connection with a planned aluminium smelter in the town of Maniitsoq (on the west coast) (Rasmussen et al. 2010). The analysis revealed a general pattern similar to that suggested above in regard to moving away from and returning to a larger settlement close to a potential industrial site (ibid).

7.8 Alternative Futures?

Whether or not mining will dominate future development in Greenland, it poses a wide-reaching potential impact on various ecosystem services – and hence on those services' role as development alternatives or supplements to mining. Many economic activities in Greenland are based on access to the sea. Some of these activities may be impacted through increased transport activities and the proposed dumping of tailings in the sea. This is what happened during the first exploratory drilling in Kvanefjeld. All samples and tailings with high uranium content were transported to Roskilde in Denmark and stored next to the nuclear research station at Risø. Some of the tailings from the exploratory drilling were dumped at sea and showed a negative impact especially on banks of blue mussels close to Narsaq (Vestergaard and Bourgouin 2012). Most of the impact will, however, be on land, where the tailings are expected to be stored, interacting and potentially interfering with other land use activities. In his report 'Addressing Uranium Contamination on the Navajo Nation', Hubbard (2013) illustrates how both the nearby environment and areas reached by airborne particles may be at risk in the long term. From 1944 to 1986, nearly 4 million tons of uranium ore were extracted from Navajo lands in the western United States, under leases with the Navajo Nation. Many Navajo people worked in the mines, often living and raising families in close proximity to the mines and mills. Today the mines are closed, but a legacy of uranium contamination remains, including over 500 abandoned uranium mines, as well as homes and drinking water sources with elevated levels of radiation (Hostovsky 1989).

The town of Narsaq, close to the Kvanefjeld mine site, used to be an important place for landing and processing fish, especially in relation to the large scale offshore fishing for cold-water prawns, Greenland Blue Halibut and a few other spe-

cies which contribute considerably to the national economy. But just a few years ago the commercial activities related to fishing have moved to larger centres. Today, Narsaq is mainly dependent on transfer payments from the central government and the limited economic revenues generated by the small-scale fisheries. The few land-based commercial activities are even smaller in scale than the fisheries. These include hunting of large land mammals and birds and distribution of the meat to local shops and markets or within networks of family and friends. The major difference between the cases that Hubbard presented of uranium mining on Navajo lands in the US and the Greenland cases presented here is first of all the dimensions of the projects: the projects on Navajo lands were much larger in size. Another important aspect is the constant monitoring and control of mining activities by the Greenlandic authorities. By contrast the US cases are characterized by a very limited number of control mechanisms introduced during the planning and start-up of the projects (Hubbard, 2013).

There is one important difference too between Kujalleq Municipality and other municipalities in Greenland. In 1908, sheep farming was introduced in South Greenland, and in the 1980s, a structural reform strengthened the characteristic of the region as a multi-functional area, with a local economy characterized by combinations of hunting, fishing and sheep farming. As a consequence, sheep farming is the major land-use activity in southern Greenland. A total of around 70 farms may not sound much, but every year the slaughtering of around 20,000 lambs for the home market in Greenland constitutes an important contribution to the local economy. Today, 50 families totalling 157 people are involved in commercial sheep farming and depend on particular ecosystem services that might be negatively influenced by other land-based activities such as mining. This is not only due to the physical space occupied by mining activities, but especially due to the impacts of dust, tailings and water containing hazardous waste on the surrounding areas.

While hunting used to be a major contributor to the basic economy of most communities in Greenland, it faces huge challenges today. On the one hand, the products from hunting are sold directly to the market, and are thus part of the formal economic system where all transactions are recorded and most products end up in supermarkets (Rasmussen and Comtois 1997). On the other hand – and perhaps more importantly for households and subsistence, but also to the strengthening of socio-cultural bonds – hunting and fishing are part of a system of consumption, sharing and informal trade which lie outside the official registration system (Rasmussen et al. 2010) Hunting and fishing are thereby considered to be subsistence activities, a category which captures the family's own use, and the meat donated or sold to neighbours, friends and acquaintances (Rasmussen 2005a). And finally, the products of hunting and fishing are also sold «on the table», i.e. sold at informal markets in most of the larger settlements. Nevertheless, hunting continues as a formal industry due to the fact that there are a range of benefits awarded to hunters, for example guaranteed minimum prices for sealskin. Overall though, the number of people involved in hunting and small scale fisheries is rapidly declining.

In regard to tourism, southern Greenland is known as a region of sheep farms, Norse and Inuit ruins, tiny villages and great scenery. The main tourist season is the

summer, from the beginning of July to the end of September. During the 1970s and the 1980s the Danish Hikers Organisation (Dansk Vandrelaug) was very active organizing outdoor recreational activities in southern Greenland such as trekking and hiking around the then-municipalities of Qaqortoq, Narsaq and Nanortalik (Tommasini 2011). The main purpose was to offer specially targeted tourists unique experiences: enjoying the beauty of the landscape, fishing for arctic char, hiking, sporting activities, and a pleasant stay at a reasonable price in direct contact with the local people. Sheep farmers offered houses or cabins and provided facilities and services to the tourists. This kind of arrangement became very popular both for the tourists and the local population. The tourists were able to enjoy unique experiences without the high costs often associated with such travel, and could also enjoy close contact with the relatively unknown local population.

An important aspect to highlight, and contrary to the organized package tours visiting Ilulissat and other large tourist destinations, is that the tourism revenues were retained locally for the benefit of the local population. Despite the short length of the "good" tourism season this was an important source of additional and, most of all, secure revenue. Access was convenient via the international airport at Narsarsuaq; farmers provided transport from harbour to cabin by tractor; and local outfitters managed the local boat transportation (Tommasini 2011).

Hiking tourism in southern Greenland went into decline in the 1990s, most importantly – at least at an institutional/decision-making level – because the Home Rule Government, via Greenland Tourism, was seeking a different image for tourism. The strategy at that time focused on wealthy tourists seeking "ice-and-snow-attractions", dogsled rides and activities related to the tourists' perception of the 'traditional way of life' in Greenland.

A Foresight analysis[5] carried out in southern Greenland during 2013–2015 highlighted the opportunities and challenges associated with supplementary or alternative development pathways for Greenland[6]. Importantly, consensus was reached among the grassroots (communities), the mid-level (local governments) and the top level (national authorities) that the report's recommendations made were needed, doable, fundable and acceptable as a basis for future development (Dale 2015). While this foresight analysis highlights a plethora of focal points for development strategies, some fundamental premises for future development merit particular attention. In this respect, *land use multifunctionality* is an important concept because it recognizes the co-existence of ecological, economic, cultural, historical, and aesthetic functions. It is especially advantageous when considering cross-sectoral linkages (e.g. trade-offs, mutual benefits) between the bio-economy, the experience economy

[5] A Foresight analysis is a methodology for the development of local economic and social development strategies based on a structured dialogue between relevant actors, and with input from as well local, regional and national actors (Rasmussen 2017). The purpose is to provide a basis for action, focusing on the potential offered and clarified through the analyses.

[6] Visions of development initiatives – Reporting from a workshop on sustainable regional development in South Greenland» (Working Group for Sustainable Regional Development in the Nordic Arctic 2016).

and non-renewable resource exploitation. Again, the concept of land use multi-functionality emphasizes the importance of understanding how land-use activities relate to each other spatially, and where productive land use can be either mono- or multi-functional (Garcia-Blanco et al. 2013). The concept in principle implies that economic development is shaped by new conceptualizations of rural landscapes, where areas once characterized by exclusivity and monoculture can be understood as being physically and conceptually able to accommodate other land use activities as long as the impact of the other activities is not a hindrance. Planning thereby becomes crucial in the development process when land use practices established over the past 50–60 years and leading to spatial and functional segregation are replaced with land use strategies that increasingly emphasize multi-functionality as an important characteristic of contemporary land use. The landscapes of the future would thus serve, simultaneously and in integrated ways, a number of different functions.

A key component of a successful land use strategy would be that it merges future national development goals with the local context that includes: spatial factors of scale, geography and environment; socio-cultural factors influencing the people who feel the effects of decision in their everyday life; and political and economic factors that embed both explicit and hidden agendas into the development discourse.

Much of this information can be gleaned by looking into recent history to assess how planning strategies have been designed and implemented, and what the effect has been on settlement patterns and land use. ‘Storylines embedded in recent history and traditions as well as economic opportunities have resulted in a spatial arrangement and management of Arctic cities, towns and villages in which they share a notion of (common) place with multiple (urban and rural) users of landscapes. Thus, land use issues are seen as reflecting the constant process of renegotiating the impacts and opportunities represented by these multiple uses of landscapes, spaces and places (Hagen and Evju 2013; Hansen et al. 2016; Nilsson et al. 2016).

7.9 The Challenges of Planning and Zoning: Sacrifice Zones or Multifunctional Landscapes?

While the previous discussion related directly to future mining and energy extraction, the following relates more broadly to the planning and zoning of land-use activities. Greenlandic land-use zoning includes the category of “zones outside the municipal boundary”, which refers to areas such as airports and other areas excluded from the municipal territory owing to their specific use that implies certain restrictions as well as rights. This category also applies to certain types of protected area such as Ramsar sites (areas protected under the Ramsar Convention for the conservation of wetlands) and the National Park in northeast Greenland (Hansen 2013).

Another issue relates to specific land use activities related to the ecosystem services such as agriculture and grazing (Rasmussen 2014b). In southern Greenland

specific areas were therefore designated where sheep could graze. The management of the grazing areas was delegated to the Sheep Farmers' Association, irrespective of which municipality they were located in. In most cases the grazing areas were kept within natural boundaries, but where this was not possible, fencing of the areas took place with government funding. As a consequence of the 2009 Municipal Reform, all municipalities where sheep farming took place were merged into the municipality of Kujalleq.

Since 1987 the municipalities have been responsible for planning and land use management in towns and villages, while Home Rule was delegated the responsibility of planning and land use management in the open country, i.e. areas situated outside built-up areas. The Act of Inatsisartut on planning and land use (2010) introduced a provision that The Government may lay down detailed rules for the provision and content of strategic environmental assessments prior to the planning and construction the operations of economic activities (Nilsson et al. 2016). According to the License Act a license under the Mineral Resources Act exempts the licensee from, for example, reconciliation with land location within and outside the permit area for buildings and facilities. A license under the Mineral Resources Act shall also be entitled to carry out activities covered by the permit, and other activities directly connected with it. This means that the general legislation on planning and land use does not fully apply to the activities that have been initiated permitted under the Mineral Resources Act (Jørgensen 2015; Jensen 1998; Jensen and Rasmussen 2016).

Despite the existence of a formal zoning procedure for the whole of Greenland, the current system of planning and land use is such that most of the territory has the potential to be included in a large-scale industrial project of any kind. A zoning initiative was launched in 2012 to establish a special business zone north of 81° latitude, which in practice means the whole of northern Greenland. The purpose was to introduce new and more attractive conditions for industry in that area (Spoel and Hoed 2014; Rasmussen 2014a). Exactly what will be the impact of such an initiative, and whether the overall zoning of land use would be extended further south is still undecided. But if a political consensus is reached on this, then it would mean a step back to square one compared with the whole ideology of the municipal reform which was aimed at decentralizing responsibility to the municipalities (Hansen 2013).

As emphasized by Lerner (2010) Mining activities have a great impact on nearby environments through disposal of tailings contamination of surface water, dust particles and noise disturbance. As a conasequence, he characterizes such areas as "sacrifice zones" which in his view are formed by powerful, mainly economic forces belived to be out of control, especially concerning the rights violations and sustainable development concerns voiced by local and especially indigenous people, who in effect under such circumstances would have to live under conditions beyond their control. As is discussed elsewhere in this volume however (see for instance Chaps. 2 and 11), the analytical value of the concept is at least contestable when opinions on the ground concerning the level of (potential) distruction and (potential) positive effects of physical scarring and environmental degregation dif-

fer. In South Greenland, debates are raging concerning how and to what extent mining could be synonymous with sustainable development, but developments are not characterized from the ground as a process of sacrifice.

With the publishing of the National Planning Report in September 2015 by the Government of Greenland (Finansdepartementet, Grønlands Selvstyre 2015) an important step has been taken in connection with planning issues and national concerns. In the report the Government presents the status of key parameters and describes how far the country has come in terms of coordinating and building coherence between land use planning and economic constraints and ambitions. The report further stresses the fact that Greenland is facing major economic challenges, mainly due to the gradual change in the population's age structure, a large education gap compared to other nations, and not least a one-sided dependence on export earnings from fishing. It provides the first comprehensive description of planning at the local and national levels; it reflects the regional challenges that municipalities face in planning; and it also highlights measures that might allow Greenland to realise its development potential.

The report emphasizes that there is a strong desire both within and between the municipalities and the Government of Greenland to establish better coordination of activities in order to achieve the desired societal development. And at the same time it emphasizes the need to involve the population in a broad public debate on the content and objectives of national planning where citizens, municipalities, businesses, organizations and others are supposed to have the opportunity to contribute and provide input to national planning processes and their implementation (Rasmussen 2005b; Rasmussen et al. 2003).

The National Planning Report was discussed in a series of public meetings with representatives from the Ministry of Finance up to the 2016 autumn session of the parliament, when a revised and more comprehensive report was prepared. When the original draft report was presented in Parliament on 19th November 2015 the report and its intentions were generally accepted by the full political spectrum. It was emphasized that this should be followed by a more substantive discussion on future priorities, and that participation of the municipalities would be sought early to ensure planning was aligned across municipalities and the government.

7.10 The Challenges of Legitimacy, Transparency and Involvement

A key issue for future development seems to be how the legitimacy of development projects is secured. The involvement of the labour market is a crucial element in the interaction between the community and the mining industry, where the concept of labour market multipliers can be applied in order to provide a measure of the total involvement of the local labour market in a given project (Rasmussen 2003; Storey and Hamilton 2003). The need for a skilled labour force generates a number of

positive effects on communities. First of all, there is the need to develop local skills, which generates demand for more advanced education provision, which eventually leads to a general overall improvement in the qualifications of the local labour force (Jensen 1998; Hostovsky 1989). Secondly this demand often results in a general improvement in the available services, which creates new jobs and thereby a more open and dynamic economy. In addition, the increase in more advanced qualifications among the workforce eventually leads to a more innovative milieu which is a substantial part of the development of new economic activities (Hagen et al. 2013; Hansen and Rasmussen 2013; Jørgensen 2015; Kommune Kujalleq 2014b).

However, industrial activity may also have negative consequences for local communities. The new activity usually requires qualified workers, and if these are sourced locally, this may result in a drain on local human resources for other activities, especially if higher salaries are paid by the new project. If qualified workers are not available locally, the influx of incomer workers may put pressure on the existing physical and social infrastructure. Moreover, if the new industry offers a generally higher level of salaries, this could lead to wage distortion. Not only might this result in a drain of qualified workers from other local industries, but the increase in salary levels and living costs locally may eventually put a number of previously well-functioning industries out of business (Winther et al. 2006).

Added to this, a history of controversial resettlements has taken place in relation to the development of mining projects (Sejersen 2014). According to Hansen et al. (2016) this has created a "deep concern about the potential impacts on inhabitants of settlements in close proximity to potential mine sites", not least exemplified by the uranium mine in Narsaq, where the relocation of people has been considered in the event of environmental risks being deemed too great.

As mentioned above, the municipal reform of 2009 aimed to devolve responsibility for local planning and decisions to the municipalities, not only in relation to competencies and resources, but also in terms of establishing transparency in planning processes and ensuring local community participation. Ideally, natural resource governance should now benefit from the relatively short distance between governmental institutions and the governed. Such an advantage presupposes that consultation and involvement of local community stakeholders transcends the pro forma level, and introduces substance to the principles of information exchange, transparency and deliberation. However, the desired goals of greater transparency and participation have not yet been reached, and the process of decision making has not yet become the expected open and free debate which was prescribed in the structural reform.

Some uncertainties probably need to be addressed in order for devolved decision making to work out. A key factor is the limited experience of the government with large scale mining projects (Hansen et al. 2016). But it is also important to consider the impact of international environmental organisations such as Greenpeace and Sea Shepherd on the livelihood of hunters, sheep farmers and fishermen who depend on the international markets for sealskin, fish and agricultural products. If both of these factors are ignored, this might sustain the fear that the private sector or international organisations will set the development agenda and not protect local values, by ulti-

mately questioning the narrative of "positive development" (both economic and environmental) (Hansen 2016; Hubbard 2013; Rasmussen 2005a). Hansen et al. (2016) also point to the governance of large scale development in Greenland – specifically regarding the conditions under which industrial activities should or should not be permitted. In some cases this suffers from being carried out on a case-by-case basis, lacking overarching comprehensiveness. This is possibly attributable to institutional inexperience, but it nevertheless adds to the challenges of governance.

A further element exacerbating these challenges relates to the knowledge informing such decisions and the knowledge used in related discussions. As De Rosa (2014) has observed, knowledge has been produced by a limited set of scientific institutions, and alternative interpretations of environmental effects may have been disregarded in some official publications (specifically in regard to the lifting of the zero-tolerance policy on uranium). However, De Rosa's analysis was carried out at a point in time when the role of the Danish Realm in decision-making was undecided. The situation has now changed, following the approval of the comprehensive National Planning Report (Finansdepartementet, Grønlands Selvstyre 2015). While there is still some uncertainty about the framework conditions for extraction, according to the latest negotiations between Denmark and Greenland the full ownership and decision-making power over the governance of natural resources is maintained by Greenland, while Denmark remains in charge of foreign and security policy. The potential for future exploitation and export of uranium and other radioactive minerals has given rise to a new uranium agreement governing cooperation between the two countries. These negotiations resulted in the presentations of bills to both the Danish Parliament and Inatsisartut (the Greenlandic Parliament) in the spring of 2016, on safeguarding nuclear materials and on export controls for 'dual-use' products that can be used both for military and civil purposes.

7.11 Concluding Remarks

Greenland is challenged by harsh economic realities. A collapsed market for seal related products due to environmental protests, and dwindling world market prices for fish and fisheries related products adds to the challenges of ensuring a viable and sustainable future for Greenland and its communities. The exploitation of mineral and energy resources seems to be among the most obvious ways to address these challenges.

The economic issues are particularly important in relation to political ambitions of taking home responsibilities from the Danish Government regarding policy areas such as foreign affairs, monitoring and protection of fisheries rights, which would require that Greenland is capable of covering the related administrative costs. Furthermore, there are institutional challenges related to the centralization of government through the municipal reform aiming at ensuring more viable and cost-efficient entities being able to take over a broader set of administrative tasks, and the

devolution of responsibilities from the central government to the new and larger municipalities.

As emphasized above, resource exploitation does not take place in territorial isolation but under conditions of interaction across administrative scales. In this respect, resource management in Greenland has been characterized by pragmatic approaches, not only to the management of the living and renewable resources, but also in connection with the ongoing adjustment of the regulations for mining.

While the Home Rule credo emphasized living resources as "the backbone of development in Greenland", it may become a major obstacle in relation to internal politics in Greenland which eventually might commence, because it positions the municipalities in very different situations based on whether or not renewable and non-renewable resources are abundant.

Southern Greenland is a region with great potential for mining due to its unique geology. Therefore Kujalleq municipality wishes to make the mining sector into a new growth industry with the aim of securing greater independence, increasing the local skills base and building a more diverse economy. The aim is to attract new mining projects and to help local businesses and workers build their capacities to maximize community benefits from mining. These ambitions are not only for the short term but also for the long term, for future generations, in a future where renewable and non-renewable resources resources are utilized side by side.

A foresight analysis conducted in southern Greenland during 2013–2015 highlighted the opportunities and challenges associated with supplemental or alternative development pathways for Greenland. In this respect, land use multi-functionality is an important concept because it recognizes the co-existence of ecological, economic, cultural, historical and aesthetic functions. Planning thereby becomes crucial in the development process replacing spatial and functional segregation with land use strategies that increasingly emphasize multi-functionality as an important characteristic of contemporary land use. The landscapes of the future would thus serve a number of different functions which – carefully planned, managed and controlled – would enable the co-existence of economic activities based on both non-renewable and renewable resources.

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Chapter 8
The Nussir Case and the Battle for Legitimacy: Scientific Assessments, Defining Power and Political Contestation

Halvor Dannevig and Brigt Dale

Abstract This chapter investigates the process of opening the Nussir copper mine in Kvalsund, Finnmark County, Northern Norway, and the efforts that have been made to legitimize it locally. Particular attention is paid to the way both scientific and lay knowledge influence political decisions in relation to the recently approved mine, with a tailings depository in a nearby fjord. The aim is to explain why conflicts persist over the project's knowledge base, despite formal requirements for a comprehensive and participatory assessment process having been followed. Through interviews, document analysis and a review of media coverage, the chapter concludes that local acceptance of the mine is represented by the municipal council approval of the developers' assessment program (AP), although this acceptance is not shared by all, as controversy around the environmental impacts of the project persists. After the municipality approved the company's zoning plan (that followed the AP), the decision-making process shifted to the national level, rendering the local dialogue less relevant. Further, the environmental impact assessment (EIA) process did not contribute to local legitimacy, as there was little local involvement in its production, while the content of the EIA is virtually inaccessible to local residents due to its sheer size and technical jargon. An EIA process with more local participation and incorporating local knowledge would not have avoided the conflict over the monetary and non-monetary valuation of the Repparfjord area, but it could have resulted in a knowledge base that was less controversial, more legitimate and therefore provided a more solid basis for future operations. However, this would have required local politicians to admit that the decision to open the mine was primarily a matter of politics, and not a technical matter which can be resolved to the satisfaction of all solely through the production of scientific knowledge.

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Keywords Arctic mining • Environmental impact assessment • Environmental governance • Boundary work • Social license to operate

8.1 Introduction

In recent years, we have witnessed several initiatives aimed at increasing mining activities to extract valuable minerals in Norway. The Nussir copper mine in Kvalsund, Finnmark, is the latest one to be approved. Broadly speaking, these initiatives tend to spur heated debate and raise concerns from a variety of stakeholders. For whilst it is true that minerals hold value that can be capitalized on and thus are seen as a potentially positive driver for development and change, the impacts and consequences of the activities taking place in a particular landscape often put other valued aspects of the landscape at risk. In Norway, local communities, represented by the municipality, have gained substantial autonomy in decisions on whether to approve a mine. The mine developers therefore need to engage in negotiations with affected communities over impacts and benefits to obtain what is referred to as a "social licence to operate" (SLO) (Prno and Scott Slocombe 2012). This process frequires that the knowledge on which the assessment of impacts, risks and benefits is based is shared and acknowledged, and that the decision-making process itself is seen as legitimate by affected parties (Koivurova et al. 2015). According to EU directive 2011/92/EU concerning environmental impact assessments (EIAs) – a directive that Norway also adheres to as a member of the European Economic Area (EEA) – the assessment of risks and benefits should include both expert and lay opinions, while local, national and international stakeholders can participate (Nenasheva et al. 2015). Policy makers are supposed to produce legitimate decisions based on the assessment of benefits and risks. However, conflicts may persist after a decision has been made, despite efforts to assess risks and benefits and to anchor the decision-making process locally.

In this chapter, we present a case in which the production of knowledge concerning a proposed tailings depository in the Repparfjord in Kvalsund municipality, Northern Norway has been heavily contested (Koivurova et al. 2015). This proposal served as the core controversy in a political battle regarding the opening of the Nussir copper mine. The debate has also included other matters of concern – not least the question of Sami rights of access to and utilization of the landscape in Finnmark. In this chapter, we will focus primarily on presenting and analysing the political processes both within and outside of the municipality relating to the tailings depository, although the matter of indigenous rights and impacts on reindeer herding in the area will be briefly touched upon as well. For other discussions concerning Sami land rights and how they influence and are influenced by mineral projects, we refer to Chaps. 3, 9 and 11 in this volume.

On December 8, 2015, the Norwegian Ministry of the Environment provided the last of the necessary approvals for the Nussir mining project in Kvalsund. With this

decision, years of planning, testing, risk assessments and political negotiations had seemingly paid off for the mining company *Nussir ASA*. Its CEO, Øystein Rushfelt, explained to us how he had worked with the local community to gain acceptance for the project:

> We started up in late 2009, with initial talks with the municipal leadership and, more importantly, with people in public meetings. They drew a crowd, and very early on we invited those most eager to be a part of a reference group that could be a part of the planning process. We thus asked the public to play a big part in the decision-making process.[1]

According to Rushfeldt then, the public had been invited in, and the process had been both thorough and productive. He described the input from the reference group as "fruitful and constructive", a statement which, as far as we have been able to establish, holds merit with both opponents and proponents of mining activities in Repparfjord.[2] In this sense, the Nussir approach, to a large extent initiated and driven by the company CEO, Mr. Rushfeldt, was one where mutual understanding, dialogue and participation appeared to be of primary concern. Indeed, all the stakeholders we have spoken to about the role of Nussir's CEO gave him credit for his inclusive manner and what they saw as a genuine concern for the well-being of the population and future opportunities in Kvalsund, even if they disagreed strongly on the issue of the mine. However, not *all* stakeholders agreed that the premises upon which dialogue and influence were based left room for the multiple concerns about values other than those measurable through economic growth. These concerns are expressed, for instance in the documentary film "Nussir – a dream about Finnmark".[3] Here, several people talk about their concerns about nature and Sami interests when it comes to the Nussir development plan, including one person who states: "… it is the mining company that decides… and we know what they value: as much profit as possible".[4]

These sentiments were obviously built into a narrative chosen for the film in which conflict was in focus and not cooperation or deliberation around the utilization of natural resources. Yet they also resonate with statements from locals in media debates and to us personally concerning the potential impacts of the copper mine. One informant said for instance that she was "… terrified; we feel like we are (in) a laboratory here". The same respondent went on to say that all concerns about what's at stake in the end came down to profit for the owners and economic benefits for the municipality.[5] Likewise, other interviewees also stated that, quite early in the process, they had realized that Nussir's goal was obviously to win over as many local stakeholders as possible, thus strengthening the potential to gain the local acceptance they needed. Thus, Nussir's approach to public participation – although

[1] Rusfheldt, interview, December 2nd, 2014.

[2] In several interviews, local stakeholders have expressed sympathy with Nussir's approach to outreach and information flow during the process.

[3] Film directed and produced by Harald Einarsson, 2013. Available at https://www.youtube.com/watch?v=SOLcTsXLUbg, accessed February 10th, 2016

[4] Mr. Knut Altmann, quoted from the film «NUSSIR – dream about Finnmark», see footnote 3.

[5] Statement taken from notes taken during conversation with interviewee # 6, June 2014.

appreciated – is not necessarily accompanied by sympathy towards their intentions. Specific interest groups find themselves and their interests threatened by the project, not least those with particular concern for landscapes and ecosystems, especially marine ecosystems.

The discharge permit from the Norwegian Environment Agency (NEA), which was the final permission Nussir needed, stated that:

> … after thorough consideration … a permit for activities at Nussir and Ulveryggen[6] in Kvalsund municipality is licenced. The main rationale for providing Nussir ASA with a licence to pollute are industry policy concerns with respect to mining activities in Norway, as it is likely that the project – if initiated – will provide substantial income to society, and we believe it is environmentally prudent to allow mining to take place, provided that (…) the strict demands outlined are adhered to. (NEA, decision letter of 08.12.15: pp 49–50, our translation)

The decision spurred an outcry of protests, predictably from the environmental movement and representatives of the Sami community, but also from several local and regional politicians and political commentators, who argued that the exploitation and utilization of natural resources in Norway's outlying regions are to a large extent decided upon and targeted at the (capitalist) interests of the population in the centre. These protests highlighted a broad critique of the centre-periphery dynamics of natural resource management in general, and a feature of extractive industries in particular: that risks are taken locally whilst benefits are reaped in (capital) centers. This argument is also connected to "the resource curse" (see for example McMahon and Remy 2001; Prno and Slocombe 2011; Steen and Underthun 2011).

In this chapter, we aim to show how efforts have been made to legitimize the process of opening up the Nussir copper mine locally. We pay particular attention to the way that both scientific and lay knowledge influence political decisions, first and foremost in relation to the planned – and governmentally approved – establishment of the controversial fjord depository for the mine tailings. Our overall concern is to shed light on the following question:

> How is the mining project being legitimized locally through policy processes and local debates, and what role is played by the EIA process?

By answering these questions, we aim to explain why conflicts over the project's knowledge base persist, even though the formal requirements for a comprehensive and participatory assessment process seemingly have been followed.

The chapter proceeds with a short section on the history of mining in Repparfjord; then we present an outline of the formal requirements for establishing the mine. Secondly, we present the values at stake as defined locally, a review of the formal process and the conduct of the EIA and the local perception of the EIA before we present our conclusions.

[6] Nussir and Ulveryggen are the mountain ridges included in the application for extraction.

8.2 The History of Mining in Repparfjord

According to local Sami herders, people have known about the copper ore in the hillsides above Repparfjord for centuries,[7] but environmentalist Svein Lund states in his book "Gull, gråstein, grums og gift" (Gold, Granite, Dregs and Poison) (Lund 2015) that reliable information for this spesific area of the Kvaløya/Hammerfest region was first provided around the year 1900 by Anders Monsen, a Sami herder.[8] In the 1970s, a copper mine was operated by the Norwegian mining company Folldal bruk, but closed after a few years of operation, mostly due to fluctuations in international market prices. During this period, around 3 million tonnes of copper was extracted, and the tailings were disposed of in the Repparfjord. Activities ceased in 1978, and 40 men lost their jobs (Lund 2015: 44). Since then, gravel has been produced periodically, including construction material for the Melkøya LNG processing facility for the offshore natural gas field Snøhvit. Today – paradoxically, some would argue – the disused opencast mines are being used as depositories for bore cuttings from offshore drilling in the Barents Sea.

In 2007, Nussir ASA started test drilling on the Ulveryggen and Nussir ridges and soon discovered a large reserve of copper ore on the Ulveryggen ridge near the old mine (Photo 8.1). This was followed by several other discoveries indicating that

Photo 8.1 Illustration of the area, with the assets at Ulveryggen and Steinfjellet/Nussir marked in, as well as the production site Folldal and the Salmon river Repparfjordelva. From Nussirs homepage, nussir.no, Accessed February 3rd, 2016

[7] Personal communication, Dannevig, 14.05.2014

[8] For a more detailed description of early findings, initial mining crackdowns and small scale outtakes, see Lund 2015, pp. 39–41.

the ore extended to just below 1000 m, and revealing the presence of both gold and silver ore. In 2010, Nussir submitted and subsequently got approved an Assessment Program (AP) to the municipality, which among other things initiates an EIA. Nussir then secured approval for their zoning plan from the municipality, which granted them local permission for the land-based facilities associated with the mine. This included the Environmental Impact Assessment, which became a source of much controversy. In addition, the company needed a permit for depositing the mine tailings, and opted for a depository in the fjord, as before. In January 2012, Nussir applied to the NEA for permission to deposit mine tailings in the fjord. The company was granted governmental approval for the zoning plan in April 2014, and a final tailings disposal permit in December 2015 (see above).

8.3 The Planning Process and the Quest for Legitimacy

In Norway, as in most other European countries, changes in land-use and industrial development that has an impact on socio-ecological systems require formalized processes ensuring local stakeholder participation, as well as the incorporation of knowledge about possible environmental and socio-economic impacts. As a member of the EEA, Norway has had to harmonize its land use legislation with EU law, and is obliged to follow the framework directive 2011/92/EU that mandates the use of Environmental Impact Assessments (EIAs). At the national level, legitimacy is obviously connected to legislation and procedural justice. At the local level this is also an important basis for trust, in the sense of ensuring that specific rights and duties are upheld. In Norway, the Mining Act regulates mining activities together with the Pollution Act. Measures that have an impact on land use are regulated by the Planning and Building Act. As Paavola (2004) and Prno and Scott Slocombe (2012) have shown, at the local level, legitimacy is closely related to local experience of benefits and compensation, lack of (or acceptable control over) negative impacts, and inclusive decision making processes. In the following paragraphs, we will present the formal requirements and processes needed to open a mine in Norway, including a description of the formal role of some of the most important institutions involved. This part also builds upon the description of the formal procedures and legal framework presented in Chap. 3.

There are several formal processes leading up to the opening of a mine. First, at the municipal level, the mining company must present an assessment program (AP[9]) to the municipality, which outlines the scope of the proposed project, the proposed content of the mining company's zoning plan and the proposed content of and requirements to be addressed by the EIA. The zoning plan specifies the land-use of the project (placement of buildings, roads, other infrastructure) and is legally binding. The AP is subject to public consultation, an element that makes it possible for affected parties to learn about the proposed project and to influence the formal

[9] Called "*planprogram*" in Norwegian.

process. The municipal council may, based on the consultation or on its own initiative, mandate changes to the AP. If the municipal council approves the AP, the EIA will be carried out. This process is paid for by the applicant, and is also subject to a public consultation process, in which a designated number of stakeholders have a formal right to oppose the suggested plans. This right may be granted based on a stakeholder's obligation to check environmental or cultural heritage protection requirements, or specific land-use rights that they may have in the area. The Sami Parliament (SP) has the right to raise objections to plans that affect the legal rights of the Sami people.

The primary legislative tool that ensures local legitimacy of mining projects is the requirement for zoning plans and EIAs, mandated by the Planning and Building Act (PBA). These must be approved by the locally elected municipal council and are subject to public consultation. The process is initiated by the aforementioned AP. An interesting point to make here is that the decision to allow a mining company to work out a new zoning plan, one in which the mining activity is described, solely rests on the municipal council – prior to any knowledge gathering processes. This means that the very first step in the otherwise heavily (scientific) knowledge based process of assessments and approvals is purely reliant on political reasoning, the rationale no doubt being that a municipal council in most instances would want a revised zoning plan to be drafted, precisely because it would bring to light the way in which the proposed mining activity would influence its surroundings.

The minimum requirements for the zoning plan are laid out in the PBA and related regulations. An EIA is required when the proposed extraction exceeds more than 2 million tons of material, or if it affects an area larger than 0,2 km2. The EIA requirements are laid out in a regulation under the PBA (FOR 2014). The main point is that the EIA shall provide "… an assessment of the aggregated effects of the changes in land use on society and the environment" (ibid). The EIA shall assess impacts on a range of environmental and social features, such as outdoor recreation, biodiversity, landscape, disaster risks, crime prevention, and architectural quality. However, the regulation says little of the quality requirements for an EIA or the competencies of those who are to do the assessment. Fauchald notes that "given the reliance on marine deposit of mining waste in Norway, it is problematic that the Waste Regulation does not address issues of particular importance to marine waste facilities" (Fauchald 2014). It is the developer that should commission and pay for the EIA, but the EIA requirements are defined in the AP that the municipality must approve. The municipality can specify further requirements to the EIA in the process of approving the AP, for example drawing attention to issues that need to be included and questions that need to be asked. The municipality also has the opportunity to influence the choice of who carries out the EIA. But the EIA data gathering process itself does not guarantee local involvement or use of local knowledge. The mandatory public consultation process is thus the only formal channel for the consideration of local knowledge.

8.4 Theoretical Perspectives

This section provides a framework for the analysis of how a mining project aimed at transforming the socio-economic foundation of a community seeks legitimacy, and how different valuations of landscape and the natural environment are emphasized in the dialogue. Legitimacy relates to whether the proposed development is acceptable to the affected parties. It is thus necessary to assess: (1) how the *legitimacy* of the process is achieved, and (2) how *legitimate* knowledge is produced. The first issue concerns formal legitimacy, or *procedural justice* (Paavola 2004), i.e. whether the allocation of benefits and costs is fair (Prno and Scott Slocombe 2012); whether the anticipated risks and benefits are assessed in a manner acceptable to all stakeholders both within and beyond the community; and whether these risks and benefits are broadly accepted as relevant.[10] Legitimacy is a key component of the notion of a *Social License to Operate* (SLO). It has been widely recognized that mine developers are increasingly dependent on securing an SLO from the affected local communities (Prno and Scott Slocombe 2012). In Norway, the emergence of the concept SLO is attributed to the devolution of decision making from the state level to the local level in matters concerning land use changes, resource extraction and industrial development. Today, local communities are in a position to expect more from mine developers than they used to (see also Chap. 4), to some extent because mining is now seen to enter in to and influence already established nature-community relations, and only to a lesser extent seen as that which 'creates' a community, and that the potential benefits thus should outweigh the potential increased risks the industry and its activities represents.

It is our perception that the transition from state-run mining initiatives (or at least a high level of state involvement) to a situation where private enterprises, often backed by multinational companies, increasingly take the initiative and run the process has led to a weakening of local, regional and even at times national identification with (and acceptance of) mining projects. This means that the efforts required to secure an SLO, including assurances of local, regional and national benefits, often are greater today than was previously the case.

The elected municipal council enjoys a monopoly on land use planning in Norway, which is meant to ensure local democratic control and formal legitimacy in relation to land use (see also Chaps. 3 and 9 in this volume). Consultation by various state agencies, the public and legality control of the decision by the county governor is further expected to contribute to *procedural justice*, which "encompasses recognition, consultation, participation and the distribution of power in environmental decision making" (Paavola 2004, 68).

In the Norwegian context, the evolution of the SLO concept typically refers to situations where communities have been able to obtain benefits from industrial

[10] See Chap. 11 for a discussion on how these processes are part of a governmental aim to secure resources and (the needs of a larger, national) population; processes where center-periphery security concerns may differ.

development in terms of an increase in welfare (Koivurova et al. 2015). But despite procedural and distributive justice, local controversy often persists, indicating that legitimacy also hinges on social and cultural norms (Adger et al. 2005). It also suggests there are different approaches to valuation, for instance economic benefits are not accepted as compensation for loss of landscapes and landscape features, because these are not measured in economic terms by the affected people (Paavola 2004).

To ensure procedural justice and to secure an SLO, decisions must also build on legitimate knowledge (Prno and Scott Slocombe 2012). In the field of environmental governance, EIAs are supposed to help decision makers to make informed policy choices relating to the environment and to evaluate trade-offs between loss of environmental value on the one hand and development gains on the other. But the EIA process mainly relies on techno-scientific tools for assessing objective and measurable risks. These tend to outmanoeuvre other knowledge traditions and the concerns raised by those who advocate for them, supporting the impression that decisions based on non-scientific forms of knowledge are as value laden as they are knowledge based (e.g. exemplified in Hauge et al. (2014) and Dale (2016)). Thus accordingly, the lack of measurability and adherence to the methods of science (which includes the possibility to reproduce – or falsify – a given result under controlled circumstances) often leaves the impression that whilst hard science is objective, non-scientific knowledge production is biased and thus belongs to the realm of *emotions* or, indeed, *politics* (e.g. Jasanoff 2004).

In practice, it is challenging to solve complex policy issues through science, as values, risks and uncertainties are conceptualized in completely different ways in science and in policy (Funtowicz and Ravetz 1994; Petersen et al. 2011). The conflict surrounding the knowledge base in many environmental governance processes, despite comprehensive application of EIA, has been criticized as a manifestation of a linear science to policy model (Hertin et al. 2009; Saarela and Söderman 2015). As a response to the limitation of the linear model, there has been an increasing focus on the importance of boundary arrangements and co-production of knowledge for solving complex policy issues (White et al. 2010; Hoppe and Wesselink 2014; Saarela and Söderman 2015).

As scholars studying the relationship between science and society have pointed out, the production of knowledge obviously has social and political consequences (Jasanoff 2004). So when politicians try to base complex and difficult policy decisions on the legitimacy gained from impartial, objective and value-neutral scientific knowledge, it results in the battle for legitimacy shifting to the realm of knowledge production (e.g. Latour 1993; Douglas 1992). In addition, and as widely acknowledged, scientific knowledge thus tends to be *politicized* both as a result of processes in which specific fields of scientific study are politically judged to be more relevant than others, the establishment of specific financing schemes aiming to guide science and institutional practices *and* the processes through which political actors identify, interpret and reproduce the results of scientific knowledge production. As Mary Douglas stated, "The predictable consequence of using science in politics is that both sides consult their own scientific experts" (Douglas 1992: 33). This tend to lead to what Ney has observed:

> …firm in the belief that facts can resolve the debate one way or another, policy actors scream for more evidence. (…) far from resolving policy conflict, objective evidence actually fans the flame of policy contention. (Ney 2009: 32)

In the Nussir case, this is evident in the debates that have raged since the EIA report were produced and even more so when the reports were used as a basis for a final approval of the disposal of mine tailings in the fjord. One of the most vocal critics of the mine for instance compared the fjord depository with a "… shipwrecked nuclear submarine".[11]

Several studies of science-policy interaction suggest that for knowledge to lead to policy change, it needs to be salient, credible and legitimate (Cash et al. 2003). Knowledge needs to be co-produced with the users through 'boundary work' (ibid). The *boundary* refers to the demarcation between science and policy. Boundary work and boundary organizations are increasingly seen as solutions to complex policy issues that require a well-functioning science-policy interface. According to the work of Cash et al. (2003), boundary work consists of *communication, translation and mediation* across the boundary between science and policy, or experts and users (see Table 8.1).

Communication needs to take place between the experts and the users of the knowledge and it must go both ways (Cash et al. 2003). Mediation is needed to ensure that the boundary between science and policy (or other users of knowledge) is kept in a position that ensures the credibility of science, while simultaneously being porous in the right places and thus ensuring communication with the users of the knowledge that is being produced (Cash et al. 2003). Boundary work also necessitates the creation of *boundary objects* that aid the processes of communication, translation and mediation across the boundary (Guston 2001). One example of a boundary object is the threshold values for chemical discharge from a mine. A spatial plan developed with the use of EIAs can be another (Dannevig and Aall 2015). In the context of mining, the involvement of multiple stakeholders in the EIA process can therefore potentially also contribute to providing legitimacy and helping to establish or negotiate an SLO (Koivurova et al. 2015; Nenasheva et al. 2015).

Table 8.1 Means and outcome of boundary work

	Means of boundary work		
Outcome of boundary work	Communication	Translation	Mediation
Salience	x		
Knowledge that is relevant, solves a problem			
Credibility	x	x	
knowledge that is truthful			
Legitimacy	x		x
knowledge that is unbiased in treatment of diverse interest			

Adopted from Dannevig (2015), based on Cash et al. (2003)

[11] Referred to in the local newspaper Sagat on October 12th, 2015.

8.5 Methods

The study reported in this chapter relies on the following sources of data:

- Nineteen semi-structured interviews carried out in Kvalsund and Hammerfest in 2012–2015 with local politicians, NGO representatives, activists engaged in campaigning against the mine, county council politicians, Sami reindeer herders and municipal officials;
- Participation in a town hall meeting;
- Document analysis of the EIA sub-reports, the zoning plan, and consultation statements relating to the zoning plan and the discharge permit; and
- A review of media coverage.

The interviewees were selected through a snowballing-process, where initial stakeholders we contacted suggested others whom they considered to represent a particular view, perspective or interest that might shed light on the processes we were interested in, as well as through the analysis of documents and media coverage, where key actors would appear. Thus, the analysis and consequent findings are based on a field of discourse around which parameters are, to a large extent, established by the authors, a methodological framing that should be considered when assessing the findings. However, we do believe this 'constructed situatedness' provides an opportunity to analyse how particular actors and knowledge and value systems interact with political processes, influencing their outcome.

8.6 The Case Study Site Kvalsund

Entering Kvalsund municipality by car from the east means passing the small settlement of Skaidi before driving through a lush valley where the salmon river Riehpovuonjohka runs, before descending to the fjord area itself. The road then follows the fjord along its southern banks, passing the site where Folldal bruk today runs a stone quarry, and the site of a planned port from which the copper from the ore in the Nussir and Ulveryggen mountains will potentially be exported. Along the road from Skaidi and all the way to the municipal centre in Kvalsund – around five kilometers beyond Folldal verk – recreational cabins outnumber residential homes. In Kvalsund municipality, with less than a thousand inhabitants, there are around 1300 cabins, many of which are owned and used by people from the neighbouring town of Hammerfest, with a population of 10,417 (as of January 2016)[12]. The municipal centre in Kvalsund has a town hall, a school, and a small grocery store. The grocery store also functions as a social meeting place, with some chairs and a pot of coffee placed on a table for people to help themselves – payment is appreci-

[12] Statistics Norway, http://ssb.no/befolkning/statistikker/folkemengde/aar-berekna/2015-12-17?fane=tabell&sort=nummer&tabell=249242, accessed February 3rd, 2016.

ated but voluntary. There are around 100 houses in the centre, while the rest of the population lives mainly scattered along the main road, which leads to and from Hammerfest.

Kvalsund is traditionally a fishing community, but has seen a decline over the past 20 years which seems to be leading to an unavoidable endpoint: the disappearance of coastal fisheries as a livelihood. This is according to a senior fisherman we met at one of the remaining jetties still in use for fishing vessels, who had for some time also been assisting the many trips taken by researchers and scientists to the areas of the fjord where the Nussir project plans to deposit its tailings. As in most other rural communities in Norway, agriculture also used to provide livelihoods and employment in Kvalsund. In 1985 the municipality had 36 farms, but in 2013 there were only five left. One of these farms is situated in Repparfjord, and according to the owner they keep sheep "just out of old habit", not because of the income it generates[13].

Repparfjord is also a place in which cross-cultural relations have been important for centuries. Norwegians and settled coastal Sami have co-existed alongside the migrating mountain Sami reindeer herders, who still use the area in the spring and summer. Thus, the concept of multiple use – or *multifunctionality* (see also Chaps. 7 and 9) – is not unknown, and several interviewees also told us that the co-existence of different people had shaped their understanding of the area, in the sense of their own and others' movements and construction of landscapes.

Finally, the importance of Hammerfest, just a few miles to the northwest of Kvalsund, should be recognized, as it adds yet another layer of complexity to the center–periphery context in which this particular case should be understood, as many citizens in Hammerfest own cabins in Kvalsund, and likewise many from Kvalsund commute to Hammerfest to work.

8.7 Results: The Battle for Legitimacy

According to a poll conducted by the national broadcaster NRK,[14] a majority of inhabitants of Finnmark supported industrial development at the expense of reindeer herding. This point was also supported by two of the politicians that we interviewed, and one of them stated: "You have to understand that Finnmark is an industrial county. Most of the inhabitants want industrial development."[15] While it is likely that most inhabitants support the establishment of a copper mine, opinions on the solution that has been chosen by Nussir and the municipality for depositing mine tailings are more divided. Several of our informants are certain that the deposit will ruin the Repparfjord for fisheries, as a spawning area for coastal cod (*gadhus*

[13] Interviewee #4, 04.02.14

[14] First published August 16th, 2015. http://www.nrk.no/finnmark/meningsmaling_-vil-heller-ha-industri-enn-reindrift-1.12499641, accessed February 3rd, 2016

[15] Interviewee #12, 15.04.14

morea) and other commercially important species, as well as the salmon fisheries in Repparfjorden river. A retired fisherman recalls fishing in Repparfjorden during the time of Folldal bruk when the tailings were deposited in the fjord: "I remember catching fish that was covered in green slime. Fish that was caught in nets was dead by the time we took the net out".[16]

There was relatively little concern among our local respondents about the terrestrial impacts of the project, and these respondents did not show the same concern for the traditional reindeer herding in the area as they did for the fisheries – indicating that there is a schism between mountain Saami interests and Norwegian and coastal Sami interests, a matter which will not be further elaborated upon here. However, the cabin owners from Hammerfest are more sceptical, and some also submitted consultation statements relating to the zoning plan.

A common view among the proponents of the proposed mine, including the political majority on the municipal council, is that Kvalsund has no other options for development and growth than the mine. Many jobs in the primary sector (in fishing in particular) have already disappeared and are not coming back and the population is shrinking and getting older.

The most recent attempt to stop the mine was put forward by the reindeer herding district, with the backing of the Sami Parliament (SP) which will take the decision to open the mine to the courts (DN 08.12.15[17]). This attempt will be further elaborated in the following section, where we will look at what efforts have been made to establish legitimacy for the process among local and regional stakeholders.

8.8 Legitimacy Through Recognition of Value as Determined by Stakeholders

The conflict around the proposed mine is a result of different ways of valuing the costs and benefits of the mine, even though it is mostly framed as a disagreement about whether the fjord depository will have a negative impact on marine ecosystems. As we write, the matter of Sami rights to access and use the land is also still an on-going issue. But the legitimacy of the decision on the establishment of the mine requires knowledge of these costs and benefits (Prno and Scott Slocombe 2012). The main instrument for acquiring this knowledge is the EIA. In addition to assessing the potential impact of the mine on ecosystems, the EIA has assessed the potential impact on reindeer herding, cultural heritage and outdoor recreation. However, it does not assess the mine's impact on other forms of traditional resource use in the Repparfjord area, such as hunting, berry picking and fishing. The head of the municipal administration made an assessment report of how other users'

[16] Interviewee #11, 15.04.14

[17] See Dagens Næringsliv, December 8th 2015: http://www.dn.no/nyheter/naringsliv/2015/12/14/2148/Milj/reinsdyr-kan-stoppegruve-til-40-milliarder, accessed September 15th, 2016

interests would be affected by the mine, but the politicians on the municipal council did not want to use it, as they were afraid it would provide arguments against the zoning plan.[18]

The Repparfjorden river is ranked as one of the best salmon rivers in Norway, delivering tonnes of wild salmon to recreational fishers each year.[19] Several informants were worried that a fjord deposit would ruin the salmon fisheries in the river, contrary to the findings in the EIA (NIVA 2011). In the past, Kvalsund was an important fishing community, and Repparfjorden was an important fishery. As previously stated, the number of active fishers has decreased dramatically, and the fishing activity in the fjord has shrunk accordingly. But the fjord is still used by fishers from other areas. The fishers that we interviewed claimed that the fisheries in Repparfjorden have improved significantly in recent years, particularly the catches of pollock, haddock, and the invasive king crab. They also claim that Repparfjorden is an important spawning area for both coastal and migrating Atlantic cod.

All informants tended to agree that one of the attractions of Kvalsund is the landscape, the wide-open spaces with excellent access to outdoor recreation, and the access to fish in the fjord and the river. The high number of cabins in the area testifies to this. Only a few of the local informants saw the proposed mine as a threat to this value. Cabin owners on the other hand were not so certain, and several consultation statements submitted by cabin owners have expressed opposition to the mine.

In an interview with us, one of the leading figures opposing the mine addressed the lack of valuation of the other resources in Kvalsund and their traditional importance to the population. He spoke of the "ecological user" with an inherent right to the resources provided by land and sea, and included in this the indigenous population. He and a fellow activist had proposed various strategies to stop the mine. In addition to providing consultation statements critical of the zoning plan and aiming to discredit the EIA (see below), they also wanted to fight the mine based on the indigenous people's rights established in the Finnmark Act, which grants rights to the formerly government owned land and resources in Finnmark to the inhabitants of the county. The latter is still not resolved, and a commission is currently mapping natural resource rights. The resources could include those found in the fjords (including ecosystems and the services they provide), and therefore the activists claim that activities that degrade the resources in the fjord cannot be carried out without the consent of those who have the rights to those resources.[20]

Concerning the impacts from the mine on the reindeer pastures in the area, there is little disagreement about the current knowledge base for the assessments produced. Even though the copper ore in the proposed mine will be extracted through tunnels, the mine will have surface installations, such as roads and ventilation shafts. This will affect access to the spring pastures for the herders in reindeer pasture District No.20 (consisting of units organized as "siidas") and it will render significant parts of these pastures unavailable for reindeer. The total number of reindeer

[18] Interviewee #8, 14.04.14

[19] Informants confirmed that in 2011, over 10 tonnes of salmon were caught in the river.

[20] Interviewee #5, 13.05.14

that use the area for pasture or migration is estimated to be approximately 10.000, or around 12% of the official number of reindeer in western Finnmark. The area is already affected by the open-cast mining activities of the 1970s. The negative impact on reindeer pastures is acknowledged by all parties in the process, and was also the reason why the SP and the Reindeer Administration (RA) submitted an objection to the zoning plan, which resulted in the case being settled by the Ministry of Environment. When the government finally approved the zoning plan, it was explicitly stated that Nussir and the reindeer herders needed to "…agree on mitigation measures for the reindeer herders" before the start-up work could commence (statement from the Ministry of Municipalities, dated 20.03.2014[21]). However, no such agreement over conciliatory measures has been made, which is why District No. 20 will take the decision to open the mine to court. The SP state that they will apply the ILO Convention on Indigenous and Tribal Peoples (ILO 160), which has been ratified by the Norwegian government, in order to protect the interests of the reindeer herders, and if necessary indict the Norwegian government for breaching basic human rights.

However, at the local level in Kvalsund, reindeer herding is not perceived as being as important to the municipality as in Kautokeino, as described in Chap. 9. This is substantiated by the fact that in Kvalsund, the reindeer herding industry was but one of several stakeholder groups trying to influence the consultation process, whilst in Kautokeino, the Municipal Council itself took on the role of protector of the reindeer industry.

8.9 Legitimacy Through Formal Procedures

The power vested in the municipal councils to approve or reject the construction of large industrial facilities ensures a formal process of local consent and therefore legitimacy. As such, mine developers tend to seek legitimacy (or an SLO) as a provider of local employment and local and regional economic development. How "powerful" the local decision making is was illustrated when the central government in the case of Kautokeino (see Chap. 8) refused to overrule the democratically-elected municipal council as long as the zoning plan and necessary permits were dealt with according to the law. However, as Koivurova et al. (2015) note, when the legislation also mandates the developer to ensure local benefits and participation, the SLO can become less of a matter of negotiation between the community and the mining company. The municipality of Kvalsund received 27 consultation statements to the AP, but the municipal council approved the AP without requesting any amendments to the outline of the zoning plan or any other aspect of the AP, when this was approved in 2010. The same held true when the zoning plan itself was approved in 2011. Thus, we can conclude that the municipality did not engage in a negotiation

[21] The Ministry of Municipalities took over responsibilities for the handling of land use planning issues from the Ministry of Environment in October 2013.

of the SLO with the company (in line with Koivurova's observation). It is therefore plausible to argue that approval of the AP and the decision to carry out the EIA constituted the substantive local decision on the mine project. This again implies that power shifted from local political government to a combination of state bureaucracy, providers of scientific knowledge and national decision makers.[22]

As mentioned above, following their submission of the AP, NUSSIR engaged in a frenzy of outreach activities in Kvalsund, which was not part of the formal process. The company organized town hall meetings, attracted a lot attention from the local and national media to the rich copper resources of the mine, and organized reference groups that included people who had displayed scepticism towards the proposed mine. One of the reference groups toured several mines with depositories in southern Norway: the Titania mines in Rogaland, Hustad Marmor in Møre og Romsdal and Rana Gruber in Nordland. The Titania mine deposited its tailings in a land depository for several decades; the depository covered an extensive area and the negative environmental impacts of this practice was well known. According to our informants,[23] the group members became convinced that a land depository would be devastating in Kvalsund. They also spoke with coastal fishers that were fishing outside the fjord depository used by Hustad Marmor, who did not experience any negative impacts from the depository. They also witnessed that the disused fjord depository in Rana had been re-vegetated and the marine ecosystems had been restored after the closure of the mine. One of the members of the reference group was a retired fisherman, and he later acted as a champion for the Nussir mine, even though he did not consider the final location of the tailings depository in the Repparfjord to be the best. By getting community members convinced that the environmental impacts did not pose a significant enough risk to the community to reject the mine, the company has done a significant job in securing an SLO from important local stakeholders. In fact, we find that the company has reached a level of SLO locally that – in spite of national critique and controversy – could be said to be at the level of 'acceptance' – meaning that the project is regarded by many as legitimate – as outlined by Koivurova et al. (2015:5).

Still, even though a formal decision on the tailings depository has been made and at least some form of acceptance has been achieved, the location of it in the fjord is still a matter of concern locally. Within the municipal administration, there is concern that the final location is not the best one, and several officials did in interviews expressed regret that the municipal council did not ask for an assessment of a location further out in the fjord or follow the advice of the municipal administration to request assessment of alternative locations for the fjord depository. In fact, the NEA states in their discharge permit that "…(the area chosen) was the only suggested area found to be useful and (thus formally) assessed" (NEA, decision letter of

[22] This is in stark contrast to the municipality of Kautokeino, which rejected the AP and the entrepreneurial initiatives of the company Arctic Gold outright, as they argued that they did not need knowledge of the impact of the proposed mine (in the form of an EIA), because they already knew that they did not want the mine (see Chap. 8).

[23] Interview #7, 13.5.14 and interview #8, 14.5.14

08.12.15: pp 9, our translation). This decision can thus be described as having been 'black-boxed' (Latour 1987) in the sense that focus is set on what is being assessed and the outcome of it, and not the criteria for inclusion or exclusion of alternatives, or on the parts (technological, organizational or otherwise) that makes up the unit in question. This adheres then, to Bruno Latour's definition of 'black-boxing' technology (or science for that matter) as: "… an organized whole (…) made to act as one (…)", indeed "…an automation" (Latour 1987: 130–131). It can be questioned whether a more formal investigation into alternative geographical locations for the depository could have reassured critics that all options had been considered, and with this strengthened the legitimacy of the EIA and discharge permit processes. This is further elaborated in the following section about the EIA.

8.9.1 The EIA Process

The EIA that accompanied the zoning plan included no less than seventeen sub-reports on several issues, which themselves included references to several sources. The sub-reports of the EIA covered the most controversial aspects of the proposed mine and its fjord depository, including the impact on reindeer herding (Nelleman and Vistnes 2011); the impact on marine species in the Repparfjord (Akvaplan NIVA and NIVA 2011); and the impact on salmon in the Repparfjord River (NIVA 2011). The production of the sub-reports incorporated a very small amount of knowledge from local people. The report on reindeer herding (Nelleman and Vistnes 2011) included interviews with reindeer herders in district 22 (Fiettar). The reindeer herders did not express dissatisfaction with the report. The report and all relevant stakeholders acknowledge that the mine will have a negative impact on reindeer herding by blocking access some pastures. The report on local economic impacts is the other report that clearly addresses societal impacts from the mine. However, this is based on existing statistical data and a few interviews with stakeholders from outside Kvalsund. What seems to be clear, then, is that the decision-making process has taken into account the negative impacts on the reindeer herding industry, but has favoured the expected positive effects of the mine instead of protecting the herding industry (see Nygaard 2016 for analysis).

The part of the EIA that has met with most controversy is the assessment of impacts on the marine ecosystems and the distribution of particles from the tailings in the sea. The EIA finds that the depository will "have a small negative impact on marine nature types (brackish water delta, moraine ridge zone), the beach zone and zooplankton in the Repparfjord" (SWECO 2011, 98). Several consultation statements, including those from the Institute of Marine Research (IMR) and the Directorate of Fisheries, questioned the findings in the EIA. In particular the measurements and modelling of the distribution of particles in the fjord have been questioned[24]. The IMR states that the "tailings contain large amounts of copper, when

[24] NRK Sapmi 11.07.2013; Sagat 11.09.13

assessed in terms of toxicity on marine organisms, and the depository is in no way as controlled as it claims to be in the application and the EIA" (IMR, 12.05.12). Several other marine scientists have been critical of the assessments of the proposed fjord depository and other EIA sub-reports.[25] The critical scientists also claim that the tailings will contain heavy metals in quantities that will make them toxic. The criticism of scientists has thus provided opponents of the mine with scientific arguments which they have been able to use to argue against the mine, by questioning the credibility of the EIA (see above).

Perhaps because of the vocal criticism of the EIA's sub reports on the impact of the fjord depository, the NEA (Norwegian Environment Agency) asked Nussir to conduct additional modelling on both the "stream conditions" and on distribution of particles. These were produced by SINTEF and DNV GL, the two largest technology institutes in Norway, and published in 2014.

Table 8.2 reveals that a range of science and technology specialists have assessed the issue, but little or no local and/or practical knowledge seems to have been considered in the sustainability assessments of the fjord. It is only the reindeer herding report that our interviewees felt local stakeholders had been involved in. The other reports on social issues were produced with minimal involvement of local stakeholders. However, the regulations governing EIA and the AP do not mandate greater involvement of stakeholders, and as such do not ensure that the processes themselves form an adequate basis for a local SLO. The EIA thus represents traditional, one-directional, top-down science-to-policy advice. It is pertinent to question to what extent the different types of knowledge, values and concerns about securing a desirable future have been fully considered in the process. In fact, the ultimate lack of inclusion of the concerns expressed in the consultation process resembles a situation described by one of the authors elsewhere (Dale 2016) in which different types of knowledge and values were included or excluded in a process where both natural resources *and ontologies* were governed. In short, even the decision-making processes around what knowledge is included or excluded are, to a large extent, 'black-boxed' by either bureaucracy or by science, whereby concerns based on experiential knowledge or a different type of valuation of nature and landscape are deemed *unscientific* and therefore not *knowledge* – only, at best, *opinions*.

8.10 Local Perceptions of the Knowledge-Based Formal Processes

The main source of controversy around the proposed mine in Repparfjord is the question of whether the fjord depository will be harmful or not to marine ecosystem services. The advocates of the project seem convinced that the findings and conclusion of the EIA represent the best available knowledge, and that the mine will not

[25] Sagat, 9.11.13

Table 8.2 Knowledge used and referred to in policy process and media discourses

Knowledge product	Producer of knowledge	Sources utilized	Employed in decision-making process
Assessment Program, 2010	NUSSIR, SWECO, Akvaplan NIVA	Existing plans, cultural heritage databases, scoping study of Repparfjordriver (Akvaplan NIVA 2008)	Initiation of EIA process and Zoning Plan
EIA main report		**See below**	**Approval of zoning plan**
EIA sub report reindeer herding, 2011	NORUT	Documents, interviews with herders, but not the most affected ones	“
EIA sub report landscape and outdoor recreation	SWECO	”Conversations” with organisations repr.	“
EIA sub report local economic impacts	Bedriftskompetanse	Stastics from SSB, conversations with NUSSIR, municipality, Sydvaranger mine	“”
EIA mapping of marine resources		Documents, Instrument data	“
EIA sub report on impact on marine life in Repparfjord	NIVA & Akvaplan NIVA	Documents, Instrument data	“
EIA sub report on salmon	NIVA	Instrument data	“
EIA sub report on sea saami cultural heritage	NIKU	Documents, interviews	“
“additional assessment” consequences for marine life	IMR		Approval of zoning plan in Ministry of Municipalities
“Third party assessment”, flow modeling in Repparfjord	SINTEF	Existing reports from Akvaplan Niva, NIVA	Verification of EIA
“Third party assessment” flow modeling in Repparfjord	DNV GL	Existing reports from Akvaplan Niva, NIVA	Verification of EIA
NUSSIR webpage	NUSSIR	Presents media coverage (positive and negative) + EISA reports	No formal role for decision making

have major consequences for marine species and salmon fisheries, as the Nussir director said:

> The zoning plan could not have been approved if the impact on the salmon in the Repparfjord river was very negative. NIVA was selected for that part of the EIA because they were the sole bidder, and they were also recommended by the NJFF (the local hunter and fisher's organisation, our comment).[26]

When describing his position on the EIA, a member of the county council in Finnmark stated: "I have no other choice but to assume that the EIA is correct".[27]

But even firm champions of the mine, such as the mayor, admit that the sheer size and technical language of the EIA make it hard for lay people to understand:

> When you read these reports, you see that they contain a lot of scholarly language that is very hard to comprehend. So, it is very important to get reports that everybody can understand. Because a lot of mathematics and formulas is not interesting for lay people.[28]

There is nothing in the formal requirements for an EIA process in Norway that prevents the municipality from reviewing alternatives to a fjord deposit. In addition, and as mentioned above, the location of the depository is also contested. One of our interviewees told us that in his view, there is no incentive for the applicant that is proposing a change in the zoning plan (i.e. the developer) to spend money on investigating several options. The interviewee said:

> The municipality did check out an option to the planned site for a deposit, which I personally think is too close to the salmon river for comfort, but there is the controversy concerning currents as well that complicates things. And in this, we're sitting on the outside of things, as we are not specialists. And the politicians have leaned on what Akvaplan NIVA has found in their EIA reports.

He further commented on what he saw as a problematic relationship between those providing knowledge to the process and the developer:

> Of course, it is a matter of costs for the developer, and this should really be something the authorities should investigate. I do not feel comfortable with the fact that it is the developer who has (commissioned the investigations). One tends to get the results one needs.[29]

He further confirmed that he had been in the midst of the controversies surrounding a municipal suggestion to also study another possible fjord deposit, further east, away from the narrower parts of the fjord which are also closer to the estuary. In this location, he argued, his department suggested that the circumstances might also be beneficial for depositing tailings, as the fjord runs deep there. The suggestion was rejected, he states, mostly based on the claim that he had tried to influence the outcome of the investigations and the placement of the deposit for personal reasons, as he was a leading member of the local fishers and hunter's association at the time. In our conversation, he frames it like this:

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[26] Interview, Øystein Rushfeldt,

[27] Interview #12, April 15, 2014

[28] Interview #6, April 13, 2014

[29] Interview #4, June 26, 2014.

> Both the developer and the Institute of Marine Research characterize the tailings that are to be deposited as toxic, no doubt about it. So, material removed from other places is to be deposited right here… and the water itself might also contain copper, as it is bountiful in this area. But I have been thinking about this precautionary principle, and that if the developers could have left the tailings further out, where the water's deeper and we are further away from the river, I'd be much more comfortable.[30]

8.11 Concluding Discussion

> In battle, the truth has a hard time. (Journalist, *Sagat* Newspaper, June 2014, personal communication)

The legitimacy of the process hinges both on procedural justice, which means that the process is conducted according to law, and on the outcome being perceived to be fair and just by the affected parties, which in other words relates to the establishment of an SLO. For the most vocal protestors, the cause of controversy in Kvalsund is the fjord depository, not the mine's impact on non-economic value, or the lack of involvement of local stakeholders in the decision-making process. The interviewees who were critical to the proposed location of the depository questioned why the municipality did not try to influence this matter through the planning processes. The formal process, starting with the AP and ending with the approval of the zoning plan and discharge permit, leaves most of the potential for local participation in the AP approval phase of the process (before the zoning plan and EIA are prepared in detail) (Nenasheva et al. 2015). The municipal council in Kvalsund did not ask for any changes to the proposed project during the AP phase. This is in stark contrast to the municipal council in Kautokeino, which rejected the AP for the gold mine (see Chap. 9). Tellingly, it was during the AP approval phase that Nussir did most to obtain its SLO. This was the time it engaged in town hall meetings and toured other mines with the reference group. The involvement of key people through the reference groups helped to legitimate the mine process locally, as the members acted as champions of the mine. But this was never framed as an attempt to produce knowledge for the EIA or the planning process in general, as the work of the reference groups was never part of the formal process.

The municipal council approval of an AP *opens the possibility* that a mine can be established. In other words: an acceptance and a desire to see a new zoning plan and an EIA is the start of the legally required process towards the opening of a mine. This point is significant here because it sets the parameters within which all discussions about the mine could be carried out; that is, based on the premise that a mine *could* be opened, if it is not found to be overly destructive, dangerous or risky to the environment, to other users and/or to specific groups with specific rights. The burden of proof is thus shifted from the applicant (the mine developer) to the many other actors whose activities and rights are (potentially) influenced negatively. And

[30] Interview #4, June 26, 2014.

as we have seen this has ramifications for those who participate and the way that they position themselves in the debates.

The EIA has not been an instrument that fosters local participation. The fact that critical issues raised during the consultation process relating to the AP were not included in the EIA makes the process of prioritizing issues for the EIA resemble 'black-boxing' (Latour 1987). Furthermore, translation and communication of the content of the EIA is not carried out between the scientists and the users (in this case local politicians). This is clearly illustrated when the local politicians admit that they do not understand the content of the EIA due to its size and technical jargon. Drawing on Cash et al. (2003), we can conclude that the report lacks local salience, due to the claims that it was hard to understand, and legitimacy, because local knowledge is not included. On the other hand, the EIA serves to provide the project with the credibility of scientific knowledge. Nevertheless, the way this EIA was conducted strongly adheres to a linear, positivist model (Hertin et al. 2009), as there is next to no involvement of stakeholders in the production of the knowledge. The facts are assumed to speak for themselves (Latour 1987, 1999). But when the opponents of the mine project claim that the conclusions have been 'bought', and bring their own scientists and scientific arguments into the debate, they are partly succeeding in undermining the scientific credibility of the report. Thus, the EIA's role in legitimating the process locally through knowledge provision has not been particularly successful.

The controversy around the use of the fjord as a depository is also a value conflict, even though it is portrayed as conflict of (and about) knowledge, where the opponents claim that research shows that the depository will have a catastrophic impact on marine ecosystems, while the champions of the mine say that the EIA shows that there will not be any significant damage. An EIA process with more local participation and local knowledge would not have removed the conflict over how to value both monetary and non-monetary aspects of the landscape in the Repparfjord area, but it could have resulted in a knowledge base that was less controversial, and thus enjoyed more legitimacy and provided a more solid basis for an SLO. But for that that to happened, the politicians responsible, at the local level in this case, and at the national level on natural resource extraction in general, would have to admit that the decision to open the mine is a matter of politics, and not purely based on knowledge.

Tellingly, it is the issue with the least controversial knowledge base that caused the strongest formal reaction during the public consultation around the zoning plan, i.e. the objections from SD and RA due to the mines impact on reindeer pastures; and this currently seems to be the most potent obstacle to the mine. It is the reindeer herders and the SP who are most certain that they will be able to stop the mine through the courts, using the indigenous peoples' argument for preserving the interests of reindeer herding. Here, it is no longer a question of conflicting forms of knowledge, but of two colliding value systems.

Our research indicates that Nussir obtained its SLO, and thus local legitimacy, thanks to its ability to involve local stakeholders at an early stage, at a time where this was crucial to get the AP approved. In line with Nenesheva et al. (2015) and

Magnussen and Dale in this volume (Chap. 10) we argue that the AP approval is the fundamental local decision for approval of the mine. We also argue that the formal knowledge production through the EIA did not contribute to local legitimacy, but instead signifies a shift in the process from local to national decision making, signifying a *de facto* de-coupling of local concerns from the power to decide, once the formal decision to allocate areas for mining had been completed by the municipality.

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Chapter 9
The Municipal No to Mining. The Case Concerning the Reopening of the Biedjovaggi Gold Mine in Guovdageainnu Municipality, Norway

Tone Magnussen and Brigt Dale

Abstract In 2012, the municipal council of the predominantly Sami community of Guovdageainnu (Kautokeino) rejected a proposal to reopen the Biedjovaggi gold mine. Through an analysis of interviews, conversations, media and relevant grey literature and official documents, this chapter investigates how the decision by the Guovdageainnu municipal council to reject the application was based on a firm conviction that a sustainable future for the predominantly Sami community was closely tied to the survival of the reindeer herding industry. In this context, the term 'sustainable' refers to a large extent to the ontological security that herding provides for the Sami people, as a major carrier of cultural identity and a sense of belonging in this particular landscape. Thus, the potential benefits that may be generated by a mine were considered by a majority of Municipal Council members not to be sufficient to risk the potential consequences these activities could have for the reindeer and the herders. The political decisions by individual actors *and* public sentiments on the matter were also informed by a broader, culturally embedded rationale reflecting a deep concern about connections to place, space(s) and practices considered vital for Saami identity.

Keywords Landscape value • Indigenous issues • Reindeer herding • Mining • Ontological security

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9.1 Introduction

Guovdageainnu (pop. 1390)[1] is settled in a wide valley surrounded by the vast mountain plateau known as Finnmarksvidda, most often referred to simply as '*vidda'*. At first glance, *vidda* may seem like 'pure wilderness' to a visitor, seemingly adhering to dualistic notions of the existence of an 'unspoiled and untouched nature' as something completely different – and separated – from human society. However, as one moves further into the area, signs of human use of the landscape become visible, thus blurring the nature-culture dichotomy. Parts of fences for reindeer herding peek out from under the snow; small, greyish cabins used by reindeer herders, hunters and gatherers are scattered around in the soft, rolling landscape. Forty kilometers into this landscape out of the village of Guovdageainnu lies Biedjovaggi, an area with a history of both mining and reindeer herding activities. The road that leads to Biedjovaggi was originally built in order to access the mine site during an earlier mining period. It is now used by herders and their families, fishers and recreationists alike, and is also the main reason why reindeer herders have built a large gathering and slaughtering facility only a few kilometers from the mine site. Today, Biedjovaggi is still an important area for reindeer herding, providing grazing in the spring and autumn seasons but also, due to its distinctive topographical features, it provides an important trail for migration of reindeer herds from winter to summer pastures.

The Biedjovaggi area is thus not a secluded, isolated area – neither geographically nor ontologically. In addition to the herding activities, both locals and visitors travel to the area by snowmobile and skis during the winter and on foot or by quadbike or car during the summer. A popular snowmobile and ski track runs from the area to the neighboring Nordreisa municipality, through Reisa National Park, and hunting and gathering also take place all year around in this area.

To grasp how people in Guovdageainnu understand and assess questions related to the reopening of the Biedjovaggi mine, it is vital to understand the importance of land use for individuals, for *siidas* [2] and – as an extension – for the community. This is deeply connected to what it means to be a local inhabitant of Guovdageainnu, and extends far beyond the mere economic value to be extracted from the land, as it reflects a deep interconnectedness with the natural surroundings.

The many different forms of landscape use described by our informants show that there is a tradition of facilitating multiple use; in fact, it is pertinent to claim that *multifunctionality* characterizes the way the landscape is used. Different activities are being accommodated, including traditional reindeer husbandry, new business activities such as tourism and experience industries, as well as recreational use and extensive gathering, hunting and fishing (see also e.g. Johnsen et al. 2015; Sara 2011).

[1] Statistics Norway, figur3 for 2015, see http://ssb.no/befolkning/statistikker/beftett/aar/2015-12-11?fane=tabell&sort=nummer&tabell=248688

[2] Sara (2011: 138) refers to the 2007 Reindeer Husbandry Act's definition of a siida as "…a group of reindeer owners that practice reindeer husbandry jointly in certain areas…", but also emphasizes its importance as a community, thus not solely on it as a working partnership.

However, what is equally important is to recognize not only the economic importance of these activities, but also their importance as a source of knowledge that translates into *ontological* value, i.e. the way that these activities assist individuals and communities in making sense of the world. In evoking the term ontology, we aim primarily to situate this chapter in a debate about *what makes individuals and populations feel secure*, and to argue, as Michael Jackson has done, for an exploration of the ontological by seeking to understand how "… the micropolitical exigencies of ethnic, familiar and personal identity" provide an important basis for such securitization (Jackson 1987: 5)[3]; Important here, then, is not to engage in a debate on the consequences *for academia* of the so-called *ontological turn* (Rabinow 1986; Blaser 2009; Abram and Lien 2011),[4] but to evoke a wider understanding of what makes individuals and communities secure during the analysis of the political process described here.

9.2 Methods

John Law (2004) argues that in order to study complex and messy realities, we need to focus less on order; an argument that paves the way for the description of *particularities* rather than cross-case generalizations. One way of facing the challenge that this position represents is to increase our sensitivity towards ambiguities and multiple meanings as they are revealed through both narratives and discourses. This chapter provides our analysis of the political processes in Guovdageainnu leading to a surprising decision by the Municipal Council not to allow a process of environmental impact assessment (EIA) or a planning program to go ahead for the gold mine. In doing this, we seek to show how the exploration of case-specific complexities and ambiguities can shed light on the social and cultural basis for making such an unusual decision. Therefore, we have focused on the way that people involved in the processes themselves talk about the choices that individual actors made concerning the reopening of the Biedjovaggi mine.[5]

This chapter is based on material stemming from three processes of data collection. Firstly, we gathered information from grey literature, white papers, political

[3] See also Giddens (1991), Marlow (2002), and Dale (2011, 2016) for an elaboration of the ontological security concept.

[4] Blaser refers to the debate as one that, put simply, turned attention to matters of ontology in social theory, i.e. attention to the multiple ways the world is interpreted, understood and conceptualized, and to the extent these differences aides in understanding social life. This, as Paul Rabinow (1986: 234–235) argues, is also a reaction from anthropology in particular to the tendency in western modern science and philosophy to focus on epistemology as "… (an equation) of knowledge with internal representations and the correct evaluation of those representations" (op.cit) – in short, the culimination of the quest of modern science and philosophy of seeking to establish 'the truth.'

[5] Importantly, this analysis is based on empirical data from a limited period, and has thus not taken into consideration – nor analysed – the potential consequences of the decision of the new elected municipal board in September 2015 to reject any new advances from potential developers of the Biddjovaggi mine.

strategy documents and previous research into matters of importance to the political process investigated here. Secondly, a review of the media coverage of the debate and process was conducted; and thirdly, ten interviews were held during a field trip to Guovdageainnu in the spring of 2015. The interviewees included actors engaged in the political decision-making process in different ways.[6] The aim and intention of the interviews was to understand the political process leading to a municipal vote not to allow investigations to proceed into the reopening of the gold mine at Biedjovaggi. This focus also includes perceptions, values and the creation of meaning. Therefore, we concentrated on stakeholders who had been involved in the process directly, such as local politicians, municipal administrators and activists, but also talked with opinion formers who directly or indirectly influenced the process, or could be said to represent the general concerns and opinions of the public. The number of interviewees is limited[7], though, and findings from the interviews are therefore analyzed in conjunction with more general data derived through the analysis of media debates – part of an ongoing media story covered by several regional and national news organisations – and relevant empirically-based academic literature. Thus, where we offer generalizations about the sentiments of the wider population, these are the representations of sentiments and opinions of stakeholders whom we have encountered and not objective findings as such, neither do they represent the opinion of the authors of this chapter. One might also say that the conclusions thus derived here are representative of a particular *debate within the debate* in which a few actors, predominantly close to or a part of the municipal council's decision making process, were dominant.

9.3 The Attempt to Reopen the Biedjovaggi Gold Mine

As mentioned, Biedjovaggi has a history of mining. In 1952, a local reindeer herder found the first block of copper and gold, which led to further geological surveys and prospecting. Copper mining took place during two periods, 1971–1975 and 1983–1985. In 2010, after more than 25 years of standstill at the mine site, the Swedish mining company Arctic Gold initiated a plan to reopen the mine, based on evidence of ten deposits of gold and copper revealed by prospecting. A planning process followed, in which a planning program was presented by the company. An outline

[6] The selection of interviewees includes politicians with different points of view concerning the reopening of the mine in Biedjovaggi, as well as people engaged in reindeer herding, political organisations, public administrators and NGOs.

[7] It is important to clarify here that our data material does not include interviews with representatives of Arctic Gold, and that our descriptions of their reflections and ambitions are based on third party evaluations, first and foremost local political actors with whom we have spoken – and whose interpretations of Arctic Gold's behaviour and reactions were so important for the political decisions being made – as well as from newspaper reports, such as for instance http://www.ifinnmark.no/nyheter/varsler-stopp-i-gruveplanene/s/1-30002-6072656 and http://www.nrk.no/sapmi/arctic-gold_-_-vet-ikke-hva-vi-gjor-1.8108145 – both accessed February 8th, 2016.

of a planning programme is a part of standard procedures outlined in the Norwegian Planning and Building Act, and is usually described as "a plan for the planning process". A planning programme is formally connected to a zoning plan or an environmental impact assessment. A public hearing process was completed during which 27 comments from public authorities, NGOs and private persons were submitted. Based on these comments, the planning program was revised, and presented to the Municipal Council in Guovdageainnu 26th of April 2012.

What followed, though, was far from what might be called a standard outcome, as the Municipal Council decided, unexpectedly, to dismiss the planning program. The margin was narrow: 11 votes against, 8 votes for. The Council stated their reason for this decision by referring to previous experiences with the impacts of mining, which included a negative impact on nature, local enterprises and users of the Biedjovaggi area (Koivurova et al. 2015), the risk of negative impacts on reindeer herding and skepticism as to what sort of ripple effects could be expected. As the Municipal Council saw it, there was therefore no need for a new zoning plan or EIA process. This unexpected outcome was met with apparent surprise and disappointment by the Swedish applicants, stating in a press statement that "*We are disappointed by this rather curious decision (….).*"[8] Discussions then arose over the legality of this decision, and the matter was only put to rest by the Ministry of Environment, which issued a statement concluding that they: "… *under doubt ha(d) reached the conclusion that a municipality probably does not have an obligation to determine a planning program for a private planning process when the project is not wanted by the municipality.*" [9].

The mining discussion took place in a context, in which the future of Guovdageainnu is considered by many of our informants as uncertain and unpredictable. The number of inhabitants has gradually reduced over recent years,[10] a development which is expected to continue in years to come. At the same time, unemployment rates are rising among men,[11] mostly due to economic restructuring in the region, where the number of jobs in primary and secondary industries have been reduced [12]. The situation reveals different perceptions on how to manage contingencies. For instance, it has been argued that unpredictability has in fact been a part of life for nomadic people to the extent that it has been incorporated into the ontological world view, such that nomads have sought to acquire skills and knowl-

[8] Lars Åke Classon, Arctic Gold, in Finnmark Dagblad December 17th 2013

[9] Letter from the Department of Justice, July 5, 2013

[10] From from 3150 persons in 1995 to 2931 persons in 2014; Økonomiplan 2015–2018, Guovdageainnu kommune

[11] Figures from 2014 show that while the average unemployment rate for Norway was 2,6 %, the similar rate for Guovdageainnu was 3,5. Divided into gender, the numbers show that 7,9 % of men in Guovdageainnu was unemployed. Source: Statusbilde for Kautokeino kommune, Fylkesmannen i Finnmark 2015, downloaded from https://www.fylkesmannen.no/Documents/Dokument%20FMFI/Kommunal%20styring/Kommunereformen/Kautokeino.pdf, accessed April 4th, 2016

[12] http://www.kautokeino.kommune.no/www/kautokeino/resource.nsf/files/1626196365-kommuneplanens_samfunnsdel/$FILE/kommuneplanens_samfunnsdel.pdf, accessed March 14th 2017.

edge enabling the flexibility and adaptability necessary to overcome this unpredictability. For others, both locally and beyond, such contingencies create a situation of *insecurity*, triggering responses aimed at minimizing this – for instance through the search for businesses that can provide job security and steady income for the population. The relation between these two perceptions is, of course, embedded in a power structure within which post-colonialist assumptions abound concerning questions around *what are relevant knowledge and rational solutions* (e.g. Balto and Østmo 2012: 6) [13].

What happened, then, in the process relating to the potential re-opening of the Biedjovaggi mine? What can explain why a municipality with high unemployment rates and a statistically low level of income chooses not only to oppose the mining activity itself, but indeed also the information that would be gathered on potential risks and opportunities a mine could bring?

In this chapter, we analyze the process leading up to the surprising no-vote from the Guovdageainnu Municipal Council, with a particular focus on the cultural and social basis for such a political decision. In order to understand the processes leading up to this decision, we focus on two discourses. Firstly, the divide between those involved in reindeer herding and those who are not and the way this ongoing divide in the community is reflected in the narrow margin of victory for 'No' in the Municipal Council vote. The basis for this community divide has been the struggle over rights to the use of land and landscape between reindeer herders, and non-reindeer herding Sami in the area. Foreign investors – Arctic Gold – then compounded this conflict by introducing their suggestion to close off an important calving and separation area for reindeer, and a good hunting and gathering ground for the settled population of the municipality. This community divide will be discussed further below.

The second issue of particular concern here is the way the Norwegian authorities' understanding of landscape differs from that of local people, the latter obviously strongly influenced by Sami culture and tradition, and *what is worth securing in it*. With the term 'worth securing', we refer to the identification of how landscape is valued in different ways, based on differences in usage and understanding. We will seek to analyze how different perspectives representing different world views make up the basis for a conflict in which disagreement is based first and foremost upon different use and valuations of nature and natural resources. Local ways of using and understanding landscape differ from the traditionally stringent and measureable-by-meters way of looking at landscapes used by the Norwegian state for management purposes. This complicates matters when a specific site is to be designated for a specific purpose, such as mining. We show how the mining issue becomes even more contested when it relates to an already controversial subject: the matter of who holds ownership – or rights – to land; how it should be valued; and

[13] The matter of *securing potential futures through contingency* is indeed interesting, and opens for a study of *what secures population*, broadly speaking; a discussion we will not aim to pursue here (but for a discussion on the topic, see Dale 2011).

who (and whose knowledge) is included in so-called participatory processes through which a knowledge base is created for natural resource politics.[14]

In the following, we will present the theoretical framework guiding our analysis. Then, we will briefly introduce the legal and bureaucratic basis for the case at hand, before describing the political landscape in Guovdageainnu and analyzing the political process relating to the bid to reopen the mine.

9.4 Landscape, Practice and Lifestories

Landscape can be understood in many ways. While landscape was previously understood as a given, objective materiality, this has been challenged, and for the past two decades the focus has tended to be on seeing landscape as a social and cultural construct (Olwig 1996). However, in recent years, new theoretical approaches are seeking to bring back materiality into the analysis of landscape, by bringing attention to the mutuality of human-landscape encounters (Wylie 2007; Benediktsson and Lund 2010). In building a picture of how different understandings of landscape arise, we are inspired by the anthropologist Tim Ingold, who defines landscape as "the world as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them" (Ingold 2000:193).

Ingold describes how his theoretical thinking has changed from a building perspective where worlds are made before they are lived in; to a dwelling perspective where the forms people build arise within the current of their life activities. Drawing on theoretical works by Uexecüll (1957), Ingold explores differences in understanding the ways human and non-human beings jointly create their environment. Whether or not the design of the project has an intention becomes a clear distinguishing line between human and non-human approaches. While human constructions are characterized by an intentional project of design, non-human constructions normally lack this characteristic. Influenced by Heidegger (1971), Ingold develops this point further, and argues that there can be no absolute distinction between "natural" and «artificial" structures, but they can all be understood as "work in progress"; continually under construction and never completed. Both human and non-human inhabitants are thus involved in this construction.

Insisting that landscapes both *tell* and *are* stories of people's engagement in the world, Ingold introduces the term 'taskscape' (Ingold 2000:195). Tasks are understood as "the constitutive acts of dwelling", while a taskscape is "the entire ensemble of tasks, in their mutual interlocking" (ibid:195). Inspired by this approach, we investigate landscape neither as an environment where practice takes place, nor practice itself – but as both; an ontological intertwining of human activity, discursive meaning and materiality (Wylie 2003), an ontology that enables a communal and

[14] See for instance Johnsen (2016: p. 63) concerning this particular case and Dale (2016) for a general discussion on the matter of inclusion and exclusion processes in resource management in Norway.

personal sense of security, also embracing the future (see Dale 2011; Hawkins and Maurer 2011; Marlow 2002). By living in the landscape, and using it through practice, life stories are closely woven into the texture of the landscape, together with the lifecycles of animals and plants.

In analyzing the connections between political practices and knowledge, evoking a power/knowledge nexus approach in the management of nature and natural resources most often reveals a preference towards techno-scientifically produced knowledge aiming at both establishing objectively measurable management units and a valuation of these that can be converted to monetary value (Venn 2007). The concept of a power/knowledge nexus is derived from an approach focussing on the biopolitical aspects of power asserted through political means, i.e. the securing of population (Foucault 2010; Dale 2011), and usually points to how the hegemonic positioning of scientific knowledge vis-à-vis politics leads to the inclusion and exclusion of other knowledge systems and valuations that could influence politics (See Jasanoff 1998: 92; Dale 2011: pp. 70 and 80). In the case analysed here, there is a particular kind of power play, which in essence turns the usual power/knowledge nexus of politics and scientific knowledge on its head, as it is local actors who have the power, basing their decision to dismiss the mining proposal on a non-monetary valuation of landscapes and a traditional, non-scientific knowledge basis. We believe this process can, at least in part, be explained through analysing the relatively high importance that reindeer herding practice has in securing a sense of identity, and the way the mining activity is understood as an intrusive actor in a landscape in which the culturally significant activity of reindeer herding is performed.

9.5 Relevant Norwegian Legislation

A number of legislative acts regulate the process of opening a mine. The Planning and Building Act regulates the municipal planning processes for use of land, and was the actual legal basis upon which the Municipal Council in Guovdageainnu took its decision. What is of interest here, is that the act is not a tool to be used specifically in relation to Sami rights (nor is it specifically concerned with mining), but rather a piece of legislation that secures municipal power in matters concerning land use planning, and is applicable to all municipalities in Norway. Thus, it is interesting that it was the Norwegian institution of the "municipality" that was able to secure local community power in this matter, and not the Finnmark Act or the Minerals Act. The Finnmark Act is supposed to ensure the implementation of the International Labour Organisation (ILO) Convention 169 on Indigneous and Tribal Peoples, which has been an obligation in Norwegian legislation and practice since Norway ratified the convention in 1990 (see below). Sami consultation rights are specified in the Minerals Act, but the Act has not yet been ratified by the Sami parliament. The Minerals Act is the main legal basis upon which the mineral industry is governed in Norway. Of particular concern here is to what extent the act provides

adequate security for Sami rights with respect to the establishment of mines in core Sami areas. Koivurova et al. (2015) question whether the phrasing chosen in the Minerals Act, ensuring that the natural foundations for Sami culture and livelihood should be safeguarded, is sufficient for the implementation of ILO 169 (see also Skogvang 2010; Nygaard 2016), a concern further reflected in the fact that the Sami parliament has not ratified the Act. Another important point here, though, is that the Minerals Act only regulates mining processes *after* the necessary land use plans[15] have been finalized according to the Plan and Building Act (see Chap. 3).

In all processes in which land use is an issue in Finnmark, the Finnmark Act comes into play. The question of who should be the beneficiary of the fee collected by the Finnmark Estate (on behalf of the owner of the minerals, which is the Norwegian government) is of particular concern for the Sami population, as the Sami parliament does not recognize the Estate as the correct recipient of these funds, because it does not exclusively represent the Sami population but rather all inhabitants of Finnmark County. Thus, the Sami Parliament argues that the requirements of ILO 169 concerning benefit sharing are not met by this arrangement, a position also supported by legal experts (Skogvang 2010; Nygaard 2016).

9.6 How Landscape Is Used, Understood and Valuated

Reindeer husbandry stands out as clearly the most important industry using the landscape of Biedjovaggi. The landscape of reindeer husbandry can thus be characterized both in terms of common property (Ostrom 1999), as a resource available for several groups of users (Gaup Eira et al. 2016) dependent upon management to avoid overexploitation; *and* as a site for a specific form of multifunctionality in which humans and non-humans share (and shape) the landscape together, and thus create a basis for ontological security. The area around Biedjovaggi holds an important position in reindeer husbandry; the landscape is open, with no natural borders, and there are more siidas than anywhere in Norway (Riseth 2013). In this area, core tasks relating to reindeer husbandry are performed. Reindeer migrate across this landscape; they are transported and slaughtered. For some siidas, Biedjovaggi is their main area for calving. For others, the topography of the landscape makes this area the main migration route from winter to summer pastures. Vidda, the area surrounding Biedjovaggi is extensively used, and the winter grazing lands are in a special position. More than 8,000 reindeer use the area during the autumn, and 5,500 reindeer stay in the area in the early spring; due to calving and migration from inland to coast[16].

Using the landscape for reindeer herding represents a close interweaving of animals, humans and landscape, and of past traditions and present knowledge and understanding. Jernsletten (2009) shows in her work in the Southern Sami area in

[15] Land use plans may take different forms. Regarding mining, zoning plans seems to be most common (See Chap. 3)

[16] Written submission from REINBEITEDISTRIKT 34 to the municipal planning program, 2011

Norway, how landscape works as a frame for passing on knowledge, skills and understandings of the dynamic interconnections between humans, animals and nature. Traditions rooted in Sami livelihoods, based on harvesting natural resources, are important for passing on cultural values and identity. She shows how the landscape where relatives and ancestors have made a living represents an important source for self-understanding. In Guovdageainnu, this understanding of a strong connection between landscape use and Sami culture is clearly expressed. Use of the landscape for reindeer herding seems to be for many an integrated part of the practical way of life, and the symbolic understanding of what being Sami means. One of our informants, a middle-aged female politician, having lived most of her life in Guovdageainnu, expresses her opinion of the close connection between reindeer husbandry and Sami culture in this way: *"Reindeer herding is the number one carrier of Sami culture. If reindeer herding disappears, a great part of the language will disappear, the Sami clothing will disappear. And what is left then?"* [17] This sentiment is strong in Guovdageainnu, but should also be seen as a contestable position, as others argue that even though the reindeer herding industry is important, there are also other important culture-bearing activities and movements in the landscape.

The relations between humans, non-humans, and landscape form knowledge that finds its way into the body (Ingold 2000). Through landscape use, stories and skills are passed on, and in this respect landscape represents continuity to the lifeworlds of generations back in time (op.cit). Oskal (1995) elaborates the deep connection between humans and landscape by introducing the concept "get along well with."[18] In this, Oskal points at how the relations between humans, non-humans and nature in reindeer herding are based on practice, whereby humans get closer to landscape, by "getting along well". Thus, the way reindeer herders understand and value landscape can be seen as deeply rooted in their taskscape – in a concrete and ancient practice.

Hunting and gathering are also an important part of life in Guovdageainnu, and represent a still vibrant and important non-monetary economy. The Biedjovaggi area has a multitude of fishing lakes, and is a very attractive hunting grounds for moose and grouse, making this one of the areas of Finnmark with the highest density of hunters. Both locals and visitors use the area; visitors mostly for recreation and sports, locals as a part of a lifestyle where self-sufficiency plays a vital role. A local politician describes the use of landscape in this way:

> *In the Norwegian way of thinking, you use nature for economic or recreational purposes. Nevertheless, here, we have a third concept, which is more important for us than the other two. We do not go into the landscape for recreation; we harvest. For us, nature is incredibly valuable.*[19]

This sentiment, it could be argued, is quite a stereotypical notion of the essential divide between Sami and Norwegian ways of doing things, but it does not, of course, in itself hold sufficient explanatory value for this case to be understood purely as a

[17] Interviewee DS 116

[18] In Norwegian: "komme overens med"

[19] Interviewee DS 114

clash of cultures. However, it *does* reveal a tendency to interpret these kinds of conflicts as *ontological* – that is, as cases in which the opponents hold *different* world views, to the extent that one can argue that the worlds one inhabits are different, concerning for instance the value of nature. This should also be seen as an attempt to explain to two Norwegian researchers *why* and *how* things look different from *one* (but not *all*) local perspective(s), in Guovdageainnu. Another statement by the same respondent, which was aimed at explaining these perceived differences, also holds explanatory value:

> *Most people in Guovdageainnu have two, three, and maybe four, five freezers filled with what from a Norwegian point of view are luxury items. They have salmon, char, elk, reindeer, grouse, cloudberries, blueberries and lingonberry. They are not really freezers; they are boxes of luxury"*[20]

The statement can be seen as an attempt to describe to us how («urbanized") Norwegians and people living in Guovdageainnu (implying the Sami population) think about and act differently in nature. *Harvesting* plays an economic role in Guovdageainnu, by supplying households with food necessities, but the importance of harvesting is also deeply connected to traditional knowledge and use of landscape. Hunting, fishing and harvesting for self-sufficiency represent a practical experience of the landscape; through a close interconnection of landscape, practice and nature (Ingold 2000). Living in a landscape and using it through practices connected to harvesting, brings life stories into the landscape and landscape into life stories. Through practices related to harvesting of natural resources, experiences of landscape are being made and handed over. Harvesting represents continuity between people and landscape, between past and present, and acts as a way of defining what it means to be a part of the Guovdageainnu community. The Norwegian philosopher Meløe states that a place becomes a specific place through the activities that are carried out there. Landscape can be seen as the surroundings for human practice; a kind of permanency and stability that frames past life, and acts as a reservoir for memories (Greve 2014; Førde and Magnussen 2015). Seen in this perspective; a freezer filled with goods that others have harvested – or something bought in a store – would not hold the same meaning. Harvesting is an essential part of life; it is a way of creating a connection between humans and nature, previous and future generations. As practice, harvesting holds an ability to create and recreate places; by defining human relations to a place. These practices, performed *within the landscape,* are given meaning in a relational space; a space within which specific, meaningful activities are played out. Importantly, though, these sentiments are not, of course, purely Sami by nature – other people also find that their relationship to nature is practice-based and performative. What is interesting in this case is that the difference between a *life close to nature* and a (perceived) *un-natural urbanized life* is juxtaposed with a constructed Sami-Norwegian dichotomy – even in efforts to explain local politics. Additionally, the dichotomy we find underlines the meaningful relationship to nature and landscape that seems to permeate politics in

[20] Op.cit

Guovdageainnu, and that also feeds a sense of ontological security (Giddens 1991; Kristoffersen and Dale 2014) which is believed by a (small) majority in the Municipal Council to be threatened by the possibility of a reopened mine in Biedjovaggi.

9.7 The Political Process

Usually, when formal political processes relating to mineral extraction are presented and analyzed, the main focus is on the decision-making processes, that is, how the formal governance processes were performed, who participated, whose arguments were heard and finally, what decisions were made. In this particular case, though, a governance process, in which local actors and stakeholders were invited to participate, was never formally initiated. Although the Municipal Executive Committee[21] voted for an EIA process twice, the full Municipal Council dismissed the vote both times, on the grounds that a possible mine in Biedjovaggi would severely threaten the reindeer herding industry. As such, the following description of the political process focusses on the Municipal Councils grounds for rejecting the EIA process, as described by the people interviewed for this study.

9.8 The Formal Process: Disturbances and Misinterpreted Signals in a Distinctive Political Landscape

In June 2011, the first formal meeting was held to discuss the prospect of future mining in Biedjovaggi. Representatives of Arctic Gold met the political and administrative leaders of Guovdageainnu Municipality. The meeting had an open agenda; the local representatives saw this as an exploration of the potential for mining. The executive committee responded positive to the initiatives presented by Arctic Gold.

In September, the same year, the first draft planning program was presented, and the planning committee decided to initiate a public hearing, which resulted in the submission of 27 comments, none of which were considered to represent a substantial "no" to mining. The comments argued for revisions of the plan in two areas; the geographical area included in the plan, and the lack of impact analysis. Some of the comments had rather strong objections relating to the two southernmost areas included in the planning program. These areas were considered to be of particular importance to reindeer herding, and the plans for an opencast mine in these areas were considered as a threat to traditional use of the landscape. Several comments referred to the need for an impact study covering the economic impacts for society

[21] The executive committee consists of one fourth of the members of the municipal board, including the mayor and vice-mayor. Their main responsibilities are decisions in minor cases, and preparation of cases to be discussed and considered in the municipal board.

as a whole. Based on previous experiences of planning processes, the local community expected Arctic Gold to consider these comments, and make the changes that were asked for. According to our informants, this did not happen. Arctic Gold presented the planning program with just minor changes, and this decision was considered unwise by local politicians: *"This was the first mistake made by Arctic Gold, they didn't take these signals into consideration,"* [22] the sentiment being that Arctic Gold quite early on lost the goodwill that was initially present in the early stages.

The misinterpretation of political signals became noticeable when the planning program was discussed by the municipal council. The outcome of the vote was a "No", which, according to one of the local politicians involved, spurred a reaction from Arctic Gold:

> *The decision that led to a "no" made Arctic Gold wake up. They revised the planning program, they removed two controversial areas from the plan, and they added a more thorough impact assessment. But they did this after the municipal council said no.*[23]

Key people in local politics characterize this as a misinterpretation of political signals, and observe that Arctic Gold was not able to grasp the informal processes that were taking place under the formal surface. As one interviewee stated,

> *There was no marked opposition to the mining project in the early stages. Resistance grew gradually.*[24]

9.9 The Political Landscape in Guovdageainnu

So why did the Municipal Council vote No? What happened between the seemingly positive 27 comments to the first draft of the planning program described above and the Municipal Council meeting in April 2012?

Local politics are often very different from what happens at the national level. Family ties, long-term friendships and alliances and specific, often place- or industry related issues form a backdrop for a political landscape that often seems unfamiliar to a visitor, or a national politician for that matter. In Guovdageainnu, an additional source of political tension is the way that national[25] politics influences the community, and in what way this is understood as an issue in which 'Sami-ness' is evoked. The reconstitution of *being Sami* thus seems to permeate local politics in Guovdageainnu, and has the effect that specific political cases and controversies such as the reopening of a mine in a core reindeer herding area is interpreted into a political, social and cultural scene in which *what it means to be Sami* is of importance (Nordø et al. 2015). Again we see that the reindeer herding industry, in the

[22] Interviewee 114

[23] Interviewee 114

[24] Interviewee 113

[25] By our informants in Guovdageainnu often referred to as 'Norwegian'

same way as other culturally valued inherited traditions connected to land use, is regarded as a *core activity* with strong symbolic importance for the Sami community, indeed emphasized by important stakeholders such as the Sami parliament, local authorities, reindeer herding organisations and Sami academics (Josefsen 2014; Johnsen et al. 2015; Nygaard 2016). What we found, though, was that the disagreement seen in the community over mining did *not* represent a Sami vs a non-Sami position, but rather mirrored articulated divides *within* the community which relate to how sami-ness is to be understood, and how it should relate to identity politics and (indigenous) identity-based rights.

The political landscape in Guovdageainnu thus represents other divides, other concerns than those represented by the more traditional political parties in the Norwegian political system, a difference strongly emphasized by informants.[26] As such, local parties or electoral lists are strongly represented in the Municipal Council, lists that by name indicate real differences of interest in the community. The Guovdageainnu Reindeer Herders List (Guovdageainnu Johttisápmelaččaid listu) obviously represents the interests of the reindeer herders and their families, but also emphasizes the importance of the herding heritage for Sami communities more widely. The Sami People's Party (Sámeálbmot Listu) base their policies on the importance of safeguarding and implementing the specific legal rights of the Sami people as an indigenous group native to Norway. And finally, the Permanent Residents List (Guovdageainnu Daloniid Listu) focuses on the specific interests of those inhabitants of Sami origin who are not directly involved in the reindeer industry. The existence of this list illustrates the way in which issues can become the basis for structuring the political system when opinions in the community differ in relation to specific rights ascribed to Sami identity. The existence of these three different political groups also indicates the extent to which Sami identity itself is a contested category.[27]

The strength of these local (or regional) political organizations is explained by one of our informants as follows:

> *I think it has a lot to do with the Norwegianization policies inflicted upon us Sami, and that we're controlled from Oslo, and that someone might not want to fight for the values that are important to us. And they are ... Well, why do we live here? The reason is ... you just need to look out the window, look at nature here. And the people ... if there's one thing that separates Sami from Norwegians, it's when you look at the Norwegian regulatory system.*[28]

Emphasis is here put on the difference between *being Sami* and *being Norwegian*, a difference ascribed both to a power relationship (here specifically through the focus on *Norwegianization* policies) (Eidheim 1969, 1987; Thuen 1990) and a matter concerning how to understand, interpret and make use of nature and natural resources. In this sense, politics is thought to better represent the population if anchored in local and regional issues, and not (at least in principle) the priorities and understandings of

[26] Interviewees 112, 113, 114, 116

[27] After the last local elections in 2015, these parties got 5, 2 and 4 representatives respectively in the Municipal council, out of a total of 19 seats, leaving room for only three of the traditional Norwegian political parties with representation in the municipality.

[28] Ref interview 114.

political parties run from their head offices in Oslo. That said, several of our interviewees emphasized the culture of cooperation and the will to find common solutions that generally permeate politics in Guovdageainnu, and observed that this particular case was an anomaly in that respect,[29] and that the inscription of a particular culturally-based difference serves to *defend* a political view just as much as politics are *derived* from a particular cultural background or affiliation.

Be that as it may, during the election period when the decision to stop the EIA process for reopening the gold mine in Biedjovaggi, from 2011 to 2015, a total of 13 out of 19 elected representatives in the Municipal Council came from these electoral lists, which are found only in a few other municipalities in the Norwegian part of Sapmi (originally the name of the Sami Nation, but also an indication of what is commonly seen as the Sami heartland).

The political landscape in Guovdageainnu is, as has been shown, deeply connected to issues of land use, rights and ownership. What this means for this specific case is that people were allowed to vote based on their personal points of view, and not the traditional dividing lines constructed by the traditional political parties. Interviewees explained that normally, things were pretty cordial in Municipal Council meetings, and that a lot of the political work being done was to ensure that the shrinking budgets did not affect those must vulnerable in society, and try to the extent possible to provide incentives for people to stay in the community.[30] But, as one interviewee stated, the mining issue is different, in many ways:

> *… it all became really emotional. Arguments for and against were discussed … but the front lines sharpened with time, until the moment came when no one really wanted to find joint solutions anymore. I am trying to remember … I do not think anyone switched sides; everyone had the same opinion all along. But at the end, no one cared to come up with solutions everyone could agree upon, which was more the case in the beginning. At the end … no one changed their minds.*[31]

The issue can be seen as an example of how political decisions are seen as concrete threats to – or a strengthening of – a sense of ontological security; i.e. the way actors experience politics as moving the parameters for – or shifting the variables influencing – specific world views through which they make sense of the world (Seghezzo 2009).

9.10 Under the Surface: Political Considerations

While the planning process had started, and Arctic Gold has introduced the company's plans in Guovdageainnu, political issues were starting to develop beneath the surface. Members of the Guovdageainnu Municipal Council were engaged in various discussions over the mining question, a debate in which two main diverging

[29] Ref interviews DS 113,

[30] Ref interviewee DS 113

[31] Interviewee DS 113, our translation from Norwegian.

points of view developed. One group started the process with a distinct positive attitude towards the new mining proposals. They saw potential positive effects for the local labor market and local economy, and thus for ensuring a viable future for the community. Another part of the political landscape was strongly concerned about the situation on the local labor market. In 2011, Guovdageainnu were among the municipalities with the lowest average income in the country. The unemployment rate among unqualified men between 30 and 50 years was alarmingly high. These concerns were brought into the initial discussions with Arctic Gold, but at this point, the company was not able to give any guarantees about whether locals would be offered preferential employment in the future work force or not. Based on this concern for the local labor market, a group of local politicians argued for the importance of an EIA:

> *It would present answers to our questions concerning job opportunities. But it didn't happen; there was far too much emotion attached to the question of initiating an impact study.*[32]

Some of the politicians had taken a moral and value-based standpoint against any mining activities. For this group, the discussion concerning impact assessment has reached a conclusion already before it started. One of the dominant voices in the municipal council expresses her standpoint in this way:

> *I told them: I can't be a part of this. I cannot agree to an impact assessment. For me, that will be a way of cheating people. I know that I do not want any mining activity in Biedjovaggi, and that makes it impossible to say yes to an impact assessment. It's a matter of conscience.*[33]

For this politician, her standpoint was deeply rooted in what she considered to be one of the most valued elements in the Guovdageainnu community: reindeer herding.

> *I will not be responsible for destroying these areas to the advantage of mining industry, or so called new jobs. Because of mining, employment in reindeer herding will disappear. It will ruin our culture and quality of life.*[34]

Simultaneously to these local political considerations, Arctic Gold took an active role ahead of the formal decision in Guovdageainnu Municipal Council. The municipality – including all political parties represented in the municipal council – was invited into a civil law contract with the company. Elements that were discussed included possible guarantees to secure the municipality a certain level of income from mining, considerably more than the company was obliged to. The implementation of the contract was based on certain conditions, mainly that the planning program would be approved by the Municipal Council.

[32] Interviewee DS 113

[33] Interviewee DS 116

[34] Op Cit

9.11 Swedish Formal Correctness Meets Norwegian Local Democracy

"The Swedish way of doing things", was an expression often used when locals described to us their experiences with the company Arctic Gold. Some politicians emphasize how a cultural clash led to misunderstandings and lack of confidence in the decision-making process: "*They were very Swedish, very correct. It was obvious that they didn't understand the Norwegian way of life, and definitely not the Sami way of communication"*.[35] This was seen as a reason why things went wrong; and why a "No" from the municipal council came, it seemed, as a surprise to Arctic Gold. All interviewees emphasized that the company acted formally and correctly in the decision-making process, but to the locals, formality became a barrier for perceiving and understanding what was really going on. A key person in the local administration describes "the swedishness" in this way:

> *They came here as businessmen, and then it went all wrong in the communication with the community, especially the politicians. Their manners created more distance than necessary.*[36]

Others, among the local politicians, comment on Arctic Gold's behavior in this way:

> *They didn't do a proper exploration of the political landscape.* [37]

The responsible representative from Arctic Gold was described as "*a typical businessman",* and, dressed "*in the long overcoat that businessmen wear"*,[38] he became a symbol of a contrasting world. If there was a correctness and arrogance mixed up, and what was from our informants reflected upon as a correct behavior in a Swedish business context, it was partly misinterpreted in Guovdageainnu:

> *He came to Guovdageainnu to implement mining activity, and the company saw no need for a good mutual dialogue with the locals. He was acting according to the Swedish way of doing things.*[39]

What seems clear in retrospect is that Arctic Gold insisted on relating to the Municipal Council as a *decision making authority*, not necessarily as a representative body for a community in which tensions abounded around the issue; nor did they foresee that the latter status – that of representative body for the community – that would inform the final municipal decision. In this sense, the statements referred to here clearly point to a clash of cultures where misinterpretations and stereotypical notions about "the other" clearly influenced the process leading to a municipal "No".

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[35] Interviewee DS 113

[36] Interviewee DS 112

[37] Interviewee DS 114

[38] Interviewee DS 112

[39] Interviewee DS 113

9.12 Power and Identity: Reopening a Gold Mine in an Important Reindeer Territory. A Summary

At a first glance, the result of the vote in the Municipal Council of Guovdageainnu might seem surprising, as most small scale municipalities seem to want to welcome large scale development projects, even when it comes to the extraction of natural resources. [40] The disagreements over content and practical consequences of the legal rights (or lack thereof) provided to the Sami people in the Finnmark Act and the Minerals Act form an important backdrop to the municipal decision to use the power vested in them by the Planning and Building Act to refuse plans for mining in Guovdageainnu. This, combined with previous (societal and personal) experiences with mining and its (direct and indirect) consequences, and a general sense of multiple pressures on the culturally and economically important reindeer herding industry, is what, we believe, made up the political basis upon which the decision was made. Further, we acknowledge the importance of controversies over land rights and ownership – be it legal or customary – in Finnmark.

In this chapter we have shown how this result can be analyzed through a bottom-up approach to understanding socially, culturally and environmentally embedded processes that influence politics, and how local political decisions in this particular case were, to a large extent, connected to the following:

– That the colonial (and post-colonial) Norwegian-Sami relationship has been predominantly interpreted in the Sami community as one where the minority has been under several types of pressure over time (Eidheim 1987; Skogvang 2010; Ravna 2011; Koivurova et al. 2015), including an inability on the part of the minority to influence the parameters within which particular ideas about value and wealth have been defined in relation to nature. This has undoubtedly put people's sense of (ontological) security[41] under pressure, as not only the potential to thrive and develop economically and culturally has been restrained; the very possibility for communities to ensure ontological security – a sense of meaning-in-the-world – has also been weakened. [42]
– That the gradual construction over four decades of a firm base for Sami collective rights and political institutions has secured rights to land;
– That previous societal and personal experiences with mining in Biedjovaggi have included negative consequences of the sort that undermine an understanding of what it means to be secure – as an individual and as a collective; and

[40] See Chaps. 5 and 6 in this volume, but also Tuusjärvi et al. 2014, 9, Riabova and Didyk (2014), and Wilson (2015) for discussions.

[41] Again, we refer to the discussion above concerning the usage of the term ontology, here referring to a particular way of understanding security concerns as it is expressed by a given population or community – or by individuals.

[42] See Jonsson et al. 2012 for an interesting discussion on the concept of cultural difference when discussing (potential) futures

– That pressures on the reindeer industry, related to controversies surrounding management of and access to land which cuts into and across the Sami communities has led to a sense of being squeezed from multiple fronts; from mining, from hydropower plan constructions, from road building, and last, but not least – from a constant pressure to decrease the amount of reindeer and run a more cost- and personnel efficient reindeer herding industry (Riseth 2013).

Based on these variables, we find it pertinent to state that the municipal "No" to an EIA process is based on a vitalization of Sami interests within politics and an empowerment of local politics embedded in Norwegian legislation that ensures that these Sami interests can be upheld. Simultaneously, it is of importance to recognize that the processes leading to the surprising No was by no means uncontroversial locally; in fact, the vote was close and reflects (according to our informants) a real divide in the community over whether to reopen the mine. The close, interwoven relationship between the political decision makers in the municipal council and reindeer interests (sometimes in fact being one and the same, as several of the politically elected representatives held ownership over reindeer herds or had family ties within the industry), together with a broad understanding of the reindeer industry being a *core cultural activity* of the Sami people – in fact an activity that for many *defines what it means to be Sami* – meant that the decision dealt with not only economic matters; they were also deeply personal and cultural. One can perhaps argue, as did one of our informants who sat in the Municipal Council and voted against the EIA process, that the reindeer industry is *essential to Sami culture*, and that its need for pasture and room to roam is about so much more than the possibility for a few families to make a living from it; it is, seen from those opposed to the mine, a matter of survival for future Sami communities, and although the proponents for the mine of course also has the future viability of the community in mind when arguing *for* the re-establishment of a mine in Biedjovaggi, we found that the opponents were more prone to emphasize the culture-bearing qualities of reindeer herding and the threat represented by the mine to its future existence.

The consequence of empowering communities, then, is that their rejection of that which usually brings credibility to planning and decision making processes – scientific knowledge on risks and quantitative assessment of (economic) benefits – must be acknowledged and accepted as being just as rational as it would be to accept due process. Indeed, it merely shows that opinions about *what is worth securing* and *what is at stake* are place-specific, and that the inclusion and exclusion of specific forms of knowledge and valuation vary across time and space. In fact, as the majority in the municipal council rejected the need for techno-scientific knowledge that could be provided through an EIA as a basis for political decision making on this matter, they in fact also devalued the valuation scheme it represents vis-à-vis other, non-monetary values to be found in the landscape. In other words, the power was in this case reversed, and what is normally portrayed as the weaker position of local indigenous communities in matters of extraction of valuable minerals is here the stronger part. Paradoxically, this was because the Norwegian management system is such that the local democratically elected municipal council has the first say, the

right to dismiss the process as a whole (see above). Thus, the legal right of the municipal council to dismiss the bid for extracting minerals *by law owned by the state* by a commercial actor – a right in itself also confirmed by law – seems to surpass all other concerns, even those that are in line with state priorities and strategies.

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Chapter 10
Coexistence in Mountain Landscapes: A Local Narrative of Hope and Uncertainty

Arild Gjertsen and Camilla Risvoll

Abstract The local community of *Sulitjelma* in Northern Norway is a former mining community facing renewed industrial interest in local mineral resources. In this chapter, a narrative approach is used to examine how people who live in close proximity to the mining area describe their situation. The 'local narrative' is contrasted with how commercial mining interests and municipal authorities characterize the potential for renewed mining near the community. Central to the new developments is the decision to allow Lake *Langvatnet* to remain a waste deposit site for the mining activities, as it is judged to be beyond regeneration. Seen as part of a larger landscape, the continued use of Lake *Langvatnet* for depositing waste might be viewed as the price for securing some semblance of sustainable development for the local community in a wider landscape context. But the case also shows that local cultural contexts are critical for understanding the developmental scope of mining initiatives. In the case of *Sulitjelma* the development discourse starts within a context of proud mining traditions, not pristine natural landscapes.

Keywords Narrative analysis • Post-mining identities • Reindeer herding • Indigenous people • Landscape valuation

10.1 Introduction

Situated in a mountainous region, *Sulitjelma* is a small village of 450 inhabitants in *Fauske* municipality that has increasingly turned to tourism and recreational activities, attracting people from other, more populated towns such as the municipality centre and the town of *Bodø* (see Fig. 10.1). Local people's memories of a proud and century-long history of mining are still alive, however, and this history is duly presented in museums, its tourist mine and its handicraft workshops. Recreational cabin clusters have been built over the last few decades in the areas surrounding the

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Fig. 10.1 Map situating Sulitjelma and Fauske Municipality, Nordland County (Source: DCW: Digital Chart of the World, Marc Girard, Université de Montréal)

town. Skiing, climbing and hiking are important activities, and as such, the landscape surrounding the mine is now valued in a different way than during the mining era. However, there are several challenges related to mining that still provide cause for concern. The first issue is the runoff from landfills established for the old mines and how this is controlled, managed and mitigated by the authorities and other stakeholders at the local, regional and national level. The runoff contains heavy metals, particularly copper, sinc and iron ore deposits. Most of the runoff eventually end up in Lake *Langvatnet via multiple rivers and creeks that exist in the mountain landscape*. The second, related, issue is a new initiative to re-establish mining activities at *Sulitjelma* and how this will be dealt with politically.

As illustrated elsewhere in this book, local political acceptance of mining projects is not a given and is dependent on a number of issues and processes. A central issue in this case is related to how the landscape is valued and understood with regard to the revival of mining in the area. On the one hand, this hinges on the predicted potential benefits, from the mine activities themselves and from spill-over effects. On the other hand, the town of *Sulitjelma* has *changed* with the increase in recreational activities, the shift to tourism as a basis for business, and, concurrently, with the emergence of a much stronger environmental discourse locally and nationally. The question is how these contrasting perspectives influence local perceptions of the landscape of *Sulitjelma* and, consequently, its importance for matters of local identity. Landscapes can be understood both in terms of their physical dimensions (natural, historical and land-use structures) and as social constructions. The latter perspective includes

subjective views of the landscape which may be shaped by local narratives or traditions (Rörhring and Gailing 2012). Mitchell (1994) sees connections between landscape, identity, memory, and comprehension as fundamental aspects of understanding landscape and human attachment to place (Mitchell 1994; Taylor 2008). Seeing landscapes as the product of peoples' memories and beliefs reflects landscapes as a cultural construct that is encoded with meaning (Taylor 2008). The argument put forward in this chapter is that the history of mining in the *Sulitjelma* area, and consequently the remnants of the local mining culture, clearly have a bearing on how the local landscape is perceived and framed, but also that this cultural path-dependency is modified by emerging environmental concerns and new uses of the landscape. As outlined in Chap. 3, the discursive context of mining in Norway has been subject to considerable change, with an increasing focus on the potentially negative environmental effects of mining. The question remains, however, whether the existing governance regime is up to the task of managing such issues in a comprehensive manner. Scholars such as Fauchald (2014) argues that the division of competence between local authorities, mining authorities and environmental authorities is 'unclear' in Norway, and the enforcement of environmental regulations is inadequate.

Within this scenario, perceptions of sustainability may differ between the local, regional and national contexts, and, indeed, between the private and public sectors, resulting in dilemmas for those seeking to achieve sustainable governance of the affected landscapes. An important challenge for governance, then, lies not only in establishing a *modus vivendi* between environmental concerns and mining, but to apply *knowledge* – both scientific and civic – in the assessment of whatever impact mining may have on local landscapes. This is hardly a straightforward and objective process, whether seen from the point of view of commercial interests, decision making authorities or stakeholders in the affected local communities. This chapter shows how these dilemmas are addressed in the process of reviving mining activities in *Sulitjelma*.

Our analytical approach centers on a social science narrative analysis, based on interviews with local residents, officials and representatives of mining companies; as along with a study of documents relating to the process of reviving mining in the area. The narrative approach is used to examine how the people who live in close proximity to the mining area describe their situation and how this compares with presentations of the same case by other stakeholders; primarily the local municipal authorities and the purveyors of scientific assessments. This analytical approach offers a way of obtaining a richer understanding of local people's perceptions of local landscape values in relation to the process of reviving mining activities. Following Benjaminsen and Svarstad (2008) narratives are seen as the shared ways in which the extraction of minerals and what this means for the local population are understood and presented by the actors involved. Narratives are creations or stories told by the actors, and different actors might have different narratives that fit into different and often competing discourses. Specifically, this chapter shows how local people from *Sulitjelma* talk about their situation as local inhabitants of a post-mining community, where renewed mining activity is being proposed and a new environmental discourse is emerging. The chapter questions how these narratives are taken into account as knowledge for decision-making.

The local narrative is one of ambivalence. On the one hand, it encompasses a positive perspective on the revival of mineral extraction. Simultaneously, however, stories of concern and doubt are evident; both in terms of the ongoing pollution from past mining, as well as the potential effects of the new mineral extraction. Empirical evidence is drawn from seven in-depth interviews with local inhabitants of *Sulitjelma* and several interviews with representatives of the local mining industry and officials of *Fauske* municipality. Moreover, we observed two village meetings where local people, representatives from the local mining industry and the municipality were present. Additionally a document analysis has been undertaken.

10.2 Transformation of Post-mining Identities and Landscapes

With the increasing number of people in Northern Norway during the 1800s, even remote locations such as *Sulitjelma* acquired new residents. However, the mountainous landscape surrounding the *Sulitjelma* valley had been inhabited before the 1800s. Traditionally it constituted important spring and summer pastures for nomadic Sami reindeer herders, who spent autumn and winter months in the Swedish forests (Evjen and Hansen 2008). The first farming settlement was established in 1848. Gradually around 50 people came to settle there. A radical shift occurred when ore deposits were found by a local Sami near Lake *Langvatnet* in 1858. After some unsuccessful attempts at mining by different Norwegians, a Swedish entrepreneur heard about the mineral discovery in *Sulitjelma* and acquired mining rights in 1887. In 1891 the mining company Sulitelma aktiebolag A/B was established, which later became Sulitjelma Gruber AS (Barth-Jacobsen and Strand 2003). The operation grew fast, and in 1913 there were 1750 employees in the mines. Two major locations were chosen for the mining operations. One was near Lake *Langvatnet,* and the other was higher up in the mountains where ore deposits were rich. Here people established the small and relatively isolated settlement of *Jakobsbakken*. After the closure of the *Jakobsbakken* mines in 1968, the residents moved to *Sulitjelma* village near Lake *Langvatnet*. The houses at *Jakobsbakken* were sold to a mission organization and were finally sold on the private market as holiday homes. Presently, a local tourism company is in the process of establishing a tourism business with *Jakobsbakken* as a base.

Sulitjelma became a large producer of copper and iron pyrite and with the expansion in mining, the population also grew rapidly. In the early days of mining, several of the workers were recruited from places far away from *Sulitjelma*, and many were foreigners who travelled and worked in different mines throughout the north. As mining became more established in *Sulitjelma*, recruitment of local people increased. Many of these commuted to *Sulitjelma* while their families still lived in other places, such as *Fauske* and *Valnesfjord* (Evjen and Hansen 2008). As the mining industry evolved, people started to bring their families to settle permanently in *Sulitjelma*, and

thus the population grew rapidly. Transport was a limiting factor in *Sulitjelma* and Northern Norway's first railway-line was built to transport the ore down to the fjord.

A pronounced class distinction was dominant in *Sulitjelma* during the years of mining activity, where the management class dominated the labour class. Housing was a scarcity in *Sulitjelma*. The mining company owned all the houses and the workers were totally dependent on the very powerful company managers. Mining generated considerable activity in *Sulitjelma* and due to harsh working conditions the workers made several attempts to become organized into labour unions. In the winter of 1907, following a famous muster of workers on the ice of Lake *Langvatnet*, a workers' union was established, which again contributed towards a strong sense of unity and cohesion among people in *Sulitjelma*. Life in *Sulitjelma* was closely connected with mining and it was very hard for many people to accept the government's warnings of possible closure in the beginning of the 1980s, as a result of falling copper prices. Closure was delayed several times, thanks to the strong local commitment in the battle to continue the mining operations, but production finally came to an end in 1991. The government spent a significant amount of money on post-mine economic transformation in *Sulitjelma.* A factory producing insulation material was built, and a business utilizing the slag from the smelter to produce sandblasting products for the mechanical industry was established. Other businesses were also established, but none have generated any long term employment in the local community (www.salten.com/sulitjelma).

10.3 New Mining: From Confrontation to Collaboration

With *Sulitjelma*'s significant history of copper production, many developers have shown interest in new mining operations and a number of mining companies have acquired exploration rights in the area. However major environmental challenges remain from the historic mining operations. During almost a hundred years of mining activity, the pollution was immense, in particular the intense sulphide smoke from the smelter. When the first residents settled in *Sulitjelma* around 1850, the valley was surrounded with pine- and birch forest. However, large amounts of energy were needed for the copper ore processing and all of the pine forest in the *Sulitjelma* valley was cut down for this and for house-building (Mosti 1996). Birch and other tree types were dramatically reduced due to the need of firewood and gradually the remaining flora also disappeared as a consequence of the sulphide fumes that were released into the air right up until 1987, when the smelter shut down. Lake *Langvatnet*, which has previously been subject to heavy pollution from mining activities, bears the hallmarks of extreme environmental degradation. Nevertheless, the lake is starting to recover, although it hasn't yet reached any form of "natural" state. In light of the possibility of a renewal of the local economy, and new employment opportunities, re-establishing the lake as a site for mining deposits is a manageable sacrifice for local people. A sense of unease is however felt among locals in regard to future mining activity in the mountainous areas at higher

latitudes. These landscapes have high recreational value, and they provide important pastures for reindeer (e.g. Risvoll 2015), as will be discuss further below.

For a long time, *Fauske* municipality and the local people of *Sulitjelma* have been hoping that the national government would put in place measures to properly deal with the problem of pollution from the old mining operations. However, there is also a strong wish and will locally for new mining activity in *Sulitjelma*. Several options exist for handling waste from new mining activity. The alternatives that have been outlined include land-deposits and a deep-water deposit in the *Øvervatn* Lake, further downstream in the lake system (see Fig. 10.1), the latter being recommended by members of the research community. A continued focus on the Lake *Langvatnet* option is however the only alternative being given a thorough assessment. There are at least two explanations for this. Firstly, the fact that Lake *Langvatnet* is already characterised by severe environmental degradation makes this the easy and cost-effective solution. Secondly, the unresolved issue of legacy pollutants is the responsibility of the Norwegian State. This opens up the possibility of piggybacking on State-led initiatives to deal with the existing pollution in Lake *Langvatnet*.

Fauske municipality decided in 2012 that they wanted to actively engage in renewed mining activity in *Sulitjelma* due to the rich mineral deposits that exist there. The municipality sought to strengthen its collaboration with actors such as the County municipality (Nordland Fylkeskommune) and the Salten Regional Council (Salten Regionråd)[1] to facilitate mining development. In 2013, a 3-year project was established with the intention of developing and facilitating new mineral extraction in *Sulitjelma,* with the specific aim of resolving the issues related to new mining activity. The municipality has given *Fauna KF*, a municipal agency working towards industrial development, the mandate to facilitate new mining development and activity in *Sulitjelma.* In addition to being a facilitator, this agency also deals with land-use planning and resource development for private mining companies that have acquired mineral exploration rights. However, the pollution from previous mining activity represents a barrier to new mining; environmental awareness has increased and environmental policies have changed since mining activities ceased in 1991.

This new position of encouraging mining has supplanted the municipality's previous strategy of confrontation with state-level authorities over the legacy pollution. While the responsibility for dealing with past environmental transgressions remains outside the local sphere, any ideas of taking legal action against the appropriate governmental agencies – in order to initiate mitigation efforts – have been abandoned. With the gradual realization that this approach would probably prove counterproductive to the revival of mining – as one informant puts it, "we would just end up annoying somebody" – the strategy was changed in favour of building networks and assisting potential mining companies. Central to this strategy has since been a clear focus on communicating as closely as possible with the relevant government agencies at the national level. Subsequently, a deputation was dispatched to woo

[1] This serves as a forum for discussing local and regional development in the Salten area, comprising nine municipalities/local governments.

members of parliament and contact was established with universities, regional authorities and private mining business networks.

> After some time we succeeded in establishing good contacts with the relevant state agencies, which proved essential to getting environmental challenges mapped and possible mitigation efforts assessed. We realized how we could go about this without dragging people to court, without getting into conflict with reindeer herders, while securing the involvement of mining business actors with money.

As far as dealing with the environmental concerns related to both past and future mining in *Sulitjelma*, the municipal authorities have a clearly defined perspective. One solution, and one solution only, is considered to be realistic: assigning Lake *Langvatnet* as a disposal site for the waste produced by mining. While the option of depositing such waste deep in Lake *Øvervatn* was briefly discussed, it was never considered a real alternative due to the cost involved and because it is located closer to the fjord. The main reason for the attention given to Lake *Langvatnet,* however, is the fact that the lake is already polluted from past mining activities, and as such the local authorities consider the lake to be already spoiled.

Consequently, the impact of the waste deposit required for the renewed mining activities in *Sulitjelma* is considered by the local authorities to be negligible. While new mining in the area might not have huge effects on the local labour market, these effects nevertheless easily outweigh any further degradation of Lake *Langvatnet*. As one key informant puts it:

> Lake Langvatnet is a disposal site. Said and done. There's no discussion amongst us about that. It's polluted, and this is accepted.

This realization has possibly also contributed to the change in the local strategic approach from 'confrontational' to 'collaborative'; in light of the amounts of waste deposited in the lake in the past, the costs involved in cleaning the lake are considered to surpass any realistic financing options. Consequently, the attitude seems to be that 'the lake is polluted, we've learnt to live with it and we can keep it like that'.

The beneficial effects of new mining initiatives in terms of investments and employment are obviously uncertain, and this is acknowledged by the local authorities. Nevertheless, optimism remains high; the continued efforts by mining companies to survey the area for mineral resources in spite of the recent fall in copper and zinc prices, is considered to be a sign of expectations of future profit. Reduced prices have also contributed to a cut in government grants for mineral surveys, although this is less relevant for *Sulitjelma* and *Fauske* municipality. Extensive surveys of local mineral resources have already taken place, and the future challenges for mining – apart from pollution – are more closely connected to overcoming infrastructure challenges in the area. But when, and if, new mining projects reach fruition, the local authorities remain confident that they could secure the necessary financing to upgrade the infrastructure.

Both local and international companies are poised to contribute to reviving mining in *Sulitjelma*. *Nye Sulitjelma Gruber* (NSG) was established in 2011, and is a locally based company that serves other industries as well as mining. The mineral exploitation rights held by the company *Sulitjelma Mineral* were transferred to NSG

a few years back, and their aim is to start new mining operations in areas close to Lake *Langvatnet* as a first step (see Fig. 10.2). NSG has so far carried out exploration activities and identified potential mining sites to exploit. Moreover, they prepared an zoning plan (later formally adopted) and an environmental impact assessment. The next step in the process towards starting up new activity is to apply for a discharge permit. This process is time consuming and expensive according to interviewees, and the company itself perceives the waste approval application as their most significant hurdle in this process. NSG has throughout the process maintained close cooperation with Fauna KF, which constitutes a link between NSG and the national government. NSG is the mining company closest to starting up mining activity in *Sulitjelma* at this stage. Drake Resources (hereafter called Drake), an Australian mineral exploration company, has acquired exploration rights over 74 km^2 in *Sulitjelma*. Drake completed a VTEM airborne (helicopter) electromagnetic survey in 2014 and has identified a number of areas that they are interested in (www.drakeresources.com.au).

Drake's airborne surveys have been the source of conflict locally. The reindeer herders in *Sulitjelma* require large continuous land areas for grazing. The conflict has come about as the helicopters flying over the mountainous areas can stress the reindeer and make herding difficult (Antonsen 2014). The conflict between Drake and the local reindeer herding district led to a court case. The issue at stake was the reindeer herders' claim to be compensated for possible damages up front. This was dismissed by Drake who argued that any compensations should be paid ex post facto,

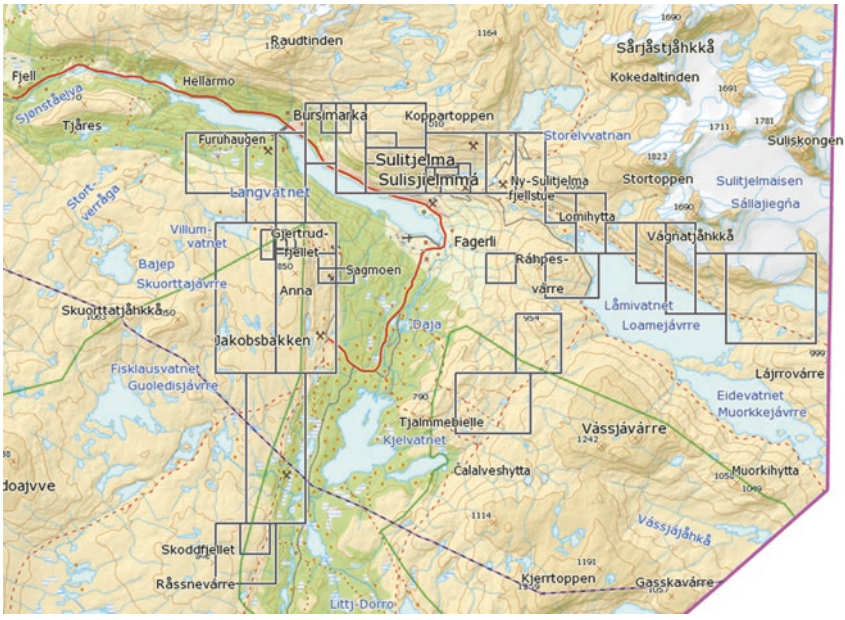

Fig. 10.2 Acquired exploration sites for mining in *Sulitjelma* (Source: The Norwegian Mineral Agency webpage 2016)

following damage assessments. The mining company won the case and was allowed to continue their aerial surveys (ibid). Other companies have also acquired exploration rights, but have so far not made use of them. Figure 10.2 below illustrates the areas where mining companies have acquired exploration rights in *Sulitjelma*.

10.4 The Science

While the prospects for new mining have been met with considerable interest from mining companies, the process towards a start-up of operational activities has been challenging, according to local mining companies. There has been relatively little dialogue between them and the government, and the government has not been willing to share their plans and activities according to mining companies. Thus, they feel they are lacking insight into the government's plans for handling the legacy pollution, and the related scientific knowledge. Nevertheless, the scientific assessments of the environment in the area echo the municipality's own assertion that Lake *Langvatnet* Lake is environmentally degraded.

The Norwegian Institute for Water Research (NIVA) has been carrying out research in the area since 1973. The Norwegian Mineral Agency has been responsible for following up on old mines that are owned by the government. After the closure of the mines in *Sulitjelma* in 1991, the time-consuming work of cleaning up was begun. A stepwise approach of testing the effects has been necessary due to the complexity of multiple runoff sources. This approach has made the process lengthy and the pollution still remains a tremendous challenge 25 years after the mining activity came to an end. The primary measure to reduce the pollution was initially to fill the mines with water (Kristensen et al. 2012). This measure was completed in 2004 and since then the water quality of the runoff from the mines has been measured continuously at various points from Lake *Langvatnet* outlet and down to the fjord. From 2010, the amount of water flowing from the mines into the lake has increased considerably, most likely due to cracks inside the mines. Local government officials noted that these cracks might have come as a consequence of the large amount of underground mines, but this is not known for sure. However, these cracks are increasing the level of heavy metals entering Lake *Langvatnet* (ibid).

Twenty percent of all pollution in Lake *Langvatnet* is generated by the natural runoff from minerals that exist in the bedrock, and is transported by the rivers and streams that eventually end up in Lake *Langvatnet*. Fifty percent of the total pollution is generated from one particular mine of high importance during the mining period. Another 30% of the pollution is generated from other smaller mines and landfills. The rivers and streams that flow into the lake in different places along its shores carry with them polluted runoff from the natural bedrock and from the old mines, adding to the complexity of dealing with old and new pollution. According to Kvennås et al. (2016) approximately 80% of the runoff to Lake *Langvatnet* goes through a natural cleansing process through neutralization and sedimentation.

Hence there is relatively little runoff downstream to the fjord and much of the pollution remains in Lake *Langvatnet.* The Norwegian Environment Agency has put forward a 10 µg/l. Limit on the copper concentration in the water that leaves Lake *Langvatnet* downstream towards the fjord (Kvennås et al. 2016). Additionally, the Environment Agency has ordered the Mineral Agency to assess the need for new measures to keep below the 10 ug/l maximum level. The Mineral Agency hired the Norwegian Geotechnical Institute (NGI) to assess possible measures to reduce the concentration of copper to below 10 µg/l at the outlet of Lake *Langvatnet*.

The Mineral Agency hired NGI to map the pollution situation and provide an outline of possible solutions. The NGI report was produced at the end of 2015. NGI concluded that Lake *Langvatnet* will remain a waste disposal site and that any efforts to clean it up and to mitigate future pollution from new mining activities will be difficult to implement because of a complex set of runoff sources flowing into the lake, and that the risk of failure with a potential sewage treatment plant is high (Kvennås et al. 2016)[2]. The best solution is thus to keep the lake as a waste disposal site for polluted runoff, and instead concentrate on minimizing downstream runoff of polluted wastes into the fjord. Lake *Langvatnet* will, according to the report's recommendations, remain polluted.

10.5 A Local Narrative of Ambivalence

A core aim in this chapter is to gain a better understanding of the aspects that the interviewees themselves emphasized when they talked about their lives in *Sulitjelma* and living nearby the polluted Lake *Langvatnet*. Both local government officials and mining company representatives emphasized the political will and the broad local support for new mining activity in *Sulitjelma*. This study however shows that perceptions are somewhat more nuanced and complex at a local scale. A narrative of ambivalence is emerging locally.

Stories told by the local villagers are dominated by ambivalence that deviates somewhat from the narratives of our respondents from local government and the mining companies. The local narrative broadly comprises two elements. The first is a positive perception of renewed mineral extraction in the lower areas of *Sulitjelma*, more specifically near Lake *Langvatnet* and close to the village itself. This element is related to hopes for what the mine may bring in terms of economic benefits and prosperity for the community in the future. Secondly, unease was felt by several local people about a range of potential impacts from mining. These include disappointment that very little progress has been seen regarding the government's responsibility for cleaning up the pollution from past mining activities in *Sulitjelma* and that insufficient attention has been paid to a broader range of alternatives for dealing with waste/runoff; and a feeling of unease about the possibility of mining

[2] Building a sewage treatment plan has been discussed. However, due to the complexity around multiple runoff sources, this alternative has stalled according to local government officials.

activities in the higher mountain areas of *Sulitjelma*. The latter is related to how these mountainous landscapes are both valued and used as pastures for reindeer as well as areas for recreation.

Many local people in *Sulitjelma* are generally positive towards renewed mining activity as their identity is closely connected to the memories of how life was in the heyday of mining. The community was lively and there was a lot of activity; and most people could work in the mines or had jobs related to the mines. Many people experienced grief when mining ended. Jobs were lost and all the activities in the village that kept people there started to wither. Many locals thus see new mining activity as a possibility for the community to flourish again. They fear for the regeneration and survival of the community if no income-generating activities materialise soon. One informant pointed out that they grew up in a mining society and that is what they know and feel attached to.

Several interviewees believed that current environmental regulations would never allow a similar regime to the one that was followed before, and they have faith that current regulations would ensure reduced environmental impacts. Many informants pointed to the natural regeneration after the closure of the smelting plant and emphasised that this was the most noticeable change after the closure of the mines. Few of the respondents use Lake *Langvatnet* for recreational purposes, and as such do not see its polluted state as a great loss. Many of the locals noted that Lake *Langvatnet* has "always" been polluted, not only because of the mine but also due to household sewage running straight into the lake.

The national government is responsible for dealing with the legacy pollution, and the local developers who are planning new mining activity must plan for how to deal with new pollution in the same area. Several local people point to this complex situation regarding the runoff into Lake *Langvatnet* and disappointment exists among some locals about both the way the national government is dealing with the old pollution, and how the local government and mining companies are approaching the challenge of new runoff and waste from future mining. Local government officials and local mining companies also expressed a feeling of disappointment about the limited communication with the national government in dealing with old and new pollution in *Sulitjelma*. Perceptions about *Lake Langvatnet* as a zone for depositing waste vary among local people, and while some perceive it as the best solution due to the need for activity in *Sulitjelma* - and the fact that the lake is already so polluted – others feel more uneasy about the condition of the lake, and the fact that runoffs may continue and even increase with new mining activity.

Skepticism exists among some local people about the lack of a broader analysis of possible alternatives for cleaning up the waste from past mineral extraction. One interviewee perceives the regulation plan that is still out for public comment as a fictitious process, and there is no real willingness to solve the environmental issues in *Sulitjelma*. The reason for this is the cost and the fact that the cheapest option is to release the waste into *Lake Langvatnet*. Another respondent noted:

> As local inhabitants, we must have the right to question the process and make certain demands even though the solutions are not given or easily visible. People are willing to

> accept incredible things if their work place can be saved. The sulphide fumes from the old mining operations are an example of that

This respondent felt that local people should demand that the mining companies operate cleanly, and claimed that the local politicians and the municipality, as well as other key stakeholders provide a picture that this process and new mining is unproblematic. The process should be problematized more, and more alternatives for reducing pollution should be explored.

Parallel to the process of reviving mining activity near *Sulitjelma* village, there is frequent activity higher up in the *Sulitjelma* Mountains, including exploration and possible mineral extraction. The local people who were interviewed had limited knowledge about what mining in the higher mountain landscape would signify in terms of encroachment. Open meetings have been held in the local village by NSG and Fauna regarding the plans to commence mining activities in the areas near *Lake Langvatnet*. However, limited attention has been paid to what mining higher up would really mean in terms of infrastructure and activity, such as new roads, traffic, and disturbance for reindeer husbandry. Reindeer herders have already been directly exposed to helicopter disturbance, as noted earlier. Reindeer that graze in these areas might disperse as a result of the noise of the helicopters, resulting in migration to areas with less accessible or poorer quality grazing (e.g. Vistnes and Nellemann 2001, 2007). Hence, frustration has been apparent among herders relating to the frequent helicopter flights (e.g. Antonsen 2014). Several of the interviewed locals exhibited a sense of uncertainty and reluctance to accept encroachment in the mountains, as these landscapes are very important to them in terms of recreational activities such as hiking, hunting, fishing and tourism. One local interviewee said:

> When I think about pollution I think of Lake Langvatnet, and I am not so worried about that. But if they start to encroach upon areas higher up, then I will resist. The mountains are the only thing that we have left up here – a mountain landscape that we are proud of.

They feel a much greater attachment to the mountains higher up and thus feel more unease as to what mining activity might entail for these areas. Many people who worked in the mines built cabins in the mountains which they used frequently. This leisure activity has continued after the mine closure, and is still very important for people in *Sulitjelma*:

> Earlier, people from Sulitjelma would escape the sulphate acid from the smelting plant by spending every weekend up in the mountains in their cabins.

This leisure activity is still very important for the local people of *Sulitjelma*, and may explain some of the strong attachment to the mountainous landscape. It signifies a landscape where the local people feel a sense of wellbeing and quiet, while the lower landscape has a very different meaning for them. The fear of interventions up in the mountain regions has recently become accentuated through strong local resistance in *Sulitjelma*, towards more hydropower development. One important reason for this is that many waterfalls are already exploited for this purpose and they feel what remains should be protected. It is also noted that hydropower development

does not generate much employment and activity locally, while it is believed that mining will generate more local employment.

10.6 When Is Mining Okay?

The case of Lake *Langvatnet*, presented here as a post-industrial landscape beyond repair, shows that stories about a place or a landscape differ between people, and have the potential to express manifold meanings (Storm 2014). The local narrative expressed a relatively wide acceptance of continuing to use Lake *Langvatnet* as a mining disposal site, and acceptance for this lake to remain polluted, in favour of activity and work opportunities in the community.

While mining leaves its marks and scars in landscapes (Storm 2014), it is apparent that it also has great impact on the people that have lived and worked in these areas. Mining and the activities and work that this generated seems to have also influenced the way the local people perceive their surroundings. The local people are in general positive towards new mining activity as they see it as a boost for their community and expect it to generate more work in the village. However, as the 'ambivalence narrative' shows, the reality on the ground is not clear cut. *Sulitjelma* represents a complex and multifunctional landscape for the local people, and different stories are carried by different people. The mountains at higher altitudes represent a more pristine landscape in contrast to the lower-lying *Lake Langvatnet,* and the plans of mineral extraction higher up in the mountains may have much larger implications for the local people in terms of lost pastures or encroachments in areas with great recreational value. Thus, uncertainty and ambivalence prevail among locals in regard to extraction at higher elevations as there is great concern that this will disturb recreational areas and hence decrease the access to the mountain areas. There is also uncertainty among the locals as to the totality of impacts related to the revival of mining activities in *Sulitjelma*. Lake *Langvatnet* might be considered less of a real loss, but uncertainties remain in regard to how new mining activities will affect the surrounding, more pristine areas. These areas carry both historical and cultural value as for generations they have provided a place for recreation and escape from the traditionally polluted low lying areas surrounding the *Sulitjelma* village. Underlying this is the emergence of a new environmental discourse among the locals that was not present during the heyday of mining in *Sulitjelma*.

Today, Lake *Langvatnet* is presented as the only realistic alternative for mine waste disposal, and the only alternative that has been given a thorough assessment. The fact that Lake *Langvatnet* already has the characteristics of a polluted zone beyond repair for many local people, may pave the way for defining it as the easy and cost effective solution for new mining activity in the area. Added to this, the unresolved issue of dealing with the pollutants of past activity (at least in terms of implementation) is opening up the possibility for piggybacking on State-led initiatives for dealing with that pollution.

Whether the fact that implementing mitigating efforts has been thin on the ground signifies a wringing of hands over an environmental/developmental dilemma, remains to be analysed in greater depth. But our preliminary findings suggest that the lack of actual implementation of pollution clean-up actions might well be the effects of bureaucratic red tape, rather than an indication of state-level authorities being unable to resolve the environment-development dilemma. The acceptance of Lake *Langvatnet* as a landscape beyond repair seems well rooted in the understanding of both state-level and local authorities – as well as within the local mining industry. What leverage any ambivalence of the local community inhabitants has on redefining the issue is debatable, but as long as the environmental impacts of new mining activities are confined to Lake *Langvatnet*, the 'beyond repair' perspective seems to be winning out. Ultimately, though, the process of re-establishing mining activities in *Sulitjelma* hinges to a considerable extent on how landscapes presented with a status of 'beyond repair' are framed by stakeholders *outside* of the local context, i.e. the state-level authorities. While Lake *Langvatnet* seems to be a done deal in terms of being designated the best option for the future waste deposit, the future status of landscapes in the more mountainous areas of *Sulitjelma* remains open.

Likewise, the question of whether mining development efforts in *Sulitjelma* could be classified as "sustainable" is not easily answered. The designation of Lake *Langvatnet* as a landscape 'beyond repair' could, in isolation, be seen as an example of *unsustainable* development. But this argument would only hold if compared to the lake in a "natural" untouched state – which it clearly has not been for many decades. The sacrifice has already been made by previous generations. Seen as part of a larger landscape picture, however, this might be viewed as the price already paid for securing some semblance of sustainable development for the local community, at least by the local inhabitants themselves. The legitimacy of future mining in *Sulitjelma* may thus rely on mining activities being confined to the Lake *Langvatnet* area. Any *further* development might challenge notions of sustainable development. Consequently, *Sulitjelma* could be viewed as a 'split landscape' in a sense, encompassing both the polluted and the pristine – and where the locals have a different relationship with the two aspects of the landscape. One is ruined and they are reconciled to that – the other is pristine to them, and they are unwilling to see it spoilt.

On a more fundamental level, the case addresses the question of "when is mining okay"? As the *Sulitjelma* case shows, this question, and its answer, can be complicated and nuanced, entailing complex and difficult choices for decision makers. Thus, the case does not conform to a perhaps clichéd notion of a pristine Arctic wilderness destroyed by the forces of economic development. But it does show that local cultural contexts are important for understanding the developmental scope of mining initiatives. In the case of *Sulitjelma,* the development discourse starts within a context of proud mining traditions, not pristine natural landscapes. But such cultural path dependencies are nevertheless not akin to any form of cultural *determinism*. As the *Sulitjelma* case shows, new (environmental) discourses emerge over time, and new local narratives are forged and have to be taken into consideration when new development strategies are made.

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Chapter 11
The Will to Drill. Revisiting Arctic Communities

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Abstract This book has investigated current and future mining projects in several communities in three arctic countries: Norway, Greenland and (Northwest) Russia. Complex processes related to planning and operating arctic mines are taking place at a time when low-carbon transitions are at the top of the political agenda. While there's a need for minerals in the transition to renewable energy – which means that mining could be seen as a necessary activity for global sustainable development – mining operations also challenge environmental, social and economic sustainability where they take place. Local and national environmental activists have applied the term 'sacrifice zones' to describe particular areas heavily (and negatively) influenced by the consequences of excessive mining, including landscape encroachments and pollution of ecosystems. The "will to drill" in arctic communities, as described and analyzed in this book, is intriguing in that it reveals multiple ways of interpreting sustainability in relation to mining. In this final chapter we elaborate upon the cases described in the earlier chapters. We consider how particular narratives might explain the way that trade-offs are made between developments that are considered sustainable and notions of sacrifice at the local level. These explanations include ways that legitimacy is secured (or not secured) through the use of scientific knowledge and other knowledge traditions, and how such knowledge, if used successfully, can provide legitimacy for both supporters and opponents of mining. The chapter also identifies knowledge gaps and unanswered questions that point towards a future political and academic mining agenda – in the Arctic and for the extractive industries as a whole.

Keywords Sustainable development • Mining • Arctic • Legitimacy • Sacrifice zones • Knowledge based management regimes

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11.1 Introduction

Why do communities want mining projects, and how do local actors seek to ensure that the benefits outweigh the pitfalls and risks to the environment, economy, society and individuals? The backdrop of this volume is the overarching question of how global demand for minerals can be met in a more sustainable fashion than today. Through empirical studies this book addresses the complex relationship between mining and communities. Moreover, it shows how political decisions about mining reflect different and sometimes competing perceptions, practices, visions and discourses about sustainable development. This is the point of departure for this investigation into what we have called "the will to drill".

The vagueness of the concept of sustainable development means that different opinions and definitions prevail, and objective thresholds of sustainability are contested. We aim to show that the very conceptualisation of sustainability requires a reorientation *from below* so that sustainable development "… becomes recognized as a contested, discursive resource – a boundary object (…) that facilitates argument about diverse pathways to different futures" (Leach et al. 2010: 42).

In revisiting the sustainable development debate we show how the different cases all represent different perceptions and interpretations of sustainable development; narratives that to a large extent relate to what sort of future is to be secured (see also Chap. 2). Thus, instead of treating sustainable development as more or less in line with a singular path to a particular future, we perceive sustainability as context-specific and constituted through different world views or narratives. Each tale evokes a particular way of understanding sustainability, none of which is uniquely correct, although some may be perceived as such by the individuals or collectives involved. Rather, the tales exemplify a multitude of understandings of what a sustainable future might entail. In particular, we seek to show how different perceptions of nature, landscape and the value embedded in them are included to a varying degree in political visions and decision-making processes relating to mining activities.

The global need for minerals is a narrative that provides governments legitimization and a strategic argument to utilise – and capitalise on – minerals. This narrative also provides legitimacy for mineral resource developers and other proponents of mining. Through legal and political strategies, nation states strive to secure legitimacy for mineral resource developers. Likewise, this narrative argues for the need to respect the rights and needs of populations, groups and individuals, at the global, national or local level, to access minerals, jobs, income, and investment revenues. At the same time, other narratives, promoted by adversaries to mining claim that these projects imply massive negative impacts on environments and landscapes, and thus potentially violate the rights and interests of other stakeholders.

Therefore, we asked in Chap. 1 why local communities would support or at least accept these types of projects at all. Part of the answer can be found by exploring the ways that legitimacy is secured for mining through different means. In Chap. 2 we argued – supported by Suchman (1995) – that approval or acceptance of mining projects can be of three different kinds; a claim that is supported by the case studies in

this book. The first type of legitimacy is based on *instrumental legitimacy* related to the pursuit of specific, mainly economic, outcomes, such as jobs, improved local income, or upgraded infrastructure. The second type is *procedural legitimacy*, where people support the project because they accept the way the decision has been made. This kind of support is often found when the perceived consequences are uncertain or when people are found to have faith in the decision making processes – often linked to the perceived level of democratic involvement and transparency (ibid). In mining projects, this kind of support will typically be based on stakeholder engagement, deliberative processes, structured and open hearings, the accessibility of reports and white papers and so on (de Rosa 2014; Hanna et al. 2016; Wilson et al. 2016; Wilson and Stammler 2016). The third kind of legitimacy is of the *cognitive and cultural kind*. This is often related to a mutual understanding of the necessity of the project, its goals and aspirations, and the community's values and vision for the future. It can be expressed as a type of moral, cultural and local "ownership" of projects and goals, often encountered in communities with historical experience of mining.

In Chap. 3, Gjertsen and colleagues provide an overview that serves as a background to the case study chapters. It illustrates the similarities and differences between the legal, procedural, political and managerial structures in Norway, Russia and Greenland. The most obvious common denominator is that the mining industry has seen significant changes not only in international markets, but also in national development strategies, legislation and management strategies. Particularly significant is the way that mining is discussed, perceived and labelled.

The point we are making here is the following: Each case presented in this book is a different story, and each of the cases show how the logic of mining policies and extractivist capitalism are met with different local strategies. Based on these empirical case studies, we argue that the "will to drill" differs between and within communities, as this will is not uttered as a unified voice from a particular geographical or societal context. Rather, the rationale for supporting or not supporting mining activities comprises multiple storylines that co-exist within and across communities. The desire and acceptance for the mineral industry across our case studies can therefore be characterised as a web of arguments that eventually gains a site-specific composition. It is through these webs that the will to drill (or *not* to drill) is constructed and gains momentum. And it is through bottom-up investigations of these webs that insights about local and regional perceptions and pathways to sustainability can be revealed.

In this concluding chapter we aim to show the following: First, that local acceptance of mining can be related to the history and previous experience that some communities have with the mining industry. Second, that scientific and other forms of knowledge used in the planning processes affect perceptions of what is an acceptable level of environmental degradation and best available technology, and what is not. Third, that mining operations can trigger issues concerning human rights, sovereignty and independence. And fourth, that differing notions of natural landscape value influence political processes at multiple scales, but local perceptions of knowledge and value differ across these scales; a difference that requires continued empirical and analytical scrutiny.

11.2 Mining as Path-Dependency: Or Business as Usual

The Russian case study described in this book is set in the mono-industrial mining town of Kirovsk. The mining operations in the city started in the early 1930s and have been the main contributor to the socio-economic wellbeing of the community ever since. The question of what mining means for the municipality, including the social and environmental costs of mining, is interpreted differently here compared to cases where mining is relatively new, as the experience of mining is intimately intertwined with the very fabric of the community's existence. In short, in Kirovsk, mining is *what they do* – and therefore a key component of the community identity (a phenomenon recognizable also in the Sulitjelman case described in Chap. 10).

Another legacy of the Soviet period, however, is the centralized and authoritarian form of governance, one in which there is limited space for challenging the parameters of inclusion and exclusion of knowledge (Chap. 6). In this sense, the narratives constructed around mining in the Kirovsk case are results of a combination of the legal and political system *and* the history of the town as a mining community. Here, scientific assessments of the potential for development and possible growth of mining do not seem to threaten the community's sense of self. They are citizens of a mining town and in this context science is helping to secure their future.

Even so, the influence of mining on the landscape and natural surroundings does not go unnoticed. Didyk et al. (Chap. 6) show how the efforts to establish a national park in the Khibiny Mountains – in close proximity to where mining takes place – has influenced the way the mining companies seek to establish legitimacy though a social license to operate (SLO), as public awareness of the value of these areas has risen since mining activities began in the area. Therefore, it is reasonable to say that the findings of the study presented in Chap. 6 indicate a heightened local awareness of landscape value *other* than that represented by minerals. This value is recreational, historical and cultural, as the mountains contain archeological evidence of previous indigenous presence, particularly that of the Sami. Thus, the SLO attainable for the mining companies will in the future be influenced by their ability to help ensure that both endangered wildlife and cultural heritage are protected, and that opportunities for meaningful and safe recreational activities in the mountain areas are secured. Even though socio-cultural concerns and a focus on value *other* than that represented by minerals have influenced processes and discussions, there seems to be little room for alternative modes of knowledge in the formalized assessment programs that the government primarily bases its approval on.

The rationale for the continuation of mining in the Kibhiny Mountains is undoubtedly outcome-oriented – that is, community sentiments about the mine are tightly connected to its economic importance (*instrumental legitimacy*). At the same time, the mine and the community have been coexisting for so long that mining is regarded as *the* way of life in this region. The mining company has historically provided the communities of Kirovsk and Apatity, and the region as a whole, with infrastructure and a multitude of services. Traditionally the mining company had the function of a community builder and for this reason is regarded as having *cultural*

or cognitive legitimacy as well as instrumental legitimacy. We will argue that this basis for legitimacy can explain why, when criticism was directed towards the mining company in the past, it was generally related to a perceived lack of provision of housing and health services, not the environmental impact of its core activity. The issues surfacing today, however, concern access to and utilization of a nearby national park; however, this does not fundamentally alter the perceived strong will to drill in the Kirovsk and Apatity communities.

11.3 Traditions of Sacrifice

Many towns and cities in the Barents-Arctic region, including for instance Kirovsk, Kiruna, Kirkenes and Sulitjelma are old mining towns, established to host miners and their families. The mines have supported social life and welfare and play a significant role in constituting culture and identity. In cities where mines have closed down, the industrial heritage is still an important part of the collective memory and lies at the heart of collective narratives. This is an important reminder of what has secured – and in many instances continues to secure – the community and its future (Storm 2014).

This backdrop is important when analyzing the debate over the potential revival of mining in Sulitjelma. Gjertsen and Risvoll (Chap. 10) found that the local population used the surrounding landscape in ways that clearly demonstrated how the threat of contamination from earlier mining activities had an impact on daily lives and was seen to represent a health concern. In this sense, Lake Langvatnet could be seen as a sacrifice zone – lost to copper pollution and seemingly beyond repair – an area not in use by the local population. Before the mining question arose again in 2012, however, there are few references to any local debates over how to address the contamination of Lake Langvatnet. Environmental concerns had mostly been raised by environmentalists and scientists based outside Sulitjelma, and as a consequence of scientific scrutiny. When the reintroduction of mining activities in the area was put on the agenda, the historical contamination of Lake Langvatnet was treated as a delicate issue by local decision makers. Local officials explained how they sought to address these concerns in a balanced way, so as not to provoke mining interests or local residents in ways that might cause conflicts such as we have seen in the Repparfjord/Kvalsund case (Chap. 8). Even more interestingly, the municipal council was in agreement on this matter. The only acceptable way of dealing with the problem at hand, was to set aside Lake Langvatnet as a depository for mining contaminants.

This case, like the Kvalsund case (Chap. 8), illustrates how particular environmental problems, and related discourses, are to a large extent constituted by expert knowledge and by actors outside the local community. At another level, the two cases are very different when it comes to the level of conflict and public debate. Whereas Kvalsund became an issue in the national media, Sulitjelma has barely been debated even in regional newspapers. As such, the potency of the Kvalsund case as a national concern we believe can be attributed to the fact that the fjord in which a deposit will be established is not seen as having been sacrificed (at least *not*

yet), and therefore is more carefully protected by environmental agencies and environmental organizations alike. At the same time, it is obvious that establishing mines in old mining towns like Kirovsk, Sulitjelma and Kvalsund is a fundamentally different exercise than new operations in communities that have not hosted mining companies before. As Risvoll and Gjertsen argue in this volume;

> In the case of Sulitjelma, the development discourse starts within a context of proud mining traditions, not pristine natural landscapes (chapter 10).

Culture, history, knowledge, practices and potential futures all matter when a decision is being made about what is deemed worth protecting and/or extracting.

The legitimacy of the proposals to revive mining in Sulitjelma seems thus to be related both to the fact that this is an old mining town, and that it can provide income to the community. The first is what we have called *cognitive and cultural legitimacy*. The expected outcome for the nearby community in the form of potential work places, economic growth and overall vitalization of the Sulitjelma community ensures a certain degree of *instrumental legitimacy*. And finally, as described in Chap. 10, the open decision-making processes and public debates have given the project a level of *procedural legitimacy*. Nonetheless, some project-related conflicts can already be identified, such as concerns about future pasture for reindeer herding'. The company's connection to the local community, the fact that they are cooperating with local stakeholders and the Sulitjelma mining history provide the basis for an overall high level of legitimacy. Local tensions increased, however, when an Australian exploration company carried out geological mapping of the mountain areas using helicopters, which disturbed the reindeer and raised concerns among the reindeer herders.

11.4 The Role of Science in "Sustainable Mining"

The construction, perception and implementation of scientific knowledge have been of particular concern in our cases. Our aim here is to discuss how certain types of knowledge – primarily scientific assessments of potential environmental risks and economic gains – are hegemonic in local spatial management, and to what extent this influences the local will to drill. Further, in acknowledging the complexity of reclaiming the sustainable development concept, we have discussed whether mining can be a part of a broad and dynamic sustainable development agenda (see Leach et al. 2010).

The mining industry has seen significant changes not only in international markets, but also in national strategies, legislation and management. Particularly significant is the way mining is discussed, perceived and labelled in national discourses as it pertains to debates about sustainable development and (most recently) the need for a "green transition". When looking at these cases through a local lens though, some common patterns also emerge. What seems to be the case is that the formal structures described in Chap. 3 to a large extent embody the intent to ensure broad-based sustainable development, in line with the Brundtland Commission's

report. At the same time, they also contain the rationale for specific inclusion and exclusion processes. Through governance processes, knowledge is presented, assessed and then included or excluded, according to specific notions of its potential for serving up an objective truth. This construction of the truth defines sustainability using threshold definitions of what damage nature can bear, juxtaposed with assessments of potential benefits vs potential risks. As policy makers have responsibilities in a broad spectrum of policy areas, they will typically seek expert knowledge to ensure an adequate level of understanding of the issues at stake. In planning processes involving conflicts of interest, such as the Nussir case (Chap. 9), scientific knowledge is also broadly expected to show the way out of subjective and value-based conflicts. This also indicates how the boundaries of science are critical for the *legitimacy* of decisions made. Investigating the application of science in bureaucracy, scholars focussing on how science is produced pinpoint the way that legitimacy of political decisions hinges upon the construction of a *separation* between science and policy. As Douglas Clyde Wilson claims,

> The more questions that can be defined as issues of fact with objectively true answers, the easier it is for [governance] institutions to function because they are able to bring more contingency under their direct control" (2010: 37).

In Chap. 8, Dannevig and Dale showed that in the Kvalsund/Nussir case, science is treated by political actors in power as being external to politics, although the *interpretation* of scientific reports is at the core of the public debate, and therefore does indeed influence political decision-making processes. Here then, science became a conflict mainly driven by actors from outside Kvalsund community. During the decision-making process, more than 2000 pages of technical scientific assessments were produced, and while these reports clearly brought more expertise and scientific knowledge into the debate, they also constituted the basis for further debate, which was in the realm of science. Thus, they excluded non-scholars from participating in discussions on environmental impacts and in effect took the case *out of its local context*, as the decision was moved from the local to the national level. Even though multiple reports on economic and social perspectives in Kvalsund municipality were brought into the planning process, the main focus and attention was directed towards the marine sea deposits and not development pathways for the onshore communities.

In Kvalsund, the technical reports have in fact detached the debate from its original attachment to local needs, moved it to the national level, and thus alienating local opponents and proponents from the finalization of the process. Although the municipality stands firm in their decision, the alienation described by some of the stakeholders who were originally involved in the political processes illustrates how a local sense of ownership is weakened along with the ability to influence how sustainability in a broad sense is pursued in the project. In short, the project has become a battleground for the legitimacy of the scientific process of Environmental Impact Assessment (EIA), not a development project aiming to benefit the local community. This, in turn, may very well lead to a weakening of the project's legitimacy, in particular the kind created by what Suchman (1995) terms *procedural approval,* where people support the project because they have a strong belief in the decision-

making process. As disagreements abound concerning methodology, strategy, integrity and precision in the assessment and modelling produced for the EIA, one finds locally that science fails to deliver objective truth that can allow politicians to make decisions with a larger degree of certainty. In addition, interpretations of assessments are seen as conflicts of interest in disguise, where only a few of the stakeholders originally involved in the governance process are enabled (or even allowed) to participate. In other words, as the decision-making processes are shifted from a public to a technological, scientific sphere, local stakeholder participation is weakened in terms of being able to influence the final decisions, as the case is in effect moved to the national level.

In Kautokeino, the strategy of the municipal council was to dismiss this inclusion/exclusion process, instead using the legal power vested in them to secure a safe and meaningful future by protecting the reindeer herding industry from the potentially harmful effects of mining in the core reindeer herding area in Biedjovaggi. Magnussen and Dale's analysis of this case in Chap. 10 highlights the difference in perceptions of *what is worth securing* in the landscape and further how local traditional usage and understanding of the landscape is the very basis for specific rights (based on indigeneity and secured through the ILO Convention 169 on Indigenous and Tribal Peoples[1]) and claims to ownership. In Kvalsund, the sentiment was that there was no economic alternative to safeguard; all development trends were negative, and there was considerable pressure both from below and above on local politicians *to do something* in order to secure the local population, to facilitate creation of new work places and new income ensuring support for schools, health services and other social provision. In Kautokeino, the majority on the Municipal Council did not accept the political process towards the re-opening of the mine as a process that could potentially secure a viable and desirable future. By contrast, in Kvalsund, the Municipal Council sought to ensure a viable future by accepting the zoning plan and the EIA process, only to discover not only that the final decision was in someone else's hands, but also that their ability to be informed, to inform the public and to influence the outcome of the process had been weakened (see Chap. 8).

The Kvalsund case clearly illustrates, then, how science does not always hold the capacity to resolve the political issue at stake. On the contrary, the EIA became the subject of heightened tension, as decision-making processes were shifted from the local sphere to the dominant power/knowledge realm of resource management, with the techno-scientific handling of issues decided upon at the national level (Nygaard 2016; Reinert 2016; Chap. 8, this volume). Local government representatives who were interviewed did not perceive expert knowledge as neutral or objective, or providing only one, definitive answer. Rather, they acknowledged that the scientific reports were open to multiple interpretations, depending on the interpreter's *position*; her or his interests and stakes (Douglas 1992; Douglas and Wildavsky 1982; Jasanoff 1990; Ostrom 1999). This leads to a critical insight about the capacity of science in democratic decision- making processes. While science does not have the capacity to

[1] See http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169, accessed May 11th, 2016.

provide "one" answer for policy makers, a highly technical level of scientific controversy leaves critical local issues and actors behind (see Chap. 5). The question remains whether this represents a democratic problem, since political reasoning and debate are resolved by experts; a question beyond the scope of this volume.

Even though the legitimacy of the mining project in Kvalsund is contested it does represent a case in which a culturally based, outcome-oriented focus dominates. Kvalsund is often described as a typical municipality in decline, with traditional industries no longer able to provide sufficient jobs or income to encourage residents – especially the younger generations – to stay. Thus, the narrative goes, the community is in need of new industry and jobs, and the Nussir mine is in many people's view the answer to this predicament. Another factor strengthening the local legitimacy of mining is the fact that the company, Nussir ASA, is perceived as "home grown". It has regional ownership and continuously focuses on its desire to attract mainly regional, then national capital for future investments. Locally, the company claims that it will seek to enhance potential ripple effects by investing in housing projects and infrastructure for supporting industries. The Nussir director seeks to show that their intentions are to make a difference, locally and regionally. This underpins a sense of common "ownership" of the project as a whole, which, however contested, can be seen as a factor that strengthens the project's legitimacy.

This situation is similar in the Russian case study, where expert knowledge is aimed at a rather limited set of concerns, first and foremost providing technical and geological expertise when planning and performing mining operations. The regional Kola Science Center has been a significant provider of metallurgical and mineral expertise for mining operations in several of the mono- industrial towns on the Kola Peninsula, the Kirovsk operations included. Throughout the 1990s, experts in industrial ecology and environmental hydrology at the Kola Science center have been leading efforts to reduce industrial emissions and restore terrestrial ecosystems (Isaeva and Masloboev 2015). Scientific expertise is thus seen first and foremost as providing the geological and technical knowledge needed for continuation and expansion of operations, and not to address social and economic aspects of future mining projects. It is not, however, evident how scientific knowledge influences the legitimacy of mining operations in old industrial towns. As noted above, it seems likely that, in the case of Kirovsk and Apatity, the social acceptance of mining operations is embedded in traditions, business as usual, and the multiple benefits to society that mining provides. Meanwhile, the strong scientific traditions in these mining towns seem redundant in debates about sustainable mining. Although science was a key component in sustainable remediation strategies for contaminated landscapes, there were no controversies over the monitoring methods and results.

As we have argued, there are high expectations of what science can provide in terms of a basis for environmental planning decisions relating to the mining industry in all our focus countries, and we find that the production and operationalization of science as a policy tool is a key component of formal regulations. However, the extent to which this knowledge is contested differs, not only between countries but also between different cases. This indicates that very particular local circumstances play a part when the legitimacy of scientific knowledge is at stake. We have thus

shown not only that the position occupied by science differs in the different cases, but there are also differences in the way that these communities *naturalize* mining; that is, the extent to which they see mining as an activity embedded in their culture, in their way of life, as something "they do". In this, *other valuations of nature, natural resources and landscapes* play an important part, although they are not always reflected in the formalized governance processes.

11.5 No Will to Drill: Refusing Hegemonic Knowledge

When considering potential benefits and consequences for nature, landscape and people, techno-scientific tools for assessing objective, measurable risks tend to outmanoeuvre other knowledge traditions and the concerns raised by those that advocate for them (e.g. exemplified in Dale 2016; Knol 2010). Thus accordingly, a lack of measurability and adherence to the methods of science often leaves the impression that whilst science is objective, non-scientific knowledge production is biased and thus belongs to the realm of emotions or, indeed, politics (e.g. Jasanoff 2004). In Kautokeino, a multitude of actors are used to engaging in politics; it is a setting where the national ethnic minority, the Sami people, is a majority, and where the community security provided by the alternative to mining, in this case the reindeer herding industry and other harvesting of renewable resources in the landscape, is perceived to be more important than the potential economic benefits a mine could provide (see Chap. 9). To put it bluntly: The alternative feels more secure, and the will to mine is therefore weak. In Kautokeino, the municipal council voted against the proposal from Arctic Gold for a changed zoning plan, an adjustment required according to the Planning and Building Act to make it possible to set aside land for mining activities. The fact that the municipal council in Kautokeino dismissed the need for an EIA is intriguing because EIAs are usually perceived as instrumental rather than strategic components of democratic decision-making processes.

In short, scientific investigations conducted for an EIA are supposed to inform local debate at an early stage in the process, and *not* to push the decision in one or another direction. In refusing an EIA process, Kautokeino municipality rejected the need for a scientific exploration of possible future pathways in order to make a decision on the matter. What makes a municipality refuse the opportunity to gain more insights and knowledge about the resources and interests at hand? From what happened in Kautokeino, it seems as if the zoning plan process is *not* perceived as an open-ended process that would benefit both opponents and supporters of mining operations, but rather constitutes part of the process of opening the mine. Thus, the legitimacy of science as a provider of neutral and objective facts is put into doubt – a phenomenon which, interestingly, puts local communities on a par with the academic discourse regarding the constructive nature of the process of producing science. We have shown in this volume that the legitimacy of science in sustainable development debates around mining processes will vary according to case-specific variables, and is thus not something that can be scrutinized according to some set threshold definition of sustainable development (Leach et al. 2010).

Interestingly, Nenasheva et al. (2015) have observed that where Norwegian zoning programs are initiated for extractive industries, in most cases these lead to construction and industrial development. This is intriguing as it indicates that in practice, important decisions about industrial development are taken *before* expert knowledge has been sought, and not after, and thus stands in great contrast to the way that formal regulations and planning procedures are presented by government. Rather than providing an open sphere for reasoning at the start of these processes, it seems as if planning programs in general drive decisions in a direction towards approval of the activity, within a set time horizon.

One way of understanding this is to consider the broader assessment processes as *frameworks* for decision making on natural resources (Leach et al. 2010). These frames have the capacity to define the salience of particular issues discussed in the process of democratic decision making; for example, the number of jobs, impact on local economic development, contamination or encroachments on reindeer pastures. Even more importantly, these frames also contain inherent ideals, for instance relating to what might be considered adequate benefits for local economies, or acceptable versus non acceptable levels of environmental impact. From this perspective expert knowledge is not perceived as neutral or objective, something external to policy making. On the contrary, it indicates that more expert knowledge pushes the decision in favor of industry. This may be the case in Kautokeino where local actors interpreted scientific reports in light of their own ideals about contingent futures; a predefined set of possible and plausible pathways for development of the community and the surrounding landscapes. For local governments to maintain control over future decisions, the question of mining must be adequately addressed before adopting the municipal zoning plan and allowing the associated EIA to go ahead. To allow an EIA to go ahead may jeopardize an open-ended planning process.

The lack of procedural legitimacy of the proposal to reopen the mine in Kautokeino is based on several factors. The fact that the Kautokeino municipality said no to the gold mining project indicates that the project had low legitimacy. Therefore, the legitimacy of the process that – for now – has ended with a rejection of the project seems to a large degree to be determined by culturally based knowledge and livelihoods, as well as concerns about the future integrity of nature and landscapes in the Biedjovaggi area, and therefore the viability of reindeer herding.

The legitimacy of the mining projects in South Greenland described in Chap. 8 seems to be based on perceptions of potential outcomes and on procedures, even though the legitimacy of the latter has indeed been contested (Bjørst 2016; de Rosa 2014; Nuttall 2013). The decision to approve a mining project is anchored in predefined democratically based processes at both the national and local (municipal) level. The described need for incentives for economic growth to limit outmigration provides the major incentive for an outcome-oriented (or instrumental) legitimacy. As described in Chap. 8, the Greenlandic government has been openly supportive of the development of new mines as an important future source of income that is needed in order to continue the process of securing independence from Denmark. The future of the extractive industries in Greenland is, however, uncertain, as pressures mount both from ‘above’ and ‘below’. Global markets for minerals and the

actors participating in them display a high degree of uncertainty as to whether the required investments in Greenland will pay off even if the minerals are extracted. Discussions and rumors about financing difficulties compound a sense of insecurity on the ground, as the future of local communities is thus portrayed as being in the hands of board members whose primary concern is shareholder value. Additionally, concerns 'from below' include sustainability concerns where local futures will be based on the viability and adaptive capacities embedded in social (and economic) structures, culture and tradition (Bjørst, op.cit; de Rosa, op.cit; Hovelsrud et al. 2011; Nuttall, op.cit; E. Wilson 2015).

11.6 Social License to Sacrifice: Mining and Arctic Communities

The concept of sacrifice zones spurred this project, as we hypothesized that in at least some of the cases, a notion of sacrifice – of nature, of community – could be empirically observed, either as degradation of nature or in statements and concerns from actors portraying the potential consequences of mining. As described in Chap. 2, we understand sacrifice zones to be areas where the environment and/or the (future) wellbeing of local communities are sacrificed for the sake of local and even global economic development. An important aspect of a sacrifice zone is therefore the distribution of power, burdens and benefits, where local landscape and inhabitants most often shoulder the burdens. At the same time, this book has highlighted how sacrifice is an inherent part of the democratic process, where decision makers assess and determine various development paths on the basis of net benefit. The social license to sacrifice, or the will to drill, is also connected to mining traditions and is the result of democratic planning processes where extensive scientific knowledge has been provided through EIAs. This book has also shown how sacrifice can therefore be made willingly and without a one-sided violation of rights at the local level. Whether the mining industry as a promising path for future sustainable development or not is also a question of scale and depends on the position of the observer. The extraction of minerals and metals will always lead to environmental degradation at the local level, while these resources at the same time may play an important role in resolving global environmental problems such as climate change. Following this line of thought, and considering the need for minerals in the development of new green technologies, one might ask whether sacrifice on a small scale (that is, locally) to gain access to much-needed minerals is necessary so as not to have to make sacrifices globally, with regard to the potentially devastating consequences of climate change.

Time is of the essence, so also in mining issues. What we find is that the local power to influence, or indeed set the agenda for the process of establishing a mine (or not), diminishes over time as the power balance in the interdependency relationship of municipalities and mining operators shifts from favouring the former to the latter (see Chaps. 5, 8, and 9 in particular). In Norway for instance, we see that the

position the municipality holds by law is an important one in regard to area planning. Thus, the power to negotiate terms under which a potential mine can be developed (or, again, not) leaves municipalities a relatively powerful position to plan for the future mine – at a given point in time, that is, when they control the area planning process as prescribed in the Planning and Building Act. Once a new plan has been ratified by the municipality, however, the rest of the process is more or less out of their hands. In the case of the copper mine in Kvalsund municipality, for instance (Chap. 8), the highly technical reports about how the tailings might disperse in the fjord overrule other debates and concerns. As a result, the debate about the future of the municipality is removed from the community and takes place elsewhere, both geographically and professionally. Thus, we see that the *objectification* of the municipality – as a place where environmental concerns and economical potential is fought over by other actors than those directly influenced by the issue – weakens the perceived procedural legitimacy of the process (Suchman, op.cit) and thus the social licence locally. Also, in Kvalsund, we have seen how the municipality tried, unsuccessfully, to add new requirements and benefits for the community to their agreement with the mining company Nussir, including for example additional contributions to a financial development fund – only to find that their bargaining power had diminished substantially once the planning procedure shifted from the municipal level.

Based on the case studies in this book, we argue that the concept of sacrifice zones – like the concept of sustainable development – must be used with caution, at least in connection with mining. There is no doubt that its usage can often be understood as being politicized, as it is mostly used by opponents to mining and as a means to emphasize concerns about human rights violations such as degradation of public health due to pollution, or the lack of participatory decision-making processes or local ripple effects. In the cases described in this book, we found that the concept of sacrifice zone was not very applicable in the sense that social justice, public health and wellbeing have been threatened. At least not at the level described in specific cases in North America, where the concept was originally developed and has mostly been applied to date (Davis 1993; Fox 1999; Lerner 2010; Scott 2010). Moreover, we believe that because of the moral assumption the concept sacrifice evokes of there being an intention to sacrifice, to destroy, behind the undoubtedly negative impacts most mining operations have on their environmental surroundings has a negative bearing on its applicability as an analytical concept. Thus, the way that sacrifice as a concept is utilized in public discourse makes it a problematic analytical concept for social science. Nevertheless, we have found that in some cases, degradation of environmental value to such an extent that the result of decisions is that areas indeed can be seen as having been sacrificed. We have for instance found that Lake Langvatnet in the Sulitjelma case can be a case of sacrifice, as local actors state that the lake is already '*lost*'. Due to the pollution from the early Sulitjelma Mine, the lake is regarded as '*almost dead*' as an ecosystem. Greenland's mining sites may also be seen as having been designated as sacrifice zones, environmentally speaking, as we find that there seem to be relatively few questions asked locally concerning environmental impacts and potential health risks, with the exception

of concerns about potential tailings and dust from the uranium mine site. In this regard, Greenland's need for economic self-sufficiency and independence from Denmark – as well as a strong impetus locally for job creation and general growth stimuli – can be seen as *the* higher purpose for which an environmental zone may be sacrificed.

Concerning the Apatity mine near Kirovsk in Northwest Russia, it is arguable whether the concept of sacrifice zones is applicable. The mining area consists of several huge open pit mine sites, suggesting that physical changes made to the landscape have been considerable in this area, and one could thus argue that the environment has to a certain degree been sacrificed over decades. However, the analysis in this case shows that the use of a less politicized concept with room for alternative conceptualizations of how the results of human utilization of natural resources can be interpreted and understood could be beneficial. The societies in question – Kirovsk and Apatity – exist *because* of the mining industry, and as time has passed, the authors find that all local discussion about sustainability includes, indeed *presupposes,* mining. Therefore – as local opinions on sustainability matter – the understanding of whether mining in the Khibiny Mountains is sustainable or not, will depend upon variables such as scale, position, and time, and not necessarily the visible environmental degradation of the area.

Leach et al. (2010) write:

> … to embrace the full implications of dynamics across different spatial and temporal scales requires narratives that recognize a wider range of dynamic properties of sustainability and which support appropriate strategies – such as those emphasizing adaptation, flexibility and agility

Further, they argue for the inclusion of "… *other forms of incomplete knowledge: uncertainty, ambiguity and ignorance"* (ibid: 172) in analyzing how the politics of dynamic sustainabilities can be understood. The Kautokeino case (Chap. 10), where the municipality voted no to a new gold mine, is an example of how concerns other than those met by techno-scientific assessments of economic and societal gains has prevailed, although such concerns were raised in the other cases, too. The broad value of the cultural landscape 'Vidda' was found to hold political merit, at least locally. As long as the municipal level is empowered with the area planning authority, these particular local concerns and traditional use of pastures and landscape are able to outweigh industrialized extraction of natural resources.

In this book, a particular focus has been on how local stakeholders see mining projects as part of – or a threat to – a sustainable future for themselves and their communities. Extraction of minerals is conducted in natural landscapes (aside from recycled minerals, or so-called urban mining), and more often than not in peripheral regions. In these areas, the value of minerals can be at odds with other natural resources, including the non-monetary value in nature. As we have seen in several of the cases, an appreciation of the value of other aspects of nature that sometimes, but not always, are translatable into monetary value has influenced public debates and, as in the Kautokeino case, even the outcome of political processes (Chap. 9). Such concerns will, however, in most cases be subject to exclusion from formal

knowledge-gathering processes, as seen for instance in the case of Kvalsund concerning the Repparfjord tailings depository (Chap. 8).

As this book has investigated, mining activities and related planning processes can have a profound impact on communities and individual lives. They can rally a community both in favor or against the mining operations and those running them, and they can trigger concerns that are indeed a matter of survival for local communities, and the surrounding landscapes and ecosystems. We argue for the inclusion of these local concerns and considerations – both of potential harm, possible desired ripple effects and alternative visions of the landscapes, nature and the lives people live in them – when political decisions are to be made. It is our hope that the cases presented here and the analysis that we have provided will inspire – or perhaps provoke – such procedural changes in the future.

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