

Chapter 8

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

Halvor Dannevig and Brigit 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.

H. Dannevig (✉)
Western Norway Research Institute, Bodø, Norway
e-mail: hda@vestforsk.no

B. Dale
Nordland Research Institute, Bodø, Norway
e-mail: bda@nforsk.no

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 requires 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 Rushfeldt, 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

¹Rushfeldt, interview, December 2nd, 2014.

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

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

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

⁵Statement 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 Ulveryggen⁶ 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.

⁶Nussir 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 specific 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

⁷Personal communication, Dannevig, 14.05.2014

⁸For a more detailed description of early findings, initial mining crackdowns and small scale out-takes, 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 (AP⁹) 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

⁹Called "*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

¹⁰See 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

Outcome of boundary work	Means 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 generates¹³.

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-reindrif-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 08.12.15¹⁷). 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

¹⁸Interviewee #8, 14.04.14

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

²⁰Interviewee #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 20.03.2014²¹). 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

²¹The 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 of 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 were 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

²²This 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).

²³Interview #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 questioned²⁴. The IMR states that the “tailings contain large amounts of copper, when

²⁴NRK 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:

²⁶Interview, Øystein Rushfeldt,

²⁷Interview #12, April 15, 2014

²⁸Interview #6, April 13, 2014

²⁹Interview #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

³⁰Interview #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.

References

- Adger, W. N., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change-Human and Policy Dimensions*, 15, 77–86.
- AkvaplanNIVA, & NIVA. (2011). *Konsekvenser for det marine miljøet i Repparfjorden ved etablering av sjø- eller landdeponi for gruveavgang fra Nussir og Ulveryggen i Kvalsund kommune, Finnmark. Akvaplan-niva AS Rapport: 5249 – 01*. Tromsø: AkvaplanNIVA.
- Cash, D. W., Clark, W. C., Alcock, F., et al. (2003). Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences of the United States of America*, 100, 8086–8091. doi:10.1073/pnas.1231332100.
- Dale, B. (2016). Governing resources, governing mentalities. Petroleum and the Norwegian integrated ecosystem-based management plan for the Barents and Lofoten seas in 2011. *The Extractive Industries and Society*, 3, 9–16. doi:10.1016/j.exis.2015.10.002.
- Dannevig, H., & Aall, C. (2015). The regional level as boundary organization? An analysis of climate change adaptation governance in Norway. *Environmental Science & Policy*, 54, 168–175.
- Douglas, M. (1992). *Risk and blame: Essays in cultural theory*. New York: Routledge.
- Fauchald, O. K. (2014). Regulating environmental impacts of mining in Norway. *Nordic Environmental Law Journal*, 53–66.
- FOR. (2014). *Forskrift om konsekvensutredninger for planer etter pbl*. FOR-2014-12-19-1726. Accessed at: <https://lovdata.no/dokument/LTI/forskrift/2014-12-19-1726> (In Norwegian).
- Funtowicz, S., & Ravetz, J. (1994). Uncertainty, complexity and post-normal science. *Environmental Toxicology and Chemistry*, 13, 1881–1885.
- Guston, D. H. (2001). Boundary organizations in environmental policy and science: An introduction. *Science, Technology & Human Values*, 26, 399–408. doi:10.1177/016224390102600401.
- Hauge, K. H., et al. (2014). Inadequate risk assessments – A study on worst-case scenarios related to petroleum exploitation in the Lofoten area. *Marine Policy*, 44(0), 82–89.
- Hertin, J., Jordan, A., Turnpenny, J., et al. (2009). Rationalising the policy mess? Ex ante policy assessment and the utilisation of knowledge in the policy process. *SSRN Electronic Journal*. doi:10.2139/ssrn.1361519.
- Hoppe, R., & Wesselink, A. (2014). Comparing the role of boundary organizations in the governance of climate change in three EU member states. *Environmental Science & Policy*, 44, 73–85. doi:10.1016/j.envsci.2014.07.002.
- Jasanoff, S. (2004). Ordering knowledge, ordering society. In S. Jasanoff (Ed.), *States of knowledge: The co-production of science and the social order* (pp. 12–45). New York: Routledge.
- Koivurova, T., Buanes, A., Riabova, L., et al. (2015). “Social license to operate”: A relevant term in Northern European mining? *Polar Geography*, 513, 1–34. doi:10.1080/1088937X.2015.1056859.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Milton Keynes: Open University Press.
- Latour, B. (1993). *We have never been modern* (p. 168). Cambridge, MA: Harvard University Press.

- Latour, B. (1999). *Pandora's hop: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press.
- Lund, S. (2015). *Gull, gråstein og grums 1 -omstridde gruver* (208p). Davvi girji, Karasjok (in Norwegian).
- McMahon, G., & Remy, F. (2001). Large mines and the community: socioeconomic and environmental effects in Latin America, Canada and Spain.
- Nelleman, C., & Vistnes, I. (eds). (2011). Foreslått utbygging av Nussir gruver i reinbeitedistrikt 22 Fiettar. NORUT rapport 2011:2 NORUT, Alta.
- Nenasheva, M., Bickford, S. H., Lesser, P., et al. (2015). Legal tools of public participation in the environmental impact assessment process and their application in the countries of the Barents Euro-Arctic Region. *Barents Studies*, 1, 13–35.
- Ney, S. (2009). *Resolving messy policy problems: Handling conflict in environmental, transport, health and ageing policy, science in*. London: Earthscan.
- NIVA. (2011). *Konsekvenser av sjødeponi i Repparfjorden for anadrom laksefisk fra Repparfjordelva og Kvalsundelva – delutredning i KU program for planlagt gruvedrift i Nussir og Ulveryggen i Kvalsund kommune* (In Norwegian). RAPPORT L.NR. 6176-2011, Norsk Institutt for Vannforskning (NIVA), Oslo.
- Nygaard, V. (2016). Do indigenous interests have a say in planning of new mining Projects? Experiences from Finnmark, Norway. *Journal of Extractive Industries and Society*, 3, 1.
- Paavola, J. (2004). Protected areas governance and justice: Theory and the European Union's habitats directive. *Environmental Sciences*, 1, 59–77. doi:10.1076/evms.1.1.59.23763.
- Petersen, A. C., Cath, A., Hage, M., et al. (2011). Post-normal science in practice at the Netherlands Environmental Assessment Agency. *Science, Technology & Human Values*, 36, 362–388. doi:10.1177/0162243910385797.
- Prno, J., & Scott Slocombe, D. (2012). Exploring the origins of “social license to operate” in the mining sector: Perspectives from governance and sustainability theories. *Resources Policy*, 37, 346–357. doi:10.1016/j.resourpol.2012.04.002.
- Saarela, S.-R., & Söderman, T. (2015). The challenge of knowledge exchange in national policy impact assessment – a case of Finnish climate policy. *Environmental Science & Policy*, 54, 340–348. doi:10.1016/j.envsci.2015.07.029.
- Steen, M., & Underthun, A. (2011). Upgrading the ‘Petropolis’ of the North? Resource peripheries, global production networks, and local access to the Snøhvit natural gas complex. *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*, 65(4), 212–225.
- SWECO. (2011). *ruvedrift: Ulveryggen og Nussir Kvalsund kommune Finnmark Konsekvenser for Landskap Friluftsliv Biologisk mangfold på land og i ferskvann. Rapport 578921 – 1*. Trondheim: SWECO.
- White, D. D., Wutich, A., Larson, K. L., et al. (2010). Credibility, salience, and legitimacy of boundary objects: Water managers’ assessment of a simulation model in an immersive decision theater. *Science and Public Policy*, 37, 219–232. doi:10.3152/030234210X497726.