



UiT Norgga árkálaš universitehta

Indigenous peoples and mining encounters

Workshop report from the TriArc and IndGov projects
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Introduction

The TriArc and IndGov projects¹ examine how large-scale development projects like mining, production of electric power and aquaculture challenge traditional resource use and management. It also discusses the types of governance arrangements established to regulate the relationship between traditional land use and large industrial developments. The project hosts workshops and publishes its reports on the project website. The second TriArc Workshop, which was held 19-21. September 2018, at the Hotel Bishops Arms in Kiruna, and was attended by participants from Australia, Canada, Norway, and Sweden. The workshop discussed the impact of the iron ore mines in Kiruna on reindeer husbandry in the area and the interactions and collaborations between LKAB (the iron ore mining company) and the Sami reindeer herding communities (the organizational units of reindeer husbandry families). The deliberations revealed that the mines and ancillary developments have negatively impacted reindeer husbandry, creating significant apprehension among reindeer herders in the region. The discussions also highlighted how gaps in the Swedish mine licensing processes have impacted the ability of Sami reindeer herders to engage in their socio-cultural and economic livelihood without hindrance from the operations of the mines. At the same time, the long-standing mining operations in the area have resulted in interactions and collaborations between the mining industry and the Sami reindeer herding communities, resulting in, among other things, alleviating mechanisms for operations to allow continued migration of reindeer, and an agreement between the mining company and three of the Sami reindeer herding communities.

The workshop was organized in collaboration with the two Sami reindeer herding communities closest to Kiruna town, Gábna and Laevas čearru (reindeer husbandry districts), and with the iron ore mining company LKAB. The workshop consisted of a mix of presentations from the Sami reindeer herding communities and LKAB, and excursions to the surrounding area to experience the alleviating mechanisms put into place as a result of the interaction between LKAB and the Sami reindeer herding communities.

¹ See website for details: https://en.uit.no/forskning/forskningsgrupper/gruppe?p_document_id=482409

Part 1 of this report sums up the discussions at the workshop and experiences from the excursion. Part 2 then provides a summary of the presentations by key participants. The workshop program and list of participants can be found in appendix 1.

Part 1: Indigenous people and mining encounters: Impact of mining and other industrial activities on the Sami in Kiruna

Most of mining projects in Sweden are located on Sami lands, with about 98.5% of the value of the mineral extraction in the country situated on traditional Sami territories (Lawrence and Åhrén, 2016). The LKAB iron ore mine in Kiruna is the European Union's (EU) largest iron ore producer (LKAB, nd). LKAB, a wholly state-owned entity, produces around 78% of all iron ore within the EU.



Figure 1. Luossavaara An old and abandoned part of the Kiruna operation. Image by Camilla Brattland.

While mining provides many social and economic benefits to host communities, it also creates many social and environmental challenges for the inhabitants of these communities, especially the Indigenous people. In Kiruna, the host city of the TriArc workshop, in Northern Sweden, iron ore mining and other developments have significantly impacted reindeer and Sami culture in general. Conflicts with the Sami population relating to the effects of mining, land acquisition, urban development and transport infrastructure networks (roads, railways, canals and pipelines) on reindeer husbandry and other social and economic activities are a source of underlying tension in the community.

Mining projects generate employment and promote the development of much-needed regional infrastructure, but these activities can also cause local environmental damage and unintended social consequences, resulting in significant adverse effects for local communities. For example, while the iron ore mines are of critical importance to the economy of Kiruna and Sweden, they also have significant adverse impacts on the local and regional environment. These effects have resulted in increased demand for greater participation and input in the development process by affected stakeholders, especially the Sami. Ameliorating these conflicts frequently require the creation of innovative governance mechanisms on the part of the stakeholders involved.

Four main themes on the effects of mining and related developments on Sami reindeer husbandry in the Kiruna area were discerned from the workshop: direct impacts, lack of attention to cumulative impacts, marginalization of traditional ecological knowledge and power disparity and impact agreements.

Mines and ancillary facilities and their direct impacts on reindeer husbandry

One of the most significant effects of mining operations on reindeer husbandry is the creation of avoidance zones and barriers in the reindeer migratory routes. Avoidance zones and landscape obstacles both have the effect of decreasing reindeer usage of the affected area, thereby reducing grazing land available for the husbandry (Sandstrom et al 2003).

The loss of grazing land interacts with other types of land intrusions or disturbances which have a negative effect on the practice of reindeer husbandry from an economic and social perspective. The reindeer herders' loss of access to their traditional land due to mining

operations not only affects the traditional reindeer husbandry but it also negatively impacts their ability to exercise other cultural activities such as fishing, hunting, and gathering. Thus, mining might prevent access to parts of their cultural heritage, thereby trampling on the Sami people's right to participate in cultural life – a right enshrined in the International Covenant on Economic, Social and Cultural Rights (ICESCR) (see Article 15 of the ICESCR. United Nations General Assembly (UNGA) 1966). This was emphasized by the Sami reindeer husbandry districts in their presentation.

With the help of a historical map compiled using Sami traditional knowledge, Lars-Anders Kuhmunen and Tomas Kuhmunen, representatives of Gábna čearru, showed how calving grounds and pastures for reindeer husbandry have been negatively impacted by mining and other infrastructure projects. They also asserted that due to encroachment by mining and other developments, contrary to what obtained about 120 years ago, no traces of reindeer husbandry can be found in central Kiruna today. Lars-Anders Kuhmunen commented: “In the old days, we moved with our animals in central Kiruna but now not so much. We have been pushed out of the city. People don't see us anymore. Every time they see our reindeer they swear at them- saying that we don't control our animals.”

Mine ancillary facilities such as roads and railways have also negatively impacted reindeer husbandry. Representatives of reindeer herders revealed for example that the mining company Kaunis Iron, in Pajala municipality, transport their goods in 60 tonne trucks belonging to the mines that ply the road every 30 minutes pose serious existential threats to their animals. In his presentation, Lars-Anders Kuhmunen reported that the roads require salting to make them passable for the trucks during the winter. Reindeers are often attracted to the roads by the salt, often resulting in collisions and the loss of many reindeers. Lars-Anders Kuhmunen also revealed that about 400 reindeer were lost to railway and road incidents during the winter of 2018.

“The productive part of reindeer herd - female reindeer between the ages of 2-8 years old were mowed down due to transportation and road collisions. We get compensation but just for the market price of the meat not for the fact that the next generation of reindeer is lost.”

The stressful nature of industry encroachment on traditional reindeer husbandry lands was manifested in the following comment by Mari Enoksson, a representative of the Laevas čearru and a Communications Officer with the Swedish Sami Parliament:

“If you are moving herds and up there somewhere in the mountain there are 5 snowmobiles. The reindeers get scared and scatter. Then you have to start all over again because reindeer gets scared. That is three days of work all gone in vain. This is the stress that you go through when the reindeer gets scared.”

Also Lars-Anders Kuhmunen referred to people’s lack of attention to cumulative effects of tourism on the land. The issue of cumulative effects can also be assessed at the level of individual projects.



Figure 2. Sink holes under which the new part of the Kiruna operation lies. Image by Camilla Brattland.

Lack of attention to cumulative impacts of individual projects

One of the biggest issues highlighted during the workshop is the lack of consideration of cumulative impacts of mining and other industrial developments in land use planning in Kiruna. Indeed, the evidence suggests that the current permitting process does not adequately take cumulative impacts into account, neither in the Mining Concession Permit phase (the phase in which the impacts of developments on reindeer husbandry is reviewed by authorities) nor in the Environmental Permit phase. A key part of the mining concession

permit process is the balancing of public interests under the provisions in the Environmental Code (Chs. 3-4), done by the Chief Mineral Inspector with the aid of the County Administrative Board (regional government). According to the preparatory legal works the proper balancing of such opposing interests shall be made with socio-economic values in mind, in practice meaning a support for new mining industry. Even in the Permit phase, the mechanisms to address cumulative effects that are important to reindeer husbandry are limited. Sami rights are poorly articulated and protected in Swedish mining (Minerals Act) and environmental legislation (Environmental Code) as the traditional Sami reindeer herding is viewed as a public interest, and not as a property right. The affected SRHCs are ‘consulted’ (read: heard) especially in the EIA, both for the mining concession and environmental permit, but not in a different way than any other interest. The authorities’ assessment has historically been limited to the effects of mining on the actual mine site. Impacts of surrounding infrastructure are only assessed in the second phase, i.e. after the balancing of interests already has been dealt with (Lawrence and Larsen, 2017).

Revisions to the Swedish Environmental Code that came into force 1 January 2018, included amendments in chapter 6 (on environmental impact assessment) to broaden the definition of impacts to include cumulative effects (see also prop. 2016/17:200), and these amendments have been included in the Minerals Act. However, it can be argued that the unequal power relations underlying the assessment process, i.e. the corporate control, remains entrenched.

According to Larsen (2017), Impact Assessments (IA) in Sweden can be characterised as corporate-owned IA. The developer generally has a responsibility to meet and hear the views of the directly affected Sami communities but retains full authority to decide how to interpret and use community inputs. The Swedish government relies on companies to mitigate cumulative impacts through new corporate social responsibility actions. However, prevailing evidence also suggests that often companies have not created conditions for Indigenous communities to trust their actions on CEA (Larsen, 2017).

The lack of attention to cumulative impact assessment makes it difficult for LKAB and herders to identify additive or interactive environmental effects occurring from mining and other developments over time in order to avoid cumulative effects.

Likewise, Lars-Anders Kuhmunen notified:

“When I reach certain areas, my heart pounds because I have no idea what I am going to meet. Am I going to encounter loose dogs, snow mobiles or tourists? How will the animals react to these intruders? Because of the activities of tourism we have to use certain areas at 4am to avoid tourists.”

Hence, mining interacts with growing pressures from other land uses such as tourism and transportation infrastructure to create an increasingly fragmented landscape to the detriment of the reindeer herds and herders. Indeed, Mari Enoksson, asserted that about 50% and 60% of the territory of the Laevas and Gábna čearru cannot be used due to natural barriers and other developments.

Importantly, Stina Eriksson and Lotta Lauritz, representatives from LKAB, revealed that the Sami villages in Kiruna in cooperation with the company has developed a method for evaluating impact of mining on reindeer husbandry. This method also assesses the cumulative impact of mining on reindeer husbandry. The methodology is available at www.lkab.com, however only in Swedish.

Another potential twist is the contested concept of “significant adverse impact”. During the workshop, in her presentation titled “Competing pathways to sustainability,” Karin Beland Lindahl reported various perceptions of the effects of mining from different segments of society. She noted that advocates of new mines tend to perceive the effects of mining as limited, while opponents of new mines often consider the effects of mines within the contexts of their long term, interconnected and cumulative impacts. Consequently, whose definition of ‘impact’ is more accurate? Who defines what ‘a significant adverse effect’ is? Evidently in most Arctic countries, particularly in Sweden, Western scientific knowledge is prioritised by the mining regulators and will likely have the ‘final’ say in any land planning to the detriment of Sami Indigenous knowledge (Larsen, 2017). This is especially important given the tendency of state licensing entities to separate ecological impacts from social and economic considerations, thereby downplaying the fact that communities are embedded within ecosystems (Larsen, 2017). However as later pointed out by Lindahl, in the current conflict on the Gállok/Kallak mine, the County Administration Board’s decisions actually reflect the Sami reindeer herders’ position as to how to define and evaluate impacts and the concessionary area, an interpretation that is in line with the Supreme Administrative Court’s verdict of the Norra Kärr case.

Marginalisation and Inclusion of Traditional Ecological Knowledge (TEK)

Article 8(j) of the 1992 United Nations Convention on Biological Diversity (CBD) requires its parties to, “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles” (United Nations, 1992). The inclusion of diverse ways of knowing in land use planning processes helps understand complex social-ecological systems and brings a social dimension to planning, as the needs, concerns, and world views of local residents and Indigenous peoples are recognized (Christensen and Granti 2007; Houde, 2007). Evidence suggests that the recognition of indigenous, local and traditional knowledge systems has improved the management of ecosystems, natural resources and biodiversity. The use of indigenous, local and traditional knowledge in land use planning and decision making in Sápmi has been well-documented (Turi and Keskitalo 2014, Horstkotte et al. 2017).

LKAB has made an effort to incorporate some Sami traditional knowledge in building reindeer fencing and other reindeer control structures (so-called “reindeer-ducts” (Sandström pers.comm.)).



Figure 3 One of the reindeer-ducts around Kiruna. Image by Else Grete Broderstad.

In response to a question about whether developers are required to consult reindeer herders on indigenous knowledge or traditional ecological knowledge (TEK), Lars-Anders Kuhmunen replied:

“There is a legal requirement for them to talk to the districts about TEK. The County Boards talk to the business owners (reindeer herders). If you want Sami knowledge you have to talk to the (Reindeer Husbandry) District but we know that people just do stuff before talking to anybody. So the amount of TEK used depends on how much you talk to the district.”

Also in a licensing regime where Western knowledge is prioritised, Sami traditional knowledge faces many barriers to recognition. All of the issues raised above highlight the lack of meaningful consultation with Sami especially in light of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

As is the case in other Arctic regions, there is a selective use of TEK by LKAB in Kiruna. Sami TEK has been used to build reindeer fences however, it appears that this knowledge is only applied when other corporate interests are not at stake or when such knowledge fills existing gaps in scientific information. Hence, the knowledge is not used in its cultural or spiritual context as an alternative way of knowing per se. Not surprisingly, planning processes incorporating traditional knowledge have been criticized for taking some aspects of TLK into account to the exclusion of others, as well as for treating such knowledge systems as a mere collection of environmental data, often leaving cultural and spiritual aspects out (Nadasdy 1999, 2003; Casimirri, 2003; Ludwig, 2016).

Sectoral differences in ways of consulting reindeer herders also makes it difficult for the voices of Sami herders to be heard and for their knowledge to be meaningfully incorporated into land use planning and developments. As stated by Lars-Anders Kuhmunen: “The way they talk is not (in line with) FPIC. There is no standard format on how to talk to the (Reindeer Husbandry) District. The Forestry Department does it one way, the Roads Department does it in a different way.” Representatives of the Sami community in Kiruna also expressed the need for meaningful consultations, especially because of the time and resources that consultation takes, as problematized by Mari Enoksson:

“According to the law, reindeer herders have to be consulted but do they have a say? Consultations require people to take a lot of time off work but how is consultation done? Is it done in such a way that they can influence things or is consultation just information giving?”

It is worth noting that Stina Eriksson and Lotta Lauritz, representatives of the LKAB group stated that the company engages the Sami reindeer herding communities regularly to discuss. Operational meetings are held every month where the company gives early information on projects to Sami reindeer herding communities and field any questions raised by the community about their projects. Quarterly steering committee meetings are also held to discuss future project plans.

Nevertheless in her presentation, Karin Beland Lindahl concluded that according to their 2015 study the opportunities for rights- and stakeholders to have their voices heard during the critical stages of the formal licensing processes for mines is fairly limited. However, Lindahl also contended that as of January 2018, legislative changes have made it mandatory for mining right holders, such as reindeer herders, are to be consulted during the concession and

environmental assessment phases as part of the EIA process.. It is yet to be seen if these legislative changes lead to meaningful consultation between industry and reindeer herders. An important issue raised by Lindahl is the fact that only members of Sami reindeer herding communities and directly affected land owners within the mining concession area are considered right holders (sakägare), e.g. with and with defined rights to compensation.. The implication of this is that other affected groups don't have the same avenues to address their grievances and claim compensation. Lotta Lauritz has later informed that directly affected stakeholders outside the concession areas have a say in the consultation process.

Conclusion: Power disparity and Impact Agreements

In Scandinavia, as is the case in other Arctic regions, the lack of meaningful consultations with Sami communities before the commencement of development projects in general has had the consequence that Sami communities either litigate such developments through the courts or settle early on for confidential compensation agreements with the developer (Lawrence and Larsen 2017). These private contracts allow the parties to negotiate compensatory payments for land dispossession without adequately assessing the impacts on Sami rights. Oftentimes compensation appears to be negotiated prior to, without or disconnected from any IA and thus without full knowledge of the impacts of the infringement on Sami rights.

There is also an agreement between LKAB and the two Sami reindeer herding communities in Kiruna. Stina Eriksson and Lotta Lauritz, representatives of the LKAB noted that the confidential agreements with the herders provides broad guidelines on frequency of meetings and how the parties relate to each other. The agreement takes the form of confidential legal agreements that lay out the terms of the relationship between the Sami community and the mining company. The agreements are based on FPIC-principles. In Kiruna, LKAB consult with local herders before making some planning decisions, helping ensure land use remains possible for all actors. Nevertheless, these agreements require herders to make some adjustments to reindeer husbandry, and as a result become eligible to claim some form of compensation. Although the participating members from the Sami reindeer herding communities seem content with these agreements and the ongoing relationship with LKAB, some reservations remained about the future and the ongoing effect of mining on husbandry.

They also assert that if they had not signed the agreements their land would have been expropriated by the government.

Although one can argue that an important aspect of the Impact Agreements is the unequal power dynamic between companies and Sami groups, such agreements foster an ongoing relationship which make it possible for concerns and questions to be raised with LKAB at any time, not just during the licensing phases (or other consultations in compliance with the EIA and Environmental Code). This is a tacit recognition that social and environmental issues cannot be properly managed in onetime consultations during the licensing process.

Another pertinent issue highlighted during the workshop includes the lack of coordination or collaboration between the state and industry on Sami issues. This fits in with the tenets of Sweden's corporate-led licensing regime, which involves the state ceding responsibility for consultation and negotiations with Sami to industry. On this issue, Lars-Anders Kuhmunen commented: "The Sami Districts talk to everyone (representatives of the government and industry) because everyone affects us, but the other parties do not talk to each other." It is evident that the lack of collaboration between state and industry is affecting the sustainable exploitation of mineral resources and the pursuit of Sami livelihood. What is needed is the development of a more holistic management system for cumulative impacts of infrastructure and industry on reindeer husbandry.

Part 2: Summary of Presentations

Lars-Anders Kuhmunen and Tomas Kuhmunen, Gábna čearru

Lars-Anders Kuhmunen and Tomas Kuhmunen commenced their introductory lecture by displaying maps drawn using traditional knowledge, depicting changes in reindeer behaviour over the years due to infrastructural development and other land uses. They asserted that reindeer grazing patterns in the Kiruna area have changed due to a multitude of factors. These include climate change, the emergence of avoidance zones created by industrial developments, the intrusive effects of outdoor leisure activities and forestry development.

Tomas Kuhmunen also stressed the interconnectedness of the impacts of the different types of developments on reindeer grazing patterns and the ecology in general. For example, he stated:

“They are cutting so much of the forest, and that is affecting grazing patterns of the reindeer. If you take our lichens in the forest, then you negatively impact the pastures in the mountain, because the reindeer will move from the forest to the mountains and you will have a loss in biodiversity. We are everywhere throughout the year, so we know that what happens in the forest, affects what happens in the mountains.”

Another important issue touched upon in the presentation is the loss of reindeer due to transportation-related accidents on the roads and railway. He emphasised the loss of the productive part of the herd, especially female reindeer aged between 2-8 years, to rail and motor accidents. He contended that that compensation for lost female reindeer does not account for the loss of future generations that would have been brought forth by these animals mowed down by trains or trucks.

Tomas Kuhmunen criticised developers’ lack of attention to the cumulative impacts of project developments and tourism on reindeer husbandry. He contended that developers tend to only consider the effects of their projects, ignoring the additive effects of other projects. Furthermore, as Lars-Anders Kuhmunen, he pointed to the fact that developers and the government do not speak to each other on issues of concern to Sami reindeer herders. It can be argued that the lack of communication between industry and the state on Indigenous issues prevents the three angles of the governance triangle from working collaboratively to solve problems impacting Indigenous people.

Per-Erik Stenberg and Mari Enoksson, Laevas čearru

Mari Enoksson commenced the presentation with a display of maps and pictures depicting changes in land use in Kiruna. She demonstrated through maps that prior to the development of the mines, the predominant traditional land use activity in Kiruna was reindeer husbandry, with reindeer living side by side with people in the town. However, she remarked that now reindeer and their herders have become ‘invisible’ in the town, as tourism facilities and the mine and its ancillary amenities occupy some of the areas that were used for reindeer husbandry. She also stated that old migration routes have been cut off, and stress factors for the reindeer have multiplied many folds. Enoksson noted that of the 14 metal mines in

Sweden, 11 are in Kiruna. However, she conceded that the negative impacts on reindeer husbandry emanates not only from the mine, but also from the compounded negative impacts of the other types of developments.

Enoksson reiterated the importance of reindeer husbandry on the lives of so many people in Laevas. She revealed that in Laevas, 17 families are partly dependent on reindeer husbandry for their livelihood. Reindeer husbandry is also part of Sami cultural life, cutting cross all generations, especially in the summer. She revealed that Gábna čearru is allowed to maintain 6500 reindeer in winter herd, while Laevas čearru has a quota of about 8000 reindeer. The County government sets the reindeer numbers based on certain parameters including the availability of grazing grounds and other factors. According to her, 50 percent of land in Laevas (65 percent in Gabna) cannot be used for grazing because of natural barriers and other land use activities (hydro power, forestry, mines, windmills, snowmobiles, tourists, roads and the railway). Tomas Kuhmunen clarified that 30 percent of the land is natural peaks and barriers, but when the avoidance zones caused by other land use activities are accounted for, then the percentage of land that cannot be used for grazing increases to 65 percent for Gábna and 50 percent for Laevas.

Like Tomas Kuhmunen, Enoksson also expressed concerns about the loss of reindeer to rail accidents, revealing that about 3500 reindeers are killed in Sweden due to rail accidents every year, most of them in the Kiruna area.

On consultation, Enoksson noted that while reindeer herders are considered affected parties or stakeholders that have to be consulted on developments during the permitting process, they are less influential in impacting final decisions on these developments. She also questioned how consultations are done, remarking, “Are consultations for people to have influence on the process or are they just to give information to people?” She believed that people should be involved early in the process so that they can have a say earlier on, and pointed to the fact that Sami who are not reindeer herders are also impacted by the mines and other land uses, but they are not consulted and have no say in the process.

Also, she highlighted the fact that consultation is time consuming and requires people with the capabilities (strong credentials) to engage with their industry counterparts, who usually have lawyers in their negotiation teams. Given the time-consuming nature of consultation,

reindeer herders need to take time off from minding their animals in order to take part in such deliberations.

Per Sandström, the Swedish University of Agricultural Sciences

Per Sandström's presentation titled "Mapping of past and present land use to understand the cumulative impacts on reindeer husbandry," focused not only on the importance of the mapping and documentation of land use, but also on the need to find solutions. Sandström noted that to address the problems related to new developments, there is a need for good documentation of land use by reindeer herders, and mapping is an important means of doing that. Sandström asserted that given the encroachment of current developments on grazing lands, reindeer herders cannot afford to lose any more land. Hence, he stressed the need for the mapping of solutions based on existing traditional knowledge. In this light, Sandström identified the creation of wildlife overpasses ("reindeer-ducts") to link remaining grazing lands as one possible solution. He asserted that although there will be more impacts in the future, with innovative thinking, the effects can be mitigated. Sandström also reiterated that cumulative effects take place in time and space in an interactive manner. Hence, it is important to understand the time that the cumulative impacts happen in order to prevent the collapse of systems due to cascading effects.

Stina Eriksson and Lotta Lauritz, LKAB

Stina Eriksson's presentation started with a comprehensive account of a profile of LKAB. She revealed that LKAB's Kiruna mine is the largest iron mine in Sweden, producing 80% of Europe's iron ore, 90% of iron ore produced in the EU and employing 4100 employees. The company is wholly owned by the state but run by an independent board. She also highlighted the indirect and direct benefits of mine at the regional and national scale.

On the urban transformation caused by the moving of the city of Kiruna, Eriksson revealed that 6,000 people, 250 companies, organizations and entities and 3,000 homes are affected by the move of the city to its new location. She also asserted that LKAB seeks to minimize the social and environmental consequences of their activities on local communities, especially reindeer husbandry communities. In this light, she contended that LKAB strives to make voluntary and consensual agreements with Sami reindeer herders in order to minimize consequences for reindeer herders living close to the company's mines.

Stina Eriksson revealed that the company signed Impact Agreements with three Sami reindeer husbandry districts in 2013. According to her, the Agreements are built on FPIC principles and both parties have a shared understanding of what FPIC means. According to her, although the agreements are confidential, the parties agree that they can openly talk about principles governing them. She stated that the agreement provides the procedural framework governing how the parties meet, the forms that the meetings take, meeting times, and the structure of negotiations. The agreement also outlines mechanisms for the Sameby to participate on an equal footing with the LKAB. Operational meetings, in which information on ongoing projects is provided, are held every month. A steering group, where big decisions are made, meets three or four times a year. On confidentiality of the agreement, representatives of the Sameby contend that because there is a high level of racism in the village, it is prudent to keep the contents of the agreement confidential. On the conflict resolution mechanism embedded in the agreements, Stina Eriksson revealed that in cases where there is a deadlock between the parties, mediation partners are called upon to help break the deadlock.

Stina Eriksson also revealed that although there is no such provision in the Impact Agreement, LKAB has a research program for ecological restoration. She reported that while the basics of the agreements are the same, each of the three agreements signed with the reindeer husbandry districts are different. She attributed these differences to special projects which have to be negotiated separately with the reindeer husbandry districts, due to different contextual situations.

Significantly, Stina Eriksson claimed that LKAB has a method for evaluating the impacts of the company's operations on reindeer husbandry that is designed together with the Sami villages, to facilitate the Samis who make the evaluation themselves to measure and present cumulative impacts. LKAB also implements a code of conduct to eliminate discrimination against some identified groups, including women and Sami. This Code of Conduct also applies to contractors working in and around Sami communities.

Karin Beland Lindahl, Luleå University of Technology

Karin Beland Lindahl's presentation titled "Competing pathways to sustainability," outlines the results of a study on mining conflicts in northern Sweden. The study examines issues such as: locations where mines are likely to be contested or accepted, how affected actors and

citizens view proposed new mines, the opportunities for local participation in the permitting process, the ability of locals to influence mining policy and regulations and the prospects of handling the escalating conflicts with deliberative practices.

The study locations were contested mine establishments in Gállok/Kallak (Jokkmokk) and Rakkuri (Kiruna), that are both in Norrbotten County, and Rönbäck/Rönnbäcken (Storuman) (in Västerbotten County). Data on Pajala, from another study was added as a non-conflict case for comparative purposes. Lindahl noted that these cases were selected because they are all potential mine establishments in relatively similar places. However, these communities also have important differences among them. These differences include: prior experience of mining activities (Kiruna has experience in mines, while Jokkmokk and Storuman have had no such experience) and the strength of local labour market (the labour market in Kiruna is stronger than those in the other study location).

Lindahl divided the project findings into two parts. One for organized actors (including business organizations, reindeer husbandry districts, environmental groups etc.) and another for the general public.

With respect to organized actors, evidence from the study suggests that the three proposed mines have generated intense conflicts and contestation in all the communities. However, no significant conflict and contestation was noticed in Pajala. Lindahl concluded that differences in opinion about new mines have their roots in differences in fundamental values and variations in actors' definitions of sustainable development. She opined that despite differences among actors, they have common interests. For example, everyone wants sustainable development, but they held strikingly different understanding of what sustainable development means. What pathways that are prioritized also seem to be affected by socioeconomic conditions and actors' perception of their options (or lack thereof).

The study deciphered three predominant types of frames regarding the proposed mines: the pro-mining, anti-mining (mining skeptics) and the mining neutral frames. The pro-mining frames tend to stress the importance of the efficient use of natural resources for promoting jobs and economic growth. Adherents to these frames prioritize economic development over the other aspects of sustainable development (the environment and society). The anti-mining frames tend to prioritize quality of life issues over economic development and population growth. These frames also stress the importance of maintaining Sami reindeer husbandry and respecting Indigenous rights, hence, new mines are seen as threats to these rights. The anti-

mining frames also tend to view reindeer husbandry as consistent with nature. Apart from Sami reindeer husbandry communities and Sami organizations, mining skeptics typically include environmental and outdoor recreational interests. The mining neutral frame sits between these two preceding frames. Adherents to these frames tend to weigh the pros and cons of mining on their lives and then either support or reject new mines based on their assessment. Compared to actors in the three study locations, organized actors in Pajala were more likely to espouse pro-mining frames, while organized actors in the Kiruna case were more likely to subscribe to the mining neutral frames. However, organized actors in Kiruna that expressed the anti-mining frame expressed more negative sentiments about mines than actors in the other study locations.

On a scale of 1-7, where 1 = "Totally against" and 7= "Totally in favor", individual residents were asked to rate their support for new mines in their respective communities. According to Lindahl, although people in Kiruna were the most favorable to mining in general, their specific attitudes to the establishment of a new mine in Rakkuri were more negative than the attitudes of people in Jokkmokk and Storuman. The survey data also shows extreme polarisation in Jokkmokk and Storuman, as many people in these locations were opposed to the mines, selecting 1 or "Totally against," but also many were "Totally in favor" of mines. Consequently, the data shows very divided communities, which is likely to impact the consultation process. In Kiruna, the bulk of the population is somewhere in between "Totally against" and "Totally in favor." In Pajala, a community with high levels of population outmigration and unemployment, the vast majority of people are positive about a new mine.

Regarding opportunities for local actors to participate in the licensing process and mining policy formulation, Lindahl revealed that the results show that participation by actors occurs later in the process when they are less likely to have a meaningful impact on the process. She also asserts that the quality of consultation with actors varied across the study locations, and these actors have limited opportunities to influence the process during the formal process. Lindahl pointed out interesting differences among the three cases that can be attributed to differences in local conditions (these include the efficacy of local actors, and the level of consultation with local actors). For example in the Norbotten cases, where the County Administration Board did extensive consultation, the municipality submitted a balanced submission, and the reindeer husbandry Districts are strong and well networked, the proposed mines have so far not been granted concession. In the Storuman (Vesterbotten) case, the concession was supported by the County Administration Board, but did not conduct direct

consultations with local actors and the municipality had not consulted with reindeer herders nor other skeptical actors. It is also critical to point out that the reindeer herder district is relatively small and resource strapped.

In concluding, Lindahl asserted that positive attitudes toward new mines are driven by perceptions of personal benefits and their potential to create new job opportunities. She also concluded that the acceptance of new mines seems to be more likely in places where the unemployment rate is relatively high. On the other hand, negative attitudes toward new mines are related to expectations about negative impact of such mines on the environment and reindeer husbandry. In her opinion, the conflict over new mines is rooted in deeply held values, making such conflicts difficult to solve and there are likely to be winners and losers.

Horatio Sam-Aggrey, UiT The Arctic University of Norway

Horatio Sam-Aggrey's presentation titled "Drawing on Canadian experiences: How significant is the role of TEK in decision making of the boards regarding mining impact mitigation?," detailed the role of the co-management boards in incorporating TEK in the natural resource management framework in the Mackenzie Valley, Northwest Territories (NWT), Canada.

Sam-Aggrey commenced with an extensive outline of the role of the co-management boards in resource management in the NWT. He then went on to outline the mechanisms through which TEK is incorporated into the EA and regulatory processes in the NWT.

Sam-Aggrey concluded that the need for proponents to obtain the social license to operate from host communities, legal requirements governing the EA process, and the co-management boards' processes and procedures, provide extensive opportunities for Aboriginals to volunteer TEK for the EA process. Sam-Aggrey also asserted that Aboriginal representation on the Boards, and the facilitative role of Aboriginal governments, have also led to an increased incorporation of TEK during the EA and regulatory processes. Sam-Aggrey however conceded that a critical analysis of the types of TEK incorporated in these processes shows a tendency among developers to choose aspects of TEK that are easily blended with Western scientific data points, lending credence to claims by some researchers that in many cases, TEK is used to fill gaps in scientific information. Despite these shortcomings, EA co-management system in Canada's North is unique in the extent to which it considers Indigenous peoples' knowledge in the resource management framework.

Sigrid Engen, UiT The Arctic University of Norway

Sigrid Engen's presentation titled "Land use change and the right of Sami herders to object when pasture loss is at stake," gave the results of a document analysis of 91 cases involving the licensing of project developments, small hydro and wind power projects, in Troms County in northern Norway between 2010 and 2018. The research questions guiding the coding of documents include: a. What type of land developments affects reindeer husbandry in Troms? b. What type of resources are impacted by land developments? c. To what degree is lack of knowledge and documentation an issue? d. What is the level of effort required to participate in the planning process? e. Do inputs and objections by key actors have an impact on the outcome or decisions made? The key actors studied include the County Governor (i.e., the state's regional representative), the Norwegian Sami Parliament, and the reindeer husbandry districts.

According to Engen, conflicts with cabin construction and tourism activity are major issues when it comes to municipal land use planning. The analysis shows that majority of the objections made by the Sami Parliament and the County Governor to municipal plans with the goal of safeguarding the interests of reindeer husbandry concerned these types of land development.

She also revealed that the obstruction of migration routes was one of the most significant concerns that the governance actors had regarding new land development. The risk of blocking reindeer migration routes also seemed to be a key reason for rejecting new land development. It is important to point out that the blocking of reindeer migration routes is illegal under Norwegian law. Other concerns include cumulative impacts of new land development and disturbances (e.g., stress, collisions, abortions).

Some of these results are included in: Hausner, VH, Engen, S, Brattland, C, Fauchald, P. Sámi knowledge and ecosystem-based adaptation strategies for managing pastures under threat from multiple land uses. *J Appl Ecol.* 2020; 00: 1– 10. <https://doi.org/10.1111/1365-2664.13559>

Finally, the analysis shows that reindeer husbandry has impact i.e., leads to avoided land use changes. This topic along with the association between concerns raised by governance actors and the outcome of the licensing process will be assessed more in depth in a study in the

process of being finalized (Engen, et al. “Public participation, indigenous land use and avoided effects of small hydropower development in the Norwegian Arctic”).

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Appendix

1. Program for the TriArc/IndGov Kiruna workshop on interactions between reindeer husbandry and mining

Wednesday 19 September, 2018

1130-1230: Lunch at the hotel

1230-1240: Welcome to workshop and brief introduction by Else Grete Broderstad and Niklas Labba, UiT The Arctic University of Norway

1240-1340: Intro lecture by Lars Ante Kuhmunen and Tomas Kuhmunen, Gábna čearru (at the hotel).

1340-1700: Excursion and discussions (including coffee break)

1900: Camp ripan (<https://ripan.se/>)

Thursday 20 September, 2018

0900-1000: Intro lecture by Per-Erik Stenberg and Mari Enoksson, Leavas čearru (at the hotel)

1000-1200: Excursion and discussions

1200-1300: Lunch at the hotel

1300-1700: Seminar at the hotel

1300-1315: Introduction to the research on mining controversies by Hans-Kristian Hernes, UiT The Arctic University of Norway

1315-1335: *Mapping of past and present land use to understand the cumulative impacts on reindeer husbandry* by Per Sandström, The Swedish University of Agricultural Sciences

1335-1410: Presentation by Stina Eriksson and Lotta Lauritz, LKAB

1410-1430: Discussions

1430-1500: Coffee

1500-1545: *Competing pathways to sustainability* by Karin Beland Lindahl, Luleå University of Technology

1545-1605: *Drawing on Canadian experiences: How significant is the role of TEK in decision making of the boards regarding mining impact mitigation?* By Horatio Sam-Aggrey, UiT The Arctic University of Norway

1605-1625: *Land use change and the right of Sami herders to object when pasture loss is at stake* by Sigrid Engen, UiT The Arctic University of Norway

1625-1730: Discussions and conclusion

2. List of participants

Camilla Brattland	UiT The Arctic University of Norway
Else Grete Broderstad	UiT The Arctic University of Norway
Sigrid Engen	UiT The Arctic University of Norway
Mari Enoksson	Sami Parliament of Sweden
Stina Eriksson	LKAB
Eva Maria Fjellheim	UiT The Arctic University of Norway
Vera Hausner	UiT The Arctic University of Norway
Hans-Kristian Hernes	UiT The Arctic University of Norway
Lars-Anders Kuhmunen	Gábna Sami čearru
Tomas Kuhmunen	Sami Parliament of Sweden
Niklas Labba	UiT The Arctic University of Norway
Lotta Lauritz	LKAB
Karin Beland Lindahl	Luleå Technical University
Marina Goloviznina Peeters	UiT The Arctic University of Norway
Greg Poelzer	University of Saskatchewan
Horatio Sam-Aggrey	UiT The Arctic University of Norway
Per Sandström	Swedish University of Agricultural Sciences
Dorothee Schreiber	UiT The Arctic University of Norway
Per-Erik Stenberg	Leavas Sami čearru
Monica Tennberg	University of Lapland, Finland

