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Abstract

The social license to operate (SLO) is today an important part of the strategies of global mining companies. This article illustrates how social capital influences the SLO in two Northern European municipalities, Storuman (Sweden) and Sodankylä (Finland), where several mineral exploration and mining projects have been in progress in recent years. Based on two surveys on social structure, relations, shared norms, and trust applying the social capital approach, the comparative study focuses on linkages between social capital and the SLO in Storuman and Sodankylä. The findings of the study show that the local acceptance of mining is very high in Sodankylä, whereas the residents of Storuman are clearly more critical. The respondents in Storuman had trouble evaluating the performance of the companies operating in the region. In our view, the SLO is built on good company performance, but only to some extent, as the local context, for example the social structure of the community and the history of mining operations in the locality, also plays an important role. Furthermore, positive effects at the local level are important in gaining the SLO. An interesting result of the Sodankylä case was that the respondents trusted the companies more than was suggested by their evaluations of the companies' information sharing performance and the residents' participation opportunities. They also placed high value on the local benefits of mining, such as improved public and private services, better employment opportunities, and the increased viability of the community in general. Sodankylä has, in fact, started to change into a mining community during the last decade, as mining was the largest private-sector industry in the municipality in 2018. Meanwhile, the majority of the respondents in Storuman said that they had not experienced any benefits of mining at the local level – instead, they were worried about the potential negative impacts of mining on their highly valued environment.

Keywords	mining; social license to operate; social capital; Finland; Sweden
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Comments from the editors and reviewers:

-Reviewer 1

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While the manuscript has certainly improved, the main comment of my previous review remains valid. The paper is not explicit enough in detailing why the SLO approach lacks certain insights, which the social capital approach can contribute to. This argument will have to run through the whole paper. In the introduction for example, only references to Putnam's social capital argument are given, while SLO literature is not alluded to at all. This is not convincing if the core argument of the paper is that the social capital approach has something to add to the SLO approach. So what is missing in the SLO approach I wonder? One of the key point seems to be that social contexts are unique and that this is not enough incorporated in SLO concepts or research. I can fully relate to that and this would be an important contribution that this article could make, i.e. outlining how social context matters in SLO processes and that SLO conceptual frameworks do not deal with that explicitly enough, while the social capital concept does.

Answer: Thank you for your valuable comments! We tried to make it more clear that social capital approach brings forth the local context for understanding why SLO is gained or not. It was not that clearly argued in the earlier paper so thank you for reminding us. In introduction we shortly added SLO perspective when talking Putnam's social capital concept.

Consequently, this would mean SLO literature should be elaborately addressed in section 4, where this point is being made. And needless to say this should be about how the SLO literature neglects or addresses the local context in a too narrow way. At the moment, SLO literature is not mentioned in this section at all. Even if SLO is completely silent on the effect of mining developments on the host community itself, this should be made explicit! Evidence that this is the case needs to be provided and discussed. And with evidence I do not mean the data from the 2 cases, but from a systematic overview of the SLO literature.

Answer: We added SLO literature in section 4, starting with it and with some new references.

One further point related to section 4 is that the para that discusses how social capital does not always bring common good to the local community seems to actually talk about institutionalized trust. The mistrust in municipal leaders because they advocate for the mining activities is a phenomenon that is certainly recognized in SLO literature and research and this should be included in this para.

Answer: Institutionalized trust included in that paragraph.

This also goes for section 5, where trust in social capital is being discussed. Trust is featuring in the literature on SLO too and therefore this should be included in this section. What are the differences in both approaches in how they conceptualize and operationalize trust? Where is it that SLO is too narrow and social capital might provide additional insights? A more substantial engagement with the SLO literature is needed do support your argument.

Answer: Also in section 5 SLO literature included.

Some other points:

In the middle of the introduction, reference is made to “our practice research questions”, but these research questions are not outlined or introduced.

Answer: We rewrote that part.

I also wonder whether the map I also asked for in my previous review counts towards the space required for the article? Usually words count, illustrations to a lesser extent. So please check with the journal editor whether a map can still be included. If showing the unique social context matters, than surely it also matters how mining activities are related to cultural heritage and landscape features of the communities.

Answer: We thought about this. There should be map from Sweden and Finland; and also maps from the municipalities. We don't have maps that could describe cultural heritage and landscape features of the communities and don't have skills to do those.

While the article is edited for the English language, there are still multiple mistakes in the text.

Answer: The text is checked in our University's Language Center (not this answer, is you probably notice – sorry for that.)

What is the point of the last paragraph of the discussion (starting with “mining also changes communities..”)? At the moment this is written in a more concluding way, so it could also fit the conclusion section. Unless there is a specific point that is being addressed here, but that should then be made more explicit.

Answer: We wanted to discuss important themes in Discussion, as it gives more room to discuss the theory and data together. For example this theme was presented in our empirical section and we wanted to elaborate it further with references to theory. We wanted to keep Conclusions short.

-Reviewer 2

- This article comparing the views toward mining of residents in two towns provides a good exploration of factors affecting social license to operate. This updated version of the article, responding to comments from the reviewers, does a better job of highlighting the range of factors that can affect responses on standard social licence types of surveys. Essentially, you are arguing that one cannot just ask whether residents accept mining or trust a mining company. One also needs to look at various contextual factors and consequences of that mining but also at cultural factors, such as levels of trust in institutions.

Answer: Yes, exactly. Thank you for this review.

The article appears acceptable to me, provided that a few more changes are accepted and statements refined. I have noted those places on the manuscript, which is in 'track changes' format.

Answer: Yes, thank you also for those – changes made!

For some, the article will still come across as referring to an array of factors, which can diffuse the central argument. Additionally, certain key authors keep being cited, where the SLO and trust literatures are really a bit broader than that.

Answer: As stressed by the reviewer one, the central argument had to be made more clear. Hope it now works.

Nonetheless, the article is a good contribution with a useful line of argument.

Answer: Nice to hear! Writing is a bit more demanding as you can not use your native language.

The social capital approach broadens the SLO perspective.

The good company–community relationship is not enough for gaining SLO.

Trust is more than an experience in co-operation with mining companies.

Local benefits are very important for a social license to operate.

SOCIAL LICENSE TO OPERATE IN THE FRAME OF SOCIAL CAPITAL
Local acceptance of mining in two rural municipalities in the European North

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SOCIAL LICENSE TO OPERATE IN THE FRAME OF SOCIAL CAPITAL

Exploring local acceptance of mining in two rural municipalities in the European North

1 Introduction

The social license to operate (SLO) is discussed by practitioners and scholars of the mining industry around the globe, especially in the Australian, Canadian, and U.S. contexts (Karakaya & Nuur, 2018; Mercer-Mapstone et al., 2018). In short, the social license to operate refers to local communities' and other stakeholders' acceptance of an extractive industry, for example mining. It concerns the daily operations of companies in their localities – especially in terms of having fair, open, and reciprocal relationships with local stakeholders (e.g., Boutilier & Thomson, 2011; Prno, 2013; Moffat & Zhang, 2014; Mercer-Mapstone et al., 2018; Thomson & Boutilier, 2011).

The SLO is gained through a company's performance, but what does the term 'social' actually refer to? Is it more than just working dialogue between companies and communities (see Lempinen 2019, pp. 43-61)? The answer seems to be yes because a growing body of literature indicates that distributional justice, including local benefit provision (e.g., Prno, 2013; Jijelava & Vanclay, 2017), is just as important as procedural fairness (e.g., Moffat & Zhang, 2014; Mercer-Mapstone et al., 2018).

The aim of this article is to discuss the meaning of 'social' in SLO. To accomplish this, we link the SLO concept to the social capital approach, a subject that started to develop in the end of the 20th century, by discussing the effects of industrialization and modernization on social life (Putnam & Goss 2002). The social capital approach offers applicable insights into the SLO, as it not only discusses the importance of good social relations and trust – which are needed in gaining a social license to operate – but as it also deepens the community perspective. Putnam (1993; Putnam & Goss, 2002), one of the leading theorists in the field, links the economic prosperity of a community – certainly one of the goals of all host communities – to the development of social capital. His main argument is that dense networks of interaction foster general reciprocity and trust that can

produce both private and public good. Further, his classical study on the Italian North and South stresses the importance of historical paths that manifest themselves in the institutions of a community, in a broad sense defining “the rules of the game in society” (Putnam, 1993, pp. 179).

We apply these ideas to our empirical case study, and our research question is: How does the local context affect the acquisition of a SLO? As argued by Prno (2013, pp. 584): “As it is communities who actually issue the SLO, community-specific variables are particularly important drivers of SLO outcomes”. For example, if a locality has a mining-related history, how does it affect people’s expectations regarding new developments (see Moffat & Zhang, 2014)? Besides historical paths, we discuss the meaning of the local context by answering the following question: How does the social composition – e.g. the community structure, social relations and norms – affect the local acceptance of mining and how do mining and the operating companies change the local community?

In this article, we aim to discuss the local acceptance of mining within the frame of social capital through two case studies, one involving Storuman Municipality in Västerbotten County in Sweden and the other involving Sodankylä Municipality in Lapland, the northernmost province of Finland.

The next section presents the two case study areas and the surveys done in these localities. The different perceptions of mining in the two areas are explored by analyzing the survey answers regarding social relations, the local historical context, expectations and trust. The article ends with a discussion and conclusions concerning the reasons why mining has a strong social license to operate in Sodankylä and a weak one in Storuman.

2 Surveys in two rural communities: Storuman and Sodankylä

Sodankylä in Finland and Storuman in Sweden were partners in the Regina project¹, which was aimed at improving the planning capacity of remote municipalities whose economies are dependent on large-scale industries. Surveys on mining developments were conducted in both municipalities during the project. The respondents were to evaluate the impacts of mining on the local community,

to express their perceptions related to mining, and to assess the environmental impacts and local acceptance of mining.

Sodankylä is a municipality situated in the middle of Lapland, the northernmost province of Finland. It is sparsely populated, with approximately 8,600 inhabitants in an area of 12,440 square kilometres. For decades, the population growth rate in the region has been negative, but after 2010, the share of working-age people has risen owing to developments in the mining sector. Also, the unemployment rate at the end of July 2018 was lower (11%) than in Lapland in general (13%) (Association of Finnish Local and Regional Authorities, 2018). With the Boliden Kevitsa mine employing around 450 people, of whom 70% are permanent residents (Koskela, 2018), mining was the largest private-sector business in the municipality in 2018.

There have been several mining projects in their various phases in Sodankylä. First Quantum Minerals started operations at the Kevitsa mine (nickel, copper) in 2012, which have been continued by Boliden since 2016. Anglo American Sakatti Mining has prospected for a potential mine site (copper-nickel-platinum group elements) and carried out the environmental impact assessment process in 2018. A special circumstance in the Sakatti project is that it is located by the Viiankiaapa mire, which is

¹REGINA stands for Regional Innovation in the Nordic Arctic and Scotland, with a special focus on regions with resource-based industries. The project, funded by Northern Periphery and Arctic Programme, ran from 2015 to 2018, and it was led by Nordregio, a research institute founded by the Nordic Council of Ministers.

protected by the EU-wide Natura 2000 nature conservation programme (Metsähallitus Parks & Wildlife in Finland, 2018). The Pahtavaara gold mine started in 1996, but it has been weighed down by several bankruptcies and ownership changes. In 2018, the mine was owned by Rupert Resources, which is conducting further mineral exploration in the area. In addition to these established projects, a large number of exploration projects and activities are under way in Sodankylä.

A web survey on the experienced impacts of mining was carried out in the municipality in February 2018. The questionnaire was also discussed in five village meetings near the existing or planned mine areas. In these sessions, people were able to reply to the questions of the questionnaire. Altogether, 160 responses were received, 106 of which came through the web survey. In Sodankylä, the average respondent was a working-age person, employed and living in the village near a mine or mineral exploration site. Among the respondents, the share of pensioners was lower (23%) than their share actually is in the municipality (32%). In addition, the share of unemployed people was less than three percent. More than one-third of the respondents were employed or had a household companion who was employed by a mining company. (More detailed, Saariniemi, 2018.)

Storuman, located in Västerbotten County in Sweden, is another sparsely populated and large northern municipality. It has 5,900 inhabitants, of whom 28% are over 65 years of age. In the western part of the municipality near the Norwegian border, tourism plays a major role in the region's economy. In the eastern part, livelihoods are based on energy production, forestry, small-scale engineering industries, and public services. In 2018, the role of mining was not significant in terms of employment, but there were mineral exploration activities, a plan for a new mine, and mines that had already been closed.

The Storuman survey was carried out between January and June 2017 in the eastern part of the municipality. This area was selected because it is the location of ongoing mining or mineral exploration projects in their various phases. Besides, Luleå University of Technology and

Umeå University conducted a study in the western part that ended in May 2016 (Beland-Lindahl et al., 2016).

The questionnaire was posted to 571 residents living in the villages surrounding mine sites in Pauträsk, Barsele, and Högland. The recipients were also able to answer the questionnaire via the municipality's website using a personal password given to everyone. Altogether, 217 responses were received, of which 175 arrived by mail. In Pauträsk, Dragon Mining had run a gold mine during 2005–2015, and there was a processing plant operating by the time of the survey in spring 2017. The Svartliden Plant in Pauträsk processed gold concentrates, also those coming from the company's Finnish operations. Dragon Mining had also had exploration tenure in the area, and there is now a new project going on in the neighbouring Lycksele Municipality (Dragon Mining, 2015). In Barsele, Agnico Eagle has explored minerals through a variety of methods since mid-2015 (Agnico Eagle, 2018). In Högland, Tertiary Minerals had a plan for a fluorite mine. The construction and operation would have lasted around 25 years, and it would have employed approximately 90 people in the production phase. Västerbotten County stopped the planning in September 2018 because the mine would have threatened reindeer herding in the area (SVT Nyheter, 2016; 2018). People in Storuman Municipality have negative experiences of mining because two local mines have been closed owing to toxic leaks (see Granqvist, 2014).

The data from both questionnaires was uploaded to the Statistical Package for the Social Sciences (SPSS) programme. Background questions (age, education, occupation, the respondent's or household member's employment in mining) were asked to capture demographic and socio-economic data needed in interpreting the survey answers using frequency distributions. However, web-based surveys are open to anyone, and hence the group of respondents is always biased in one way or another. Further, since answering is voluntary in both web-based and posted surveys, responses are received mainly from people who are interested in the topic. (See more in detail Saariniemi, 2018; Umander et al., 2018.)

3 Social relations – a cornerstone of the SLO

According to the social capital approach, good social networks and reciprocity create value as well as other capital, such as money (Putnam, 1993; Putnam & Goss, 2002). Also in the SLO literature, a company's investment in good host community relations is regarded as an important component of local acceptance, which, in turn, is essential for the smooth running of business operations. As Prno notes, "A social licence to operate is built on relationships" (2013, pp. 585). Boutilier and Thomson (2011), for their part, address interactional trust by stating that companies and their management should listen, respond, keep their promises, engage in mutual dialogue, and exercise reciprocity in their interactions. According to two surveys conducted by Moffat and Zhang (2014), the quality of contacts and a positive and pleasant engagement with a company enhance trust – an idea that further supports the social capital approach.

In the questionnaires, the respondents in Storuman and Sodankylä were asked to evaluate the performance of the operating mining companies in terms of their engagement in developing the community, the sufficiency and reliability of their information, and the possibilities offered for local residents to participate in mining-related decision making in the municipality.

In Sodankylä, the respondents were to evaluate the performance of Anglo American (Sakatti project), Boliden (Kevitsa mine), and Rupert Resources (Pahtavaara mine). The chosen rating scale was 4–10. That scale has traditionally been used in Finnish schools and the respondents could be expected to be familiar with it.

Of the three companies, the weakest performer was Rupert Resources, which at the time of the survey in the beginning of 2018 was holding the Pahtavaara mine on standby. The mean rating was fair (6). At the time of the survey, Anglo American was conducting its environmental impact assessment for the Sakatti project, involving local people in the process. The company was assigned

a good grade (8) in reliability and sufficiency of information, activeness and timeliness of communication, and cooperation and interaction with the local residents.

Boliden, running the Kevitsa mine, received a satisfactory (7) grade in cooperation and interaction with the local residents, reliability and sufficiency of information, and activeness and timeliness of communication. When compared to an earlier survey done in the municipality in summer 2016 (Kuisma & Suopajärvi, 2017), the performance of all the companies was judged better and, accordingly, the acceptance of mining had strengthened. In 2016, around 80% of those surveyed accepted mining in the municipality, while in 2018, the figure was 85%. As all of the companies, especially Anglo American, have operated actively with local stakeholders, our Sodankylä case supports the results of Moffat and Zhang (2014). In other words, dense interaction and a well-functioning company–community relationship are important in gaining a social license to operate.

The most striking issue in the Storuman case was that when the respondents were to evaluate the three mining cases, a very high percentage chose not to respond to questions concerning company performance. In the Pauträsk case, with Dragon Mining's mine and processing plant, the share of respondents who evaded the questions related to company performance (for example the residents' opportunities to participate in the company's decision making and the reliability and the sufficiency of information) was 46–52%. In the Barsele case, with Agnico Eagle engaged in mineral exploration, the no-answer rate was 35–39%, and in the Högland case, with Tertiary Mineral planning to establish a mine, more than half of the respondents left no reply (54–60%). These rates are noticeably high in comparison to the generic questions on mining and its impacts, where the share of those who did not reply was only a few percent. That said, it seems that the residents were not differentiating between the companies and were expressing their general perceptions about mining. Also, the companies operating in the area had failed in their communication and in efforts to build a relationship of trust with the local residents. In addition, the majority of those who responded to the questionnaire argued that the companies' engagement in developing the municipality was weak. Finally, the reliability and sufficiency of information was deemed weak in all the cases, although the companies should have recognized that communication is an integral part

of building social capital and gaining a social license to operate (e.g., Boutillier & Thomson, 2011; Moffat & Zhang, 2014; Prno, 2013).

In general, the social acceptance of mining was high in Sodankylä, and the performance of the mining companies was considered relatively good. In Storuman, the respondents were not able to evaluate the performance of the mining companies. Because of a lack of communication and interaction, the companies were simply placed in a single ‘mining industry’ category.

4 Local context matters – different situations and perceptions on mining developments

The SLO literature is mainly focused on communication and interaction between company and community (e.g. Moffat & Zhang, 2014; Parsons et al., 2014, Mercer-Mapstone et al., 2014, Zhang et al., 2018). The social capital approach opens up a topic related to social networks that is perhaps equally important as company–community relations, namely, the altering effect of mining-based industrial development on the host community itself (Putnam & Goss, 2002, 13). This theme is also important in gaining local acceptance of mining, as evidenced by case studies comparing traditional mining communities and localities where mining is a new industry (Koivurova et al., 2015; Lesser et al., 2017; Poelzer & Ejdemo, 2018).

In Sodankylä, more than half of the respondents (54%) were between 40 and 59 years of age, and roughly two-thirds (68%) were employed. Around 80% reported that they had a good social network in the locality and that they felt comfortable living there. Mining’s effect on the social life of Sodankylä had been positive, as the majority of the respondents (60%) said that it had increased their opportunities to establish new and meaningful relationships. More than 60% also stated that mining had contributed to the coziness of the place. In general, mining was perceived to have had a positive impact on the atmosphere of the locality. Sodankylä Municipality is on its way to becoming a mining community, as 39% of the respondents reported that they or someone in their household had a job connected to mining. More than 70% also stated that mining had improved the municipality’s image.

Nevertheless, the highest level of the SLO, identification (Boutillier & Thomson, 2011), had not

been reached yet. A majority (70%) of the in-migrated employees at the Boliden Kevitsa mine had settled in Sodankylä, but they had not yet been accepted as locals – for example, they were sometimes referred to as “miners” (Suopajärvi, 2017). The local residents and the mineworkers live side by side, but they do not form a coherent mining community yet. Further, a local movement against the Sakatti project was launched in January 2017. The movement is against mining in nature reserves, such as the Viiankiaapa mire, which is part of the European-wide Natura 2000 protection programme. The respondents in Sodankylä were therefore asked whether mining had split the residents into two camps. One-third (32%) had not recognized such development, but 44% agreed that mining divided opinions and had weakened the atmosphere of the community. Hence, there may be mining-related issues that cause conflicts of interests regardless of the general acceptance of mining, as “residents are rarely an homogenous group” (Vanclay et al., 2015).

The situation was very different in Storuman, where mining had gained no foothold in the community. Most of the respondents were aged, as 60% of them were in their sixties or older. Slightly more than half (52%) had lived in the area for more than 30 years. More than 80% stated that they had a good social network consisting of friends and relatives in the village, and 91% responded that the village was a pleasant place to live in. In the small villages of Storuman Municipality, people seem to have *bonding ties*, which means strong ties between people who are alike. *Bridging ties*, on the other hand, develop between people and groups who are different and whose ties are not that dense, close, and strong (Granovetter, 1973; Putnam & Goss, 2002). Based on the questionnaire, the villages in Storuman were considered safe havens, in other words familiar and cosy places to live in. The mining companies were regarded as intruders, representing the outside world that is becoming increasingly globalized, uncertain, and unpredictable (Beck, 1994). In line with this notion, a quarter of the respondents (26%) stated that mining had had an adverse effect on the atmosphere of the village and almost an equal number (30%) said that the atmosphere had actually become worse. Overall, 43% stated that mining operations are not acceptable, while slightly fewer than 30% accepted mining operations in the region. (See also Beland-

Lindahl et al., 2018.)

Social capital is typically portrayed in positive terms, but it may also happen that it does not bring common good to the local community. If strong ties, defined by frequency of contact and proximity, only exist between a company and community leaders, it may give rise to suspicions among other residents (see Granovetter, 1973; Putnam & Goss, 2002). Even if the municipality negotiates with the mining company about building infrastructure, roads, and services with an attempt to vouch for the common good, it may be interpreted as pro-mining cabinet politics. This perception may well prevail because municipal leaders in remote regions struggling with unemployment and out-migration tend to be more positive toward mining than the local residents are (Suopajärvi et al., 2016). When negotiations are limited to the leaders of a municipality, this may create divisions in the community (Boutilier, 2014; Lesser et. al., 2017) and compromise institutionalized trust, that is, the perception that the relations between stakeholder institutions and a company are “based on an enduring regard for each other’s interests” (Boutilier & Thomson 2011, pp. 4). These doubts became evident in Storuman.

When the survey was launched in January 2017, people with a critical attitude toward mining wrote a number of comments against it on social media, arguing that the municipality would use the survey to legitimize mining. Although it was not the municipality’s intention, the criticism pointed out that people were not satisfied with the municipality’s effort to listen to its residents and their concerns about mining activities (Umander et al., 2018). Apparently, the negative stance originated from the opponents of mining in the western part of the municipality, where the Rönnbäck mine had stirred up criticism (Beland-Lindahl et al., 2016). In the eastern part of the municipality, the respondents reported that the ties between the municipality and the mining companies were not very strong. Only 18% reported that the linkages between the two are too strong, which indicates that the criticism in social media did not come from the eastern research area.

In both surveys, the respondents noted that it is not easy to take part in the decision-making processes related to mining. In Storuman, less than one-tenth (9%) and in Sodankylä less than one-fifth (19%) responded that such participation is easy. Almost half of the respondents in

Storuman (45%) and Sodankylä (46%) stated that the mining-related decision-making processes are not comprehensible. The results support the earlier study conducted in Storuman, where respondents noted that the processes are not democratic, open, equal, or inclusive (Beland-Lindahl et al., 2016).

To sum up, the respondents in Sodankylä stated that mining had a positive effect on local life. In Storuman, the respondents reported that mining had deteriorated the social climate. In both cases, the decision-making processes related to mining were considered difficult, even non-democratic.

5 Trust – generalized and earned through company performance

In general, the social capital approach aims to distinguish between trust earned through social relations and generalized trust in a system or organization. For example, Putnam (1993) defines generalized trust as trust in the authorities, the state, and so on. Trust is needed in the complex relations of modern society, as there are many situations where you simply have to trust that the authorities are following the law and that fellow citizens behave according to norms (Putnam, 1993). Luhmann (1979) refers to confidence instead of trust when addressing social order and social systems. According to him, anyone who trusts a system places the trust in the functioning of the system, not individual persons. In fact, generalized trust or confidence is invested in organizations and systems *despite* the fact that they are composed of individuals who make human decisions.

The questionnaires addressed generalized trust in the authorities, law, and legal decisions because they form the general frame within which mining companies implement their mining projects.

Despite the strong acceptance of mining in Sodankylä, almost half of the respondents (44%) stated that environmental permits are given to projects on meagre grounds and two-fifths (40%) said that they did not trust the authorities' assessment of the environmental impacts of mining. Similar findings have been made for example in the Academy of Finland's programme *Mineral Resources and Material Substitution*, according to which nearly half of the Finns (45%) do not trust the authorities in charge of mining-related environmental decisions (Jartti et al., 2017). The results of

the Storuman case do not stray far from the above. Two-fifths (41%) of the respondents said that the environmental authorities are not trustworthy in monitoring the impacts of mining and two-thirds (67%) reported that mining-related legislation should be tightened even if it decreased foreign investments. The results are interesting, as people in Finland and Sweden typically think that the state authorities follow the law and act in a trustworthy manner (Rothstein, 2002; van Oorschot et al., 2006). On the other hand, although people in general trust the authorities in both countries, they are more pessimistic about environmental decision making and less likely to place their trust in it (Jartti et al., 2017; Saariniemi, 2018). The reasons for this difference are yet unknown, but they may have something to do with the problems that the respondents have faced in taking part in mining-related decision-making processes.

Trust between a company and a community is an elementary part in gaining a SLO. Interactional trust, the perception that the company listens and respects the community (Boutilier & Thomson, 2011; Jijelava & Vanclay, 2017), is built on good contact quality (Moffat & Zhang, 2014). The more positive the community members' experiences of dialogue and procedural fairness are, the more likely it is that the company is trusted and its operations accepted (Mercer-Mapstone et al., 2018). In the Sodankylä survey, trust in the local operators also played a noteworthy role. Trust in Anglo American and Boliden was rated good (8) and trust in Rupert Resources was rated fair (6). Actually, the highest ratings were given to trust (or credibility, as in Finnish they are synonymous) in the companies, not in their performance, as shown by the following figure.

Figure 1. Project-specific assessment in the mining cases of Sodankylä.

It may come somewhat as a surprise that people rate trust higher than actual co-operation with the companies. This unexpected behaviour may be explained through the concept of trust itself: trust is always about probability and uncertainty related to future activities or behaviours (Luhmann, 1979; Putnam, 1993; Sztompka, 1999). Consequently, if one can be sure that, for example, a company

does what it says, there is *no need* for trust. Trust is needed in situations of probability, where the actions of others are unpredictable and uncontrollable (Sztompka, 1999). The relatively strong trust in Boliden and Anglo American may result from the fact that more than one-third of the respondents or their household members were working for the companies. On the other hand, Boliden may be seen locally as a saviour of the Kevitsa mine, which was on the brink of insolvency under the ownership of First Quantum Minerals (YLE, 2016). After buying the mine, the company has developed its production and reported of large investments (YLE, 2018), which probably strengthened the respondents' trust in continued operation. Further, Anglo American has made it clear that prospecting the mineral deposit in Sakatti is one of the company's leading projects (Jokela, 2018). Both companies have worked in Sodankylä for more than a decade, and it seems that they have earned the trust of the majority of the local residents in the process.

6 Local expectations and benefits – the most important aspect of the SLO?

Local acceptance is a result of expectations and the actual outcomes at the local level (Moffat & Zhang, 2014). High expectations met with poor results may lead to dissatisfaction that eventually ruins the foundations of a social license to operate.

In Sodankylä, the respondents reported that mining had increased their opportunities to establish new and meaningful relationships (60%), improved the atmosphere in the community (78%), and contributed to the amenity of the locality (70%). Hence, mining had positively affected the residents' perceptions of Sodankylä's social life. In addition, the respondents saw that mining had improved municipal and private services (57% and 62%), increased educational possibilities (68%) and opened up work and career opportunities (87%). In addition, a large majority stated that mining had benefitted the local economy (86%), and over a half said that it had not impaired other livelihoods (56%). In general, the respondents considered mining important for the vitality of the municipality (84%).

In Storuman, the general message was that mining had not affected local life. The majority of the

respondents replied that mining had not had an impact on the public services (59%) and half (50%) said that there were no effects on private services either. Compared with Sodankylä, the number of people reporting positive developments was smaller and the opinions were divided. Less than half of the respondents (44%) noted that educational, work, and career opportunities had improved, while two-fifths (41%) stated that mining had had no impact whatsoever. The local benefits of mining were also assessed in a variety of ways: roughly one-fourth (28%) said that the local economy had benefitted from the industry, but an equal proportion (30%) estimated that there were no such benefits. The rest of the respondents said that they were unaware of the benefits or gave a neutral reply. Overall, half of the respondents (49%) said that mining was not essential to the vitality of the municipality. In an open-ended question about the positive impacts of mining on the respondents' own lives and future possibilities, more than one-third (35%) replied that there were none.

Another message from the Storuman survey was that there was a great deal of concern about environmental degradation and its consequences, such as losing the possibility to engage in hunting, fishing, berry picking, and other recreational outdoor activities. A large majority of the respondents (73%) said that mining had harmed the environment in the municipality and an even larger majority (86%) stated that they regarded mining as a threat to the landscape. The respondents also said that animals and plants (83%) as well as water systems (83%) had been compromised. In an open-ended question on the negative impacts of mining and its threat to human life, environmental concern was expressed in many ways. The respondents showed concern about contaminated water, pollution and reduced possibilities to engage in outdoor activities. The villagers in Storuman responded that they valued the environment very much. Nearly all of the respondents (92%) said that they were very satisfied with their opportunities to engage in outdoor activities. The importance of clean nature was expressed clearly, and mining was characterised as a threat.

In Sodankylä, environmental concern was not as great as in Storuman, but also there, people said that they appreciated the environment because of its recreational value (93%). Half of the respondents (49%) said that mining had impaired the state of the environment and nature in the municipality. On the other hand, one-fourth (27%) replied that mining had not changed the environment. The sources of concern noted the most frequently were changes in the landscape (19%) and impacts on water (15%). Nevertheless, the majority of the respondents (58%) replied that regardless of the environmental threats, the expansion of mining in Sodankylä is acceptable. In sum, the respondents in Sodankylä stated that mining activities had improved the local economy and the social atmosphere. In Storuman, opinions were divided, and only a minority of the respondents noted that mining had had positive impacts on local life.

7 Discussion

In line with the concept of social capital (Putnam, 1993), a company can gain a social license to operate by creating reciprocal relations with the host community and thereby consolidating the trust of the local residents. This result will eventually lead to cumulative positive effects on wellbeing in the community. However, our study indicates that this line of reasoning is too simplistic. In addition to good company performance and interaction with the local community, there are other factors contributing to local acceptance.

Nonetheless, company performance does matter. As strongly pointed out in the SLO literature, a company's continued efforts to engage in open dialogue with the community is important to local acceptance (e.g., Moffat & Zhang, 2014; Prno, 2013; Thomson & Boutilier, 2011). Our case studies also show that the presence of a company in the local community is important. For example, the respondents in Storuman were not able to evaluate the performance of the local mining companies, which one can surmise is because they did not know what the companies were doing in general or which specific company was doing what. Some would argue that this lack of knowledge about the companies reduced local acceptance of mining more in Storuman (43%) than

in Sodankylä (85%). The difference may also be attributed to the phases of the mining operations in both communities. Instead of actual mining operations, Storuman had various projects in the prospecting or planning phase. Several companies have operated in the area, but apparently, no long-term interaction has occurred between the industry and the local residents. In fact, the local people did not seem to know exactly which companies were operating in their neighbourhood. In Sodankylä, the Kevitsa mine has been operative since 2012, and Anglo American has been prospecting and developing the Sakatti project since 2011 (Koskela, 2018; Jokela, 2018). Thus, mining and mineral prospecting have been visible in the local and regional media and part of the local life for a decade or so, which is why people know about the developments in both projects.

According to the research literature on the SLO, trust is important in gaining local acceptance, but opinions vary on whether it is *a condition* of good relations between a company and its host community (Boutilier & Thomson, 2011) or *a result* of good relations (Moffat & Zhang, 2014) or both.

Boutilier and Thomson (2011, pp. 4) cite a difference between legitimacy and trust. According to the authors, trust requires that a company exhibit reciprocity in its interactions and that the relations between the company and the community be “based on an enduring regard for each other’s interests”. Moffat and Zhang (2014, pp. 68) argue that trust results from contact quality and procedural fairness – from a feeling that people are heard and listened to and that the company acts on their concerns. Hence, trust emanates from shared experiences and social relations and is, essentially, a prerequisite for the SLO. But perhaps trust could be something more?

Sztompka (1999, pp. 25) argues that “trust is a bet about future contingent actions of others”.

Consequently, trust is based on expectations in a situation where there is no certainty of how others will act and what the results will be. It means “committing ourselves to action with at least partly uncertain and uncontrollable consequences” (ibid, pp. 26). According to this definition, trust in fact entails more than a company’s perceived reciprocal and responsive action. In the Sodankylä project

assessments, “trust in the company” was indeed rated higher than “company performance” in connection with information sharing and participation opportunities. Putnam (1993) argues that trust is a *moral resource* for co-operation and that it is fostered by norms and networks. Hence, trust may arise not only from previous experiences of interaction with a company, but also from its reputation and stories spreading by word of mouth.

One facet of the issue of trust is that the local benefits of mining and their fair distribution also influence the trustworthiness of the industry (e.g., Jartti et al., 2017; Prno, 2013). The reported positive impacts of mining in Sodankylä – the vitality of the municipality, better public and private services, educational opportunities, and work and career opportunities – have improved the overall local acceptance of mining. In Storuman, on the other hand, the majority of the respondents failed to see any impacts of mining on their locality and everyday life. Instead, mining was mainly regarded as a risk for the environment and recreational life, which were highly valued by the residents.

Mining also changes communities. In roughly a decade, mining has become Sodankylä’s largest private-sector industry. New people have moved in, and hence the atmosphere in the community has started to change. Nevertheless, Sodankylä is not yet identified as a mining community and the ties between the local residents and newcomers are not very strong (Suopajärvi, 2017). From the perspective of social cohesion, stronger bridging ties between locals and “miners” would be important, as they enable diverse groups to meet and get to know one another (Putnam & Goss, 2002; Van Oorschot et al., 2006). In Storuman, most of the respondents were elderly people who had lived in the area most of their lives. Mining may be seen there as an intruder, threatening the small and cosy villages that are regarded as safe havens far away from the outside world. Based on the survey, relatives and friends in Storuman have bonding ties that by definition are quite strong, close, and protective (Putnam, 1993; Putnam & Goss, 2002; Van Oorschot et al., 2006).

A social license to operate is not gained in a vacuum. Socio-political legitimacy (Boutilier & Thomson, 2011) or legitimacy in its various other forms (see Jijelava & Vanclay, 2017), especially in reference to environmental legislation and authorities (Litmanen et al., 2015), is needed for generalized trust (Luhmann, 1979; Putnam, 1993; Sztompka, 1999). In Scandinavian countries such as Finland and Sweden, generalized trust is strong, even when compared with other European countries. This can be explained by the countries' wealth and dominant Protestant culture (Van Oorschot et al., 2006). However, based on the surveys of this study, there are serious doubts concerning environmental legislation and authorities in both countries. Almost half of the respondents in both municipalities reported that the environmental authorities were not monitoring environmental impacts effectively enough and that mining-related legislation and decision making should be enhanced. The imbalance between generalized trust in the state and mistrust in the environmental authorities is an issue that requires further research.

8 Conclusions

This article aims to broaden the prevailing discourses on the social license to operate and the local acceptance of industrial operations, including mining. Our study comprised two surveys: one made in Storuman Municipality (Sweden) and another made in Sodankylä Municipality (Finland). Several mining and mineral exploration companies have been operating in both municipalities and there are mines in various phases of operation. In Sodankylä, mining was widely accepted (85%), whereas in Storuman, fewer than one-third (30 %) of the residents considered mining acceptable. Based on our findings, company performance does matter, but it is far from being the only condition of a social license to operate. For example, trust plays an important part in gaining the license, but it does not arise solely from sufficiency of information and participatory possibilities. In the Sodankylä case, trust in the companies was graded higher than company performance. This may be due to the reputation of the companies, their contribution to the economic development of the region, and the

positive impacts of mining on local life. The majority of respondents in Sodankylä said that mining had improved municipal and private services as well as the residents' educational, work, and career opportunities. According to these respondents, mining had also benefitted the local economy and contributed to the vitality of the municipality. In Storuman, the situation was quite the opposite, as roughly half of the respondents stated that mining had not affected the public and private services or the vitality of the municipality at all. Furthermore, almost one-third of the respondents reported that the local community had not benefitted from mining and that people instead were very concerned about the environment.

Our study shows that further research is needed to understand the process of advancing local acceptance of mining. Furthermore, the social capital approach may provide useful insights into understanding the different facets of the SLO. Besides company–community relations, there are other, equally important factors. The historical path and social fabric of the community, the phase of mining in the locality, the reputation of the operating companies, generalized trust in the regulatory framework, and distributional justice are all building blocks of the social license to operate.

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