

Sound Mining in the North

A Guide to Environmental Regulation and Best Practices Supporting Social Sustainability

Kai Kokko, Anniina Oksanen, Sanna Hast, Hannu I. Heikkinen, Helka-Liisa Hentilä, Mikko Jokinen, Teresa Komu, Marika Kunnari, Élise Lépy, Leena Soudunsaari, Asko Suikkanen and Leena Suopajärvi



Project financiers:

Tekes – the Finnish Funding Agency for Technology and Innovation
European Union, ERDF
Agnico-Eagle Finland Oy
The Municipality of Kittilä
The Municipality of Kolari
The Municipality of Muonio
Northland Mines Oy
Ylläksen Matkailuyhdistys ry (Ylläs Tourism Association)
Levin Matkailu Oy (Levi Tourism Ltd.)

Tekes



Euroopan unioni
Euroopan aluekehitysrahasto



METLA



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Cover photography: Mikko Jokinen
Back cover photography: Aki Ollikainen
Editors: Kai Kokko and Anniina Oksanen
Layout: Jouni Hyvärinen and Anne Siika
Translation: Aimo Tattari

Electronic version: ISBN 978-951-40-2464-1 (PDF)

Foreword

The project Different Land-Uses and Local Communities in Mining Projects (DILACOMI) has attracted a great deal of attention in the media even before publication of its final results.

The interest can be explained partly by the fact that the project did not focus on internal mining processes. Instead, the emphasis was on how mining affects local land use and communities and how regulation and best practices can be used to steer mining toward social sustainability. The project also addressed the reconciliation of livelihoods such as tourism and mining. In my view, the project has advanced an informed discourse particularly among mining projects in Lapland.

Although a single research project cannot provide final solutions, the other authors and I hope that this guide will assist a variety of stakeholders in pursuance of sound mining in the North.

The DILACOMI project has successors; other social scientific projects within the Tekes Green Mining Programme have followed suit, and to my delight, the work on socially sustainable mining also continues in the various other projects of the DILACOMI research group. Moreover, this English version of the guidebook can be used in a comparative analysis of the project Sustainable Mining, Local Communities, and Environmental Regulation in the Kolarctic Area (SUMILCERE).

DILACOMI is a successful consortium of individual projects carried out by the University of Oulu, the Finnish Forest Research Institute (Metla), and the University of Lapland.

The following professors and researchers, with whom I had the privilege to co-author this guide, deserve the greatest merit of successfully completing the project: Helka-Liisa Hentilä, Hannu I. Heikkinen, Élise Lépy, Leena Soudunsaari and Teresa Komu (University of Oulu); Mikko Jokinen and Sanna Hast (Metla); Asko Suikkanen, Leena Suopajarvi, Marika Kunnari and Anniina Oksanen (University of Lapland). Oksanen has also effectively coordinated the project as a whole. I wish to express my deepest gratitude to you all, as well as to all other researchers and individuals in various institutions, for your contribution to this project!

In order to succeed, this type of a research consortium needs to be in continuous contact with surrounding society and stakeholders. Such interaction was carried out in the DILACOMI project by an active steering group. In addition to the representatives of the consortium institutions, the steering group included Anita Alajoutsijärvi / Heino Alaniska (Agnico-Eagle Finland Oy), Heikki Havanka (Municipality of Kolari), Casper Herler (Attorneys at Law Borenius, Ltd.), Timo Jokelainen (Lapland Centre for Economic Development, Transport and the Environment), Joanna Karinen (Ylläksen Matkailuyhdistys ry), Katariina Palola (Municipality of Kittilä / Kideve), Anna Mäkelä (Municipality of Kittilä), Joanna Kuntonen-van't Riet / Miia Mikkonen (Northland Mines Oy), Leena Lehtoruusu (Municipality of Muonio), Terho Liikamaa (Tukes), Petri Muje (Tunturi-Lapin osaamiskeskus – Rurapolis Tunturi-Lapin kehitys ry), Anne Ollila / Marja Anttonen (Reindeer Herders' Association), Maria Petterson (Luleå University of Technology), Risto Pietilä (Geological Survey of Finland, GTK), Harry Sandström (Spinverse Oy / Green Mining), Veli-Matti Tarvainen (Association of the Finnish Extractive Resources Industry), Jussi Töyrylä (Levin Matkailu Oy), and Maija Uusiusuo / Riitta Lönnström (Regional Council of Lapland).

In addition, the steering group has given invaluable comments on the Finnish draft version of this guide. But, in accordance with academic requirements, the authors are solely responsible for its contents. Some of the steering group members have also been members of the project's executive group. Tekes has been represented in the executive group first by Tapani Peura and later by Kari Ruokonen. I extend my warm thanks to all the steering and executive group members for their conversational and constructive collaboration during the project and to Aimo Tattari for translating this guide into English. And finally, I want to thank each and every financier mentioned at the beginning of the guide. Without your contribution to this project we would know considerably less about mining in terms of environmental regulation and best practices supporting social sustainability.

In Espoo, February 2014

Professor Kai Kokko

Director of the DILACOMI consortium



Figure 1. The old mining area of Hannukainen, the Yllästunturi fell and ski resort in the background. Photo: Lentokuva Vallas Oy / Northland Mines Oy.

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1 Expectations

What do local people think when a mine is about to arrive in their neighbourhood?

Mining projects are unique owing to issues such as their location, the extracted ores, and the method of implementation. The empirical results of the DILACOMI project are specifically related to an operating gold mine Suurikuusikko (or the Kittilä mine) located about 20 km from the Levi ski resort in Kittilä and the Hannukainen mine about to be reopened about 8-10 km from Ylläs in Kolari with a wider opencast mine and iron ore as the main product (Figure 2). Academic observations on the expectations of various stakeholders are presented further in this chapter.

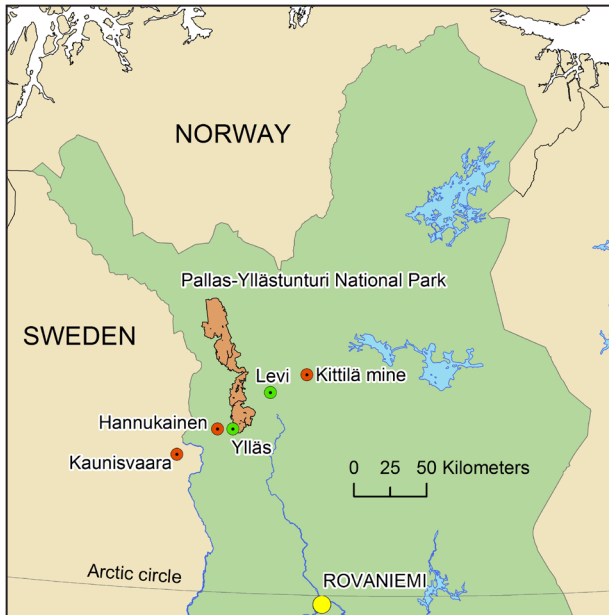


Figure 2. Kittilä, Hannukainen, and Kaunisvaara mining projects. Image: Mikko Jokinen.

People in local communities generally have a positive attitude toward mining projects and mining. The activity is expected to promote a person's own as well as other residents' wellbeing in northern mining municipalities. This holds true especially among permanent residents, whereas holiday residents are clearly more reserved. Regardless of the positive attitudes toward mining, there is one thing on which both permanent and temporary residents agree: Certain conditions must be set for mining before it can be considered acceptable (see Table 1 and Kunnari, 2014). These conditions concern both mining companies and municipalities.

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The conditions concerning mining companies relate specifically to employment: people hope that Finnish and local people are favoured over foreigners and non-locals when hiring workers. As for municipalities, the conditions relate to communication. Municipal authorities are expected to inform residents about all the identified effects of a mine as soon as the information becomes available. (Kunnari 2014)

In fact, being heard and receiving information significantly affect the attitudes toward mining in local communities. Attitudes are largely positive (at least consenting) if people feel that they can freely express their attitudes toward mining, they have been given sufficient information, the mining company operating in the area is trustworthy, and/or participation in social impact assessment has been easy. Cash collateral and an agreement securing aftercare and landscaping are also considered important. And further, mining companies should have an open communication policy regarding the impact of their operation and covering the entire life cycle of the activity. (Kunnari 2014.)

Acceptability of action:

1) Acceptability has two levels: individual and general.

At the individual level, acceptability is firmly based on mental images of an activity, experiences related to the activity, and a subjective preference that the activity either creates or does not create. At the general level, acceptability is based on advancing the common good of a community. It is easier for a community to accept an activity with maximized advantages and minimized disadvantages. Acceptability at the general level ensures the implementation of a project without significant social conflicts.

2) The act behind acceptability is acceptance, which differs from supporting.

Supporting can be thought of as promoting. Acceptance is more closely related to condoning and tolerating an activity.

3) The values prerequisite for acceptability include equity, trust, and usefulness.

An activity is acceptable when there is a mutual trust between the stakeholders (mining company, local residents, etc.) and when people feel that the benefits (e.g. economic) from the activity are divided equally between the stakeholders.

4) Acceptability is based on genuine interaction.

Such interaction builds on e.g. active communication about an activity, a freedom to express opinions, consideration of differing opinions, and sufficient possibilities to participate and influence.

5) Acceptability is an evolving process.

An activity may lose its acceptability at any point if its prerequisites and values are ignored. Trust and acceptability are hard to come by, but it is more difficult, at times even impossible, to regain them.

6) Acceptability is a precondition for the social licence to operate.

The social licence to operate is an instrument related to financing. It builds on the key concepts of local acceptance, operational reliability, and, finally, the trust created by an activity. The social licence to operate is weakly linked to environmental legislation, and it is in the first place a means of corporate self-regulation created by the international financial sector.

Data Frame 1. The acceptability of mining and its preconditions in local communities (Kunnari 2014).

During environmental impact assessment, people would like to see the knowledge of local communities utilized in the planning of mining activities and in the related decision making. Rather than being pure environmental data or scientific facts, such local knowledge often derives from regional experience on environmental and other conditions. In interaction between stakeholders, such knowledge is usually aimed at convincing the other parties about the validity of one's own view. Information gathered through environmental impact assessment is therefore semantic; its significance and truth value are debatable. (Kokko 2013.) Distrust will increase among local communities if people feel that local information is distorted for example in impact assessment or if it is completely ignored in the planning of activities, in the related decision making, or in supervision. In view of the social licence to operate, it is therefore important to earn and maintain the trust of local people in mining companies as well as in municipal and state authorities.

A municipality's expectations of an arriving mine

The mining-related expectations in municipalities focus on improved economy and employment. Municipalities consider this to be the most important social effect of mining. The Ministry of Employment and the Economy has commissioned so far the most extensive assessments of the economic impact of mining. (Hernesniemi et al. 2011 and Niemi 2011.) They have mostly comprised pre-evaluations of economic and employment effects that, in turn, have been calculated by employing models of local economy used in economics. The impact is presented as gross effects and often as cumulative effects. According to ETLA's report, for example, the growth of the metal mining industry in Lapland leads directly to an output of almost €600 million per annum at the end of this decade. Taking into account the indirect effects, the report states that the output of the province of Lapland will increase by up to €1.2 billion. The assessment includes the following mining projects in Lapland: Hannukainen, Kevitsa, Suurikuusikko, and the expansion of ferrochrome production at Outokumpu. The assessment points out that the employment impact of the growth of mining in Lapland will be at its height in 2014, in accordance with the development of the national economy. This means 3,000 new jobs in the region. (Hernesniemi et al. 2011.)

However, the pre-evaluations do not consider for example net effects or conditional effects at the municipal level. An equalization system is employed in the economic relations between the state and municipalities. According to the system, if a municipality benefits significantly from a mine's corporate tax, its state subsidies can be decreased accordingly. An example of this is the case of the municipality of Sotkamo and the Talvivaara mine.

In the Sotkamo case, the municipal tax revenue was assessed to be significantly higher than what it turned out to be since 2009. Accordingly, the employment situation has not improved as expected in Sotkamo or in other mining regions. Mines have not significantly decreased unemployment, especially long-term unemployment. It is difficult to find jobs for the unemployed and long-term unemployed living in the periphery. In fact, mine workers often commute to work from elsewhere. (Suikkanen 2012, 2013.) In this respect, mining companies have a special challenge to meet local people's expectations of being prioritized in getting a job.

Global mining corporations still have many ways to avoid corporate taxes. Thus, estimations on the positive effects of mining projects to the municipal economy and employment have been greater than what we have witnessed so far. This creates a substantial societal challenge because the justification of mining and the grounds for mining permits are based on such estimations. (Suikkanen 2012, 2013.)

Planning land use, infrastructures, and services (Data Frame 2), and making other investments in an area lead to disappointment and generate concrete costs in municipalities if the estimated economic and employment figures are overly optimistic. In fact, the factors of uncertainty in the socio-economic impact of mining on municipalities should be given special attention in the future.

Land use planning is planning that relates to a specific physical area and reconciles various functions (e.g. housing, jobs, services, production, recreational areas, as well as traffic and technical infrastructures). It is aimed to manage changing living environments and thereby to meet the needs generated by the activities of a community. Land use planning is done by public authorities (municipalities and regional councils), it is supervised by the ELY centres and the Ministry of the Environment, and its target-orientation, methodology, and statutory frame comply with the Land Use and Building Act (the LUBA 132/1999). The planning combines various – sometimes competing – land use needs (e.g. agriculture, forestry, nature preservation, recreational areas, tourist services, industrial activity, and mining) in such a way that it is in the public interest.

The public interest is the overall good of society and citizens; action benefitting as many as possible.

Land use plans are presented on maps indicating the boundaries of various area reservations. The maps also include a legend of the symbols used, written regulations, and a report which provides information required for assessing the aims and alternatives of the plan and their impacts as well as the justification of the decision taken. In addition, the maps show the legal consequences of planning.

Data Frame 2. Land use planning and the public interest.

In municipal land use planning, one must anticipate and analyse to a sufficient degree the environmental and socio-economic impact related to mining (see the LUBA 132/1999, section 9). In contrast to other industries, the location of a mine cannot be planned beforehand using conventional argumentation (e.g. placing a mine next to existing industrial facilities or infrastructure). The location of a mine becomes clear gradually through multi-phase geological studies and often a long period of exploration. Only a fraction of studied ore deposits become functioning mines; the odds are roughly one in a thousand. (Hentilä, H.-L. & Ihatsu, E. 2009, p. 16.)

Thus, mining projects contain various factors of uncertainty from the viewpoint of municipalities. How does a municipality arrange housing, services, traffic, and other technical infrastructure for the duration of a mining project in such a way that they remain functional after the project? In land use planning, reconciling a mining project and its impact requires close collaboration and a constant discourse between the municipality and the mining company as well as other stakeholders.¹

1 In the Oulu School of Architecture, mining-related effects on land use have been studied in pilot experiments that involve interactive land use planning. (See Hentilä, H.-L. & Soudunsaari, L. 2013 and Hentilä, H.-L. & Ihatsu, E. 2009.)

The stance of other businesses toward mining

In Finland and Lapland, mining usually takes place in regions with existing land use of some type. When realized, mining projects represent an extensive form of land use – some overlapping with other forms of local land use is therefore inevitable, which brings up the salient question of integrating the various uses of natural resources. Nature-related activities may be exclusive, independent, competing, or complementary in relation to one another. The relations between the various uses of nature dictate how they can coexist within a region. In practice, there is nearly always competition or overlapping between activities. On the other hand, the forms of land use within a particular area seldom cancel out or are totally independent of one another.

The multifaceted use of natural resources and the reconciliation² of livelihoods are central to land use planning. The idea of reconciliation has generally been linked to the local acceptability of land use projects and to the socially sustainable use of natural resources; it is found in legislation regulating land use planning and, on the other hand, it is considered to be the basic guideline in other planning practices as well (as in natural resource planning carried out by Metsähallitus). On the one hand, this has increased the representation of stakeholders taking part in project planning, and on the other hand, it has functioned as a tool of justifying the planning process.

Reconciliation is also involved in settling legal contradictions. General and private interests in the use of natural resources are controlled and reconciled through a planning procedure complying with section 8 of the Land Use and Building Act, and through other judicial means. Perhaps the most important of them are agreements made by operators to settle conflicts between forestry and reindeer husbandry / tourism.

Judicially, the right to use natural resources is often based on the ownership and control of an area. In practice, the owner has a restricted right of use on the basis of environmental protection or other issues based on the public interest. Also minerals are considered to be of such general interest that land owners only in principle have a right to them. A mining permit (or a decision on the concession of a mining area in accordance with the old Mining Act 503/1965) is the decisive document granting a party other than the owner the right to exploit a mineral deposit. In practice, such a claim-based right of another party may lead to overlaps between the livelihood of the owner or possessor and the mining activity (see e.g. the Supreme Administrative Court, KHO 2008:10).

Livelihoods based on rights of use belonging to other parties than the owner may exist in the area of a mining project. Not all of these rights can be derived from the ownership of an area. Such livelihoods are for example reindeer husbandry or berry picking based on the public right of access.

The main legal tool in reconciling livelihoods is agreement. Agreement negotiations are facilitated for example by a cadastral certificate that lists issues restricting the land owner's competence of agreement, such as the area of the real estate, the purpose of use of the real estate based on the local detailed plan, certain restraints, easements, usufructs and restrictions comparable to easements and established in a procedure analogous to a real estate formation procedure, and special interests. A certificate of easements can also be useful in the negotiations because

2 Coordination of varied forms of land use and the idea of using natural resources in a variety of ways have stemmed from multi-functional forest use planning and expanded into a general guideline in all land use planning. (See e.g. Kangas & Kokko 2001; Eisto 2004.)

it reveals the encumbrances on real property: mortgages, special interests, statutory liens, and restrictions of property use rights. (Kokko 2012.)

Agreement also requires observing the rights of the parties of agreement as well as the rights of third parties. (Tammi-Salminen 2007, Kokko 2012.) It also requires observing, case-by-case, the natural resource-related restrictions on the freedom of contract (see Data Frame 3) because the transfer of an area or natural resources does not grant the acquirer more extensive rights than the transferring owner has. In Data Frame 3 the owner-related restrictions are presented from weaker to stronger.

Natural resource-related restrictions on the freedom of contract

- 1) *actual authority to public use resting on general grounds, such as general use based on water rights legislation, everyman's rights, and general fishing rights*
- 2) *authority to public use resting on special grounds, such as general fishing rights based on the municipality of residence or the protection of Sámi culture*
- 3) *rights deriving from the legal status of various types of owners, such as easements or special benefits, or other rights resting on special grounds, such as usage from time immemorial*
- 4) *the rights of a party deriving from joint ownership*
- 5) *statutory protection of the public interest, such as general and special restraints based on public law, general duties, and other special regulations and*
- 6) *statutory protection of the private interests of third parties, such as nuisance restraint as well as the protection of professional fishing, fishing tourism, mining rights, and neighbour's rights.*

Data Frame 3. Natural resource-related restrictions on the freedom of contract (Kokko 2012).

Reconciling diverse livelihoods is strongly linked to social sustainability and equity, and it cannot be achieved without understanding the various ways to utilize natural resources. Sustainable development is typically associated with the ecological, economic, social, and cultural dimensions, of which the two former ones often dominate societal discussions. Cultural and social sustainability are strongly interlinked. Social sustainability requires that development reinforces people's life management and living conditions as well as maintains their identity and the possibilities to construct it. Societal equity is an integral part of this. In practice, social sustainability should always be examined at the local level, and one should try to understand its specific local dimensions and contents.

A socially (and culturally) sustainable development project should enhance or at least maintain e.g. the following: residential influencing possibilities, employment, work conditions, development of the skills of local work force, possibilities for continuing and developing business activities, recreational possibilities, local well-functioning social systems, continuation of local values and way of life, and preservation of landscape and cultural attractions. And in addition to employment, one should observe the diverse meanings and values attached to the living environment. (Cf. Rannikko 2004, pp. 128–130.)

It is essential to understand the relations between forms of usage when adjusting a new line of business to a context in which nature is already utilized in many ways and when a number of social and cultural meanings and values are involved. One of the preconditions for social sustainability is to secure the continuity of existing local livelihoods and the possibilities for operational development. A planning process can be considered socially sustainable when the ecological, economic, and social elements of sustainability form a well-functioning whole at the end; when the activity is responsible with respect to other stakeholders; and when the stakeholders are willing to negotiate and commit themselves to constructive cooperation. Other business operators' expectations on mining relate to equality between contracting parties, social sustainability, and fair treatment for example in land use planning.

How do societal expectations manifest themselves?

Society expects both tax revenue and responsible action from mining projects. The frame of social and environmental responsibility in mining is set by legislation. As an example, responsibility for the environment is considered in section 20 of the Constitution of Finland (the CF 731/1999) in connection with the fundamental rights concerning the environment:

- “Nature and its biodiversity, the environment and the national heritage are the responsibility of everyone.”
- “The public authorities shall endeavour to guarantee for everyone the right to a healthy environment and the possibility to influence the decisions that concern their own living environment.”

Environmental responsibility also applies to businesses. The responsibility is implemented through ordinary legislation and divided into responsibility under private law, public law, and criminal law. The fundamental rights concerning the environment emphasize everyone's possibility to influence decision making concerning their living environment through ordinary legislation. Therefore, environmental regulation sets various types of requirements, related to for example local participation, on socially sustainable mining.

The legislative frame of social and environmental responsibility is supplemented by good governance and self-regulation carried out by mining companies. The DILACOMI project has studied the practices supporting social sustainability and environmental responsibility in the activities of the Hannukainen (Kolari) and Suurikuusikko (Kittilä) mines. And further down in the text, experiences of the social licence to operate acquired from the Hannukainen project will be described. These experiences are presented bearing in mind future mining projects.

What is the perspective of this guide and what is it based on?

The goal of this guide is to promote the planning and implementation of sustainable mining. To this end, the above-mentioned expectations of various stakeholders were recognized and used as a basis for writing the guide. During the writing process, however, it turned out that it is not rational to address every issue from all of these viewpoints. The viewpoint therefore changes by chapter – even within a chapter. We rely on the reader’s ability to decide which part of the book to read. Hopefully, the guide assists in planning socially sustainable mining and proves to be useful to people dealing with mining in companies, municipalities, state authorities, and civic organizations.

The guide is based on the research results of the DILACOMI project. It is not aimed to reiterate information published in earlier guides on mining. Rather, it is an independent source relying on research knowledge and promoting socially sustainable mining.

Chapter 2 describes the phases and responsibilities of a mining project and the ways in which they are linked to administrative processes. Thereafter, Chapter 3 provides a closer look into the environmental legislation that forms the regulative frame within which social impact is basically assessed and stakeholders are heard in mining projects. Chapter 4 focuses on the connection between social impact assessment, the acceptability of mining, and the social licence to operate. As noted before, local communities set special conditions regarding appropriate mine closure and aftercare measures. Chapter 5 examines mining from this particular viewpoint. Chapters 4 and 5 are supplemented by the research results of the DILACOMI project received from an international comparison. Chapter 6 builds on the preceding chapters and contains recommendations for practices supporting the social sustainability of mining. Finally, Chapter 7 sums up a few observations of high importance.

2 The phases and legal responsibilities of a mining project

The phases of a mining project

Implementing a mining project that has a significant impact requires reconciling of land use planning, assessment of environmental and social impact, and various permit processes. Project planning and processing involve a number of stakeholders and authorities. The processes and phases of a mining project must be interlinked in a timely manner in terms of scheduling, combining of work phases, and, especially, producing and retrieving information. This also allows one to view the project as a whole, particularly from the perspective of local residents, and improves the opportunities for participation.

In general, the phases of a mining project are ore exploration, project development and research, ore production, mine closure, and aftercare. The purpose of ore exploration and the related geological measurements is to find a deposit enabling economically viable mining. The exploitability of a deposit is assessed through a number of studies and methods (e.g. drilling, test mining, and test processing). The studies may take years, even decades. The future of a project is influenced by the worldwide demand for raw materials, world market prices, and financing. After feasibility studies a decision is made to start mining activities (also referred to as the mining decision). The length of the production phase (mining, transportation, and beneficiation) is determined by the size and quality of the deposit and by the world market price of ore. The production phase may last from less than ten years to several decades. Exploring and classifying new raw materials is part of mining. Aftercare is an integral part of mine closure, and it may take several years. (See e.g. Heikkinen et al. 2008.) Mining may be cyclic. A deposit that has been deemed unprofitable or a mine that has already been closed may be found profitable owing to new economic, technical, and scientific circumstances. (Hentilä & Ihatsu 2009.) However, not all mines will be restarted.

Ore exploration and mining activity are regulated by the Mining Act (the MA 621/2011), which defines the rights to explore, examine, and exploit minerals in the bedrock. According to section 7 of the Act, the so-called general exploration right entitles anyone, even on another's land and without a separate permit or landowner's consent, to conduct geological measurements and observations and to take minor samples, provided that this does not cause any damage. One may reserve an area by making a reservation notification, but it does not entitle to ore exploration, for which an exploration permit must be acquired. An exploration permit allows closer measurements of a deposit on one's own or someone else's land in terms of quality, extent, exploitability, etc. A mining permit is required for exploiting a deposit. It entitles one to establish a mine and to start mining activities. (The MA 621/2011, chapters 2 and 3.)

Mining permits are generally processed and granted by Tukes (the Finnish Safety and Chemicals Agency). When granting a permit, Tukes requests opinions regarding the permit application from the municipality of the target area, the ELY centre, the regional council, and other required parties (e.g. the Sámi Parliament and reindeer herding cooperatives). The parties concerned may lodge objections to the permit; other parties may state their opinion. The owner of an ore exploration permit must provide collateral for potential damage or inconvenience and for carrying out after-care measures. Also the owner of a mining permit must provide collateral covering mine closure and after-care measures. In addition, mining activity is subject to the collateral stipulated in the environmental permit. The collateral issues are discussed in more detail in chapter 5. Permits complying with the Mining Act require annual reporting of activities to Tukes. (Tukes 2013.)

Establishing a mine and engaging in productive activity require a mining safety permit granted by Tukes. Claiming the right to use land for mining activity and as auxiliary areas to a mine is managed by the Council of State, which makes a decision about a redemption permit for the rights. The permit is enforced in the proceedings establishing a mining area, unless the areas or the rights of use concerning them have otherwise been acquired by the mining company e.g. through a voluntary purchase. The proceedings of establishing a mining area are carried out by the land survey office of the target area. (The MA 621/2011, section 33, chapters 8 and 12; Tukes 2013.)

A mine entails a large number of other permits, and the competent authority must always be determined case-by-case. For example, building permits required for mining are granted by the building supervision authority of the municipality in question (the LUBA 132/1999, sections 124 and 125).

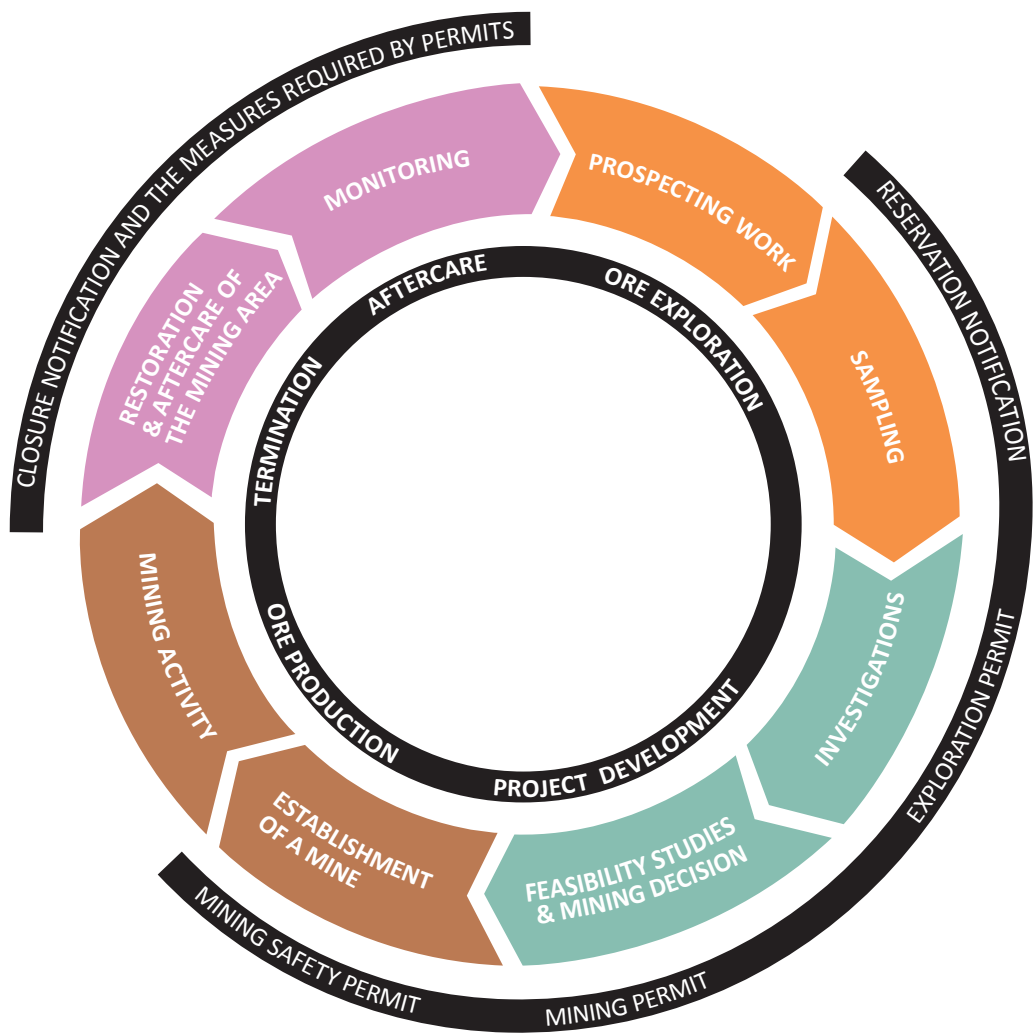


Chart 1. The main phases of mining and mining permits. Chart: Leena Soudunsaari, Helka-Liisa Hentilä, and Anniina Valjus.

The mining permit expires when mining activity ends. If the mining permit has been issued for a fixed term, it expires at the end of the term unless the term is extended in accordance with section 63 of the Mining Act. No later than within two years of the termination of mining activity, the mining operator shall restore the mining area to a condition complying with public safety; ensure its restoration, cleaning, and landscaping; and perform the measures specified in the mining permit and the mining safety permit. (The MA 621/2011, chapter 15; Tukes 2013.) The planning of mine closure and aftercare measures is discussed further in chapter 5.

The phases and their links to the legal frame and liabilities

In Finland, the Mining Act forms the legal frame of a permit to engage in mining activity, but it also contains regulations related to the environmental responsibility and occupational safety issues of a mining company. In addition, other environmental legislation has further provisions on the environmental responsibility of mining projects. (See e.g. Kauppila et al. 2011, p. 41 and Chart 2.) Chart 1 contains examples of the policy instruments (discussed further in the next chapter) complying with the Mining Act. It does not contain policy instruments complying with the Land Use and Building Act, the Act on Environmental Impact Assessment Procedure (the EIA Act 468/1994), and the Environmental Protection Act (the EPA 86/2000).

Public law-based regulation concerning environmental protection and land use planning is only part of the regulative frame governing the environmental responsibilities of mining. When planning mining activities one must consider, as far as possible, various situations of responsibility that may arise from private law-based (e.g. neighbour relations and environmental damage indemnification) and criminal law-based regulation (e.g. impairment of the environment). The overall scheme is supplemented by mining companies' self-regulation and good governance that should be based on the principles of corporate governance³ and environmental protection (Chart 2).

The environmental liability of companies is usually associated with social responsibility. However, not all types of social responsibility link with justice. The dimension of social responsibility has been considered to encompass four categories: economic (be productive), legal (obey the law), ethical (be just, fair, etc.), and philanthropic (be communal and enhance the quality of life). (Carroll 1979 and 1991.) Hereafter, we will focus on the legal system.

First, in the national and legal context, the social and environmental responsibility of mining companies lies in a domain formed by basic and human rights⁴ stated in international treaties and the Finnish Constitution, including for example environmental responsibility provided in section 20.1 of the Constitution. Second, the background of legal responsibility is formed by the EU's Charter of Fundamental Rights⁵, treaties⁶, and legal acts (regulations, directives) and decisions issued within their authority. In addition, the implementation of international environmental law in the EU and Finland as well as international corporate self-regulation shape the regulative frame of the social and environmental responsibility of mining companies.

3 The term *corporate governance* refers to the governance and internal steering system of a corporation.

4 For example the European Convention on Human Rights (63/1999).

5 Charter of Fundamental Rights of the European Union (C 364/1), 18 Dec. 2000.

6 Treaty on the European Union, TEU, and Treaty on the Functioning of the European Union, TFEU, (C 326) 26 Oct. 2012.

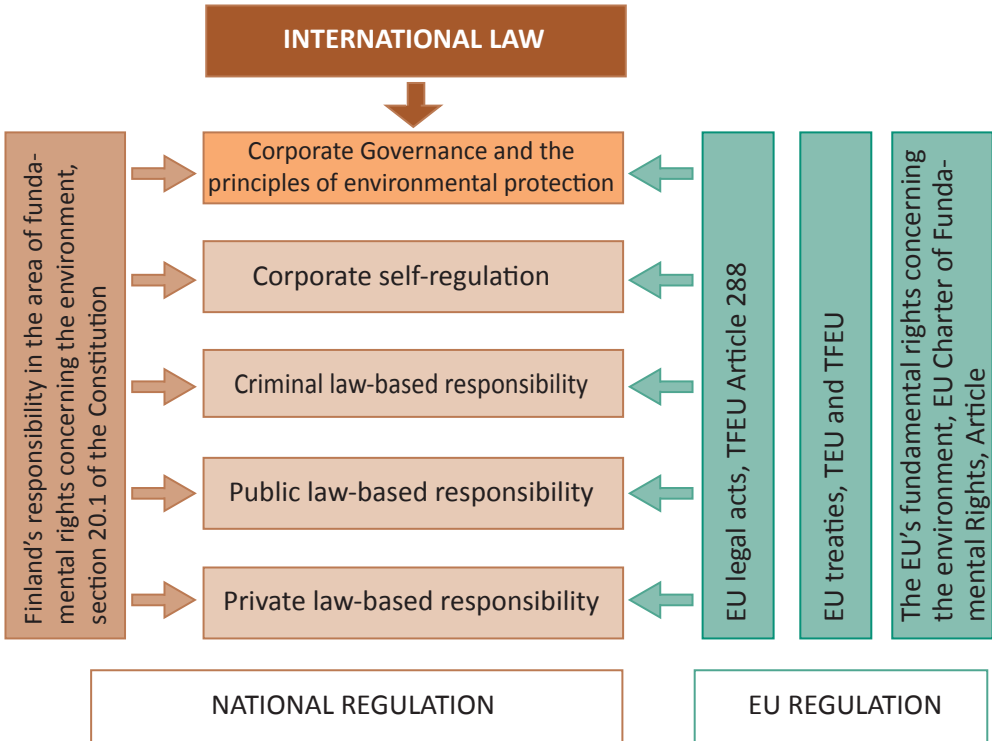


Chart 2. The legal frame of corporate environmental responsibility (Kokko 2013b).

3 Environmental regulation: key proceedings and hearing before decision making

What are the preparations for the proceedings and who will be heard?

It is essential to genuinely hear various stakeholders and the public in order to gain local acceptance for a mining project. The success of a hearing may be enhanced by observing the following:

1) What does this particular hearing phase entail?

Hearings are arranged in the various phases of the planning and implementation process of a mining project. An essential part of a hearing is to recognize the role of the party to be heard and the purpose of each phase of the hearing. For example in EIA, the arrangements of the assessment are the first topic of hearing (assessment programme phase) and only thereafter, at the end of the process, the assessment results (assessment report phase). Hearings and opportunities to participate are also arranged in the different phases of land use planning.

2) What information is relevant to the decision at hand?

To succeed and to be noticed, an objection or opinion must be presented to the proper authority not only in the appropriate phase but also in connection with the relevant permit (or other decision). For example, it is advisable to present environmental data on water pollution control in a hearing concerning the combined environmental protection and water permit, but this data is of less importance when handling building permits.

3) How should one schedule the hearings related to a mining project?

A party concerned, an interested party, or another natural or legal person (Data Frame 4) who wishes to express his/her/its opinion during hearing proceedings may request instructions from an authority on the proceedings in question and on other proceedings in terms of progress, schedule, and possibility to lodge an objection or state an opinion. According to section 8 of the Administrative Procedure Act (434/2003), an authority is obligated, within its competence, to provide the necessary advice to its customers and to respond to their questions. One may also request information for example on the progress of EIA proceedings from the project developer.

According to section 39 of the Mining Act, before making a decision on a matter concerning an exploration permit, a mining permit, a gold panning permit, and a redemption permit for a mining area, the permit authority shall reserve an opportunity for the parties concerned to lodge objections concerning the permit matter. The parties concerned are those whose interests, rights, or obligation the matter may concern. The concept of parties concerned cannot be interpreted too strictly in hearings preceding these decisions; instead, the starting point should be the entire area of impact. In practice, the parties concerned may include e.g. the owners and possessors of real estate in an exploration area, a mining area, and an auxiliary area to a mine, as well as the owners and possessors of real estate in neighbouring areas. In a reindeer husbandry area, also herding cooperatives may be parties concerned. Also parties other than those concerned must be reserved an opportunity to express their opinions on a matter concerning an exploration permit, a mining permit, or a gold panning permit. A reasonable time limit in view of the nature of the matter shall be specified for filing objections and expressing opinions. The hearing must not be arranged during a typical vacation period, for example in July.

The public means one or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organizations or groups. (Aarhus Convention, Article 2, paragraph 4 and SEA Directive 2001/42/EC, Article 2, paragraph d). According to the act on the assessment of Government plans and programmes (the SEA Act 200/2005), the public means private persons, their associations and groups, and communities and foundations. There is no corresponding definition in the Act on Environmental Impact Assessment Procedure (468/1994), in which the concept of participation rather refers to an extended definition of a party concerned.

The public concerned means the public affected or likely to be affected by, or having an interest in, the environmental decision-making; for the purposes of this definition, non-governmental organizations promoting environmental protection and meeting any requirements under national law shall be deemed to have an interest. (Aarhus Convention, Article 2, paragraph 5.)

An interested party means, in land use planning and in hearings on planning, landowners in the area and those on whose living, working, or other conditions the plan may have a substantial impact, and the authorities and corporations whose sphere of activity the planning involves. (The LUBA 132/1999, section 62.) This is a suggestive definition, and should therefore not be used to restrict public participation, particularly in an area where a mining-related plan may have significant effects. The definition should be in line with the definitions of the public and authorities stated in the SEA Directive. (Kokko 2007.)

According to section 6.1 of the Administrative Judicial Procedure Act (the AJPA 586/1996), any person to whom a decision is addressed or whose right, obligation, or interest is directly affected by a decision may appeal against the decision as **a party concerned**. The Supreme Administrative Court has interpreted the concept of interest in such a way that for example environmental protection organizations have had, subject to certain conditions, the right of appeal (KHO 2007:74). The concept of party concerned has often been broadened in environmental legislation. For example, section 97.1 of the Environmental Protection Act (86/2000) states that the right of appeal applies to persons whose rights or interests may be affected by the matter. More recent environmental legislation also states that alongside the parties concerned, the right of appeal has been given separately to e.g. environmental protection organizations. Therefore, it has not been necessary to settle their right of appeal by interpreting the concept of parties concerned.

Data Frame 4. The public, an interested party, and a party concerned (Aikio & Oksanen 2014).

In accordance with section 37 of the Mining Act, the permit authority requests a statement on a permit application for example from the municipality of the area of activities and from the ELY centre of the region where impacts may arise. The permit authority is also obligated to acquire the other statements and reports that are necessary in view of permit consideration.

The new Mining Act also has provisions on clearing a matter in the Sámi Homeland, Skolt area, and special reindeer herding area (see 621/2011, section 38). In these areas the permit authority shall establish the impact of a planned project in cooperation (an obligation to clear and negotiate) with the Sámi Parliament, the local reindeer cooperatives and authority or institution responsible for management of the area, and the applicant. (See also Paliskuntain yhdistys 2013, Kokko 2010, and Aikio & Oksanen 2014.) In large mining projects this work is supported by environmental impact assessment.

This obligation to clear and negotiate matters should be realized through interaction with the local administrative authorities. Also in this case, one-sided hearing is not enough. According to section 50 of the Mining Act, an exploration permit, mining permit, or gold panning permit must not be granted if activities under the permit alone, or together with other corresponding permits and other forms of land use, would cause harm to or impair the existing living conditions as stated in this Act. It is a question of managing the entirety and reconciling different interests in an area where traditional methods are used in earning a living and where customary law is still valued. The role of local expertise is emphasized for example in reindeer herding. (See Paliskuntain yhdistys 2013.)

The land use plans concerning a mining project are made through interaction between the interested parties (Data Frame 4). The interested parties may include the following: land owners, private persons affected by the land use plan, branches of municipal government (e.g. technical, environmental, industrial, social, educational, and recreational), state authorities, residential and environmental associations, village committees, people working in the planned area, and entrepreneurs. The interested parties may also include neighbour municipalities and their residents if a plan extends across municipal borders.

Environmental legislation requires five types of active interaction between authorities, operators, and the public (see e.g. the LUBA, section 1 and 6 and Chapter 8 and the EIA Act, section 2.1, subsection 7). The purpose of hearings will not be achieved without reacting on and replying to objections and opinions. Thus, one-sided reception of information with no genuine interaction essentially does not suffice to promote the reconciliation of interests and the exchange of information between parties. Active interaction must be invested in, especially from the viewpoint of the social licence to operate (Data Frame 5 and chapter 4).

Active interaction does not mean the creation of participatory possibilities only. It also calls for the utilization of surveys and other active methods of interaction whenever necessary.

Local residents and other public concerned may be encouraged to actively engage in project planning for example by establishing a steering group or interest-specific groups.

One may request information from the authorities and the project developer to learn a part of the participation process or the overall hearing procedure. The project developer's role in communication and guidance is emphasized when one wants to exceed the statutory minimum requirements of public participation.

Instructions on voluntary hearings must be also provided in such a way that opinions and objections are presented at a correct project phase and that they concern, wherever possible, matters relevant to the project planning and the project-related decision consideration.

Data Frame 5. Active interaction.

The environmental impact assessment procedure (EIA) in mining projects

Scope of application

The environmental impact assessment procedure shall be applied to a project or a material alteration to a completed project which on the basis of international agreements, for example the Espoo Convention⁷, requires an assessment or which may have a significant adverse environmental impact due to the special features of Finland's nature and environment (the EIA Act 468/1994, section 4.1) Further provisions on projects are listed in section 6 of the Decree on Environmental Impact Assessment (the EIA Decree 713/2006). According to the list, mining projects in which metal ores or other mining minerals are mined, processed, and handled shall be assessed when the total amount of extracted material is at least 550,000 tonnes per year or when the mine concerned is an open-pit mine with an area of more than 25 hectares. In addition, a mining project entailing mining, processing, and handling of uranium, excluding test mining, test processing, and other comparable handling, shall always be submitted to the assessment procedure.

In accordance with section 4.2 of the EIA Act, the assessment procedure may in an individual case be applied discretionarily to a project or to a material alteration of a completed project that will probably have significant adverse environmental impact comparable in type and extent to that of the projects listed above, also taking into account the combined impact of different projects. The EIA Decree provides further criteria that are to be considered especially when applying the evaluation procedure in an individual case.

Environmental impact has been outlined as a broad concept for assessing various types of projects, covering social impact as well (Data Frame 6). Its final scope in individual projects is determined by delimiting the implementation options during the assessment process.

Environmental impact means the direct and indirect effects inside and outside Finnish territory of a project or operations on

- a) human health, living conditions and amenity,
- b) soil, water, air, climate, vegetation, organisms, and biological diversity,
- c) the community structure, buildings, landscape, townscape, and the cultural heritage,
- d) utilization of natural resources, and
- e) interactions between the factors stated in points a–d above. (The EIA Act 468/1994, section 1.)

In this definition, **social impact** as a concept falls under point a.

Data Frame 6. Environmental impact and social impact.

Timing, assessment documents, and hearing

The environmental impact of a project must be assessed before any action relevant in terms of environmental impact is taken to implement a project and, at the latest, before an authority

⁷ Convention on Environmental Impact Assessment in a Transboundary Context (SopS 67/1997).

makes the decision required for implementing the project. The assessment commences when the project developer delivers the assessment programme to the coordination authority. This is done at the earliest possible phase of project planning so that the assessment can support the planning. The programme supports the assessment and acts, after getting the opinions and statements of other parties and the statement of the coordination authority⁸, as a basis for determining the project options to be assessed and the overall frame and limits of the assessment.

The assessment procedure comprises several phases and methods (see e.g. Kokko 2007, Appendices 3 and 4) through which the gathered information is entered into the assessment report.

According to section 11.1 of the Act on Environmental Impact Assessment Procedure, the coordination authority shall see to publication of the assessment report through immediate public announcement for a period of 14 days in the municipalities of the project's probable area of impact. The public announcement must also be published electronically and at least in one newspaper in general circulation in the area of impact. In addition, the coordination authority ensures that the necessary statements are requested on the assessment report, an opportunity is reserved for expressing views, and the municipalities of the area of impact are heard (the EIA Act 468/1994, section 11.2). Finally, the coordination authority concludes the assessment by providing its own statement.

Two statutory hearings shall be arranged in the environmental impact assessment of a project (see Chart 3). In practice, mining companies have voluntarily arranged more than two hearings. In addition, the assessment report has been discussed with the cooperation authority prior to the final version. It would be advisable to develop the Act into this direction (Data Frame 7). In any case, the cooperation authority has a central role in assuring the quality of assessment.

Proposal to amend the Act on Environmental Impact Assessment Procedure

It is recommendable to amend section 11 of the Act on Environmental Impact Assessment Procedure in such a way that opinions and statements are first given on the assessment report proposal, after which the project developer finalizes the assessment report and describes the changes made on the basis of the opinions and statements. The coordination authority would then give a statement on the final assessment report in accordance with the present practice.

Proposal to amend legislation concerning decision making

The transfer of environmental knowledge in decision making could be enhanced through sufficient resourcing and by considering the authorities as a neutral body that coordinates information. Also, the possibilities of authorities to request a statement from universities and other expert institutions could be developed and expanded further.

Data Frame 7. Developing the EIA procedure and knowledge consideration (Kokko 2013).

⁸ The coordination authority is the centre for economic development, transport and the environment (ELY centre) or, in nuclear energy issues, the Ministry of Employment and the Economy.

Consideration of assessment in decision making

A public authority may not grant a permit for implementation of a project or make any other comparable decision before it has obtained an assessment report and the coordination authority’s opinion on it. A permit or comparable decision on a project shall state in what way the assessment report and the coordination authority’s opinion on it have been taken into account (the EIA Act 468/1994, section 13).

Other provisions on the consideration of assessment have been given in various acts pertaining to official decisions. The contents of consideration are defined by the prerequisites for decision making provided in special enactments. For example, the Environmental Protection Act focuses on pollution prevention aspects in the conclusions of assessment. The assessment of social impact can be observed e.g. in mining permit consideration because section 48.2 of the Mining Act states that a mining permit cannot be granted if the mine causes highly significant detrimental environmental impacts, or substantially weakens the living conditions and industrial conditions of the locality, and the said danger or impacts cannot be remedied through permit regulations. As for the authorities making decisions concerning a project, their role as parties coordinating environmental knowledge could be strengthened further through legislation (Data Frame 7).

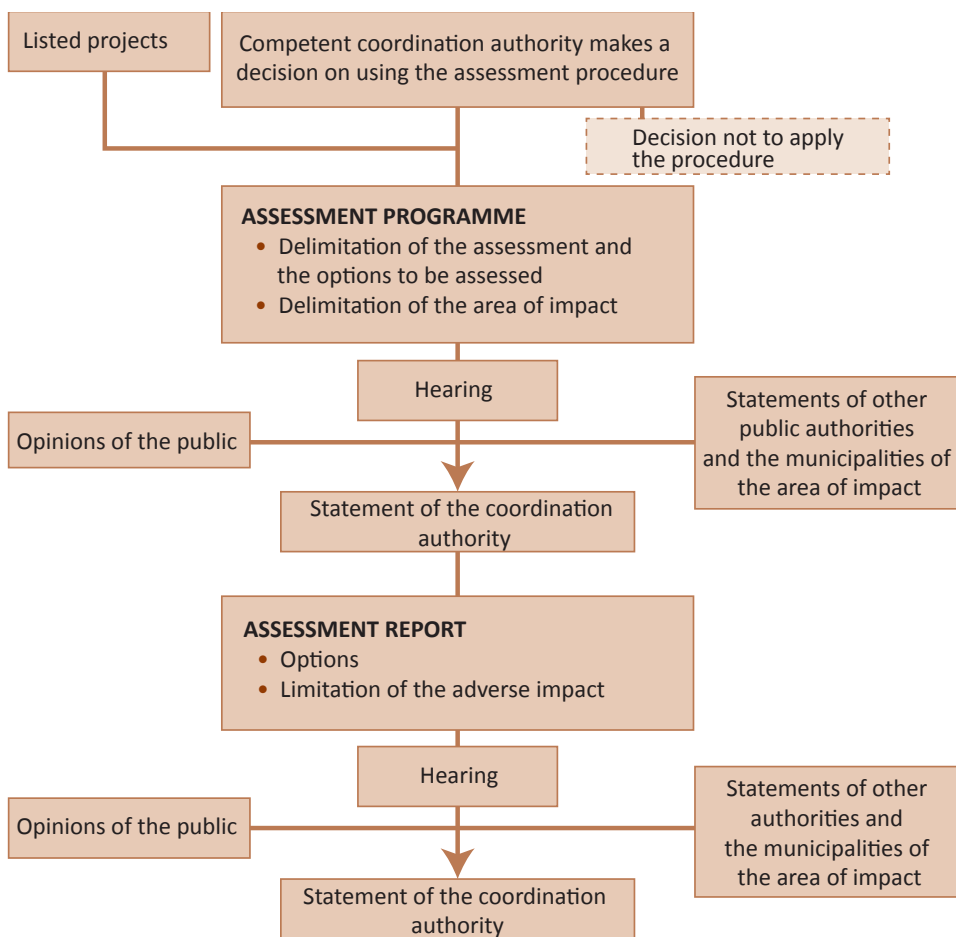


Chart 3. EIA procedure of projects (the EIA Act, chapter 2 and Pölonen 2007, p. 47).

Duty to be aware of impact

Even if a mining project is not subjected to the environmental assessment procedure, the project developer must obtain sufficient information about the project's environmental impact, on the scale that can reasonably be required. Thus, the project developer is bound by section 25 of the Act on Environmental Impact Assessment Procedure regarding the duty to be aware of impact which has been of relevance e.g. in considering the prerequisites for a claim. (See KHO 2008:10.)

Also, according to section 5.1 of the Environmental Protection Act, operators must have sufficient knowledge of their activities' environmental impact and risks and of ways to reduce harmful effects (knowledge requirement). Section 6 of the Mining Act has provisions on the general mining principles that must be adhered to. That section also includes the above-mentioned, more generally formulated knowledge requirement. (The MA 621/2011, section 6.1, subsection 2.)

When will there be a separate Natura assessment and what does it consist of?

Chapter 10 of the Nature Conservation Act (the NCA 1096/1996) has provisions on the protection of the Natura 2000 network. This protection encompasses a safeguarding mechanism for ecological value, covering the assessment of the impact of projects and project plans as well as a restraint on deteriorating any ecological value to be protected (Chart 4). Exceptions to the deterioration restraint are possible by Council of State decision (the NCA 1096/1996, sections 65 and 66). The assessment of the Natura network (Natura assessment) is, as a rule, an independent procedure in mining projects. But in practice, it is often done in connection with the environmental impact assessment procedure. This assessment may also be required when assessing the impact of a mine-related land use plan.

The assessment is typically carried out prior to making mining-related permit decisions. After the assessment, the permit authority must request a statement on it from the centre for economic development, transport and the environment (ELY centre) and the authority in charge of the nature conservation site in question. When issuing its statement the ELY centre examines the various project options from the viewpoint of the deterioration restraint. The deterioration restraint described in section 66.1 of the Nature Conservation Act is interpreted in light of the Habitats Directive (92/43/EEC) and the fundamental rights concerning the environment (section 20 of the CF 731/1999). If there remains factual uncertainty in the assessment on the impact of a project, it is weighed in light of the precautionary principle. After the decision, no reasonable scientific doubt should remain about an adverse impact on ecological value and, in the same vein, about detrimental effects on the integrity of a Natura 2000 site. (Kokko 2013, p. 313–314.) The statement should also point out if one of the project options requires an exception to be made and, especially, if the Council of State is not likely to grant one. In addition, potential required compensation measures should be foreseen to enable the project developer to prepare for costs arising from them.

On the basis of assessment, hearings, and statements, the authority making a permit decision determines whether the decision can be made without an exception granted by the Council of State. Regarding the interpretation of Article 6, paragraph 3 of the Habitats Directive, it may also be necessary to hear the public in a separate Natura assessment. The hearing may also be arranged as part of the permit procedure. If the assessment is part of the Environmental Impact Assessment Procedure or land use planning, the public will be heard in that context.

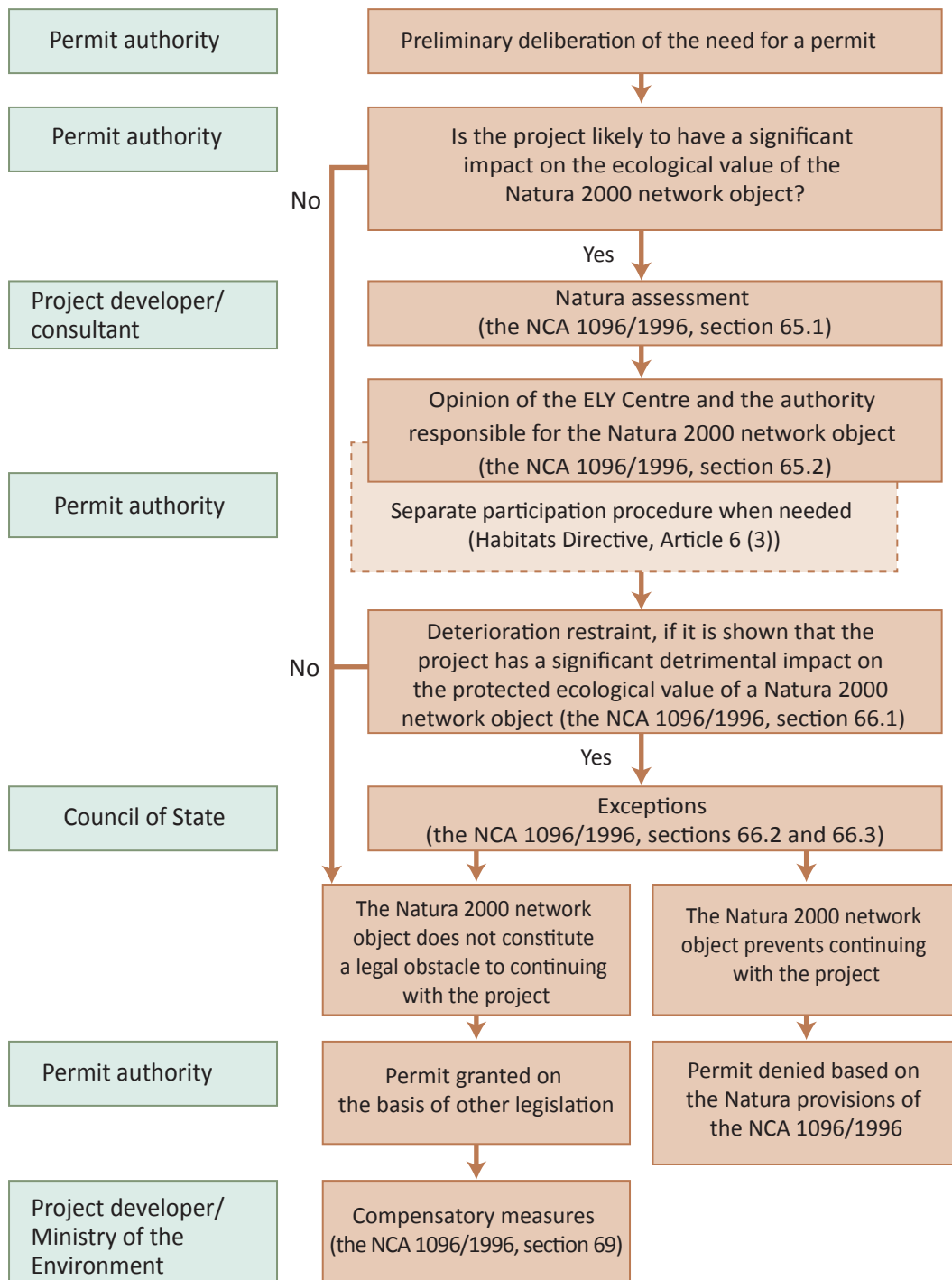


Chart 4. Natura assessment and permit decision (Kokko 2013, p. 301).

The Council of State may grant an exception to the protection of a Natura 2000 site if a project or a plan thereof must, in the absence of alternative solutions, be carried out for imperative reasons of overriding public interest. If a region contains a priority habitat as specified in Annex I of the Habitats Directive or a priority species as specified in Annex II, then stricter requirements for exception may be set in accordance with section 66.3 of the Nature Conservation Act. Ex-

pansion of the Kevitsa mine is a good example of how the safeguarding mechanism functions. When the project was planned, the Natura assessment was annexed to the assessment report indicating the following in terms of project option no. 2:

“It is not possible to definitively exclude the fact that the measures in question would not in the foreseeable future have an adverse impact on the integrity of the Natura site and on the preservation of its ecological functionality. Based on the precautionary principle, the total impact of the project option on the habitat types and species serving as the grounds for conserving the Natura site is considered to be significantly adverse.”⁹

Based on what is stated above, implementation option no. 2 would most likely neither receive a permit from the authority nor be subject to a Council of State exception because option 1 of the project alternatives “would not, with this type of implementation, have significantly adverse effects on the habitat types or species or the Natura site as a whole.”¹⁰ Since alternative 1 was possible, further planning on the basis of option no. 2 was not realized pursuant to section 66 of the Nature Conservation Act.¹¹

What type of land use planning is involved in mining projects?

Land use planning procedures in practice

Land use planning encompasses detailed and strategic planning that outlines future development prospects and lines of operation regarding land use as a whole. The projects and plans of various stakeholders are integrated through strategic planning. An individual project may be large and its impact extensive (e.g. a mining project) or it may only bring a small change to the living environment. Less extensive projects are managed with local detailed plans, whereas the area reservations of projects with more significant effects are also included in local master plans and regional plans.

Land use planning is steered through national land use objectives (NLO)¹² adopted by the Council of State. The plan levels are hierarchically arranged: the tools of strategic planning, the NLO, and generic plans (regional plans, local master plans) steer lower-level and more detailed plans (local detailed plans). On the other hand, a detailed plan replaces and is legally more effective than a more generic plan. These instruments constitute the system of land use planning (the LUBA 132/1999, section 4 and Chart 5).

Regional plans are made and approved by a competent regional council and ratified by the Ministry of the Environment. Local master plans, which may also be drawn up by sub-area, are made and approved by municipalities. A number of municipalities may also draw up a joint master plan. It is approved by a joint body of the municipalities and ratified by the Ministry of the Environment. Local detailed plans steer the construction of areas at the local level. Local detailed plans are drawn up and approved by municipalities. Several local detailed plans and

9 Pöyry (2011): Kevitsa Mine expansion. Environmental Impact Assessment Report, p. 257–258.

10 Ibid, p. 257–258.

11 The opinion of the ELY centre of Lapland, pursuant to section 65 of the Nature Conservation Act and given on 15 July 2011, concerning the Natura assessment of Kevitsa Mine’s expansion project (LAPELY/242/07.01/2010), p. 20.

12 The national land use objectives (NLOs) relate to the environment, ecological and cultural values, environmental protection, natural resources, community structure, services, traffic, and the economy. Further information: Valtioneuvoston päätös valtakunnallisista alueidenkäyttötavoitteista (2000) (Council of State decision on national land use objectives). Valtioneuvoston päätös valtakunnallisten alueidenkäyttötarkoitusten tarkistamisesta (2009) (Council of State decision on reviewing the national land use objectives) URL: http://www.ymparisto.fi/fi-FI/Elinymparisto_ja_kaavoitus/Maankayton_suunnittelujarjestelma/Valtakunnalliset_alueidenkayttotavoitteet

Strategic, generic planning	National land use objectives - Approved by the Council of State
	Regional plan - Part of comprehensive regional planning together with the regional scheme and regional development programme - Made and approved by the regional council - Ratified by the Ministry of the Environment
	Joint master plan of municipalities - Approved by a joint body of the municipalities - Ratified by the Ministry of the Environment
	Local master plan - Made and approved by the municipality
Detailed (project) planning	Local detailed plan - Made and approved by the municipality

Chart 5. The land use planning system. Chart: Leena Soudunsaari and Helka-Liisa Hentilä.

master plans may be in force in a municipality. The present planning status is typically announced on a municipality’s web pages and in a planning review. More detailed provisions on the NLOs, land use plans, and their required contents regarding each plan type are laid down in sections 3, 4, 5, 6, and 7 of the Land Use and Building Act.

The land use plan types used in mining projects differ in practice depending on the characteristics of the individual project and on the municipal planning situation. Generic planning has a significant effect on the progress of a mining project because as opposed to detailed planning (e.g. local detailed plan), it is used to outline broader views on mining projects and ways to promote the arrival of mining projects in an area. (Hentilä & Soudunsaari 2013b.) How, then, should land use planning be carried out before granting a mining permit?

The relation between mining permits and land use planning

Section 47 of the Mining Act has provisions on the prerequisites for granting a mining permit, and according to subsection 4 of the same section, the relationship of a mining area and an auxiliary area to other land use shall be explained.

The Mining Act does not unequivocally refer to the level of planning applicable for settling mining-related land use requirements in relation to other livelihoods or housing. The primary instrument from the viewpoint of the Mining Act is the legally binding plan (regional plan, legally binding local master plan, or local detailed plan), but other solutions are also possible if certain rather strict conditions are met, provided that the impact of the mining activity is assessed to a sufficient degree in cooperation with the municipality, the regional council, and the ELY centre. In individual cases, only a decision concerning areas that require planning could be made, but in that case the scope of mining activity should be so small that it cannot be expected to create significant environmental or other adverse effects. Also, the need for reconciliation with housing and other livelihoods should not be extensive. (Aikio & Oksanen 2014.)

The generic nature of a regional plan renders the legal effects of area reservations very vague. A ratified local master plan should therefore be the starting point for land use arrangements in mining projects before granting a mining permit. For mining operators the master plan also means security because it addresses land use reconciliation issues more comprehensively than a local detailed plan. (Oksanen 2014.) A local master plan also leaves more room for changes when the planning of a mining project is still in progress. When the mining permit has been granted, the local detailed plan can then be used to specify for example the locations of buildings, tailings reservoirs, open-pit mines, and excess rock piles. Land use plans can also be altered if for example new deposits are found or the mining activity deviates from the planned use of land. It is, however, more time-consuming to change the local detailed plan than to apply for minor deviations from the master plan. On the other hand, it is possible to gain significant synergy advantages if the deposit is well-defined, the land area is owned by the mining company, and the project planning is well underway – provided that the environmental impact of the project together with the effects of the local detailed plan are assessed before applying for a mining permit. Thus, the timing and the level of detail in mining-related land use planning must always be settled case-by-case.

It is easier to predict the success of a mining project if one follows the land use planning situation and participates in the planning process of the target area. According to section 46.1 of the Mining Act, neither an exploration nor a gold panning permit shall be granted for an area where activities in accordance with the permit would impede the implementation of a legally binding plan. A municipality may also oppose the granting of an exploration permit for a valid reason deriving from land use planning (Data Frame 8). In this sense the influencing possibilities of a municipality are greater than what was provided in the repealed Mining Act. The above-mentioned does not mean that a municipality has a general right to prohibit ore exploration. However, when applying for an ore exploration permit it is wise to study the land use planning and other land use issues concerning the area to prepare for potential contradictions. It is also advisable to negotiate the matter at least with the municipality and the land owner.

The following can be considered as **valid reasons** to oppose a permit:

- pending land use planning specifying a purpose of use that would be impeded by ore exploration or gold panning,
- incompatible land use, land use already planned to be implemented, or some other land use requirement, or
- special ecological or cultural value.

Data Frame 8. Good reasons to prohibit the granting of an ore exploration permit.

Planning process, participation, and influencing

The municipal authority announces current planning projects for example in local newspapers, municipal web pages, and an annual planning review of all planning matters that are or will in the near future become pending in the local authority or the regional council (the LUBA 132/1999, section 7). The land use planning process has four phases: initiation, preparation, proposal, and approval.

Land use plans must be founded on sufficient studies and reports. When a plan is drawn up, the environmental impact of implementing the plan, including socio-economic, social, cultural and other impacts, must be assessed to the necessary extent. Such an assessment must cover the entire area where the plan may be expected to have material impact (the LUBA 132/1999, section 9). It is therefore advisable to combine, when possible, the land use planning process and the environmental impact assessment procedure of a mining project to enable concurrent hearings. The coordination authority, the local municipal planning authority or the regional council, and the project developer must in fact cooperate to a sufficient degree to integrate the assessment procedure and the planning process (the EIA Act 468/1994, section 5.1).

Plans must be drawn up through interaction between the parties of interest (see chapter 3). The planning process chart, below, contains statutory means of participation (e.g. plan proposal hearing, for more details see the LUBA 132/1999, chapter 8) as well as modes of participation that support and complement the interaction of various stakeholders (public events, public authority cooperation, etc.). It is possible to form a steering group or an interest-specific group consisting of varied stakeholders, as long as the arrangements do not contradict the requirements of chapter 8 of the Land Use and Building Act to provide possibilities for interaction in land use planning and its environmental impact assessment. (KHO 2011:86, see also Oksanen 2014.)

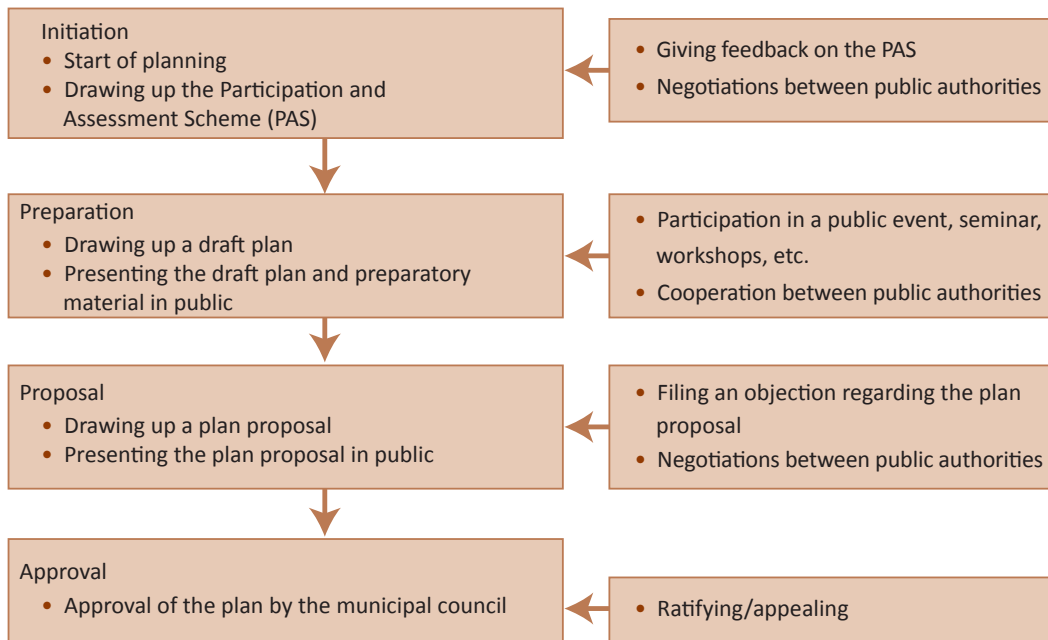


Chart 6. Land use planning process from the viewpoints of planning, decision making, and participation. Chart: Leena Soudunsaari and Helka-Liisa Hentilä.

The land use planning process is started by the local municipal authority’s decision to draw up or amend a land use plan (decision to initiate proceedings). The persons in charge of land use planning (e.g. architect or manager of technical services) define the preliminary planning objectives, the required analyses, and the scope of impact assessment regarding a project. They also draw up the Participation and Assessment Scheme (PAS) including a plan that covers participation and other interaction as well as impact assessment. The PAS also contains basic information on the land use planning process and its schedule (the LUBA 132/1999, section 63). The PAS is usually publicized concurrently with the announcement of initiated planning for example on the notice board of the municipality, in local newspapers, and on the web pages of the municipality. Interested parties may propose negotiations to the ELY centre if they consider the scope of the PAS to be inadequate (the LUBA 132/1999, section 64). The adequacy and realization of the PAS may also be addressed in negotiations between public authorities carried out in the initiation phase between the municipal planning authority and the ELY centre coordinator. (See the LUBA 132/1999, section 66, and e.g. Ympäristöministeriö 2007.)

In the preparation phase, land use planners elaborate on the objectives for example on the basis of feedback from the interested parties. They also collect and draw up reports on the planned area. Planners outline the principles of the land use plan, form various alternatives, and examine the significant effects related to their implementation. The preparation phase of the land use planning process is central to participation because it entails participation sessions (e.g. public event, seminar, workshop, walking tour in the planned area) and cooperation between public authorities as required by the significance and impact of the plan. Assessing the impact and comparing the alternatives serve as a basis for selecting the alternatives to be developed into draft plans, the impact of which will also be assessed. The draft plans and the preparatory material are publicized and the interested parties may state their opinions to the planner either orally or in writing. (See e.g. Ympäristöministeriö 2007.)

The planners analyse the feedback on the draft plans and materials, after which they start drafting a land use plan (a map, a legend of the symbols used, and written regulations) proposal as well as a land use plan report that describes the content of the plan. The plan proposal is presented in the municipality e.g. to the technical committee, and if the committee is in favour of the plan, it is presented in public for a period of 30 days. The public presentation is communicated at least in the local newspaper. Expert opinions on the plan proposal are requested when necessary (e.g. from the ELY centre, other public authorities related to the plan, and the salient communities). An opportunity to present a written objection about the plan proposal is reserved for the residents of the municipality and for the interested parties. The planning authority sums up the objections and opinions and decides whether it is necessary to revise the proposal. If a plan is important, negotiations between public authorities may be arranged after receiving the objections and opinions. The land use planner replies to the opinions and objections. (See LUBA 132/1999, section 65, and e.g. Ympäristöministeriö 2007.) A plan proposal shall be made available to the public again if it is materially altered on the basis of objections and opinions (Land Use and Building Decree LUBD 895/1999, section 32).

A plan proposal proceeds through the municipal board to the municipal council for approval. The decision to approve a plan must immediately be sent to those members of the municipality and to those objectors who so requested and provided their address while the plan was available to the public. In addition, the land use plan decision is publicized e.g. in a newspaper. A party that is unsatisfied with a decision is entitled to appeal the matter to the Administrative Court. Joint master plans as well as regional plans are appealed to the Ministry of the Environment, which ratifies these plans. The ELY centre may issue a written rectification reminder to a municipality about the approval of a land use plan. Depending on the court decision, the approval of a plan is publicized again after court proceedings. (See LUBA 132/1999, sections 67, 188, and 195 and e.g. Ympäristöministeriö 2007.)

A municipality must monitor its plans (e.g. local detailed plans according to the LUBA 132/1999, section 60, and the LUBD 895/1999, section 2) to ensure that they are followed and kept up-to-date and, when necessary, take action to revise outdated plans. A land use plan may be outdated e.g. because it has not been implemented or it has been implemented only to some extent. The surrounding conditions may also have changed e.g. in terms of traffic arrangements.

Mining-related permit procedures

Required permits and analyses

Before starting mining activities, permits complying with several acts must be applied for. The most important permits are an ore exploration, gold panning, and mining permit complying with the Mining Act (the authority: Tukes; see the MA 621/2011, chapter 5, and section 33 on licencing authorities); an environmental permit complying with the Environmental Protection Act (the authority: AVI; see the EPA 86/2000, chapter 3 on authorities and their functions); a permit regarding water resources management complying with the Water Act (the authority: AVI; see the WA 587/2011, chapter 1, section 7); various safety-related permits (the mining safety permit is issued by Tukes; see the MA 621/2011, section 122) such as those concerning handling of hazardous chemicals, handling and storage of explosives, and rescue plans (rescue authorities, see the MA 621/2011, section 115); safety reports and e.g. monitoring programmes concerning the safety of dams (the authority: ELY centre; see the Dam Safety Act 494/2009,

section 5). When needed, it is possible to apply for a redemption permit for a mining area from the Council of State. It grants the right to use a mining area and an auxiliary area to the mine (see the MA 621/2011, section 33.1). In addition, there must be building permits (municipalities) for processing, office, and other such buildings (see the LUBA 132/1999, section 125). When mining and enrichment operations are aimed at producing uranium or thorium, there must also be a permit complying with the Nuclear Energy Act (the authority: Council of State; see the MA 621/2011, section 33.1 and the NEA 990/1987, section 16). In this case the permit application pertaining to the Nuclear Energy Act and the mining permit application are processed concurrently (990/1987, section 23.3). The number of required permits varies according to the characteristics of mines.

The success of the permit applications and permit processes depends on project planning. If there are shortcomings in a permit application, the public authority must ask the operator to complement the supplied information. The permit process can be expedited through careful planning and by checking the statutory permit granting requirements. When applying for permits one must also find out what reports¹³ are needed so that the competent authority may grant the permits complying with statutory requirements. There are some issues to be reported in connection with all permits (Data Frame9).

Required report

A permit application must contain a necessary and reliable report concerning e.g. the following: the planned activity, its impact, the parties concerned, the existing land use planning status regarding the area, and possible assessments (EIA and Natura assessment). The required information varies according to the nature and scope of the planned activity and is specified in permit-related legislation. (See e.g. the MA 621/2011, section 34; Decree on Mining 391/2012, chapter 3; the EPA 86/2000, section 35; and the EPD 169/2000, chapter 3).

Data Frame 9. Reporting required for permits.

Participation in permit procedures

Permit procedures typically include a hearing process enabling the parties concerned and the public (Data Frame 4, chapter 3) to state their opinion on a project. In addition, opinions are requested from the local authorities, other authorities, and experts. The example used here is the environmental permit procedure (Chart 7).

The environmental permit procedure starts with an application that must be publicized by posting it for 30 days on the notice boards of the relevant municipalities. In large mining projects the actual time reserved for filing objections and expressing opinions has been 47–51 days starting from the beginning of publicizing the documents. (Oksanen 2014.) The application is complemented when necessary in negotiations with the regional state administrative agency (AVI). The regional state administrative agency then requests an opinion on the permit application from the municipality in which the activity referred to in the application is located, from the ELY centre in whose area of operation the environmental impact of the activity may arise, and, if necessary, from the municipi-

13 For example the Mining Act (621/2011), section 34; the Government Decree on Mining Activities (391/2012), chapter 3; the Environmental Protection Act (86/2000), section 35; and the Environmental Protection Decree (169/2000), chapter 3.

palties within the area of impact. The permit authority also requests an opinion on the application from the following:

1. environmental protection authorities in municipalities where the environmental impact of the activities referred to in the application may arise;
2. authorities protecting the public interest in the matter; and
3. other parties as necessary for due consideration of the permit.

The permit authority may also acquire other necessary reports related to the matter for example from the Finnish Environment Institute and other expert agencies (the EPA 86/2000, section 36 and the EPD 169/2000, section 32). Before passing a decision on a permit, the permit authority shall provide those whose rights or interests might be concerned (party concerned) with an opportunity to lodge an objection regarding the matter (chapter 3). In addition, persons other than the parties concerned shall be provided with an opportunity to state their opinion (the EPA 86/2000, section 37).

The permit authority may also carry out an inspection (judicial view) before granting a permit and reserve the project developer a possibility to be heard before passing a final decision.

The environmental permit can be processed jointly with the water permit. The decision is publicized properly and it may be appealed to the Vaasa Administrative Court (the LUBA 86/2000, sections 39, 53, 54, and 96 and 434/2003, the Administrative Procedure Act, sections 34 and 38).

It would be challenging, if not impossible, to present a universal chart on the phases of the permits required in mining projects. The chronological order may vary according to applicable legislation and appeals processes. Legislation does not have strict provisions on the order in which mining permits are applied for. In fact, it affords the necessary leeway to plan and implement mining projects. Owing to various factors, the procedures do not always progress linearly or according to schedule. It could even be disadvantageous for the schedule and project to be forced to wait for each subprocess to finish and to follow a preset order when changes occur during the application process. From this perspective, concurrent processes that are not tied to a set order are justifiable. A complex whole, however, tends to cause confusion and uncertainty among the public and does not always serve the desired purpose. It is therefore useful to continue looking for ways to coordinate and integrate mine-related permit and other administrative procedures. (Oksanen 2014.)

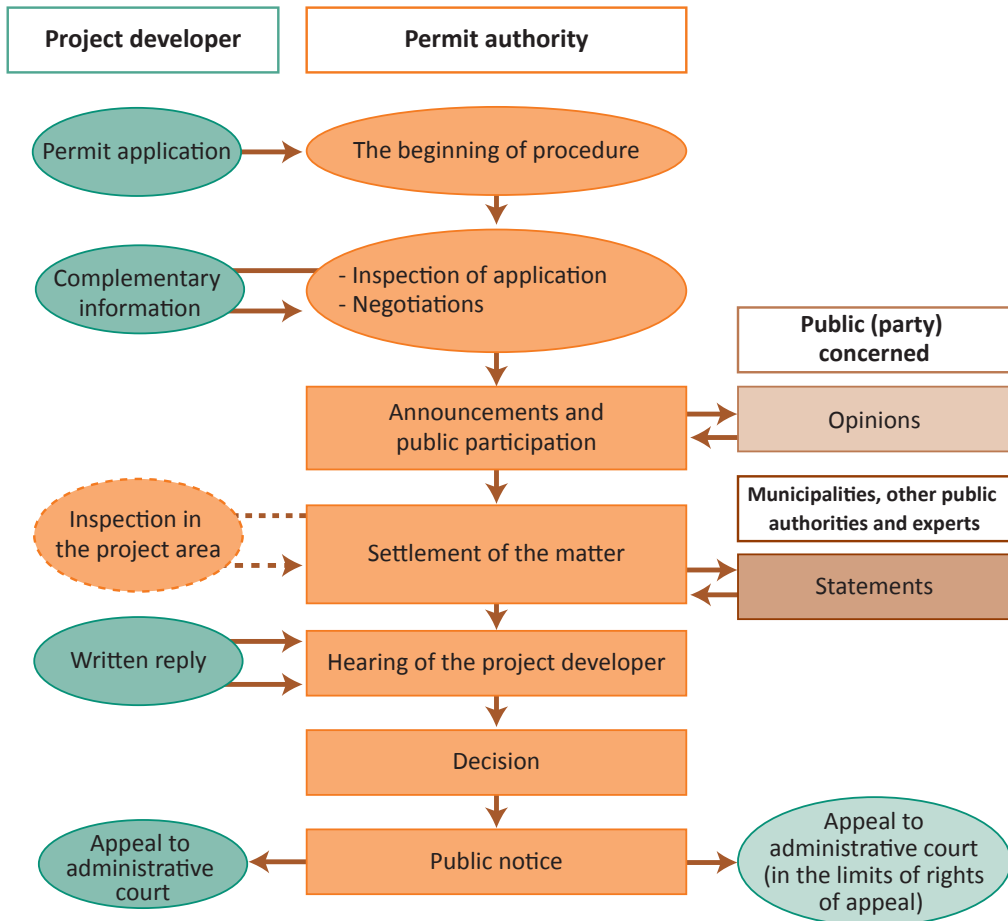


Chart 7. Environmental permit procedure (Kokko 2013).

4 Social impact assessment (SIA) and the social licence to operate

Social impact assessment in legislation and different processes

Although there is an obvious need (Data Frame 10) for social impact assessment (SIA), it lacks a clear regulative frame in legislation. Neither its form nor its content is regulated directly at the statutory level. However, alongside the actual mining activity a mining project encompasses many processes related to social sustainability, although their order cannot be pinpointed beforehand. Chart 8 describes the other processes associated with the phases of a mining project. The participation and interaction of various stakeholders in the official processes of land use planning, EIA, and SIA play an important role in the beginning of a mining project. The statutory processes of participation and interaction as well as the social licence to operate and its maintenance through self-regulation contribute to sustainable development at the local level. So far, we have discussed process-related regulatory frames within legislation (chapters 2 and 3). Later on, we will focus on good practices (especially chapter 6).

Social impact is assessed in order to

- outline and foresee how the project or plan changes the quality of life or the development of the area of impact and what the consequences of those changes are (changes and their consequences);
- assess or predict the capacity of the community/area to adapt to changing conditions (adaptability);
- assess the meaning and significance of the changes in view of various stakeholders and groups (significance of the changes);
- reduce or prevent potential adverse effects well in advance and designedly (minimization of adverse effects);
- consider and resolve contradictions caused by the activity (conflict resolution);
- recognize the possibilities for a social licence to operate (acceptability in the local community).

Data Frame 10. The reasons to assess social impact. (See e.g. Päivänen J. et al. 2005.)



Chart 8. Environmental regulation and practices supporting the social sustainability of mining.
 Chart: Leena Soudunsaari, Helka-Liisa Hentilä, and Anniina Valjus.

The significance and implementation time of SIA coincide mostly with the above-described project and land use plan assessment procedures. Social impact is also relevant when participating in official decision making if there are legal requirements concerning SIA (Data Frame 11). In this context participation must be viewed in a broad sense, and it may occur before a decision (communication, statement requests, and hearing of opinions) and after a decision (appealing, the right to initiate proceedings).

Section 159 of the Mining Act serves as an example of the right to initiate proceedings. It states that unless proceedings have been instituted on the mining authority's own initiative, the rectification of an offence or neglect in the area of impact can be requested by

1. a party concerned suffering damage;
2. a registered association or foundation whose purpose is to promote protection of the environment or health, nature conservation, or the pleasantness of the living environment, and in whose operating area, in compliance with regulations, the environmental impact in question appears;

3. the municipality in which the activity is located, or another municipality in the area of which the detrimental impacts appear;
4. a Centre for Economic Development, Transport and the Environment or another authority on the matter that is charged with protecting the public interest in its field;
5. the Sámi Parliament, if the detrimental impact appears in the Sámi Homeland;
6. the Skolt village meeting, if the detrimental impact appears in the Skolt area.

Utilization of the right to initiate proceedings requires a written application, and the mining authority will issue an appealable decision on it.

A mining project's social impact must be taken into account in administration on the basis of the following provisions:

- As part of the concept of environmental impact (the EIA Act 468/1994, section 2.1; the SEA Act 200/2005, section 2.1; and the MA 621/2011, section 5.1)
- As part of the concept of environmental deterioration (the EPA 86/2000, section 3.1)
- As part of the concept of land use planning and building (for example the LUBA 132/1999, sections 1, 5, 9, 39, 54, 117c, and 117f)
- As part of the concept of peremptory impediment for granting of a permit (the MA 621/2011, section 48.1 and the WA 587/2011, chapter 3, section 4).

Data Frame 11. Examples of considering social impact in administration.

The success of SIA is largely dependent on interaction and foresight. Interaction cannot be regulated thoroughly by legislation because of the diversity of mining projects, which leaves room for company self-regulation. Thus, participatory processes can be carried out flexibly in individual cases and by considering the special characteristics of each project. In individual projects and in accordance with company standards, self-regulation may be used to give social impact assessment, impact hearings, and impact consideration a higher status than that required by law. For example, section 11 of the Act on Environmental Impact Assessment Procedure clearly states that, in addition to what is provided in this Act, it is possible to organize publication and hearings also in other ways. An example of good self-regulation is the practice to form an EIA process steering group or interest-specific groups encompassing various interested parties during the environmental impact assessment procedure. In such groups, important issues related to project planning and assessment (nature conservation, infrastructures, other livelihoods, etc.) can be addressed by experts more thoroughly than in public communication sessions. (Oksanen 2014.)

How, then, should the legislative frame and self-regulation be developed to get an adequate picture of social impact and to be able to retain the social licence to operate? Detailed statutory development is not possible here, but some guidelines can be drawn. One way to support a

mining project through self-regulation is that the mining company and other stakeholders in cooperation with the municipality draw up a social impact management plan in the project planning phase. The management plan also supports land use planning. It defines how the assessments are carried out during the life cycle of the mine, how the results are reported, and how potential problems are prevented and moderated. The social impact management plan should include a plan on how to communicate the social impact of the project during its entire life cycle. When needed, the plans can be updated and combined into a management and communication plan (Data Frame 12).

Guidelines

- Planning of social impact assessment and the related interaction covering the entire life cycle of the project (management and communication plan).
- Environmental assessment of municipal land use planning and environmental impact assessment of the project are combined, if possible, and a joint SIA is incorporated in them.
- Environmental permit requirements concerning social impact are developed further.
- Environmental permits are coordinated and, if possible, participation is arranged concurrently. At the same time, SIA is tested as part of them and updated as necessary.
- The social licence to operate has been earned during project planning or latest when the planned activity starts and the permit decisions are legally valid.
- The social licence to operate is retained using self-regulation during the entire life cycle of the project, while the operator takes care of the before-mentioned social and environmental responsibilities throughout the activity and in the after-care phase.

Data Frame 12. Guidelines for regulation development (Kokko 2011, Suopajärvi 2013, and Franks 2012).

How is social impact assessment linked to the acceptability of mining?

Although in section 2(1a) of the EIA Act 468/1994 the definition of environmental impact includes social impacts as described above (Data Frame 6, chapter 3), the said Act does not refer to the concepts 'social impact assessment (SIA)' or 'social' and it does not expressly define the implementation of social impact assessment. SIA is carried out as a single entity within environmental impact assessment (EIA), and its part in the whole assessment procedure is rather small – the share of SIA documentation in mining project assessment programmes and reports is 3% – 4%. (Suopajärvi 2013.)

In Finland, social impact assessment has been developed especially by STAKES/THL (e.g. Juslén 1995), and this definition is quite well established in mining projects. According to the definition,

SIA focuses on a project's effects that change people's living conditions, amenity, wellbeing, and the distribution of wellbeing. The definition follows quite closely the wording of the EIA Act, section 2(1 a) with the addition that also wellbeing and the distribution of wellbeing should be considered. However, the definition partly disregards the idea of the EIA Act, section 2(1e) dealing with the interaction of various effects. The idea holds that effects on the environment, on the community structure, and on the use of natural resources inevitably manifest themselves in the lives of people and communities as social impacts. Also the current paradigm of social scientific environmental research postulates that the environment and communities with their cultures are not individual categories.

Social impact assessments are carried out to order by environmental consultation firms, universities, and research institutions. SIA has become professionalized in Finland. It means that in extensive projects, which mining typically represents, assessments are mainly carried out by large and established consultation companies.

Social impact assessment is an area of special expertise that requires an understanding of generic societal phenomena and specific local issues. Reliable SIA presupposes that the assessing consultants possess expertise on social scientific research and evaluation research. Also the coordination authority evaluating the contents of SIA should have access to social scientific research expertise, and it must utilize the expertise when submitting a statement on the assessment programme and report.

Currently, the SIA is done once as part of the environmental impact assessment procedure before the mining permit process and the ensuing activity. Thereafter, social impact is no longer assessed, even though the impact refers to effects caused by a project and realized in the daily lives of people and communities – effects that vary according to the various phases of mining activity. SIA should, in fact, be understood as a process that starts from the planning phase and extends through the implementation phase to mine closure and beyond.

The importance of SIA should be increased through legislation and through the voluntary action of mining companies, also referred to as self-regulation (Data Frame 13). More detailed recommendations for better SIA development practices are presented in chapter 6.

Recommendations

The requirements for granting a permit regarding adverse effects on human health laid down in section 42.1 (1) of the Environmental Protection Act should be developed in such a way that

- they also cover other social effects more extensively and
- the assessment of social impact is also linked to the environmental permit review of a mine.

The permit conditions could be changed in the permit review as needed. Thus, the current social impact of a mine could be addressed as part of the consideration to amend the permit.

The monitoring of social impact assessment should be entered more firmly into a mine's environmental impact monitoring programme that is presented in the assessment report (see the EIA Decree 713/2006, section 10 (9)).

Social impact assessment cannot be a mere phrase in the monitoring programme of the assessment report. Instead, social impact monitoring should continue in the form of self-regulation throughout the life cycle of a project.

Data Frame 13. Recommendations for developing regulation concerning social impact assessment.

Social impact assessment can be used to analyse the acceptability of a mining project among the local community. It should also be tied to the concept of social licence to operate. SIA can be essential to a mining project in terms of its acceptability and social licence to operate.

What is the social licence to operate and how is it earned?

The social licence to operate simply means that the local community approves and supports mining in the area of impact. It is not comparable to administrative permits such as the mining permit or the environmental permit, and there is no legislation or defined procedure through which it could be earned. It is mainly a question of how an individual company operates in the conditions and with the community of a mine's impact area. In practice, mining companies must be able to earn the social licence to operate because of requirements set by the financial market. Some financiers require social impact assessments and a social licence to operate before making a decision to invest. The social licence to operate can be seen as a triangle displaying the relation of a mining company to its financiers and the local community. On the other hand, the relation between the financier and the local community should be clearer and more transparent (Chart 9).

The social licence to operate has at least three levels: 1) social legitimacy, 2) credibility, and 3) trust. Legitimacy is based on the norms of the local community. These norms may be legal, social, or cultural and either official or formed within the community. In order to gain the trust of the community a mining company must recognize and understand the norms that manifest the local code of conduct. If it does not succeed in this, it risks losing its reputation and the

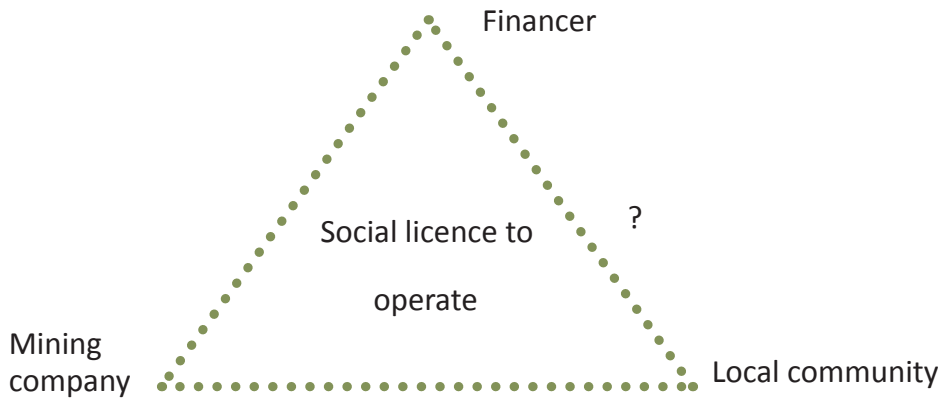


Chart 9. The three parties of the social licence to operate in relation to one another. Chart: Kai Kokko.

trust of the local community, which may result in opposition, delayed schedules caused by prolonged permit procedures, and problems with financing.

The idea is that the social licence to operate starts from cooperation with local people. This includes active and open communication as well as citizen engagement and a readiness to answer the questions asked by local people. Credibility and trust are based on a company’s ability to provide current, truthful, and comprehensible information while being committed to abide by the norms of the community. The norms that guide and control companies are essentially based on environmental legislation. If a company does not follow environmental legislation or operates against permit regulations stated in the Environmental Protection Act, it may lose a great deal of its credibility and trustworthiness. It takes time and resources to build trust. The challenge is that a company is expected to confront the local community also in contexts other than business. Moreover, it is expected to arrange possibilities for participation and cooperation. Trust is built and strengthened through this type of social cohesion and teamwork. (See e.g. sociallicense.com.)

The social impact assessment procedure described in chapter 4 of this Guide and the hearing procedures exhibit certain preconditions for earning the social licence to operate. By utilizing the results of SIA and EIA operators learn more about the local community’s wishes and their customary land use practices that promote wellbeing. These issues can be addressed in the planning phase to promote socially more sustainable mining.

Perhaps the most significant problem and development target regarding the social acceptability of mining is operational non-transparency. For example the Kittilä mine has invested in operational transparency especially by arranging mine tours for the public. Transparency should in fact be developed throughout the life cycle of a mine from ore exploration to after-care measures. Problems with transparency in an individual mine’s activity (e.g. the earlier communication policy of the Talvivaara mine) and a failure to engage in an open dialogue easily reflect on the social acceptability of the entire industry. Open communication about potential changes in production or about even the most extreme risks may reduce the backlash in the event of a sudden change. This presumption is based on the significance of open communication in today’s society; communicating risks that have already materialized is a risk in and of itself. On the other hand, transparency and openness regarding potential negative events may benefit a mining company in the long run and promote trust and social acceptance even in the event of unforeseen operational mishaps.

Data Frames 14a – 14d¹⁴ provide some examples on how a mining company can gain the trust and acceptance of local people through its own effort. Legislation cannot and is not meant to cover all areas of collaboration. Social acceptability and the social licence to operate depend largely on a company's own initiative and self-regulation.

According to Northland Mines Oy,

without a social licence to operate there will not be a mine.

The company has promised to commit to sustainable values and to observe the following international principles and instructions:

- The principles of the Universal Declaration of Human Rights and other basic and human rights, including the World Bank's guidelines on human trafficking,
- The ten sustainable development principles of the International Council on Mining and Metals (ICMM),
- The quality standards and operational management systems of the mining industry (ISO 14001, OHSAS 18001, ISO 26000), and
- Other best practices and norms of the mining industry.

The company started working on the social licence to operate already in 2005, that is, at an early stage of planning its activity. It has placed special emphasis on societal relations, even set up a team for it. Also, building and maintaining the relations is the responsibility of everyone in the company. The mindset is that a mine is part of society.

Transparent communication and a respectful attitude are important in earning the trust of the local community. Difficult issues must also be addressed. It is essential to treat the local operators consistently; the same rules apply to each interest group.

Data Frame 14a. Good practices in earning the social licence to operate: an understanding of the significance of the licence and the ensuing conclusions (case study: the Hannukainen mining project in Kolari).

Challenges recognized by the company

- Natura 2000 (waterways, vulnerable sea trout waters)
- Reindeer husbandry areas – Muonio reindeer herding cooperative, the logistics (railroad) also affect five cooperatives
- Vicinity of a tourist resort (Ylläs 10 km and a cabin site 400 m)
- Frontier area (Espoo Convention, frontier waters agreement)
- Transfer of the Hannukainen village, more than a hundred landowners

Information exchange and intelligibility are challenging to accomplish because the mine project evolves and the plans are updated according to new information from assessments.

Data Frame 14b. Good practices in earning the social licence to operate: recognizing the challenges (case study: the Hannukainen mining project in Kolari).

14 We wish to thank Joanna Kunttonen-van't Riet, Environmental Safety Manager at Northland Mines Oy and a member of the DILACOMI project steering group, for her presentation material on the Hannukainen project and for her valuable comments on our Guide.

The mining company has deemed the following measures necessary:

- The company has made models and visualizations to show people what the area would look like after 15 years of mining activity. This is the easiest way to make knowledge on the mine and its effects available to the participants of the EIA and SIA procedures, for instance.
- Knowledge transfer has also been enhanced through constantly updated web pages (see <http://www.hannukaisenkaivos.fi/>). The pages, written in Finnish, provide information on the progress of the project and on people's possibilities to participate in the process.
- The attractiveness of mining and the local people's understanding of the company have been increased actively in many ways:
 - summer jobs have been offered to young people
 - ore courses and occupational safety card education have been arranged for the local community.

This enables the local people to relate to the company instead of treating it as a strange and distant operator.

- Trust and cooperation with the municipalities are also essential when pursuing a social licence to operate. Continuous municipal cooperation is required e.g. in land use planning.
- Also other important local operators such as tourism businesses, other entrepreneurs, hunting associations, and reindeer herding cooperatives have been considered in the project planning phase. Cooperation between these parties has been supported by launching an EIA steering group and interest-specific SIA groups.
- The company has valued participation in societal development projects (the Meänmaa project in Kolari) and in independent mining research projects (DILACOMI and MINERA).

Data Frame 14c. Good practices in earning the social licence to operate: concrete measures (case study: the Hannukainen mining project in Kolari).

It is necessary to engage the citizens of the area of impact in mine planning throughout the project – from ore exploration to mine closure. To retain the right to exploit extractive resources, it is important that companies create long-lasting relations of interaction with the local residents. (Thomson & Boutilier 2011.) This relates to the previously-described concept of social licence to operate, which is tied to the social and environmental impact of a mine and to the ways of managing this impact. Good management practices include engaging the local citizens in mine development.

Nowadays, the relation between responsible company practices and the rest of society is often covered by corporate social responsibility policies and communication strategies. Social responsibility measures are typically guided by two main objectives: maximizing the profits and minimizing the negative social and environmental effects of a mine. Gaining the social licence to operate therefore also relates to successful measures that contribute to a mining company's social responsibility and communication. These measures are used to acquire the social trust and acceptance of local people and thereby to ensure continued utilization of resources (Data Frame 14d).

To gain and retain a social licence to operate a mining company must ensure that

- communication and interaction between the company and local people exceeds the legislative obligations of public participation for example in the EIA procedure,
- the voluntary arrangements for participation are not terminated when environmental permits have been granted,
- the company's strategies of social responsibility and communication are carried out at a level required by the local community.

Data Frame 14d. Observations on citizen engagement in relation to the social licence to operate.

A mining company should implement its social policy by demonstrating a genuine intention to be part of the local community, not an outsider. For example the policy of social responsibility of the Canadian operator Agnico-Eagle Mines has been adapted to meet the requirements of the mining region and the whole country. In Mexico and in Nunavut, North Canada, the unemployment rate is high and the general level of education is rather low compared to Finland, for example. At the Pinos Altos gold mine in Mexico, the company has contributed to the construction of schools and a medical centre and to implementing support programmes for families. At Nunavut's Meadowbank, the challenges relate to northern conditions and the insufficient infrastructure of the area. In this remote area the company has constructed the entire infrastructure it needs for mining as well as public transport to the mining area to enable commuting from the village of Baker Lake 110 km away. The approach is different in Finland, and the company has mostly supported sports and cultural activities in the residential area of the workers (Data Frame 14d).

To earn and maintain the social licence to operate for mining it is important to consider the potential role of the financing sector in setting the norms of sustainability. The concept of social licence to operate is often associated with the social acceptability requirements set for mining by international financiers. The problem is that the financial sector does not operate or communicate openly in relation to local communities (Chart 9). And further, it is not clear which financiers require operators to follow created indicators or how the indicators are followed in practice. (The Equator Principles 2006, see also US SIF 2012.)

It would in fact be more important to raise the publicity level of the social requirements for financing mining activity. The question remains, how will financiers be informed about the concrete social effects and activities of a mine at the local level? Can the information flow be influenced by parties other than the mining company, for example by local operators or residents (Chart 9)? The following two notions are a positive sign of the functionality of the social licence to operate:

- Semipublic financiers may be more apt to use their power to control mining activity (Ilmarinen, Solidium).
- Mining companies invest considerably in press and stock exchange releases and reports, indicating a need to convince their financiers.

In terms of concepts, one should also keep in mind that sustainable development or social sustainability is not the same as the social licence to operate. The latter focuses on the viewpoints of companies and the economy as well as on time periods. Also, by observing social issues, companies pursue continued operations and utilization of resources. As a by-product, the generic and intergenerational sustainability of operations may improve. Thus, the social licence to operate functions as a tool to reach the objectives of sustainable development.

5 After-care measures

Preparing for after-care measures

Regulation of after-care measures

The Mining Act that entered into force in 2011 has, for the first time, provisions on after-care measures. After-care measures concerning ore exploration, gold panning, and mining are regulated through the respective permits. Before the renewed Mining Act, only the Environmental Protection Act (especially section 90) had provisions on after-care measures. Also the National Audit Office noted in 2007 that it had been possible to carry out mining operations partly at the risk of others because the old Mining Act did not recognize all the responsibilities, and therefore the office required the responsible ministry to remedy the situation.¹⁵ The corrections were realized in the new Mining Act. Thus, operators must observe the provisions of both acts. The provisions of the Mining Act on after-care measures supplement rather than replace the provisions of the Environmental Protection Act.

Preparations for mine closure and after-care work should be made before establishing a mine, that is, already in the planning phase. The purpose is to cover the entire life cycle of the mine. When applying for permits as required by the Mining Act, a necessary and reliable report must be provided on mine closure, the related measures, and after-care measures. This applies to the mining permit, gold panning permit, as well as the ore exploration permit. A mining permit application must also contain a report on the objectives of after-care measures, including a summary of the main issues (the MA 621/2011, section 34 supported by the MD 391/2012, section 16.1, subsections 13 and 15).

Development of risk classification and risk assessment

Mines, their locations, and the utilized technologies vary considerably. Risk classification and assessment should be applied to the entire life cycle of a mine, including mine closure and after-care. An environmental risk may encompass e.g. the following: a) natural phenomena and changes therein (climate, precipitation, floods, etc.), b) human activity (careless use of hazardous chemicals, hurry, economic change), c) insufficient human resources or skills, d) vulnerability of the area of impact and its communities, or e) combined effects of these. The damage inflicted is often caused by insufficient, overly optimistic, or improvident risk assessment (Data Frame 15). The severity of damage depends on the scale and operating principle of a mine, as well as the chemicals used. But it also depends on the vulnerability of the environment and communities to damage, which, in turn, is influenced by their interdependency. Risk assessment and management require continuous cooperation between a mining company and the local community. Risk management may involve the development of new technology, but the risks of new technological solutions should also be assessed before launch. It would be advisable to develop an appropriate risk classification system and corresponding instructions for mining projects based on international experiences (the issues of interest include the mine type, the related chemicals, the scale of the mine, the size of the impact area, and the related community's vulnerability).

15 See Valtiontalouden tarkastusvirasto 2007: Valtio etsintä- ja kaivostoiminnan edistäjänä. Toimintakertomus 154, p. 140–141.

An environmental and social tragedy - Giant Mine, Canada

The Giant Mine is located a few kilometres away from the centre of Yellowknife in the Northwest Territories of Canada. Discovered already at the end of the 19th century by prospectors, the gold deposit was not mined until the late 1940s when the Giant Mine officially opened. The production began in 1948 and the site was abandoned in 1999. During its 50 years of operation, Yellowknife experienced a rapid demographic, ethnic, and economic growth due to the number of jobs offered by the several companies who owned the site.

Found in arsenopyrite ore, the gold had to be released by roasting the ore at very high temperatures. This process also released arsenic trioxide which was at first discharged directly into the environment. In the course of time the mining companies installed electrostatic precipitators that removed part of the arsenic trioxide dust. During its life cycle of 50 years, the mine produced roughly 237,000 tonnes of arsenic trioxide dust. The dust was finally stored in underground chambers below the permafrost that was presumed to last indefinitely.

In 1999, the company Royal Oak Mines went bankrupt, and milling and processing on the site stopped. Besides the obvious community effects such as:

- loss of more than 300 jobs;
- loss of severance pay and reduction of pensions;
- health problems caused by arsenic trioxide; and
- loss of income for the city of Yellowknife,

the environmental impact has been considerable:

- contamination of soil, air, and lakes because of leaking tailings ponds;
- some arsenic trioxide dust was stored in old mining chambers beneath the permafrost. Later on the frost melted and the dust leached out with ground water. Attempts have been made afterwards to collect and treat the material.

It seems that the government had an important role to play as well in the environmental catastrophe of the Giant Mine. No environmental regulation concerning the mine was settled until the 1970s, no air quality regulations were laid down, etc. After the bankruptcy the Giant Mine site was shortly owned by another company, which turned it over to the state in 2001. Since, the federal government has been responsible for the clean-up, but the resources reserved for the task have been insufficient. The process has been delayed because of a search for funding and an Environmental Impact Assessment process required for underground arsenic management.

The government has proposed a Giant Mine Remediation Plan to clean up the surface, stabilize and secure the underground arsenic trioxide, and monitor health and security. The current remediation plan outlines the long-term storage and management of the arsenic trioxide dust using the frozen block method that simulates permafrost conditions.

The main conclusions of the Giant Mine disaster are as follows:

- environmental legislation and administrative interpretations thereof were inaccurate in regulating for example the processing and storing of arsenic trioxide;
- the hypothesis of unchanging environmental and economic conditions on a long-term basis was wrong when deciding on the application of new technology. To make such a decision would also have required assessing the economic, environmental, and climatic risks, even if they were inconvenient or not likely to materialize;
- the collateral was lacking; mining companies should reserve a part of their profit for after-care measures and unexpected situations; and
- the consequences of mining are not the same for long-term indigenous communities (e.g. the Dene people) as they are for mining companies that visit an area according to economic trends.

Sources: Aboriginal Affairs and Northern Development Canada, Affolder et al. 2011, Banfield & Jardine 2013, O'Reilly 2001, The Developers Assessment Report.

Data Frame 15. An example of unsuccessful risk management.

Mine closure and planning of after-care measures

Based on regulation concerning after-care measures and preparing for them as provided in the Mining Act and the Environmental Protection Act, regulation on mine closure (chapter 5, above) can be considered to be rather comprehensive. This view is emphasized by section 103b of the Environmental Protection Act stating that the decommissioning and after-care of a waste site for extractive waste must be planned in such a manner as to prevent major accidents. But according to international examples (Data Frame 15), the implementation of mine closure regulation must also be ensured in advance by authorities as well as companies.

In fact, a mining project should include a mine closure and after-care plan, and special attention should be paid to the financing of after-care measures as part of the permit process. Transparent resource allocation for after-care should also be included in a mine's production plan. Currently, there are more examples of landscaping plans than landscaping measures as far as old mines are concerned. The social credibility of after-care measures requires the development of after-care plans and financing. Especially in remote areas it is advisable to make a socio-economic plan for the period after mine closure and to do it already when planning the work force. This could help to avoid social problems arising from mine closure (e.g. ghost towns such as Joutel in Quebec, Canada). On the other hand, an after-care plan can also be used to recognize positive development options (Data Frame 16).

Canadian and Scandinavian after-care solutions that are important from the viewpoint of Finland

- Currently, the most typical after-care plan for a mining area deals with landscaping. In surface mining, carried out without the use of hazardous chemicals, stopes are usually allowed to get filled by water. When successfully accomplished, a flooded open-pit mine may become a recreational area used for fishing, diving, etc. or it may become an artificial nature attraction (a bird lake). Active restoration measures are, however, often necessary also in these cases because without them stopes are sterile, dark, and deep in comparison to natural waters.
- After-use as a tourist attraction is also typical. Especially local mining companies in Scandinavia have continued operations through mine tourism. Museums, guided mine tours, and cultural events (e.g. concerts) arranged in old mines have become commonplace.
- A new economic possibility to use decommissioned mines is energy production or storage using geothermal energy or closed-loop hydro power technologies. Examples of the use of geothermal energy can be found in North America and Europe. Geothermal energy has currently been used mainly for mines' own energy production and for heating buildings.

Data Frame 16: After-use alternatives.

Temporary mine closures and economic arrangements of mine companies, caused by e.g. changing economic trends, bring special challenges to risk management. A temporary closure must be assigned a time limit after which the after-care plan is to be implemented. The most obvious reason why after-care measures have not been implemented is a mining area's closure on a temporary basis (e.g. Rautaruukki, Kolari). If a deposit enables reopening the mine

(e.g. Hannukainen, Kolari), the after-care measures should be implemented by preserving the option to do so while ensuring that the closed mine area integrates into the environment and that the risks are manageable. In case of a temporary closure or company rearrangements, the transfer of social and environmental responsibilities should be transparently included in the plan. In terms of trust and the social acceptability of after-care plans, it is advisable to further develop reserve funds aimed for maintaining after-care measures and for covering damages during the entire life cycle of a mine.

When a mining project expands or the activity changes, the permit regulations concerning after-care measures should also be checked and, if necessary, updated correspondingly. Operators should plan after-care measures that can be adhered to. When necessary, the competent permit authority may also give advice on the steps to be taken after mine closure. There are guidebooks on after-care techniques (see e.g. Heikkinen et al. 2008) but attention should also be paid to the social effects of mine closure. In terms of self-regulation, it is recommendable that mining projects anticipate the social effects of mine closure and plan the best adaptive measures in collaboration with the local community.

Ensuring the implementation of after-care measures

An international comparison emphasizes the global recession and fluctuating metal prices affecting mining and its continuity. It also shows the impact of a mining company's bankruptcy (Data Frame 15). A sudden interruption of business, even bankruptcy, may easily lead to considerable environmental problems and create a pressure to resort to shared risk management (funds), if available, or even to societal support, in which case the benefits and adverse effects of mining do not measure up in accordance with the polluter pays principle. Special attention must therefore be paid to the continual accumulation of collateral to sufficiently cover the increasing risks of expanding mining operations. The risks of bankruptcy and ceased activity to the environment and community can be removed or at least considerably decreased by sufficient collateral. (See also Kauppi 2013 p. 26.)

The mining permit contains regulations on mining-related collateral and other liabilities concerning the termination of activities and the time thereafter (see the MA 621/2011, chapter 10). The amount of collateral should accrue to cover the costs of after-care measures also if a mining company, for example due to bankruptcy, cannot fulfil its obligations concerning the time after mine closure. Section 43 of the Environmental Protection Act also concerns the regulations of the environmental permit on preventing pollution, part of which regulate the measures to be taken after termination of activities. Section 43 b of the Act states that the collateral for a waste area for extractive waste shall also cover the costs of restoring a land area, located within the area of impact of the waste area and specified in more detail in the waste management plan for extractive waste, to a satisfactory state. (For more details, see Kauppi 2013 p. 26.)

6 Recommendations for practices supporting the social sustainability of mining

Best practices in social impact assessment

The weight of social impact assessment should be increased in the environmental impact assessment procedure. Simultaneously, SIA should be considered as a separate part of EIA. SIA requires an understanding of generic societal phenomena and of specific local issues, and therefore calls for increased resources and greater attention during the lifetime of a project. Thus, the best practices of SIA can be linked to statutory procedures and company self-regulation as described in chapter 4. The implementation of superior practices promotes socially sustainable mining (Data Frame 17).

The social sustainability of mining can be promoted through the following practices:

- in the project planning phase, making a social impact management and communication plan that covers the entire life cycle of a project (self-regulation);
- conducting high-quality SIA in assessment procedures (the statutory EIA procedure and land use planning);
- including the SIA follow-up programme in the assessment report and monitoring the SIA process during the life cycle of the project (the statutory EIA procedure and self-regulation).

Data Frame 17. The relation between regulation and some practices supporting social sustainability.

Social impact refers to effects which are likely to emerge during a project and which vary according to the phases of the project. SIA should therefore be divided into pre-assessment and a realistic and multilevel assessment of the realized development. SIA should proceed in step with project planning, implementation, and finalization. During a mine's life cycle, the social impact assessments can be carried out as follows:

1. In connection with SIA and during the EIA process and project planning, an initial analysis should be made to assess the foreseeable effects of the mining activity and to settle, for example in a steering group consisting of various parties of interest, the preconditions according to which the mining activity is acceptable from the viewpoint of the local community.
2. When a mine is in operation, social impact assessments should be made regularly and with rather stable contents to get reference data on the various phases of mining. The assessments of the operating phase should also focus on how the terms of acceptability have been realized and how they have changed, if at all. In this way SIA increases the participatory possibilities of the local community. The actual social impact is assessed during the project and when social effects present themselves.
3. At the end of mining activity, the assessments should focus on how to get prepared for the time after mining by minimizing the adverse effects faced by local people and communities.

Voluntary social impact assessments carried out regularly by the mining company throughout the mining activity benefit the company as well as the municipalities of the region in many ways. Up-to-date information on the impact of mining on the local communities enables long-term planning and promotes handling of potential problems already in advance. Social impact assessment on a regular basis provides information on the views of the local community, which a company can also utilize in its reporting as required by the social licence to operate. In this way SIA also increases the participatory possibilities of the local people.

Before carrying out an SIA, the local people should be properly notified of its implementation methods and objectives. This increases people's awareness of how they can influence mining-related issues in the SIA process. Active participation can be promoted for example by steering groups or interest-specific groups (Data Frame 14c, chapter 4). SIA should encompass experts as well as the stakeholders of the mining region who are able to influence the contents and terms of the social licence to operate. The local people (including vacation residents) must be provided a possibility to be heard by using a sufficiently large sample and diverse data collection methods; it should be easy to take part in the social impact assessment process.

Other development proposals can also be considered in the context of SIA. First, only authorized assessment professionals should be allowed to perform an assessment. Currently, a social impact assessment can be made by a consultant appointed by the mining company, and assessments vary considerably in terms of the methods used, credibility, information content, etc. Cooperation authorities should also have expertise in social scientific research or they should utilize it more efficiently when giving statements on assessment programmes and reports. Second, SIA should always be reported in a form that allows re-evaluating the validity of the conclusions stated in the report. This requires a careful description of the research methods and material as well as an open discussion on the interpretation options. The transparency of SIA can also be enhanced by publishing the reports in their entirety on the Internet pages of the cooperation authority.

Although social impact assessments must be defined case-by-case, their physical area should as a rule cover more than the close vicinity of the mine. A mine often has an impact on the traffic and waterways of a more extensive area, and hence the views of the people concerned should be heard in SIA.

SIA must enable a careful definition of the advantages and disadvantages concerning the various groups of the local community. Special attention should be paid to people referred to as vulnerable groups, defined on a case-by-case basis in each project. In the North, reindeer herders are a vulnerable group, and therefore particular attention should be paid to their views (Data Frame 20). Social impact assessments should also be gender-sensitive, and special attention should be paid to the views of young people because mining has long-term effects that change the local environment permanently. Future generations must be also considered from the viewpoint of sustainable development. In this context the minimum requirement is that the views of young people are appreciated and actively collected, for example with the assistance of schools, as part of social impact assessment. Thus, social impact assessment can be systematically enhanced through various self-regulation practices carried out by companies (Data Frame 18).

- A summary of recommendations: The significance of social impact assessment should be increased as part of the environmental impact assessment procedure carried out at the initial phase of a project. However, SIA should also be considered as an independent assessment in order to emphasize the role of and the need for follow-up studies.
- SIA should be divided into evaluations before a mining permit decision and after the decision as a realistic, multilevel assessment of the actual progress of a project.
- SIA should proceed in step with project planning, implementation, and finalization.
- SIA should entail regular assessments from the beginning of a project to the time after the termination phase.
- SIA should be defined case-by-case, but its physical area should as a rule cover more than the close vicinity of the mine.
- The results of SIA should be presented in a form that allows evaluating the validity of the conclusions.
- SIA should only be carried out by an authorized expert on evaluation research.
- The SIA procedure and the related objectives should be communicated comprehensively, and for example a steering group can be set up to actively enhance the participation of stakeholders.
- SIAs are gender sensitive. In addition, special attention should be paid to the views of young people and to the significance of age distribution in the response analysis.
- SIA should carefully specify the advantages and disadvantages faced by the local community.
- SIA should be tied to the concept of social licence to operate.

Data Frame 18. Best practices in social impact assessment.

Best practices in land use planning

Land use planning does not concern the planning of a mining area only. Instead, mining projects also affect other municipal and regional land use and they should therefore be examined strategically from the viewpoint of the entire municipal or provincial development. (Hentilä & Soudunsaari 2013b.) Planners must consider the impact of mining projects on other construction work and infrastructural planning, which affects the examination of the currency and functionality of land use plans (e.g. local master plans of the nearest population centre and changes or expansions to local detailed plans).

It is essential to integrate the various plans and to engage in long-term land use planning by considering the duration of a potential mining project. Starting strategic land use planning when a mining project has already entered its planning phase does not provide a sound basis for high-quality land use planning. (Hentilä & Soudunsaari 2013b.) The key questions of land use planning are as follows: What can be done to enable a mining project, mining activity, mine closure, as well as a possible restart? How can a municipality function and evolve sustainably if a mining project fails to launch?

Proactive planning also speeds up the launch of potential new mining projects. Finalized land use plans and strategic lines make it easier for a municipality to prepare for and adapt to the initial phase of a mining project, in which the location and auxiliary area operations vary according to the available options and impact assessment. Proactiveness also prevents the emergence of coinciding land use needs (e.g. mining vs. the construction of vacation houses) when plans of different levels are combined. For example, a regional plan may have zones reserved for mining activities. (Hentilä & Soudunsaari 2013b.)

The combining of land use planning, the EIA and SIA processes, and permit processes must always be considered and scheduled case-by-case. It is essential to find a contact point for starting the various processes. Studies (Hentilä & Soudunsaari 2013b) suggest that it is good practice if land use planning, EIA, SIA, and the feasibility study of a mining project are conducted concurrently.

Planning a mining project typically leads to significant changes in land use, and therefore time must be reserved for land use planning and potential appeals. In an ideal case all land use plan levels are analysed and changed simultaneously, but this does not occur often. It takes roughly five years to change the regional plan (2–3 years to conduct the work, roughly 1 year to get the Ministry's ratification, up to 1.5 years to possible Supreme Administrative Court proceedings). For example in Lapland, regional plans are made on a ten-year basis. The flexibility of the regional plan is increased by the fact that it is generic, which means that it can also be changed in stages or in parts, when necessary. The regional scheme is even more flexible; it is updated every fourth year, i.e., once during a council term. The regional scheme has provisions for potential mining projects, railway lines, and other traffic arrangements to promote the progress and operations of mining projects. Municipal plans respond to changes more quickly. For example the local master plan takes from two to three years to process and the local detailed plan a bit more than a year. However, a municipality must wait for binding decisions from the mining company before starting the planning process. Transparency, cooperation skills, and information exchange are of utmost importance in mining-related land use planning (Table 1). (Hentilä & Soudunsaari 2013b.)

Required in land use planning	Stakeholders (municipality, mining company, ELY centre, regional council, consultants)
<p>Information: information reception and production</p>	<p>As early as possible; proactive and scheduled planning</p> <p>Statutory basic information as well as unofficial information exchange</p> <p>Knowledge sharing in different processes (EIA, SIA, plan reports)</p> <p>Essential to all stakeholders</p> <p>Interactive training to mining companies and authorities on the requirements of mining and the duties of the authorities</p> <p>Regarding the parties of interest, special attention must be paid to information, communication, timing, and the communication method</p>
<p>Cooperation and interaction: between the stakeholders and between the stakeholders and parties of interest</p>	<p>Transparent and comprehensive (other municipal sectors included)</p> <p>Statutory processes as well as unofficial cooperation (interest-specific groups, seminars)</p> <p>Close cooperation between the authorities, between the authorities and the mining company, and between the authorities, the mining company and the parties of interest</p> <p>Guidance on municipal land use planning given by the ELY centre and the regional council</p>
<p>Consultation and other purchased expertise</p>	<p>Invitations for tenders must be made carefully</p> <p>Time must be reserved for thorough and high-quality work</p> <p>High-quality work will be cheaper than making several corrections afterward</p> <p>The input of people familiar with land use planning as well as land use and building legislation is needed especially at the beginning of a mining project</p> <p>It is essential to consider the possible special characteristics of an area, for example reindeer husbandry and Sámi areas.</p>
<p>Integration of processes: for example in relation to project planning and the EIA process</p>	<p>The life cycle of a mining project is not well-defined partly because of the world market</p> <p>The life cycle and temporariness of a mining project must also be considered in other processes: before, during, and after the activity (prediction)</p> <p>Well-timed combining of processes saves costs and overlapping work; it also improves the flow of information</p> <p>The start-up and progress of processes require binding decisions</p>

Table 1. Best practices enhancing cooperation and interaction from the viewpoint of land use planning. Table: Leena Soudunsaari and Helka-Liisa Hentilä.

Best practices in reconciling livelihoods

General prerequisites and possibilities

A number of interests, practices, and nature-related needs must be considered when reconciling nature-based livelihoods and the various forms of land use. Reconciliation requires a sufficient knowledge of the mentioned issues, and the users of an area should also know about the needs and practices of other stakeholders. When it comes to mining, a single land area cannot have other uses; other users of nature must give up the actual mining area. The extent of such an area varies between mines. In terms of reconciliation and earning social acceptance for mining, it is essential to credibly and comprehensively assess the local and regional effects of a mine. This involves not only surface areas but also the functions, values, and meanings attached to the areas. If mining changes the environment extensively so that other actors must give up their activities and livelihoods or they cannot reach their goals in a feasible way, then it is no longer a matter of reconciliation. Instead, things may lead to an irreconcilable conflict situation.

The key issue in reconciliation is the way in which each actor utilizes the natural resource at hand, that is,

- as a mineral reserve, for example by the modern extractive industry;
- as a visual and sound landscape and a nature experience for tourists, for example by nature-based tourism businesses;
- as pastures, for example by reindeer owners; or
- as a living and leisure environment, for example by landowners and lessors.

Since mining is tied to a specific area and excludes other operations, collisions between different interests are likely to occur. Stakeholders have various relations to a utilized natural resource, and the utilization involves a variety of practices. The practices of utilization are often not aimed at profits only; they may also be linked to many cultural and social values. For example, the risk of conflict increases if the practices of mining permanently change or damage the concepts of clean nature and experiencing the wilderness used in nature tourism. If mining destroys reindeer pastures or significantly reduces the possibilities to use them (circulation of the grounds, critical land divisions, etc.), the possibility of conflict will increase between the trades. To find and understand such problems is a prerequisite for reconciliation. Also, avoiding serious conflicts requires constant transparency and communication between the main stakeholders.

Planning and reconciliation always involve informational uncertainty, power struggles between the parties, and versatile or even incompatible interests, values, and practices. Lasting results cannot be reached by only meeting the minimum requirements of social sustainability, while ignoring the fundamental differences of opinion between the parties of interest. A mere consensus is not necessarily the best goal. One should rather create and maintain a fixed and open channel for discussion. Even if discussions are marked by contradiction, they create and maintain possibilities for new practices and solutions.

The idea of social sustainability should be opened up in local planning projects by explaining the situational meanings of the concept. The areas of impact of the studied cases, the Hannukainen

mining project in Kolari and the Suurikuusikko gold mine in Kittilä, are important for tourism as well as reindeer husbandry, and the main stakeholders concerning them are the mining company, the municipality, the authorities, reindeer husbandry, nature tourism, recreation users, and non-permanent residents.

Reconciling mining with other land uses can be observed from the viewpoints of both the stakeholders and the various phases of a mining project. Table 2 sums up some conclusions based on case studies (the Hannukainen mining project in Kolari and the Suurikuusikko gold mine in Kittilä) and on an international comparison. The conclusions have been made from the viewpoint of various operators and mainly from the viewpoint of northern Finland.

	Mining company	Municipality	Authorities	Reindeer husbandry	Nature-based tourism
Need for information	Practices of nature-based tourism and reindeer husbandry The viewpoint and nature use of local and non-permanent residents	The nature use and needs of local residents Arranging briefings Relations between stakeholders The needs of businesses and the principles of operations Plans concerning the entire life cycle of mining	The nature use and needs of local residents Arranging briefings Relations between stakeholders The needs of businesses and the principles of operations Control	Mining structures, traffic, noise, and dust: effects in relation to one's own work	Mining structures (visibility in the landscape incl. light pollution), traffic, noise, and dust
Course of action during the life cycle of a mine	Open communication on the activity and future solutions (incl. worst scenarios and preparing for them) Continuous communication with key stakeholders The best technical solutions to minimize adverse effects on the environment and nature users	Forming future scenarios for businesses Maintaining communication between the stakeholders Services and infrastructure	Surveillance Communication	Considering the changes in roundup and grazing practices GPS tracking of reindeer Active communication with mining operators	Considering the tourist seasons Discrete communication on mining to tourists New tourism products and planning of activity

	Mining company	Municipality	Authorities	Reindeer husbandry	Nature-based tourism
Monitoring	Adaptation of activities when effects manifest themselves Communication with stakeholder groups	Taking care of monitoring	Taking care of monitoring Surveillance Communication	Active participation in monitoring, communicating the effects of mining on the business	Active participation in monitoring, communicating the effects of mining on the business
Potential adverse effects, threats, and risks	Environmental damage Stained image Losing the social licence to operate Losing the financiers	Large investments (e.g. infrastructure, services) Running into debt	Decreased credibility regarding official performance	Changes in grazing and herding practices Rising costs, non-sustainable grazing Continuity of the business at risk Accumulation of effects to individual herders	Negative effects on the environment and landscape utilized in tourism (through mental images, concrete changes or polluting) Changes in services or products Competing for work force
Worst-case scenarios	Broad societal resistance Revoked permits Losing the social licence to operate Problems with financing	Sudden retreat or bankruptcy of the mining company Problems for other livelihoods, collapse of tourism	Lost credibility regarding official performance	Fragmented or polluted pastures Cumulative effects along with other land users Losing the business	Destroyed image of clean and pristine nature Disappearance of tourists Losing the business
Mine closure	Communicating the termination of activity as early as possible Restoring damage to the landscape and other damage Planning the removal of structures in close cooperation with other actors	Planning the economic structure after mining Planning the community and service structure after mining The need for information requires continuous updating during the entire mining project	Ensuring that there are clear plans for the termination phase throughout the mining activity	Preparing for closure and finding out what it means for the business	Preparing for closure and finding out what it means for the business

Table 2. Reconciliation and best practices. Table: Mikko Jokinen and Sanna Hast.

Reconciliation should be seen as a mediation process, and it should be assigned to a party who is as neutral and qualified as possible. This party may be the municipality, an authority, or a mutually agreed external mediator. When planning reconciliation, it is important to define its participants, method, and location. A municipality has a statutory obligation to consider reconciliation in connection with land use planning, and other competent authorities must do so in their decision making. But the same applies to all stakeholders and all users of the environment, for example mining companies, consultants, tourism entrepreneurs, reindeer herding cooperatives, and individual reindeer herders. The party conducting the reconciliation process should recognize the social and cultural backgrounds of the parties and consider them in communicating and when addressing the parties. Reconciliation can also be carried out in interest-specific groups, for example in connection with social impact assessment.

The reconciliation process can be facilitated by a check list that is adjusted according to the situation at hand. The check list is meant for the party who launches and conducts the reconciliation process (Data Frame 19).



Figure 3. Tourism is an extremely important business in western Lapland in Kolari, tourism covers 48% of the income (Satokangas 2013). One may consider it as nature-based tourism because studies show that nature is the main attraction. Photo: Mikko Jokinen.

Check list

1. Identify the nature users of the mining area. Remember that the mine may have effects tens of kilometres away.
2. Call together all the stakeholders to describe their interests, practices, values, and expectations related to the environment surrounding the mine.
3. Define the roles and responsibilities and try to find a way to proceed with the reconciliation process.
4. Respect transparency. The success of reconciliation depends on the transparency of the process and on the trustworthiness of the stakeholders.
5. Make sure that all the stakeholders have access to the latest information. This concerns particularly the mining project plans, but it also concerns the plans of the other stakeholders. Updating is important.
6. Treat everyone equally and with respect. Different stakeholders have different relations to the place, landscape, and natural resources, as well as to the information base. The cultural background of the stakeholders should be recognized, and the person in charge of the reconciliation process should be sensitive in this respect. Otherwise proper communication may not emerge and the preconditions for reconciliation are lost. The meeting venues should be neutral and the host's task should rotate through joint agreement. Also the use of language should be such that it is understood by all parties. Otherwise the threshold to participate in joint planning and discourse may become too high. Remember sensitivity in social situations.
7. Be culturally sensitive in collecting information and people's views. General meetings are not the only way of collecting information because some people avoid them or participate in them passively. Interview the key actors also separately.
8. Seek scientific information and utilize the best expertise.
9. Discuss and assess jointly the impact of mining on other nature users and look for situations that may benefit the various parties of interest.
10. Be honest. The effects of businesses and operations should not be belittled or exaggerated.

Data Frame 19. Reconciliation check list.

A case study on mining and reindeer husbandry¹⁶

The international mining company Northland Resources S.A. has launched and is currently planning mining projects in Kolari, Finland and Pajala, Sweden. The environmental impact assessment procedure (EIA) of the Tapuli mine of the Kaunisvaara project in Pajala has been completed and the mining was started at the end of 2012. The project is intended to comprise three open-pit mines. It will be located on the summer grazing grounds of Muonio Sámi Village in Sweden. The EIA process of the planned Hannukainen mine on the other side of the border in Kolari, Finland, is still being carried out by the subsidiary Northland Mines Oy at the beginning of 2013. The planned location of its extensive open-pit mine is on the grazing grounds of the Muonio herding cooperative in Finland.

An economic analysis of reindeer husbandry in Muonio Sámi Village has been made as part of the EIA procedure. The analysis focuses on the effects of mining on reindeer husbandry. Herders were content with the analysis, but the mining company changed its plans after the EIA process. The ore transportation arrangements were altered against the interests of the village. However, the impact on reindeer husbandry was not reassessed.

The reindeer herders of the village feel that the company has arranged enough meetings with the herders and provided enough information on its plans. The meetings, however, have often taken place at inconvenient times, for example during the summer earmarking and autumn round-up. Thus, taking part in project planning has at times been extremely difficult. Negotiations with the mining company were also hindered by frequent changes in the personnel representing the company. In 2011 communication expired after the project had received the required permits. In Muonio Sámi Village people would have contacted the media and project financiers if the company had refused to carry on negotiations. Regardless of requests, the company had not made an indemnity agreement with the reindeer herders after the EIA process. The villagers found themselves in a very difficult situation. At the beginning of 2012 the connection picked up and the company appointed a permanent representative to communicate with the reindeer herders. Interaction has improved, but the indemnity agreement remains undone.

The Muonio reindeer cooperative is well aware of the operation of the subsidiary company Northland Resources in Muonio Sámi Village in Sweden. The reindeer herders are skeptical about the company and eager to make the indemnity agreement before the mine receives production permits. Negotiations with the Finnish subsidiary company, however, have been conducted in a good spirit. The company's fixed team of representatives is appreciated, and the Muonio herding cooperative has received more administrative support than herders in Muonio Sámi Village. However, also in Muonio the inconvenient meeting times have made it difficult for herders to fully participate in the planning process.

Based on the case study, the involvement of reindeer herders can be improved as follows:

- The effects of a mine must be monitored after the EIA process as well, and based on the effects the existing agreements are revised – there cannot be one-time agreements between dynamic industries.
- Reindeer herders' work seasons must be considered when planning their participation (scheduling).

¹⁶ This case study is based on Teresa Komu's thesis (Komu 2013).

- A company should form a fixed group to interact with reindeer herding communities. This enables the parties to get familiar with one another and the company representatives to learn more about reindeer herding.
- An indemnity agreement and an agreement on corrective measures should be done before the environmental authorities grant a mining permit.
- In extensive land use projects, reindeer herding communities need administrative support (e.g. from the Reindeer Herders' Association, the Sámi Parliament, or Svenska Samernas Riksförbund) and legal advice to be able to effectively pursue their goals.

The main observations of the case study can be included in generic recommendations for best practices. The recommendations enable the reconciliation of mining with reindeer husbandry, which contributes to socially more sustainable mining (Data Frame 20).



Figure 4. Reindeer round-up in the Muonio herding cooperative. Photo: Hannu I. Heikkinen.

Recommendations

1. Indemnity agreements are made as soon as the operating area is known and before the environmental authority grants a mining permit.
2. Negotiations and the engagement process are continued after the official environmental impact assessment procedure.
3. The environmental impact and the social impact of the mine are monitored after the official EIA procedure.
 - Agreements are checked jointly, when necessary, on the basis a changed environmental impact; one-time agreements cannot be made between dynamic industries.
 - The impact on reindeer husbandry is reassessed when project implementation plans change and, if necessary, after the permits have been granted.
4. The impact of the mine is examined from the viewpoint of the entire reindeer herding community, not just in the close vicinity of the mine because
 - reindeer herding is carried out comprehensively in the area of the entire community and
 - changes in one place typically affect the whole area.
5. The existing forms of land use and their effects on reindeer husbandry (accumulation) must be considered by the environmental authorities when making decisions on mining permits
6. The busy working seasons of reindeer herders must be considered in scheduling and when making arrangements for interaction because
 - reindeer herding is a nature-based livelihood, and it is difficult for herders to attend meetings during busy periods and
 - reindeer herders should be given a chance for spontaneous and unofficial discussions with a mining company.
7. Persons in the mining company responsible for interaction with reindeer herders should form a strong and permanent team to facilitate the negotiation process and to reinforce the group's knowledge on reindeer husbandry.
8. The persons in charge of the mining company should gain on-site knowledge about the work of the surrounding reindeer herding community.
9. The mining company should also consider the faculties and possibilities of various stake holders to pursue their goals in negotiations because
 - reindeer herding communities need legal advice and
 - the communities need support from their trusteeship organizations (e.g. the Reindeer Herders' Association, the Sámi Parliament, and Svenska Samernas Riksförbund).
10. Differences between and within reindeer herding communities must be observed.
 - Reindeer owners do not necessarily have enough knowledge of all areas. In these cases the reindeer herders using the area must be consulted.
 - Since reindeer herding communities use different areas in a variety of ways, the local reindeer herding community must always be consulted.

Data Frame 20. Best practices in reconciling mining with reindeer husbandry.

7 Conclusion

Mining changes the environment permanently. It is a special industry that involves numerous phases, responsibilities, and stakeholders with their expectations. The expectations of the stakeholders may sometimes vary significantly, and they need to be recognized to avoid conflicts. The expectations are discussed in more detail in chapter 1 of this Guide.

A mine has a number of significant effects on the environment, including social effects. Environmental regulation is strongly linked to social and environmental responsibility, but the legal dimension is only a part of responsible mining. Situations of legal responsibility also vary from one project phase to another. The various phases of a mining project and the related legal responsibilities are described shortly in chapter 2. At the very beginning, the guide provides an overall picture of the regulative system guiding mining companies in relation to society and especially the environment.

The provisions of environmental legislation on participation define the minimum level of hearing and consideration in decision making concerning the social impact of a mine. Environmental legislation is flexible and must adapt to a variety of situations; it cannot define the practices of social sustainability in detail. In this respect, earning the acceptance of local communities also depends on corporate governance and self-regulation conducted by mining companies. A salient issue in self-regulation is the social licence to operate acquired during corporate financing. Chapter 3 of this guide provides a more detailed description of the regulative frame within which socially sustainable mining is attainable.

Social impact assessment should not end in the EIA process; it should continue throughout the life cycle of a mine. Changes in the activity of a mine lead to changes in its social impact. Interaction with the local community is also enhanced by the social licence to operate, which is based on earning the local residents' acceptance time and time again. Thus, the social licence to operate is not an administrative permit defining operational conditions; it entails broader communication with the local community as well as environmentally and socially responsible mining. Chapter 4 of this guide depicts the connection between social impact assessment, environmental legislation, and the social licence to operate.

The provisions of the old Mining Act on after-care measures were laid down poorly. Also local people have expressed their concern about the issue. The new Mining Act, together with the Environmental Protection Act, improves this situation. Chapter 5 of this guide discusses collaterals and other issues that can be used to ensure proper after-care measures and the acceptability of mining also when the activity is terminated. The unfortunate international example of Giant Mine demonstrates the worst that can happen if after-care measures are not taken seriously from the beginning and if risk management is not in order. (See e.g. Banfield & Jardine 2013.) On the other hand, proper after-care measures can be seen as an asset in view of other industries, such as tourism, energy production, and energy storage.

The Hannukainen mine in Kolari and the Kittilä mines have engaged in practices contributing to social sustainability, but some improvement needs have also emerged. Chapter 6 of this guide contains recommendations on best practices that are based on the above observations and other research conducted as part of the DILACOMI project. The recommendations are generic, which means that they have to be adjusted according to individual situations. The recommendations concern especially social impact assessment, land use planning, and the reconciliation of mining with other industries. Hopefully, the recommendations are helpful on the way toward socially more sustainable mining.

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Figure 5. The Suurikuusikko open-pit gold mine in Kittilä. Photo: Mikko Jokinen.

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Sound Mining in the North offers guidelines for operators who are getting prepared for launching a mining project and for sustaining it during its entire life cycle. The book is intended specifically for mining companies, authorities, municipalities, and tourism businesses. It is also useful to citizens who wish to actively promote the social sustainability of mining projects.

Tekes

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