
Regulating Environmental Impacts of Mining in Norway

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Abstract

The article examines how environmental concerns of mining can be addressed under the Minerals Act, the Planning and Building Act and the Pollution Control Act, as well as potential effects of the principles set out in the Nature Diversity Act. One objective of the article is to contribute to a discussion of distribution of power and responsibility for management of ecosystem services among central public authorities, local communities and market actors. The regulatory and administrative regime established to address environmental concerns does not seem to be up to speed with the challenges posed by the increased interest in mineral mining in Norway. The main weaknesses identified are related to the Norwegian regime's reliance on local authorities in mineral mining cases, the unclear division of competence between local authorities, mining authorities and environmental authorities, and the extent of devolution of power to public authorities without clear duties to impose and enforce environmental requirements and conditions. The article also points out the particular problems associated with marine waste deposits. Finally, it observes that despite the important environmental consequences of mineral mining, the regulatory framework does not significantly strengthen the position of stakeholders with diffuse interests or weak bargaining power.

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1. Introduction

This article focuses on environmental consequences of mining of minerals, as distinguished from stone quarries. The environmental consequences of the mining are obvious – the environmental interferences associated with accessing the minerals, industrial activities to process the minerals, the transportation infrastructure needed, and the deposit of mining waste. Norway has a long history of mining, with the Røros copper mine (listed as a World Heritage Site) and the Kongsberg silver mine as prime examples. The environmental consequences of the Røros mining activities are still very much present in the area, in particular the absence of forests due to use of wood in the mining process until the late 1880s.¹

The starting point for this article is the Minerals Act of 2009² which regulates the ownership of and searching for minerals and subsequent permits to explore and mine. The objective of the Act is to 'promote and ensure socially responsible administration and use of mineral resources in accordance with the principle of sustainable development'. Given the recent adoption of the Mining Act, it is of particular interest to look clos-

¹ See www.worldheritageroros.no/ (in English). For more details, see www.verdensarvenroros.no/res-sursene/1045 (in Norwegian).

² Lov om erverv og utvinning av mineralressurser (mineralloven), 19 June 2009 no. 101. An English translation of the Act is available at www.regjeringen.no/upload/NHD/Vedlegg/lover/mineralsact_translation_may2010.pdf.

er at how the distribution of the responsibility for environmental considerations has been divided between mining authorities, local authorities and environmental authorities. The extent to which environmental considerations are relevant when mining authorities exercise authority under the Act will be explored in section 2. Municipalities are involved through land use planning decisions, as well as environmental impact assessments (section 3). Moreover, environmental authorities are involved through pollution permits and decisions regarding waste management, as well as their duty to ensure fulfillment of environmental quality standards (section 4). The principles set out in the Nature Diversity Act, which apply to all relevant decisions of public authorities, will be explored separately (section 5). One objective of this article is to contribute to a discussion of distribution of power and responsibility for management of ecosystem services among public authorities (with a primary focus on central authorities), local communities and market actors. The focus is on the legislative distribution of decision-making power, procedural functions and rights of participation in decision-making processes among the three groups of actors (section 6).

Norway has undertaken a number of international commitments that are relevant to environmental impacts of mining activities. There has been significant discussion regarding the indigenous peoples' rights in accordance with article 27 of the International Covenant on Civil and Political Rights (1966) and articles 14 and 15 of ILO Convention (No. 169) concerning Indigenous and Tribal Peoples in Independent Countries (1989). The Sami population uses approximately 40% of the area on the Norwegian mainland for reindeer herding purposes. In addition, some international commitments may be relevant to the direct environmental consequences of mining, such as the European Landscape Convention

(2000) and the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979, in particular the Emerald Network). Norway has also joined several treaties and EU directives that are relevant to the treatment of mining waste, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), Directive 2006/21/EC on the management of waste from extractive industries, Directive 2000/60/EC establishing a framework for Community action in the field of water policy as annexed to the Agreement on the European Economic Area (1993), and the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic (1992). This article does not focus on indigenous rights or the international environmental commitments. Such commitments will only be mentioned briefly where relevant.

2. The Minerals Act and environmental considerations

One general objective of Norwegian environmental policy is to integrate environmental considerations in sector specific legislation and the decision making procedures of relevant authorities.³ We may thus expect the Minerals Act to contain environmental provisions, and to clarify the extent to which and the procedures for how environmental considerations shall be taken into account. In accordance with the objective to ensure that mining activities respect the principle of sustainable development, section 2 of the Act states that:

the administration and use of mineral resources pursuant to this Act shall ensure that the following interests are safeguarded:

³ I. L. Backer, Integrasjonsprinsippet – er det noe bedre alternativ? In Backer, Fauchald and Voigt (eds) *Pro Natura. Festskrift til Hans Christian Bugge på 70-årsdagen* (Oslo, Universitetsforlaget 2012) pp. 42–62.

... b) the nature foundation of Sami culture, commercial activity and social life; c) the surroundings and nearby areas while operations are being carried out; d) the environmental consequences of extraction; and e) long-term planning relating to subsequent use or reclamation of the area.

Accordingly, a broad range of environmental consequences are mandatory considerations when exercising public authority under the Act. A failure to take into account such consequences must be regarded as an error that could lead to the annulment of a decision to award a permit.⁴

It is made clear in the preparatory works that other provisions of the Act shall be interpreted in light of section 2.⁵ One question is whether section 2 also involves obligations of result, in the sense that a permit allowing serious deterioration of the surrounding environment can be invalidated as being contrary to section 2. While the plain wording of section 2 as quoted above (the terms 'shall ensure' and 'are safeguarded')⁶ could indicate such an interpretation, the labelling of the provision as a provision regarding 'considerations', the linking of the provision with section 1 on the objectives of the Act, and the way in which section 2 is described in the preparatory works⁷ lead to the conclusion that

it cannot be interpreted as providing minimum obligations of result.

Owners and users of the property on which search and exploration of minerals is planned have the possibility of denying activities that 'may cause damage of significance' (sections 9 and 19 of the Act). However, owners and users are also free to accept such activities, and nothing would prevent those who want to search and explore from entering into agreements whereby compensation is paid for being allowed to carry out the activities. The term 'users' is unclear. Is it limited to those who have registered legal rights of use, or can it be extended to other groups of users, such as those who use the area for recreational purposes on a regular basis? The preparatory work is not clear on this point. On the one hand, references to environmental protection indicate that a broad range of users could be relevant.⁸ On the other hand, an obligation to obtain consent from a broad range of undefined users is a demanding task and is unlikely to be strictly enforced. Moreover, the discussion in the preparatory work of who should be notified of searching activities indicates a narrow approach to the 'user' concept, limiting it to those user rights that are comparable to full ownership.⁹ Hence, a claim from a local association of recreational users or neighboring property owners that planned search or exploration cannot be carried out until they have consented is unlikely to succeed.

Once the explorer has concluded that minerals can be extracted on a commercial basis, the explorer may enter into an agreement with

⁴ See Lov om behandlingsmåten i forvaltningssaker 10 February 1967 (Public Administration Act, an English translation is available at www.ub.uio.no/ujur/ulovdata/lov-19670210-000-eng.pdf), sections 17, 25, 34 and 42.

⁵ Ot.prp. nr. 43 (2008–2009) Om lov om erverv og utvinning av mineralressurser (mineralloven), p. 129.

⁶ The official Norwegian wording: 'Innenfor rammen av § 1 skal forvaltning og bruk av mineralressursene etter denne lov ivareta hensynet til ...'.

⁷ Ibid. pp. 42, 100 and 129. However, the issue is not discussed in any detail in the preparatory works. The initial proposal drafted by the Ministry of Trade and Industry in 2003 did not contain any provision corresponding to section 2, see www.regjeringen.no/nb/dep/nfd/dok/horinger/horingsdokumenter/2003/horingsnotat-mineral.html?id=276488 (in Norwegian).

⁸ Ot.prp. nr. 43 (2008–2009) Om lov om erverv og utvinning av mineralressurser (mineralloven), pp. 53–54. See also pp. 129 and 137 (where it is stated that reindeer herders are to be regarded as users).

⁹ Ibid. p. 55. The term 'users' was used in the previous minerals legislation, and the preparatory works indicate that the concept used in the new Act should be interpreted in accordance with established practice, which favors a narrow interpretation.

the property owner if the minerals are privately owned or seek an extraction permit if the minerals belong to the state (sections 28 and 29 of the Act). If no agreement with the *property owner* is possible, the explorer may seek permit to expropriate (chapter 7 of the Act). The explorer has an enforceable right to obtain an extraction permit concerning minerals of the *state* once 'the applicant substantiates that the exploration area contains a deposit of minerals owned by the State that is of such an abundance, size and nature that the deposit may be assumed to be commercially viable, or to become commercially viable within a reasonable period of time' (section 29 of the Act). Beyond the general rules of section 2 of the Act, there is no specific *requirement* that environmental issues be taken into consideration when property owners enter into agreements with explorers or when the mining authorities decide on permits to expropriate or extraction permits. The mining authorities are *allowed* to impose conditions in order to prevent or repair environmental damages when permitting expropriation (sections 37 and 38 of the Act). Expropriation would generally be available only where the property owner is opposed to mining activities on the property, and this may be the case when the owner is concerned about environmental consequences. The preparatory work indicates that a broad range of environmental conditions can be imposed in the expropriation permit.¹⁰ We may assume that conditions will correspond to the concerns voiced by the property owner during the negotiations with the explorer.

It is less clear whether environmental conditions may be imposed when the mining authorities issue extraction permits. The strict wording of section 29 as well as its primary focus on the distribution of permits among 'exploring parties' indicate that there should be limited possibility

of imposing conditions when the explorer fulfils the requirements of the provision.¹¹

Against this background, we can conclude that where the conditions for an extraction permit are fulfilled and the explorer reaches agreement with the property owner, there is limited possibility for the mining authorities to impose environmental requirements unless the explorer needs an operating license (section 43) or a plan of operations (section 42). Where the state or other public authorities are direct they may require explorers to fulfil environmental requirements. Where the state is indirect owner through a state-owned enterprise (e.g. through enterprises such as Norske Skog), current practice indicates that the enterprise will be free to decide whether to consent to the mining project solely on the basis of commercial considerations.¹² The extent to which environmental conditions will be part of permits to expropriate depends on whether explorers succeed in concluding agreements with property owners and users, and the attitude of the mining authorities. The preparatory work states that there have so far been few cases of expropriation and that few such cases are expected to occur in the future.¹³

According to section 43 of the Act, *operating licenses* are needed when the extraction of mineral deposits is estimated at more than 10,000 m³ based on volume before extraction. The license may include conditions, in particular in order to promote the objectives stated in sections 1 and 2 of the Act. Such conditions would typically be

¹¹ Ibid. p. 65.

¹² Such practice consists of the statement of the object of the enterprise as set out in its articles of association as well as decisions of the management board of the enterprise, see lov om statsforetak 30 August 1991 no. 71 (Act relating to state-owned enterprises, an English translation is available at <http://www.ub.uio.no/ujur/ulovdata/lov-19910830-071-eng.html>).

¹³ Ot.prp. nr. 43 (2008–2009) Om lov om erverv og utvinning av mineralressurser (mineralloven), p. 67.

¹⁰ Ibid. p. 142–143.

relevant in order to safeguard environmental interests. As the explorer will have to demonstrate the commercial viability of the project before obtaining the extraction permit or when negotiating with private parties, when arguing with local authorities that they should accept the project through planning decisions (see section 3), and when convincing possible investors of the profitability of the project, we may assume that the explorer has significant incentives to provide high estimates of the deposit, and thus to exceed the 10,000 m³ limit. However, the explorer may in some cases have significant incentives to provide low estimates, in particular when the project is controversial due to environmental impacts and when the project will be carried out by the explorer on the explorer's property. In such cases, the explorer could be able to start up the project without having to seek an operating license, and thus avoid burdensome environmental conditions. However, it is up to the mining authorities to decide whether they trust the estimates provided by the explorer, and to make the final decision.¹⁴

When the extraction is estimated at less than 10,000 m³, but more than 500 m³, the explorer shall notify the mining authorities (section 42 of the Act). The mining authorities may in special cases require a plan of operations, and the plan will have to be approved by the authorities before extraction can begin. This makes it possible for the authorities to ensure that environmental considerations are taken into account. The mining authorities have no obligation to require such plans.

The mining authorities have extensive powers to enforce their decisions and associated conditions. However, there is no explicit duty for the authorities to make use of their powers. Omission to take action as well as omission to

impose conditions in relevant permits can possibly be brought to courts with claims that action is mandatory or that permits are invalid. As has been explained above, it would be difficult to establish legal basis for such claims under the current Act. Based on existing jurisprudence, it is likely that Norwegian courts will reject claims that public authorities have a duty to take certain measures where the legal bases for such claims are unclear.¹⁵ But there are strong arguments that courts should play a more active part in ensuring that public authorities comply with duties to impose conditions as well as duties to act.¹⁶

3. Land use planning and environmental impact assessment

Mining activities cannot be carried out unless they are in accordance with existing municipal land use plans. There are two categories of such plans in Norway; the general 'municipal master plans' and the specific 'zoning plans'.¹⁷ Such plans are adopted by elected municipal councils. While the master plans in general are drafted by politicians and bureaucrats, the zoning plans are most often drafted by private parties, including mining companies.¹⁸ A zoning plan must be in place for all 'major building and construction projects and other projects which may have substantial effects on the environment and society' (section 12-1 of the Planning and Building Act),

¹⁵ See, in particular, Rt 2003 p. 1630.

¹⁶ See J.E.A. Skoghøy, *Kravene til søksmålgjenstand, partstilknytning og søksmålsituasjonen etter tvisteloven – noen grunnleggende spørsmål*, in *Lov og Rett*, 2006, pp. 419–420.

¹⁷ See chapters 11 and 12 of the Planning and Building Act of 2008 (*Lov om planlegging og byggesaksbehandling*, 27 June 2008 no. 71), English translation available at www.regjeringen.no/en/doc/laws/Acts/planning-building-act.html.

¹⁸ Zoning plans may have to be drafted by public authorities where it has been decided in master plans that such planning must be done in the form of 'area zoning plans' (section 12-2 of the Planning and Building Act).

¹⁴ *Ibid.* p. 81.

which means that private parties must prepare such plans before extraction of minerals but probably not before exploration.¹⁹

The municipal master plans cover all areas of the municipalities and define the activities that are permitted. A zoning plan may deviate from the master plan (section 1–5 of the Act), and thus allow mining activities in areas that are intended for other activities according to the master plan. The main function of the *master plan* in relation to mining is therefore to set aside areas for mining activities, rather than to prohibit mining activities from certain areas. The provisions concerning municipal master plans contain no special category for mining. Areas for mining are identified by the general land-use objective ‘buildings and installations’, and the sub-objective ‘raw material extraction’ (section 11–7 no. 1 of the Act). This sub-objective can be used for other raw material extractions than mineral mining. Hence, a proposal for a ‘raw material extraction’ area in a municipal master plan may not alert stakeholders that mineral mining is planned.

Municipalities need geological information to be able to set aside the most promising areas for mining. Compared to Sweden and Finland, Norway falls behind in terms of mapping of mineral resources. The current objective is to map 75% of the Norwegian mainland by 2018.²⁰ So far, there are more than 4 000 known metal deposits in Norway, of which only three are subject to mining.²¹ The potential for increased mining is consequently substantial.

¹⁹ See Ot.prp. nr. 43 (2008–2009) Om lov om erverv og utvinning av mineralressurser (mineralloven), p. 71, which states that extraction will generally require a zoning plan, while exploration normally will not require such a plan.

²⁰ See Norwegian Ministry of Trade and Industry, *Strategy for the Mineral Industry* (Oslo, 2013) p. 40. Available at www.regjeringen.no/pages/38262123/strategyforthemineralindustry_2013.pdf.

²¹ Ibid. p. 34.

In order to secure coordination of planning at the municipal level, thematic regional plans and cooperation among municipalities are encouraged.²² However, such planning and cooperation is in an early phase in all regions. Currently, the regional level and other municipalities essentially get involved during the drafting of specific plans for mining projects, in particular during public hearings (sections 12–9 to 12–12 of the Act) and by raising objections against planned projects (sections 11–16 and 12–13 of the Act).

An environmental impact assessment (EIA) is mandatory for mining that involves extraction of more than 2 million m³ of matter or that affects a surface area of more than 0.2 km².²³ This duty to carry out EIAs applies in cases of drafting of municipal master plans and zoning plans. In addition, EIAs shall be carried out based on a case-by-case assessment of impacts of the planned project, including impacts on protected areas, wilderness, vulnerable species and nature types, and recreational use, as well as pollution.²⁴ Some mining projects that would require operating licenses (extraction of more than 10,000 m²) may not need to carry out EIAs.

If the municipal council wants to list an area as ‘raw material extraction’ in the municipal master plan, the municipality has to carry out an EIA if the thresholds listed in the Government EIA regulation are met.²⁵ However, as the main

²² Miljøverndepartementet, *Temaveileder. Uttak av mineralske forekomster og planlegging etter plan- og bygningsloven* (2011) p. 5. Available at www.regjeringen.no/upload/MD/2011/vedlegg/veiledninger/mineralske_forekomster/temaveileder_mineral.pdf (Norwegian only).

²³ See Forskrift om konsekvensutredninger, FOR-2009-06-26-855, § 2 and annex I, section A.3.

²⁴ Ibid. §§ 3 and 4, and annex II section 10.

²⁵ Ibid. See also Miljøverndepartementet, *Temaveileder. Uttak av mineralske forekomster og planlegging etter plan- og bygningsloven* (2011) p. 7 which indicates the possibility of requesting the mining company to carry out

function of identifying areas as potential mining sites is to ensure that the areas are not irrevocably used for other purposes without serious considerations of the areas' value for mineral extraction, it may be difficult to determine whether EIAs are required (i.e. is one of the thresholds met?) and to carry out a thorough assessment based on extensive information about potential impacts. Moreover, interested parties such as environmental NGOs may not be willing to spend significant time and resources during such EIAs due to uncertainties regarding realization of the project.²⁶ Consequently, there is significant risk that an EIA at this stage will suffer from weaknesses in terms of effectively addressing environmental concerns. Moreover, while the authority to impose environmental requirements and conditions in municipal master plans is extensive (sections 11–8, 11–9 and 11–10), such authority may remain unused due to uncertainties regarding realization of specific projects and weaknesses of the EIA process. Municipal authorities may introduce such requirements or conditions when revising the plan at a later stage, but such revisions cannot be applied to ongoing activities, i.e. activities that have obtained required permits (sections 11–6 and 12–4 of the Act).

If an area has been set aside for raw material extraction purposes in the master plan and an EIA has been carried out, the starting point is that there is no duty to carry out a new EIA along with the *zoning plan*.²⁷ The decision on whether to nevertheless require an EIA in these cases has been placed with municipal authorities, which are to determine whether the project was ad-

equately assessed in the EIA of the municipal master plan.²⁸ It is unclear whether a decision not to require a new EIA can be subject to administrative appeal or whether courts would accept a claim that a new EIA must be carried out. Hence, the duty to carry out an EIA along with the master plan may have as a consequence that environmental impacts of the specific project are not thoroughly assessed along with the zoning plan, and consequently that public participation remains ineffective.

The timing and quality of EIAs are essential to the requirements and conditions spelled out in the zoning plan. Zoning plans for mineral mines and the potential EIAs are generally the responsibility of mining companies.²⁹ There is no specific procedure to check whether the EIA and the zoning plan are of sufficient quality beyond the hearing processes and the possibility of raising objections.³⁰ The mining companies' main interests are presumably to maximize profits from the project and to reduce political risk as much as possible. While profitability may be increased by avoiding environmental requirements and conditions in zoning plans, such a strategy may increase political risks, as public authorities may engage in processes to impose requirements and conditions once they see the actual consequences of the mining project. While some companies may emphasize short term profitability, others

a more specific EIA as part of the process of adopting the municipal master plan.

²⁶ The fact that only three mines are operating despite there being more than 4 000 metal deposits is illustrative, see note 22 above.

²⁷ Forskrift om konsekvensutredninger, FOR-2009-06-26-855, § 2(2) and § 3(2).

²⁸ Miljøverndepartementet, Temaveileder. Uttak av mineralske forekomster og planlegging etter plan- og bygningsloven (2011) p. 10. There are no specific guidelines for EIA of mining. The actors generally rely on the guidelines adopted for road construction, see Statens vegvesen, Konsekvensanalyser. Veiledning, Håndbok 140 (2006).

²⁹ The municipality may require that the zoning plan be adopted as an 'area zoning plan' (section 12–2 of the Act). In these cases, the responsibility for drafting the plan would rest with the municipality.

³⁰ This could be a particularly important problem for EIAs in a small country such as Norway, with few actors (companies, consultancies and research institutions) and close contact between regulatory authorities and market actors.

may emphasize long term stability. Such decisions are likely to depend on the characteristics of the project (e.g. how long will the mining operations last), of the company (e.g. whether it is locally incorporated), and of the public authority (e.g. whether it has significant resources and legal expertise). In any case, absent a duty to carry out an EIA and the associated public scrutiny, environmental requirements and conditions are likely to be at a low level in zoning plans.³¹

EIAs and the planning decisions are closely linked to pollution permits and waste treatment issues. EIAs generally serve as bases for identifying pollution and waste issues, and options for dealing with them. They also establish bases for monitoring and decisions regarding compensatory measures.³² The planning decisions generally include requirements and conditions that aim at preventing environmental damage from pollution and waste, for example location of the mine and associated infrastructure, the extent to which mining activities have to be carried out underground, and modes of extraction. Coordination between EIAs, municipal planning decisions and pollution permits decided by governmental authorities is therefore a challenging issue.

One recent case which may illustrate the planning process is the mining company Nussir ASA's plans to reopen and extend a copper mine in Kvalsund, a municipality in the county Finnmark with 1091 inhabitants. This is a large-scale project where mining is estimated to last for 25–30 years, and it is estimated to create approximately 150 permanent jobs and to generate annual revenue of NOK 600–700 million. The zoning plan

and the EIA were combined in one document of 178 pages and presented to the municipal council, which accepted the plan on 8 May 2012.³³ The plan contains some brief provisions on environmental issues regarding existing contaminated soil, noise and dust. The Sami parliament and local reindeer herders raised objections against the plan. The mediation process resolved some of their concerns and remaining objections were transferred to the Ministry of Local Government and Modernisation, which accepted the plan as adjusted after the mediation meeting.³⁴ The municipality decided not to consider an objection from the Directorate for Fisheries regarding the EIA of marine waste deposits in the Repparfjord since it was submitted after the deadline.³⁵ This case demonstrates problems that are likely to arise when municipalities make planning decisions in mining cases. Such problems include very significant commercial and economic interests, controversies related to impacts for the local environment and existing economic and cultural activities, how to deal with complex assessments of environmental and social impacts, and the responsibility of taking into account national interests (the fjord in question had been identified as being of national interest). While municipalities

³³ Relevant documents are available at: www.nussir.no/en_enviro_zoning.php (in Norwegian).

³⁴ The decision of the Ministry, dated 20 March 2014, is available at: www.regjeringen.no/upload/KMD/PLAN/dokumenter/Nussir_vedtak.pdf (in Norwegian).

³⁵ The preparatory work of the Planning and Building Act states that local authorities should take objections into account if they relate to national interests, and that the Ministry may reject a plan based on such objections, see Ot.prp. nr. 32 (2007–2008) Om lov om planlegging og byggesaksbehandling (plan- og bygningsloven) (plandelen), p. 193. Despite the fact that the objections were related to a fjord and a river that are recognized being of national interests as habitats for salmon by a decision of the Parliament (see www.miljostatus.no/Tema/Fer-skvann/Laks/Nasjonale-laksevassdrag-og-laksefjorder/, in Norwegian), both the municipality and the Ministry decided to disregard the objections.

³¹ Ibid. p. 10 lists a few options that may be considered by municipal authorities, including in particular requirements that the project be carried out 'step-by-step' in order to ensure environmental restoration as the project proceeds.

³² Forskrift om konsekvensutredninger, FOR-2009-06-26-855, § 12.

have broad discretion when adopting plans, it may not be easy to use such discretion to effectively safeguard environmental interests in major mining cases.

4. Pollution permits and waste deposits

The Pollution Control Act (1981) requires pollution permits for mining projects (sections 7 and 11 of the Act) and contains rules concerning waste (chapter 5 of the Act).³⁶ The Government Regulation on Pollution (Pollution Regulation) adopted under the Act contains chapters on noise and dust that determine the acceptable thresholds.³⁷ It contains no specific rules on pollution or waste from mineral mining.³⁸

In addition to direct environmental consequences from mining activities, which involve noise and dust, mineral mining may require the establishment of processing plants to extract the minerals, in particular in cases of large mining operations. Such processing plants frequently use chemicals (e.g. flotation chemicals) and large quantities of water during processing. Such processing generally results in large quantities of mining waste, consisting of rock in various qualities, chemicals, and water. The Government Regulation on Waste (Waste Regulation) under the Act contains a separate chapter on mining waste.³⁹

One question is whether treatment and deposit of mining waste should be dealt with in the form of a pollution permit or a permit to establish and operate a waste treatment facility. The approach of Norwegian environmental authorities has been to issue emission permits that cover all emissions as well as waste treatment. Such permits have until recently not taken into account the use and emission of chemicals.⁴⁰ Norway implemented the EU Directive on the management of waste from extractive industries (2006/21/EC) by adding the chapter on mining waste to the Waste Regulation on 15 June 2012.⁴¹ Environmental authorities have decided to continue the practice of regulating waste issues through pollution permits and not issue separate decisions on waste treatment and disposal.⁴² One major problem of integrating waste issues into pollution permits is the risk of failure to adequately implement the Directive's definition of 'waste facilities', not appropriately taking into account that mining companies are 'operators' of such facilities, and not implementing its provision on permits to waste facility operators (article

³⁶ Lov om vern mot forurensninger og om avfall (forurensningsloven) 13 March 1981 no. 6 (an English translation of the Act is available at www.regjeringen.no/en/doc/Laws/Acts/Pollution-Control-Act.html?id=171893).

³⁷ Forskrift om begrenning av forurensning (forurensningsforskriften), FOR-2004-06-01-931, chapters 5 and 7. Such thresholds were referred to in the zoning plan in the Nussir case.

³⁸ Ibid. chapter 22 regulates dumping at sea from ships, and is not applicable to dumping through pipelines, such as the one planned in the Nussir case, and chapter 30 regulates quarries and does not apply to mineral mining.

³⁹ Forskrift om gjenvinning og behandling av avfall (avfallsforskriften), FOR-2004-06-01-930, chapter 17.

⁴⁰ See, e.g., permits issued to Rana Gruber in 1994 (as updated in 2008 and 2010, on file with author), which contained no regulation of emission of flotation chemicals, and the amended permit issued in 2012 which contains such regulations (available at www.norskeutslipp.no/WebHandlers/PDFDocumentHandler.ashx?documentID=27739&documentType=T&companyID=27449&arr=0&epslanguage=no, in Norwegian).

⁴¹ The directive entered into force for parties to the Agreement on the European Economic Area (1993, EEA Agreement) as of 1 August 2011, see Annex XX to the Agreement, footnote 24. The Waste Regulation does not set specific time limits for decisions of public authorities to revise existing pollution permits (section 30–17 of the Regulation). The Directive had to be implemented by EU member states before 1 May 2008.

⁴² Section 17–4 of the Waste Regulation. See also the 2012 permit mentioned in note 41 above, and Klima og forurensningsdirektoratet [currently Miljødirektoratet], Veileder for søknad om tillatelse til virksomhet etter forurensningsloven. Landbasert industri, TA3006/2012, pp. 12–13.

7 of the Directive). This is likely to have implications for how mining companies organize their work with waste treatment and deposits, and for how companies and public authorities relate to issues of responsibility and liability when mining activities terminate. For example, will mining companies be allowed to cease to exist even if the waste facility remains?

Norwegian environmental authorities have broad discretion regarding the requirements and conditions that may be included in pollution permits (sections 11 and 16 of the Pollution Control Act). Moreover, the permits can be revised to take into account new or increased environmental concerns or changed circumstances (section 18 of the Act).⁴³ The main questions are whether the authorities are under legal obligations to impose certain requirements or conditions, and how their discretion has been used. As to legal obligations, the Pollution Regulation implements EU rules regarding noise (Directive 2002/49/EC relating to the assessment and management of environmental noise) and local air quality (Directive 96/62/EC on ambient air quality assessment and management).⁴⁴ The Regulation establishes environmental quality standards that must be met, and the pollution permits are the main means of achieving compliance. The chapter on minerals waste of the Waste Regulation does not set environmental quality standards, but it introduces other substantive, procedural and institutional requirements that environmental authori-

ties must implement through pollution permits. Moreover, the Government Regulation on the Framework for Water Management (Water Regulation) includes environmental quality standards that are highly relevant for mineral mining.⁴⁵ The quality standards established on the basis of the Water Regulation must be implemented through requirements or conditions in pollution permits. There are thus significant obligations to impose requirements and conditions in pollution permits according to the existing legislation.

As to how the discretion has been carried out, environmental authorities refrained from regulating some important environmental impacts of mineral mining until 2008, in particular as related to marine waste deposits and emission of chemicals.⁴⁶ Recent permits regulate the emission of chemicals, but the Norwegian Environment Agency has decided that mining companies shall have significant flexibility to introduce new chemicals.⁴⁷ There are particular problems associated with permits that allow marine waste deposits, e.g. due to lack of control of where the waste is deposited, lack of knowledge regarding environmental impacts of the waste, and problems associated with monitoring and restoration. While requirements and conditions in pollution permits generally contain elaborate regulation of land-based deposits of waste, there are so far few traces of requirements or conditions based on the Water Regulation in those parts of the permits that concern marine waste facilities.

⁴³ Hans Christian Bugge, *Lærebok i miljøforvaltningsrett*, 3. ed., Oslo: Universitetsforlaget, 2011, pp. 274–283, and Inge Lorange Backer, *Innføring i naturressurs- og miljørett*, 5. ed., Oslo: Gyldendal, 2012, pp. 321–333.

⁴⁴ The Pollution Regulation's chapter on air quality implements a number of more specific directives as well. However, it does not yet implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe, which was entered into force for Norway on 1 November 2012, see Annex XX to the Agreement on the European Economic Area (1993), footnote 140.

⁴⁵ Forskrift om rammer for vannforvaltningen, FOR-2006-12-15-1446, which implements Directive 2000/60/EC of establishing a framework for Community action in the field of water policy, as well as more specific directives. See also article 13.4 of the Directive on the management of waste from extractive industries (2006/21/EC).

⁴⁶ See the pollution permit issued to Sydvaranger Gruve AS of 23 April 2008 (on file with author).

⁴⁷ See decision of 10 December 2010 of Klima- og forureningsdirektoratet, *Endrede krav til utslippskontroll*, p. 4 (on file with author).

Mineral mining companies are vulnerable to world market prices. Experience shows that companies may have significant need to adjust production. This means that they may seek revision of the terms of pollution permits, in particular when they set strict limits regarding use of chemicals or amounts of waste. Practice has shown that applications for revisions are frequently submitted late, and that, despite the low number of mining companies, Norwegian environmental authorities have been very slow in processing such applications.⁴⁸ Hence, companies and environmental authorities may end up having a common interest in flexibility regarding revision of permits and monitoring of compliance, to the disadvantage of environmental concerns.

Against this background, the main concern regarding the Norwegian reliance on pollution permits is that they do not appropriately take into account the fact that mining companies must be regarded as operators of waste facilities and that they fail to sufficiently address environmental issues regarding marine waste facilities. The latter is closely related to EIAs. In general, there have been significant controversies related to the quality of information and assessments of marine waste issues in EIAs.⁴⁹ Moreover, marine deposits raise significant challenges regarding monitoring. As a consequence, public authorities have been relying heavily on information obtained from mining companies regarding compliance with the requirements and conditions set out in pollution permits.⁵⁰ Given the reliance on marine deposit of mining waste in Norway, it is

problematic that the Waste Regulation does not address issues of particular importance to marine waste facilities. The knowledge regarding environmental impacts of processing chemicals, the flexibility of mining companies to introduce new chemicals, and the fact that waste containing heavy metals has not been specifically regulated in pollution permits remain significant concerns.

5. The Nature Diversity Act

Chapter II of the Nature Diversity Act (2009) sets out objectives and principles that apply regardless of the legislation according to which decisions are made (section 7 of the Act).⁵¹ The principles concern knowledge regarding impacts on ecosystems and species, the precautionary principle, ecosystem approach and cumulative effects, the user-pays principle, and environmentally sound techniques and methods of operation. Hence, decisions under the Minerals Act, the Planning and Building Act, and the Pollution Control Act must make reference to relevant principles and indicate how they have been considered.⁵²

In light of the competence of mining authorities to impose requirements and conditions, as well as the concerns identified above regarding local planning decisions and pollution permits,

⁵¹ Lov om forvaltning av naturens mangfold (naturmangfoldloven) 19 June 2009 no. 100 (an English translation of the Act is available at www.regjeringen.no/en/doc/laws/acts/nature-diversity-act.html?id=570549). Regarding the objectives set out in sections 4 and 5 of the Act, see Miljøverndepartementet, Veileder. Naturmangfoldloven kapittel II. Alminnelige bestemmelser om bærekraftig bruk – en praktisk innføring, 2012, p. 9.

⁵² The second sentence of section 7 states that decisions 'shall state how these principles have been applied'. For more details, see Miljøverndepartementet, Temaveileder. Uttak av mineralske forekomster og planlegging etter plan- og bygningsloven (2011) pp. 15–16, Klima- og forurensningsdirektoratet, Veileder for søknad om tillatelse til virksomhet etter forurensningsloven. Landbasert industri, TA3006/2012, p. 3, and Miljøverndepartementet, Veileder. Naturmangfoldloven kapittel II. Alminnelige bestemmelser om bærekraftig bruk – en praktisk innføring, 2012, pp. 14–15.

⁴⁸ The main examples are recent revisions of permits to Rana Gruber. Relevant documents on file with author.

⁴⁹ See the account of the Nussir case above.

⁵⁰ See the monitoring reports regarding Sydvaranger Gruver and Rana Gruber, available at www.norskeutslipp.no/no/Listesider/Virksomheter-med-utslippstillatelse/?s=600&t=Mineralsk+industri,+unntatt+pukkverk (in Norwegian).

we may ask whether there are certain elements of the principles set out in the Nature Diversity Act that are particularly important for decisions regarding mineral mining. As to the mining authorities, their duty to take into account environmental impacts must be considered in light of the provision concerning the knowledge base for decisions (section 8 of the Nature Diversity Act). Another issue of particular interest is the competence of mining authorities to require financial security for measures needed to clean up the site or carry out safety measures (section 51 of the Minerals Act). This competence is closely related to the 'user-pays' principle (section 11 of the Nature Diversity Act). Moreover, their decisions on which mineral resources to be surveyed and extracted are closely related to the ecosystem approach and cumulative effects (section 10 of the Act). Finally, their decisions regarding technology to be used during exploration and extraction are closely related to environmentally sound techniques and methods of operation (section 12 of the Act).

As to planning and building authorities, challenges regarding lack of knowledge and ability or willingness to check the reliability of assessments undertaken by the mining company and their consultants, indicate that local authorities are faced with significant uncertainty regarding long term impacts of planning decisions. The duty to ensure a sufficient knowledge base as regard environmental issues may therefore be of particular importance where an EIA has not provided the information needed (section 8 of the Act). Where the information remains insufficient, the precautionary principle would be relevant both for planning decisions and during EIA processes (section 9 of the Act).

As to pollution authorities, there is a significant lack of knowledge concerning coastal ecosystems, the effects of processing chemicals on marine living organisms, as well as the loca-

tion and long term effects of waste deposits. The precautionary principle is consequently relevant to decisions regarding waste facilities (section 9 of the Act). Moreover, coastal ecosystems are generally subject to significant human use, and the ecosystem approach and cumulative effects must be taken into account when considering pollution permits in coastal areas (section 10 of the Act).

The above listing of relevant decisions and associated principles of the Nature Diversity Act is by no means exhaustive. It is an illustrative list of considerations that must be taken and spelled out in the relevant decisions. While national environmental and mining authorities seem to have significant focus on the principles of the Nature Diversity Act, municipalities do not yet seem to pay significant attention to the principles in their decisions.⁵³

6. Concluding remarks

While mining used to be an essential economic activity in Norway, it has been of minor importance in recent decades. Increasing mineral prices, access to marine transportation, the possibility of marine waste deposits, the need to phase out Norway's reliance on petroleum extraction, and the call for economic activities in rural and Northern communities are factors that point towards increasing interest in exploiting mineral resources. Weighting the need to take into account environmental concerns against the interests in providing significant opportunities for profitable mineral mining is challenging. The Norwegian regulatory and administrative regime established to address environmental concerns does not seem to be up to speed with these challenges.

⁵³ See, e.g. the decision regarding a zoning plan in the Nussir case. Relevant documents are available at: www.nussir.no/en_enviro_zoning.php (in Norwegian).

One main weakness is the Norwegian regime's reliance on local authorities in mineral mining cases, since small communities have limited ability to handle complex cases with long-term impacts in a manner that take appropriately into account all relevant interests. Another weakness is the unclear division of competence between local authorities, mining authorities and environmental authorities. This may increase costs of mining companies and fragment the responsibility to ensure that environmental concerns are appropriately addressed. A third problem is the extent of devolution of power to public authorities without clear duties to impose and enforce environmental requirements and conditions. This decreases predictability for all stakeholders, increases the possibility of bargaining, and may thus increase the possibility of lowering the costs of mining companies, potentially with environmentally harmful consequences.

Particular problems are associated with marine waste deposits. Many mining projects depend on the availability of such deposits at low cost. The Norwegian regulatory regime does not yet reflect international commitments and standards. Moreover, public authorities seem willing to make decisions based on weak knowledge regarding ecosystems and long-term impact of waste deposits. They also seem to be willing to make decisions that can cause significant damage to ecosystems recognized as being of national importance.

In light of these findings, we may observe that the Norwegian legislation seems to empower local communities and environmental authorities when it comes to decision-making power and procedural functions. Moreover, there seems to be broad rights of participation in decision-making processes. However, in light of the high degree of flexibility under the legislation, the procedures for planning decisions and environmental impact assessments, and the characteris-

tics of marine waste deposits, we may question whether such empowerment and participation are likely to be effective in the sense that they will ensure high degree of environmental protection. It seems that the current decision-making framework favors political freedom of decision-makers and promotes bargaining between public authorities and stakeholders with significant interests in the projects. Despite the important environmental consequences of mineral mining, the framework does not significantly strengthen the position of stakeholders with diffuse interests or weak bargaining power.