

STUDY

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Social and environmental impacts of mining activities in the EU



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Social and environmental impacts of mining activities in the EU

Abstract

This study, commissioned by the Policy Department for Citizens' Rights and Constitutional Affairs for the Committee on Petitions, provides a brief overview of the main social and environmental impacts of mining activities in the EU. It also gives an overview of the most important relevant EU legislation and a short assessment of implementation and compliance by Member States. It discusses and assesses a number of petitions on mining, as well as possible measures to reduce unwanted impacts of mining, and the future of mining. Finally, the study provides conclusions, policy recommendations and suggestions to help improve the existing EU mining policy and legislation.

This document was requested by the European Parliament's Committee on Petitions.

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LIST OF ABBREVIATIONS

AA	Appropriate Assessment
BAT	Best Available Techniques
BREF	Best Available Techniques Reference Document
CJEU	Court of Justice of the European Union
EC	European Commission
ECHR	European Convention on Human Rights
ECJ	European Court of Justice
ECtHR	European Court of Human Rights
EIA	Environmental Impact Assessment
ELD	Environmental Liability Directive
EP	European Parliament
EU	European Union
FPIC	Free, Prior and Informed Consent
HRIA	Human Rights Impact Assessment
IED	Industrial Emissions Directive
ILO	International Labour Organisation
ILO 169	Convention concerning Indigenous and Tribal Peoples in Independent Countries
IPPC	Directive 96/61/EC concerning Integrated Pollution Prevention and Control
JTM	Just Transition Mechanism
MAPP	Major-accident Prevention Policy
MS	Member State
MWD	Mining Waste Directive

NGO	Non-governmental Organisation
RBMP	River Basin Management Plan
RMI	The Raw Materials Initiative
SEA	Strategic Impact Assessment
SIA	Social Impact Assessment
PAH	Polycyclic Aromatic Hydrocarbons
TFEU	Treaty on the Functioning of the EU
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNECE	United Nations Economic Commission for Europe
WFD	Water Framework Directive

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EXECUTIVE SUMMARY

The aim of this study is to provide an overview of the impacts of mining activities in the European Union, to give a brief overview of the relevant legislation in the EU, to analyse a number of selected petitions, to discuss possible measures to reduce unwanted impacts of mining, to discuss the future of mining activities, and to provide policy recommendations and suggestions to help improve the existing EU mining policy and legislation. In addition, the study aims to discuss the future of mining activities in light of the Green Deal.

In mining activities numerous concerns and impacts are involved. It is, however, difficult to generalise these impacts as the location, size, and mined ore of mines vary widely. What works well in one place may have negative impacts and cause problems elsewhere. Individual mining projects are always a balance between the benefits and impacts at different locations and on varying scales. Mining is place dependent and global at the same time. It is connected to global cyclical economic changes and risks of continuity are always present. The variety of potential environmental and social impacts from mining activities is broad and in individual mining projects only some of them are realised.

As can be seen in the analysis of the petitions selected for this study, environmental and social impacts are tightly intertwined and are part of the whole issue. Moreover, they are difficult to deal with as impact categories in their own right. In many cases, petitions also involve legislative issues. Not all are expressed as impacts, but as concerns and issues that arise. One of the potential environmental impacts mentioned is connected to water issues. A connection with sensitive areas, especially in the case of mining activities in or nearby Natura 2000 areas or other protected areas, is among the greatest concerns, as mining activities here are seen as a threat to these areas. Other important concerns reported are potential environmental impacts, ecological damage to the surroundings, and impacts on other sources of livelihood (in many cases agriculture, food production, nearby farms). These effects can also be interpreted as social impacts as they potentially affect people's incomes.

One of the most common concerns - with some serious potential impacts - is the issue of Environmental Impact Assessments (EIA). In many petitions an inadequate EIA, lack of EIA or incomplete EIA was mentioned, and one of the main groups of social issues and impacts is related to health issues among the local residents, as mining activities are seen as a serious risk to health. Other serious social concerns and impacts are related to municipalities and communities close to the mining activities. Here the mining activities are seen as a threat to the local community and the quality of life in communities. According to some petitions, mining activities can cause irreversible damage, not only to the environment and the countryside, but also to private property and infrastructure. In some cases, local communities considered that plans for future mining activities threatened their social and economic interests. A considerable number of petitions questioned the legitimacy of certain mining activities. Many were submitted to oppose plans for specific mining activities, many also against mining activities in general, so the social issues, concerns and impacts mentioned were wide and significant. Based on the results of the analysis of the petitions, it is obvious that there is a clear tension between global mining activities and local communities and the environment.

Mineral resource management, permitting and mining legislation are within the full competence of the Member States, since raw materials are generally considered to be national natural assets. Member States have their national legislation on exploration, mining activities and mineral rights.

However, EU legislation concerning environmental regulation plays a significant role in providing instruments for the design and various phases of mining activities, and it can be used to ensure that mining and mining waste do not endanger human health and the environment in an unacceptable

way. Still, the EU should look more closely into the role of Social Impact Assessments (SIA) in mining. The Aarhus Convention sets the minimum standard for public participation rights in environmental matters in the EU. These rights are often realised through the EIA processes. Integrating SIA, and regarding the Sámi, potentially also the human rights impact assessment (HRIA), as a compulsory element in the impact assessment, could further improve the implementation of public participation rights during permitting of mining activities.

Currently, the prevailing narrative for much of the mining activities is the growing demand for critical minerals and materials for the energy transition in the EU. However, several mines of non-critical minerals are putting additional strain on the system. Thus, the EU's attempts to secure raw materials from its own territory should focus on the "right" minerals to justify this reasoning. Regulation could, thus, favour critical minerals over others, such as gold. One option for mining activities (to be more acceptable) is that mines should be required to use 100% renewable energy. They should also be required to compensate for the biodiversity they destroy (e.g. through biodiversity offsetting). This means, that ecological compensation should be mandatory in legislation.

In the future, more attention needs to be paid to the social justice impacts in order to understand and mitigate the ongoing and potential future conflicts arising from the increasing need for minerals, which, among other uses, are critical for electrification and the production of renewable energy. An EU level survey should be conducted to systematically bring together the latest scientific insights and to identify both EU and MS level issues regarding social justice impacts stemming from the energy transition, including the production and use of critical minerals.

Identifying and considering different perspectives of the concerns and impacts allows for an exchange of ideas and is a starting point for mitigating impacts and improving legislation. It would also be worthwhile to examine the lessons learnt from the positive mining projects that exist in the EU: how have local concerns and experiences been considered, and how have mining companies responded to them? There might be something to be learned which could aid sustainable and responsible mining.

Furthermore, it is important to increase people's knowledge and awareness of mining activities in general and in relation to the use of critical materials. More attention to the justice effects of the Green Deal needs to be paid in the future in order to understand and mitigate the current and future tensions and conflicts arising from the increasing need for minerals. Here also an EU level survey is needed to systematically bring together the latest relevant scientific expertise and to identify the multiple dimensions of justice in the context of the EU's just transition. This should include the production and use of critical minerals. In addition, the monitoring and evaluation of a just transition and its progress in a comprehensive manner needs to be ensured.

As this study progressed, it became apparent that there is no comprehensive database on mining activities at the EU level. This makes many types of assessments difficult, or even impossible. An openly available database would increase the transparency of the sector from the perspective of EU civil society as well as the understanding of the scale and the nature of the various kinds of mining activities.

There is a clear lack of EU-wide assessments of mining conflicts and there is no systematic analysis at the EU level of the environmental and social impacts. The information about actual impacts is scattered and finding the existing research, if any can be found, is arduous and time-consuming. Moreover, an analysis of measures aiming to mitigate the impacts of mining activities, and especially the social impacts, is missing. This is needed however, because every mine operates in a unique social and environmental context, and the same measures are unlikely to work in different cases. The literature and analyses used in this study suggest that the number of mining conflicts is only going to grow in

the future. The EU should prepare for this, both by investing in public mediation and conflict resolution, and by assessing the root causes of conflicts.

1. INTRODUCTION

Mining activities are full of controversies. Modern societies need the products of mining. Nobody, however, wants to have a mine in their backyard or nature conservation area. The tension between global needs and transitions and local mining activities is evident.

In the global economy, mining activities can be understood as a complex struggle between global and local actors for the utilisation of local natural resources.¹ Differing views and divergent values may lead to concerns - or even conflicts - may stimulate activism and protests, and may finally lead to the emergence of an often anti-mining movement. Locally, the main concerns are connected to the quality of everyday life and the environment.

Environmental impacts have caused concerns in many mining locations. On the other hand, mining projects can bring jobs and new national and international actors to a region, while stimulating life and the regional economy in often remote areas. Mining projects may also be associated with hope for a positive future.² Many people living in the vicinity of mines experience the impacts of mining projects in their daily lives. Mines are visible and can be heard, smelled and felt with all senses. They change the landscape, increase heavy traffic in the area and restrict movement. For locals, mining can bring problems that they have not experienced in their neighbourhood before.³

A mining project means a very concrete encounter with and interaction between global economic developments and the local community. Mining activities are an integral part of the EU's economy and are positioned to play a major role in, for example, the transition to a low-carbon and circular economy, the goal that has been set in the European Green Deal.

Mining activities refer to the life cycle of mines from exploration to closure. The main mining activities are: exploration, construction, production, and closure of the mine. In this study, mining (in general) is defined as all activities related to excavating rocks, stones, or minerals that can be sold at a profit. This includes the subsequent extraction of valuable metals.⁴ While the definition of the extractive sector includes everything related to mining, it is often divided into energy (e.g. oil, gas, and coal) and non-energy extractive activities. This is due to their different operational models, the technologies used and especially their purpose. The non-energy extractive sector can be further divided into non-metal and metal mining. 'Mining' tends to refer to the latter when it is discussed in a general context. The two most typical types of mines are open-pit and underground mines, even though sometimes the approaches are combined.

Mining activities are site-specific. Ores and minerals cannot be moved to another location. Mines are different: the location, size, and ore of the mines vary. What works well in one place may cause problems elsewhere. Not all mines are 'bad', as there are several examples of highly accepted mines.⁵ From the point of view of the mining industry, its activities are economically and environmentally risky. They are dependent on the fluctuations and flows of the global economy.

Information and knowledge play an important role in how mining activities are perceived. Lack of information often increases doubts and concerns about mining activities. Additionally, ignoring local people's experiences may lead to increased criticism. Also, different actors experience the impacts of

¹ E.g., Massey 2008; Singh & Evans 2009.

² Mononen 2012; Mononen & Björn 2020.

³ Mononen 2012; 2015; 2018; 2021.

⁴ Spitz & Trudinger 2009.

⁵ Mononen et al. 2018.

mining in different ways. For example, mining company representatives may be neutral about the chemicals used in their operations because they are inherent to mining activities. However, from a local perspective, these chemicals may be seen as toxins whose use poses a high risk to the area's people, environment and its future. Similarly, noise, dust and odour nuisances caused by a mine may be seen as an inevitable part of a large-scale industrial activity by the mining company's representatives. Most residents in the vicinity, on the other hand, perceive them as unpleasant impacts that mining companies should pay special attention to. A mine may have positive regional economic impacts, but actual and perceived negative environmental impacts may mask the economic benefits generated by the mine.⁶

In the public mining discussion, the demand for responsibility, sustainability and interaction with nearby residents has increased. Also, the demands for the transparency of information about mining activities has increased. As a result, mining companies have begun to pay more attention to local experiences, and the dialogue with local people and other stakeholders has increased. Despite this, the critical voices have not disappeared. Interestingly, and because of the negative actualised impacts, the focus of the debate has shifted to the beginning of the mining life cycle, and in many EU countries it is on exploration and reservations for mining activities.

Discussion is also connected to the recycling of materials. According to mining experts, modern societies need new mines to produce more metals for a cleaner and greener economy. The electrification of motoring will curb climate change but requires ever more battery minerals. Many citizens, for their part, are calling for more efficient metal recycling so that there is no need to plan new mines. All these views and arguments make it important to discuss the impacts, legislation, and citizens' feelings about contemporary and future mining activities.

This study gives an overview of the main environmental and social impacts of mining activities. It also provides a brief overview of the main legislation in EU and it analyses a selection of petitions received by the Committee on Petitions. Furthermore, the study discusses possible measures to reduce unwanted impacts of mining as well as the future of mining activities. The study also provides policy recommendations and suggestions to help improve the existing EU mining policy and legislation. Finally, it aims to discuss the future of mining activities in light of the Green Deal. The study is based on existing research and official documents of national and international organisations and institutions.

This study is structured as follows: Chapter 2 introduces a variety of impacts of mining activities. Chapter 3 gives a brief overview of selected EU legislation and rights relevant to exploration and mining activities. In Chapter 4 the main sources of mining concerns, disputes and conflicts in the EU are explained. In Chapter 5, selected petitions are analysed. Chapter 6 introduces some measures for mitigation of the negative impacts of mining activities. Chapter 7 explores the future of mining activities in light of the Green Deal and Chapter 8 introduces conclusions and provides some policy recommendations to help improve the existing EU mining policy and legislation.

⁶ Mononen 2015.

2. THE MAIN IMPACTS OF MINING ACTIVITIES

KEY FINDINGS

- The impacts of mining are often divided into environmental, social, and political and cultural categories, although in practice these are often interlinked.
- Mining activities have direct and indirect environmental impacts on different spatial scales.
- The site-specific and regional impacts vary significantly depending on the local characteristics of the environment, on the mining activity type, on the geology, and on the ore that is mined.
- The different stages of mining have different environmental and social impacts. Even the less intensive exploration stage of mining can be significant, especially from the social perspective.
- Cumulative impacts of mining occur when there is more than one mine operating in the same region.
- While many of the impacts are local, the wider societal context in which the mining activities take place may also affect the perceptions and expectations towards a specific mining project.
- The existing perceptions of mining, previous experiences, and the perceived procedural fairness, lay the foundation for how a new project is viewed by the impacted community.
- It is difficult to generalise the impacts of mining, but it is useful to understand the main categories and the variety of potential impacts.

In this chapter, a variety of impacts of mining activities is introduced. Potential impacts and risks are summarised in Table 1 and Table 2. Many of the impacts are defined by the place-specific context, i.e. the existing environmental and social characteristics of the mining project area.⁷ For example, the prevailing forms of land use, the infrastructure and the water regime can vary drastically even inside one state. Similarly, the same technologies or industrial processes may work differently in different climatic and environmental conditions. Lack of water can be a challenge in one place, while in another, a high amount of rainfall may cause problems, such as additional pressure on the water management structures.

Even though the impacts of individual mining projects are often different due to the numerous variables, mining generally shares at least following four special qualities, which have varying consequences and impacts:⁸

1) Mining is place-dependent and global at the same time. A mine cannot be moved to another location or country like many other industrial activities. Despite this crucial element of place dependency, mining is also connected to global developments and large international companies. Most of the mining activities are controlled by a relatively small number of powerful companies.

⁷ ELAW 2010.

⁸ Suopajärvi & Sairinen 2016, p. 46–49.

2) Mining is connected to global cyclical economic changes. Risks of continuity are always present. In practice, local mines have little control over global market prices and thus their future. These risks are reflected in the locality in different ways, especially if an interdependency has become significant.

3) Mining often starts rapidly after the required permits have been acquired. The establishment of a mine causes sudden and significant impacts in the locality. This often requires fast reactions from local actors, public services and businesses. The sudden changes may significantly impact the local atmosphere and life.

4) A mine's lifespan is always limited, often to about 10–30 years, depending on the quality of the ore deposit. In general, the lifespan of mines in the recent decades has been shortening as the industry is moving to exploit smaller deposits. This poses challenges to the stakeholders. For example, from the perspective of housing, it is rarely viable to construct new accommodation for miners and management if the predicted use of a mine is limited to a maximum of 20 years.

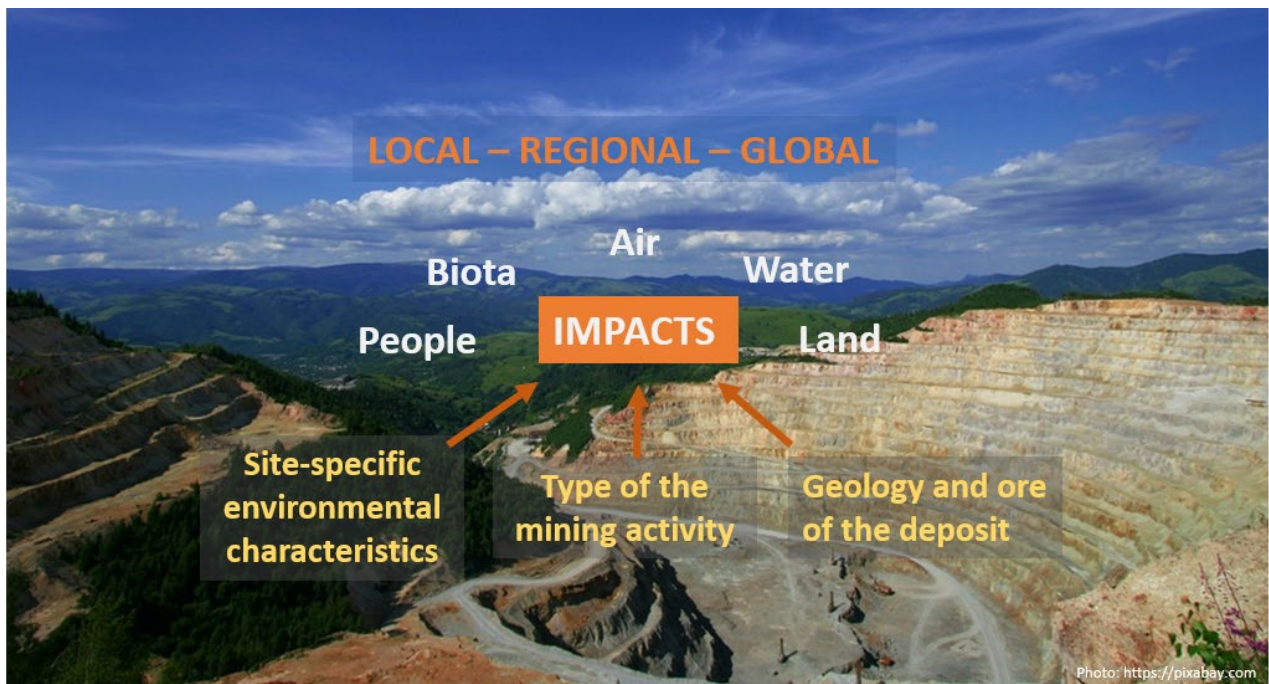
One other special feature of mining activities compared to many other industries are the numerous environmental and economic risks involved. Mining activities can cause major harm to the environment. Negative impacts of mining activities and mining accidents can make big headlines in the media and significantly affect people's perceptions of the whole sector. Many impacts, such as concerns or fears about the future, are difficult to measure. However, they undoubtedly affect people's lives.

While it is difficult to generalise the impacts of mining, it is still useful to understand the main categories of potential impacts. The impacts listed in this study are not exhaustive, but the aim is to illustrate the diverse impact categories. The impacts are divided into environmental, social, and political and cultural categories, although in practice these are often interlinked. For example, the impacts on the surrounding environment are unquestionably also social for the residents. Individual mining projects are a balance between the benefits and the impacts at different locations and on varying scales.

2.1. The environmental impacts of mining activities

Mining projects have direct and indirect environmental impacts, which can affect land, water, air, biota, and people.⁹ The impacts can be wide and visible - such as changes in the area's hydrology or landscape. They also can be hidden from the eye - such as chemical emissions or changes in the microbes in lake sediments. The impacts occur on different spatial scales and they range from site-specific, regional, to even global impacts through processes such as climate change.¹⁰ The site-specific and regional impacts vary significantly depending on the local characteristics of the environment, on the mining activity type and on the geology and ore contents of the deposit.¹¹ Due to the vastly different processes, technologies and operational environments, mining is usually discussed within more specific categories. In general, the most significant environmental impacts are related to the mining of sulfide metal ores, for the extraction and refinement of which more intensive industrial processes are required.¹²

Figure 1: Environmental impacts of mining



Source: Background image: <https://pixabay.com>, text: Authors.

⁹ Haddaway et al. 2019; Jain et al. 2016.

¹⁰ ELAW 2010, p. 49; Sonter et al. 2018.

¹¹ Kaupila et al. 2015, p. 16, 20.

¹² Kaupila et al. 2015.

2.1.1. Different stages and types of mining have different impacts

The environmental impacts of mining vary between the different (main) stages of a mine (Figure 2). Most of the impacts are caused by the middle stages of the mine, construction and production.¹³ The stages preceding the establishment of a mine, exploration (and prospecting), rarely cause major environmental impacts.¹⁴

Figure 2: Different stages of mining



Source: Background image: <https://pixabay.com>, text: Authors.

However, occasionally exploration activities include test excavations and excavations by blasting, which are more intensive than the more common exploration activities such as diamond and till drilling. The most common impacts of exploration are related to momentary noise pollution (e.g. from aerial measurements or diamond drilling) or marks left by machinery on the surface vegetation (e.g. the mobile drilling machinery). Other impacts could be the loss of trees that are cut down on exploration sites.

As the environmental impacts of exploration are often minor, regenerative in their nature, and do not change the state of the environment, the impacts listed below focus on the more intensive stages of mining.¹⁵ However, even minor exploration has the potential to cause significant damage to valuable habitats, such as springs or brooks, if the activities are mismanaged.

The construction stage introduces rapid changes to the environment, which vary depending on the size and the type of mine.¹⁶ Open-pit mining generally has a much larger and more visible environmental footprint, since it significantly alters the topography and destroys vast areas of vegetation at the surface level.¹⁷ After the mining activities have stopped, they leave permanent marks (pits) in the environment. Depending on the environment, they may become artificial lakes as they are left on their own. In contrast, underground mines can in some cases be very discreet, especially if the side products are contained within the underground structures. However, underground mines are generally considered less safe due to risks such as cave-ins, leaking toxic gases and other accidents that can occur in the limited space. The choice between the two mine types is usually made according to economic viability but environmental aspects may also play a role.¹⁸

The final step in a mine's life cycle, the mine closure, has historically often been a neglected aspect in planning.¹⁹ If left mismanaged, closed mines can cause harm to the surrounding environment for

¹³ Kauppila et al. 2011.

¹⁴ Kauppila et al. 2011, p. 83–85.

¹⁵ Ibid.

¹⁶ Kauppila et al. 2011, p. 85–86.

¹⁷ ELAW 2010, p. 4–5.

¹⁸ Shariar, K. et al. 2007.

¹⁹ Bainton & Holcombe 2018.

decades and even thousands of years.²⁰ The main risks of closed mines are related to poor water management and acidic run-off, especially in sulfidic mining areas.²¹

In addition to typical large-scale industrial mining, it is possible to identify small-scale mining, artisanal mining, and traditional gold mining as distinct categories. Modern small-scale mining has been suggested as one of the solutions for securing the EU's raw material needs in the future. For this less studied phenomenon, the scale of environmental impacts and risks should be smaller than for large mines, if legally and environmentally regulated well in the EU context. Similarly, the socio-economic impacts, both positive and negative, would remain considerably smaller.²² Deep sea mining is another special category of mining which has been predicted to develop into a commercial activity in the future and to potentially become a supplier of key minerals for the EU.²³ Currently, however, there is little knowledge about its environmental impacts and deep sea activities involve considerable risks.²⁴

2.1.2. Potential land impacts

Mining and the required infrastructure, including mining pits, side-stone heaps, soil removal masses, tailing area, landfill sites, buildings, and infrastructure, such as roads, water and electricity lines cause direct destruction of habitats and displacement of fauna. The vast spaces that mines occupy can cause loss of vegetation, deforestation, erosion and alteration of soil profiles.²⁵ These changes can lead to a general loss of biodiversity in the area.²⁶ Similar to other industrial construction projects of similar size, the establishment of a mine changes the existing environment to become an industrial area or environment.²⁷

Changes to land, topography, and landscape:

- Waste rock and tailings
- Habitat changes, habitat fragmentation, and habitat loss
- Loss of biodiversity and vegetation, including deforestation
- Erosion
- Alteration of soil profiles and risks of contamination

The construction stage introduces the most significant changes in the landscape, vegetation, and hydrology.²⁸ These changes occur mostly in the mining area but may be visible from several kilometres away and thus affect the landscape of a wider region. The size of mines and their concession areas varies drastically, which, therefore, affects the land area needed for a project. For example, if refinement is done in the mining area, this requires more infrastructure in dedicated areas for the enrichment pools or other technologies. Mining areas are usually closed or fenced, which prevents other land use, and they can restrict the natural movement of animals or annual migration routes. These impacts cause direct habitat loss and habitat fragmentation, which occurs when larger areas of land are broken up into smaller patches. This in consequence can cause harmful impacts to many species that require continuous habitat links.²⁹

²⁰ Kivinen 2017; Kivinen et al. 2018; Pyatt et al. 2000.

²¹ Kauppila et al. 2011, p. 88–90.

²² Sidorenko et al. 2020.

²³ European Commission 2021a, p. 100–103.

²⁴ Miller et al. 2018; Cuvelier et al. 2018.

²⁵ ELAW 2010.

²⁶ Sonter et al. 2018; Kauppila et al. 2011, p. 86.

²⁷ Kauppila et al. 2011, p. 86.

²⁸ Kauppila et al. 2015.

²⁹ ELAW 2010, p. 14.

Mines generally produce large amounts of waste rock and tailings - the residue of an ore that remains after the desired metals have been extracted from it. The tailings can contain significant levels of toxic substances and their disposal is a key issue as regards the mine's environmental footprint.³⁰ The disposal of tailings, which have increased drastically in volume over the last century, is commonly identified as the single greatest environmental impact for most mining operations.³¹

Figure 3: Potential land impacts of mining



Source: Background image: <https://pixabay.com>, text: Authors.

2.1.3. Potential water impacts

Changes in land use impact the hydrology of the area through altered absorption rates, runoff water quantities and changing flow directions. The removal of vegetation can increase surface runoff and erosion, which in consequence increases the amount of solid matter that is carried to waterways. This may cause clouding of the water locally, which may impact the living conditions of aquatic organisms.³²

Potential water impacts:

- Changes in hydrology
- Ground and surface water impacts
- Changes in water quality, clouding of waterways, indirect impacts on plants and animals
- Controlled wastewater discharges and their cumulative impacts
- Increasing water scarcity in arid areas
- Risks of contamination, acid mine drainage, dam accidents, dewatering

³⁰ ELAW 2010, p. 5-7.

³¹ Malan 2021, p. 2.

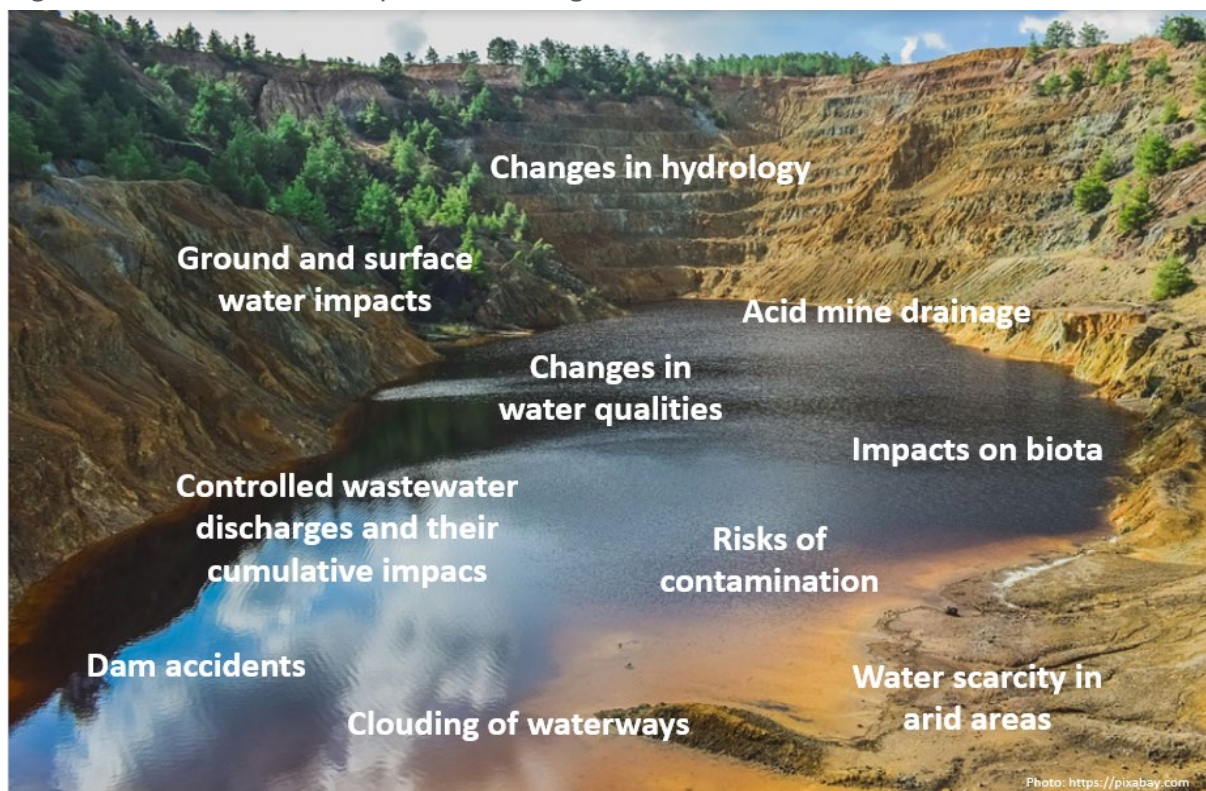
³² Kauppila et al. 2011, p. 86.

Increased surface runoff also decreases the amount of ground water that forms in built areas. The pumps that keep the mines dry can impact the flow directions and change them towards the mine. If the mine reduces the ground water levels, this may cause the drying of nearby wells and changes in growth conditions, which in consequence can cause changes in the areas' habitats and species.³³ The mining processes (mining, grinding, refining and possible further processing) can also consume and demand significant amounts of water from local waterways, which can increase water scarcity especially in arid areas.³⁴

During the production phase, a mine can impact the surrounding waterways in various ways. In a so-called "normal situation", the discharge water is often the biggest and most significant source of emissions to the surrounding waterways. The wastewaters are discharged from the mines on purpose and in a controlled manner, usually limited by the values set in the environmental permit. Even if the concentrations of different substances are small, the cumulative effect may cause stress to the environment over time (e.g. sulfides from the ore). The type of ore, the enrichment methods used and the water management methods impact the nature of the water changes.

In exceptional situations, for example in a tailing dam failure, uncontrolled amounts of contaminated water can be released into the waterways which can have varying negative consequences.³⁵ Other risks related to water include harmful substances that may escape from storage areas during accidents. Local impacts and risks vary depending on the sensitivity of receiving environment, the local regulatory frameworks and the associated water quality objectives.³⁶

Figure 4: Potential water impacts of mining



Source: Background image: <https://pixabay.com>, text: Authors.

³³ Kauppila et al. 2011, p. 86.

³⁴ ELAW 2010, p. 11.

³⁵ Morrill et al. 2020.

³⁶ Lebre et al. 2020, p. 5.

2.1.4. Other potential environmental impacts

The construction and mining stages increase the heavy traffic in the area, cause noise pollution and dust.³⁷ Noise and land vibration, for example caused by controlled detonations or aerial exploration, can negatively impact animals' territorial and reproductive behaviour.³⁸ The dust can contain metal or sulfides, which can impact the substrate's quality, change the growth conditions of vegetation and raise the metal concentrations of berries and mushrooms around the mining concession.³⁹ Dust and other gases can also impact the air quality locally, for example during the construction and operational stages.⁴⁰

Other potential environmental impacts:

- Climate impacts: carbon dioxide and other greenhouse gases
- Air quality and dust
- Noise
- Land vibration
- Light
- Smell
- Radiation
- Cumulative impacts

Industrial processes and transportation consume energy and produce greenhouse gases.⁴¹ In contrast to the entire raw material sector in the EU in which greenhouse gases have continued to decline, in the mining and non-ferrous metal industries they have not.⁴² However, the mining of specific minerals which are needed to enable the energy transformation towards renewables and away from fossil fuels, may have long-term benefits that outweigh the emissions from ore production.⁴³ On the other hand, the climate impacts of coal mines are multiplied as the end products are burned for energy and the CO₂ gases are released into the atmosphere.

Brightly lit mines can cause light pollution which has been found to cause numerous impacts on wild organisms.⁴⁴ Bad smells caused by the production methods at the mine can travel kilometres from the mine with the wind.⁴⁵ Finally, mining, and particularly uranium mining, may contain some risks of radiation impacts to the environment and workers.⁴⁶

Cumulative impacts of mining occur when there is more than one mine operating in the same region. They refer to the successive, incremental, and combined effects of mining. They may aggregate linearly, exponentially, or reach "tipping points" after which major changes in environmental social and economic systems may follow.⁴⁷ Cumulative impacts of mining can also be positive in the social context and can be a result of direct or indirect impacts.

³⁷ Kauppila et al. 2015, p. 45.

³⁸ Kauppila et al. 2011, p. 86.

³⁹ Kauppila et al. 2015, p. 45-46.

⁴⁰ ELAW 2010, p. 13.

⁴¹ Azadi et al. 2020.

⁴² Vidal-Legaz et al. 2021, p. 94.

⁴³ Ali et al. 2017.

⁴⁴ Sanders et al. 2021.

⁴⁵ Kauppila et al. 2015, p. 23.

⁴⁶ Committee on Uranium Mining in Virginia (2011).

⁴⁷ Franks et al. 2010, p. 300.

2.2. The social and economic impacts of mining activities

The social impacts of mining are the intended or unintended positive or negative social consequences of mining.⁴⁸ These can be experienced at the individual, family or community level in various spheres of life, including culture, communities, political systems, the environment, health, lifestyles, personal or property rights, fears, and aspirations.⁴⁹

While many of the impacts are local, the wider societal context in which mining activities take place may also affect the perceptions and expectations towards a specific mining project. The existing perceptions of mining, previous experiences and the perceived procedural fairness lay the foundation for perceptions when a new project is being assessed by the impacted community. Elements, such as how communications between the key actors are managed may play a crucial role in building or losing trust between the different parties. Furthermore, the social impacts may vary between the different groups who live in the impact area. Thus, the impacts may be divided unevenly at different stages of the mining operation, creating “winners and losers”.⁵⁰

The different stages of mining also have different social impacts. Even the less intensive exploration stage of mining can be significant from the social perspective. The potentially long permit processes that precede mining may create long periods of uncertainty. This can cause fear, stress and anxiety in communities.⁵¹ On the other hand, an exploration project can also build overly elevated expectations towards the mine, which may not be realised in the later stages. Regarding the concrete economic impacts, exploration, especially at its most intensive periods, can bring limited regional economic benefits to the area, as the workers and companies use the local services. Depending on the state legislation, the exploration company may be required to pay annual fees to the landowner for the land use.

2.2.1. Potential economic and employment impacts

The positive social impacts of mining often focus on the economic and employment opportunities.⁵² However, the socio-economic importance of mining goes beyond the direct employment potential, as most of the jobs are created in downstream industries.⁵³ Other societal or state level benefits can include benefits from mining tax or royalty systems, in addition to other taxes. The mining companies’ own voluntary-based corporate social responsibility programmes can also provide varying benefits which are usually focused on the impacted area.⁵⁴

Potential economic and employment impacts:

- Downstream impacts, enabling other industries
- Tax income, royalties
- Employment and contracting opportunities
- Opportunities for new businesses, investments
- Impact on existing livelihoods
- Economic risks: bankruptcy, increased dependency

⁴⁸ Suopajärvi & Kantola 2020.

⁴⁹ Vanclay et al. 2015.

⁵⁰ Kauppila et al. 2015, p. 24; Mancini & Sala 2018, p. 103.

⁵¹ See, e.g., Leino & Miettinen 2020.

⁵² Mononen 2016.

⁵³ Vidal-Legaz et al. 2021, p. 119.

⁵⁴ Sairinen et al. 2016.

The employment opportunities of modern mines vary depending on the type of mine. For example, the level of automation and digitalisation may impact the number of employees and expertise needed. Mines may provide opportunities for local contractors and foster the creation of new businesses.⁵⁵ Mining can also provide indirect employment opportunities, especially for the private sector, such as retail trade, transport, and hotels and restaurants.⁵⁶ This so-called multiplier effect refers to how many additional jobs every mining job creates both at the national and the local level.⁵⁷ The local social impacts on employment vary depending on how large the demand for a local work force is, as well as on the skill requirements, commuting practices, and changes in local businesses.⁵⁸

Mining can also cause the loss of other livelihoods, for example tourism and reindeer herding.⁵⁹ In some cases it can lead to income inequality due to the unfair distribution of benefits and corruption, which can trigger social tensions.⁶⁰ Sometimes mining or historical mining sites attract tourists (e.g. the Kiruna deep iron mine in Sweden). Thus, it is possible that some sectors could be both hurt and benefiting from more intensive mining activities.⁶¹ It is also possible that the local community becomes overly dependent on mining activities. This can cause severe consequences once the mine is closed. Mine closure in general may have a broad range of social impacts and the sparse amount of research literature on the subject suggests that there is limited expertise in this domain.⁶²

2.2.2. Changes to local socio-economic environment

The establishment of a new mine often involves the construction of new infrastructure and services which may benefit the local community. For example, roads, high speed internet cables, shops, restaurants and social services can be used by both the new workers and the locals. Sometimes mines can revitalise “withering” areas, as they bring new people and more activity to nearby town and village centres, which can be perceived positively by the members of those communities.⁶³ Mining companies can contribute to education directly, for example by providing better access through infrastructure investments. Mining companies may also invest in training programmes that can benefit both their workers and local communities.⁶⁴

Changes to local socio-economic environment:

- New infrastructure and services
- Revitalising areas
- Competition of land use, loss of other livelihoods
- Migration of new people and its consequences
- Perceptions of safety
- Risk of creating rifts between groups & conflicts

⁵⁵ Suopajärvi & Sairinen 2016, p. 45.

⁵⁶ Fleming & Measham 2014.

⁵⁷ Mancini & Sole 2018, p. 103; Fleming & Measham 2014.

⁵⁸ Suopajärvi & Sairinen 2016, p. 45.

⁵⁹ Suopajärvi & Sairinen 2016, p. 45.

⁶⁰ Mancini & Sala 2018, p. 103.

⁶¹ Moritz et al. 2017.

⁶² Bainton & Holcombe 2018.

⁶³ Mononen 2016.

⁶⁴ Mancini & Sala 2018, p. 104.

However, not all social and cultural changes are welcomed. Especially when competing forms of land use already exist in an area, the introduction of a new mining project can cause disputes and conflicts between sectors (e.g. forestry, agriculture, tourism), livelihoods and people.⁶⁵ These impacts, like many others, can be more extreme in developing countries, where limited access to land can lead to food insecurity and impoverishment.⁶⁶ The sudden influx of new people may increase local prices (e.g. rent rates) and put pressure on social services.⁶⁷ Since mining is a heavily male dominated profession, these migration streams can also lead to gender imbalances, which can lead to various problems.⁶⁸ Higher traffic and the presence of large transportation trucks can decrease the sense of safety.

The establishment of a mine can also impact the local recreational nature, environment and activities. On the one hand, the changes can be negative if the mine impacts outdoor areas (e.g. destroys them, aesthetically affects them, or causes disturbance) and activities, such as fishing, berry and mushroom picking, etc.⁶⁹ On the other hand, mining companies can invest in the local environment, building new recreational spaces and improving existing areas.⁷⁰ Mining accidents or badly managed mines can also affect the health and safety of the local community.⁷¹

Human rights can be negatively impacted in different forms. These can vary from poor stakeholder inclusion and poor decision-making processes to discrimination against vulnerable groups, such as indigenous peoples.⁷² The impacts of mining on indigenous people can be multifaceted⁷³ but the main questions in Europe have revolved around indigenous rights and consent. These rights are described in more detail in Section 3.4.

⁶⁵ Hast & Jokinen 2016.

⁶⁶ Mancini & Sala 2018, p. 104.

⁶⁷ Suopajärvi & Sairinen 2016, p. 45.

⁶⁸ Mancini & Sala 2018, p. 104:

⁶⁹ Suopajärvi & Sairinen 2016, p. 45.

⁷⁰ Mononen 2016.

⁷¹ Mancini & Sala 2018, p. 104.

⁷² Mancini & Sala 2018, p. 104.

⁷³ E.g., Hunter et al. 2018.

2.3. Summary of the main potential impacts and risks

Table 1: Potential environmental impacts of mining.

Land	Water	Other
Changes to land, topography and landscape	Changes in hydrology	Light pollution
Erosion	Ground and surface water impacts	Air quality, dust and smell
Waste rock and tailings	Changes in water quality (e.g. clouding)	Noise pollution
Alteration of soil profiles and risks of contamination	Controlled wastewater discharges and their cumulative impacts	Vibration
Habitat changes, fragmentation and loss	Increasing water scarcity in arid areas	Climate impacts
Loss of vegetation and deforestation	Risks of contamination, acid mine drainage, dam accidents, dewatering	Radiation
Cumulative environmental impacts		
Changes and loss of biodiversity		

Source: Combined from: Kauppila et al. 2015; Kauppila et al. 2011; Haddaway et al. 2019; Sonter et al. 2018; ELAW 2010; Malan 2021; Morril et al. 2020; Lebre et al. 2020; Azadi et al. 2020; Sanders et al. 2021; Committee on Uranium Mining in Virginia (2011); Franks et al. 2010.

Table 2: Potential socio-economic impacts of mining

Positive	Negative
Taxes and royalties	Land and resource use competition
Employment and contracting opportunities	Negative impacts on existing livelihoods
New business opportunities and investments	Economic risks: local dependency, bankruptcy, global impacts
Positive impacts on existing livelihoods (e.g. hospitality services)	Perceptions of safety & security, psychological impacts
New infrastructure and services	Negative impacts of migration to the area: prices
Revitalization of areas: new people, new activities	Uneven impacts, risk of rifts between groups, disputes & conflicts
Downstream impacts	

Source: Combined from: Suopäjärvi & Kantola 2020; Vanclay et al. 2015; Kauppila et al. 2015; Mancini & Sala 2018; Mononen 2016; Vidal-Legaz et al. 2021; Sairinen et al. 2016; Suopäjärvi & Sairinen 2016; Fleming & Measham 2014; Moritz et al. 2017; Hast & Jokinen 2016.

3. OVERVIEW OF RELEVANT EU LEGISLATION AND RIGHTS

KEY FINDINGS

- Mineral resource management and mining legislation is a full competence of the Member States.
- The EU regulates - exclusively or with shared competence - the internal market, the environment and public safety and health matters which are connected to the permitting of mining activities in the Member States.
- According to previous research, from the environmental regulation perspective, the Environmental Impact Assessment Directive has a substantial role in permitting the extraction projects.
- Social impact assessments, on the other hand, are often not included in the permitting processes.
- Public participation rights are based on the Aarhus Convention and in most cases participation rights for local communities are included in the environmental impact assessment processes.
- Based on their status as indigenous people, the Sámi people have a right to self-determination in their Member States (Finland & Sweden) and there is a duty to consult the Sámi in matters that may have direct influence on their culture and livelihoods in Sámi homeland, including extraction projects.

3.1. Ownership and permit systems for exploration and mining

In this chapter, a brief overview on selected EU legislation and rights relevant to exploration and mining activities is provided. The focus is on the environmental legislation relevant to mining, exploration and mining waste.⁷⁴ First, we will briefly discuss the relationship between national and EU legislation and the ownership and the regulation of raw materials, such as non-energy minerals.

The EU has exclusive competence in establishing the competition rules and in concluding international agreements. However, other parts of the internal market legislation and the fields of environment, agriculture and common safety concerns in public health matters are shared competences between the EU and the Member States (MSs). In general, mineral resource management, permitting and mining legislation is within the full competence of the MSs since raw materials are generally considered to be national natural assets.⁷⁵

MSs have their national legislation on exploration, mining activities and mineral rights. Legislation for mineral rights can be based on three different regulatory approaches: the land ownership system, the concession system, and the claim system.⁷⁶

In the land ownership system, minerals belong to the owner of the land where the deposits are found. In many countries, the land ownership system applies also to some non-metallic minerals, i.e. stone,

⁷⁴ For a comprehensive analysis of other EU legislation on mineral extraction and permit procedures, see MinPol 2017.

⁷⁵ MinPol 2017, p. 21; Karageorgou 2016, p. 140.

⁷⁶ Liedholm Johnson 2010, p. 13.

gravel and sand. To obtain mineral rights in the landowner system, a private agreement is generally invoked, or the land is purchased from the owner.

An alternative is the concession system, through which often certain kinds of deposits, e.g. coal, oil and gas, are regulated. In the concession system, the mineral rights are held by the State, which will assess whether the rights should be granted and to whom.⁷⁷ After the assessment, the right to search for and process the mineral deposit is conferred to the most suitable applicant. Other applicants, if not selected, may be compensated.

Lastly, the claim system is based on the so-called “first come, first served” principle, according to which mineral rights are granted to whoever first discovers the minerals.⁷⁸ Either the State grants the rights or the minerals belong to no one before they are found. In this alternative, there is little or no discretionary consideration, and the rights are given to the one who discovers the deposit. The regulatory systems can also be mixed. For instance, in Sweden the mineral legislation is based on the concession system with elements of the claim system.⁷⁹

The question of ownership often determines the method of access to mineral rights.⁸⁰ As ownership varies from country to country, also the permit systems that primarily control mining and mining waste are determined in detail in the national mining legislation, which in general provides the framework for exploration and mining activities. Overall, permit systems in MSs are designed to ensure that mining, waste and ancillary activities do not cause significant harm to the environment or human health and safety, by imposing operational and risk management controls.⁸¹ In addition, these systems are, to a certain extent, subject to various parts of EU legislation, such as the Treaty on the Functioning of the EU (TFEU) and various directives concerning, for example, safety and environmental regulation.⁸²

The TFEU provides the general framework for the functioning of the EU and is thus highly significant for the minerals sector as well as for permitting.⁸³ Beside the competences mentioned earlier, the TFEU provides generally applicable provisions that steer the definition and implementation of the EU’s policies and activities that are reflected in the EU’s secondary legislation. These provisions include, for example, a high level of protection of human health, high importance of environmental protection, services of general economic interest, and the right to civil society participation.⁸⁴

The EU introduced the Raw Materials Initiative (RMI) in 2008 to cover the entire cycle of mining. The RMI is an integrated strategy on access, extraction and supply of mineral raw materials and was established to address the challenges of increasing demand, the shortage of supply and the price volatility of the non-energy raw materials.⁸⁵ The RMI is based on three pillars that aim at ensuring:

- 1) The sustainable supply of raw materials from the global markets
- 2) The development of a sustainable supply of raw materials from European sources
- 3) Resource efficiency and recycling to increase the supply of secondary raw materials⁸⁶

⁷⁷ Liedholm Johnson 2010, p. 14.

⁷⁸ Liedholm Johnson 2010, p. 15.

⁷⁹ Ibid.

⁸⁰ Liedholm Johnson 2010, p. 16.

⁸¹ Scannell 2012, p. 213.

⁸² Environmental regulation will be discussed in more detail in 3.2.

⁸³ MinPol 2017, p. 21.

⁸⁴ For more details, see MinPol 2017, p. 21-25.

⁸⁵ Karageorgou 2016, p. 140.

⁸⁶ COM/2008/0699 final.

The second pillar presents principles related to both the development of the raw materials and the mining sector in the EU, and the sustainability aspects that need to be considered alongside development. These principles have been incorporated in several pieces of secondary EU legislation that have been accepted or amended after the RMI was published.⁸⁷ Before the RMI was adopted, the minerals sector was mainly viewed from the environmental, health, safety, and human rights perspectives that are set in the TFEU.

3.2. Environmental regulation of the exploration and exploitation of minerals

Overall, the EU legislation concerning environmental regulation plays a significant role in providing instruments for the design and various phases of mining activities that can be used to ensure that mining and mining waste do not pose an unacceptable level of danger to human health and the environment.⁸⁸ Below an overview is provided of some of the most relevant pieces of EU legislation on the environment.

3.2.1. Nature Directives

The EU's nature legislation is based on two "cornerstone directives": the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC), referred to as the Nature Directives, which provide the framework of standards for nature protection in the EU.⁸⁹ The directives were adopted in 1992 and 1979 respectively, and the Birds Directive was amended in 2009. The Nature Directives aim at ensuring that the favourable conservation status of the species and habitat types they protect is maintained or restored.

The main objectives of the Nature Directives can be divided into: 1) protecting species; and 2) conserving certain rare or endangered habitat types or the core habitats of certain rare or endangered species.⁹⁰ Exploration, mining and quarrying fall within the scope of the Nature Directives, since they have the potential to cause damage to wildlife and habitats, if inappropriately designed or managed.

Natura 2000 is an ecological network of protected sites and a central instrument of the Nature Directives.⁹¹ It answers to the second main objective of the Nature Directives, i.e. the conservation of habitats that are rare or endangered or crucial to the survival of certain rare or endangered species.⁹² The Natura 2000 sites are often located in rural areas where also the development of mining activities is expanding.⁹³ Natura 2000 sites do not automatically preclude exploration and mining activities, but an Appropriate Assessment (AA) is needed to assess if the planned mining projects have significant effects on the protected site.

According to Article 6 of the Habitats Directive, the final decision on the development of mining activities within or around Natura 2000 sites depends on the result of an Appropriate Assessment. The guidance for carrying out an AA is provided by CJEU jurisprudence in conjunction with the relevant

⁸⁷ These directives are the Concessions Directive, the Public Procurement Directive, the Utilities Procurement Directive and the EIA Directive. See MinPol 2017, p. 21.

⁸⁸ Karageorgou 2016, p. 143.

⁸⁹ MinPol 2017 p. 41.

⁹⁰ European Commission, Directorate-General for Environment 2011, p. 17.

⁹¹ Szczepanski 2012, p. 2; Natura 2000 is also an instrument for implementing the so-called Bern Convention (1979) on the conservation of European Wildlife and Natural Habitats.

⁹² European Commission, Directorate-General for the Environment 2011, p. 17.

⁹³ Del Mármol & Vaccaro 2020.

documents by the European Commission (EC), since the Habitats Directive does not contain any concrete methods for an AA.⁹⁴

An AA is preceded by a screening process, in which it is determined whether the impacts of the proposed plan or project, individually or in combination with other projects, are significant to the integrity of the Natura 2000 site or sites, and thus if the plan or project is subject to an AA.

If an AA is regarded as necessary after the screening process, it needs to be based on the use of the best available knowledge to identify the various impacts the mining project may have on the integrity of a given site. These impacts are evaluated “in terms of the capacity to jeopardise the specific conservation objectives set for the critical protected area”.⁹⁵ In addition, mitigation measures aiming to avoid or reduce adverse effects on the site should be included in the AA. Such measures include, for example, techniques and timeframes for avoiding damage during the mining operations.

The final stage of the AA is forming a “concrete and well-founded conclusion” on the impacts of the project on the site.⁹⁶ When the decision-making authority decides on whether the project can be approved, it must apply the precautionary principle.⁹⁷ Approval can only be given if the conclusion of the AA is that there will not be any adverse effects on the integrity of the site that would prevent the lasting preservation of its constitutive characteristics. In rare cases, exceptions to a negative AA can be made if there is an existing overriding public interest (social or economic), no alternative, and if compensation measures are adopted.⁹⁸ The requirements for exceptions are even stricter if the project is planned in a Special Protected Area or a Special Conservation Area hosting a Priority Habitat or Species.⁹⁹

In addition to applying AAs at a project level, AAs can also be used when the development of mining activities is assessed at the strategic level.¹⁰⁰ When implemented during land-use planning, alongside or incorporated in the Strategic Impact Assessment (SEA), the AA is of added value since it can provide the decision-makers with information on the permissibility of the future mining activities from the nature protection perspective.

3.2.2. The Industrial Emissions Directive

As regards industrial pollution, the Directive on Industrial Emissions (IED, 2010/75/EU) is the main instrument of EU environmental regulation.¹⁰¹ This directive was adopted in 2010 and came into force in 2011. The IED integrates seven directives and its central instrument, a permitting system for a wide range of industrial installations, is built on the structure and principles of the IPPC Directive¹⁰². The IED does not cover all the activities related to mineral extraction, but the installations for the production and processing of metals, the procession of minerals and installations for the disposal and recovery of hazardous waste listed in Annex I, fall within its scope.¹⁰³ Additionally, some MSs have voluntarily extended the integrated permitting requirements to mining activities.

⁹⁴ Karageorgou 2016, p. 145.

⁹⁵ Karageorgou 2016, p. 145.

⁹⁶ Ibid.

⁹⁷ See ECJ cases C-127/02 and C-17/461.

⁹⁸ Del Mármol & Vaccaro 2020 p. 46.

⁹⁹ Karageorgou 2016, p. 146.

¹⁰⁰ Karageorgou 2016, p. 142.

¹⁰¹ Karageorgou 2016, p. 146. The IED replaced the Integrated Pollution Prevention and Control (IPPC) directive in 2010.

¹⁰² Directive 96/61/EC concerning integrated pollution prevention and control.

¹⁰³ Karageorgou 2016, p. 146.

The objective of the IED is to reduce harmful industrial emissions in the EU in compliance with the “polluter pays” principle and the principle of pollution prevention, thus providing a high level of protection to human health and the environment.¹⁰⁴ The main principles of the IED are presented in Box 1.

Box 1: The IED is based on several principles.¹⁰⁵

1. An integrated approach for the permits to cover the whole environmental performance of the plant.
2. The use of best available techniques (BATs).
3. Flexibility for competent authorities to set less strict emission limit values in specific cases.
4. Mandatory requirements for environmental inspections (including a system for environmental inspections and inspection plans).
5. The right to public participation in the decision-making process as well as the right to be informed of its consequences.

Source: European Commission 2021b.

The IED sets the emission limit values for pollutants listed in Annex II, which must be within the range of the emission levels associated with the use of Best Available Techniques (BAT).¹⁰⁶ The IED defines BATs as “the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.”¹⁰⁷ Basically, BATs are the best ways to operate from the environment’s perspective, as recommended by the EU and the MSs.¹⁰⁸

BATs are defined and revised through the Sevilla Process, which includes multiple steps to define BATs based on information exchange and discussions between stakeholders.¹⁰⁹ The Sevilla Process produces reference documents (BREFs) that identify the BATs as well as their associated emission levels and can cover either sectoral activities or cross-cutting issues with relevance for industrial manufacturing in general.¹¹⁰

3.2.3. The Seveso III Directive

The Seveso III Directive (2012/18/EU) aims at preventing major industrial accidents that involve hazardous substances, as well as limiting the consequences of such accidents for human health and

¹⁰⁴ Evrard et al. 2016, p. 73.

¹⁰⁵ European Commission 2021b.

¹⁰⁶ Karageorgou 2016, p. 146.

¹⁰⁷ Article 3 of the IED.

¹⁰⁸ Scannell 2012, p. 222 note 236.

¹⁰⁹ Evrard et al. 2016, p. 74. The Sevilla Process is coordinated by the European IPPC Bureau (EIPPCB).

¹¹⁰ Evrard et al. 2016, p. 74; European IPPC Bureau 2021.

the environment.¹¹¹ It was adopted in 2012 and came into force in 2015. According to the European Commission Seveso III tightens the provisions on public participation and information, land-use planning and public access to justice, and introduces stricter standards for inspection, compared to its predecessors (Seveso and Seveso II directives).¹¹²

The Seveso III Directive provides specific regulatory standards for managing risks and dealing with major accidents. It covers establishments where hazardous substances may be present in quantities that exceed a certain threshold.¹¹³ The installations can be categorised in the upper and lower tier, depending on the amount of hazardous substances present. The upper tier is subject to stricter requirements.

The Seveso III Directive provides obligations for both the operators of facilities and the competent authorities of MSs. For instance, operators are required to notify the public authorities about their establishments, adopt a major-accident prevention policy (MAPP) as well as prepare safety reports and internal emergency plans for upper tier establishments.¹¹⁴ Competent authorities are required to produce external emergency plans for upper tier establishments, provide relevant information for the public, and ensure that necessary action is taken after an accident. Also, operators need to take the necessary remedial measures, and persons likely to be affected must be informed.¹¹⁵ Seveso III emphasises citizens' rights and sets out regulations on public participation in decision-making, in addition to the requirements on the availability of information to the public.¹¹⁶

Although the activities of exploration, extracting and processing of minerals are not directly covered by the Seveso III Directive, the processing of the extracted minerals through thermal and chemical processes and the storage related to such activities that involve hazardous substances fall into its scope of application, as do tailing disposal facilities.¹¹⁷ Some activities, such as nuclear installations and the transport of hazardous substances, are regulated with other legislation besides Seveso III.¹¹⁸

The Seveso III Directive can also influence the early planning phases of mining activities that fall within its scope of application if certain guidelines and standards are adopted in the land-use planning that concern the location of the installations for the procession and storage of minerals.¹¹⁹

3.2.4. The Mining Waste Directive

The Mining Waste Directive (MWD, 2006/21/EC) was adopted in 2006 and came into force in 2008.¹²⁰ One of the most significant motivations for the adoption of the MWD was the tailing dam failure in Baia Mare, in Romania.¹²¹ Waste originating from mining industries and quarrying makes up a significant portion of the total volume of waste produced in the EU.¹²² Thus, the MWD's main objective is to prevent or reduce the potential adverse effects on the environment due to the management of mining waste. The MWD was adopted to specifically deal with the waste from the extractive industries

¹¹¹ European Commission 2021c.

¹¹² COM (2021) 599 final, p. 2.

¹¹³ European Commission 2021c.

¹¹⁴ Karageorgou 2016, p. 147.

¹¹⁵ European Commission 2021c.

¹¹⁶ MinPol 2017, p. 236.

¹¹⁷ Karageorgou 2016, p. 147.

¹¹⁸ European Commission 2021b.

¹¹⁹ See articles 13 and 2(2) of the Seveso III Directive. Karageorgou 2016, p. 143.

¹²⁰ Van Keer et al. 2021, p. 1. All of the provisions of MWD were applied together for the first time in 2014.

¹²¹ Karageorgou 2016, p. 147.

¹²² 26,3 % in 2018. Eurostat 2020.

("extractive waste"), that results from exploration, extraction, treatment and storage of mineral resources as well as quarrying.¹²³

The MWD imposes multiple obligations on the MSs. In general, the MSs need to ensure that managing the extractive waste does not lead to endangering human health and that it is done without processes or methods that could harm the environment or cause adverse effects on the landscape or places of special interest.¹²⁴

The MWD is important for permitting procedures in all phases of mining. There are three instruments especially relevant from the permitting perspective, namely: i) the waste management plan prior to the commencement of extraction; ii) the external emergency plan for facilities in Category A;¹²⁵ and iii) financial guarantees to secure the proper rehabilitation of the land affected by the activities.¹²⁶ In addition, waste facilities handling extractive waste must be regulated using application and permit procedures. The permit procedures can be integrated with other environmental authorisations such as the IED or other environmental permit systems that are capable of ensuring the requirements of the MWD.¹²⁷ The MWD also describes the requirements for the closure plan and aftercare of mining waste facilities, making it a highly important piece of legislation as regards the post-extraction phase.¹²⁸

In some cases, the MSs are permitted to impose lighter regulations on waste if that waste is considered to pose lower risks to the environment. This includes, for instance, non-hazardous prospecting waste, inert waste, and unpolluted soil.¹²⁹ The MWD does not apply to waste that is regulated by other directives. For example, offshore extractive waste is regulated under the Water Framework Directive (2000/60/EC) and aspects of radioactive waste that are related specifically to radioactivity are regulated under EURATOM. Additionally, some waste may be regulated under the Waste Framework Directive (2008/98/EC), and Council Directive 1999/31/EC on the landfill of waste or the IED.

3.2.5. Water Framework Directive

Mining activities interact with water in multiple ways that can have impacts on the environment and communities.¹³⁰ In the EU, the main instrument for water policy is the Water Framework Directive (WFD, 2000/60/EC) which was adopted in 2000. The WFD covers surface waters, i.e. rivers, lakes, groundwater, and transitional and coastal waters.

The main objective of the WFD is to achieve a good status of surface waters in the EU by 2015¹³¹. Achieving a good status means "securing good ecological and chemical status for surface waters and good quantitative and chemical status for groundwaters".¹³² Another significant objective of the WFD is to make sure the good status of the waters is maintained by preventing and stopping deterioration and by protecting and enhancing aquatic ecosystems.¹³³ To deliver the objectives of WFD, MSs are

¹²³ Scannell 2012, p. 230.

¹²⁴ Scannell 2012, p. 232.

¹²⁵ Category A is defined in the Annex III and lists facilities that "attract high concerns by the public as they pose particular health and environmental risks". MinPol 2017, p. 48 note 194.

¹²⁶ MinPol 2017, p. 48.

¹²⁷ Scannell 2012, p. 232.

¹²⁸ MinPol 2017, p. 48.

¹²⁹ Scannell 2012, p. 230.

¹³⁰ Kemp et al. 2010, p. 1553.

¹³¹ The 2015 deadline allows some flexibility for the MSs under certain circumstances, and the good status should be achieved by the end of 2015, 2021 or 2027. Josefsson 2018, p. 156.

¹³² COM(2019) 95 final, p. 1.

¹³³ Josefsson 2018, p. 155.

required to produce and implement River Basin Management Plans (RBMP), in which all actions to be taken in a river basin district are identified.¹³⁴ In addition, there are a number of responsibilities in place for the competent authorities of MSs regarding mineral resource permitting (Box 2).

Box 2: The key responsibilities the WFD places on national authorities from the mineral resource permitting perspective.¹³⁵

The competent authorities are required to:

- identify the individual river basins, i.e. the land areas surrounding and draining into particular river systems;
- analyse the features of each river basin, including the impact of human activity and an economic assessment of water use;
- monitor the status of the water in each river basin;
- register protected areas which require special attention;
- produce and implement RBMPs to prevent deterioration of surface water, to protect and enhance groundwater and to preserve protected areas;
- provide public information and consultation on RBMPs.

Source: MinPol 2017.

For surface waters, both ecological and chemical requirements need to be satisfied to achieve a good status. Annex V of the WFD provides specific parameters for a good ecological status, as well as three categories for ecological statuses: high, good, and moderate.¹³⁶ On the other hand, where the chemical quality status is concerned, all quality standards that are established for chemical substances at the European level need to be satisfied to achieve a good water status. Failing on any of the criteria means failing to achieve the good water status, since the chemical status is measured as good or fail.

Annex I of Directive 2013/39/EU¹³⁷ lists 45 substances which are determined as priority substances concerning water pollution. Many of these substances, such as some heavy metals, benzenes, and PAHs, can be associated with mining activities.¹³⁸

For groundwaters, a good status is achieved when both the quantitative status and the chemical status are at least “good”.¹³⁹ The quantitative status considers the groundwater abstraction as a long-term annual average rate that needs to be less than the available groundwater resource.¹⁴⁰ Regarding the

¹³⁴ MinPol. 2017, p. 238.

¹³⁵ MinPol 2017, p. 238-239.

¹³⁶ MinPol 2017, p. 239.

¹³⁷ Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.

¹³⁸ MinPol 2017, p. 240.

¹³⁹ Article 2(20) in WFD.

¹⁴⁰ MinPol 2017, p. 240.

chemical status, the precautionary principle is followed since no pollution is allowed and any direct discharge to groundwater bodies is thus prohibited. Both the quantitative and the chemical status of the groundwater are essential for the mining industry and permitting purposes.¹⁴¹

Until recently, the WFD was considered mostly as a framework which establishes procedural obligations, e.g. regarding monitoring and, where necessary, for improving the status of waters.¹⁴² In 2015, however, the Court of Justice of the European Union (CJEU) ruled in the *Weser* case (C-416/13) that the environmental objectives of the WFD are legally binding.¹⁴³ Thus, MSs must refuse authorisation for any project that may compromise these objectives, unless an exception is granted. So far, the *Weser* case has affected permitting processes of some major projects, for instance in Finland, where the Supreme Administrative Court of Finland ruled against an intended industrial bioeconomy investment in Kuopio, basing its reasoning considerably on Article 4 of the WFD, which establishes the environmental objectives.¹⁴⁴

The WFD can also contribute to the planning level by identifying areas that are suitable for mining activities.¹⁴⁵ It can set regulatory directions on the strategic level, if one or more water bodies are designed as protected areas or if concrete measures¹⁴⁶ are adopted to ensure that the requirement of the special protection level is met. These actions provide mainly negative signals for the authorisation of mining activities at the strategic level, since these activities can "jeopardise the special protection status".¹⁴⁷

3.2.6. The Environmental Liability Directive

The Environmental Liability Directive (ELD, 2004/35/EC) came into force in 2007. The ELD is based on the implementation of the "polluter pays" principle, which means that an operator whose activity causes a serious threat or actual damage to the environment is financially liable to remedy the damage caused as well as to adopt measures and develop practices to minimise the risks of environmental damage.¹⁴⁸ The ELD was extended to cover extractive waste produced by mining and quarrying activities when the MWD¹⁴⁹ was adopted in 2006. Many of the activities connected with mining are listed in Annex III, which lists the operators of (potentially) dangerous occupational activities that are strictly liable under the ELD for any environmental damage they cause.¹⁵⁰

The ELD's objective is to prevent and remediate environmental damage and thus to lead to a reduction in the number of future contaminated sites. If damage occurs, the ELD aims at the restoration of the site to baseline conditions, i.e. the conditions that would have existed if the damage had not happened.¹⁵¹ The competent authorities are required to ensure that the polluter restores the damaged site or takes measures to restore the site if the operator is not capable of meeting the obligations. Often in these cases, the operator is still liable for the costs of the restoration. In cases, where there is no operator or the operator has no capacity or financial resources to prevent or remediate the

¹⁴¹ Ibid.

¹⁴² Soininen & Belinskij 2020.

¹⁴³ Paloniitty 2016, p. 151.

¹⁴⁴ Soininen & Belinskij 2020.

¹⁴⁵ Karageorgou 2016, p. 143.

¹⁴⁶ In the relevant Programmes of Measures (Art. 11), subject to a SEA. Karageorgou 2016, p. 143.

¹⁴⁷ Karageorgou 2016, p. 143.

¹⁴⁸ Stevens & Bolton LLP 2013, p. 15.

¹⁴⁹ The Mining Waste Directive 2006/21/EC.

¹⁵⁰ Scannell 2012, 191-192.

¹⁵¹ Josefsson 2018, p. 153.

environmental damage caused by mining activities, e.g. in the case of closed or abandoned mines, the MSs can be compelled to prevent or remediate the damage under several directives¹⁵² as well as international law.¹⁵³

The ELD also gives the public and NGOs the right to submit observations relating to instances of - or the threats of - environmental damage and to request competent authorities to act under the ELD.¹⁵⁴ This right concerns natural or legal persons who are adversely affected or likely to be adversely affected by environmental damage, who have a legitimate interest in environmental decision-making relating to the damage or who allege the impairment of a right.¹⁵⁵ If action is requested, it needs to be accompanied with relevant evidence of the alleged environmental damage. Persons meeting the requirements listed above must also be given access to justice, as they have the right to challenge the decisions made by the competent authorities.

3.3. Impact assessments

3.3.1. The Strategic Environmental Assessment (SEA) Directive

Mining activities can be controlled at both strategic and project-level. Environmental impact assessments (SEA and EIA) provide a systematic methodology for considering in advance which kinds of effects plans, programmes, and projects are likely to have a significant impact on the environment. Both the SEA and EIA Directives are founded on the objectives on environment listed in Article 191(1)¹⁵⁶ TFEU.

At the strategic level, the SEA Directive (2001/42/EC) came into force in 2001 and establishes the instrument of the Strategic Impact Assessment (SEA). The main objective of the SEA Directive is to “provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development”.¹⁵⁷ The SEA Directive applies to a broad range of public plans and programmes, but policies are excluded from its range of application.

If a plan is designed to deal with a project which is likely to have significant effects on the environment, such as large-scale extraction, and it sets a framework for future development consents, it is typically subject to an assessment under the SEA Directive. The SEA is also applicable to plans that are critical for the development of mining activities, e.g. land-use and industrial plans as well as water management plans.

If the SEA instrument is properly implemented, it can contribute significantly to the identification of whether an area is suitable for the development of mining activities.¹⁵⁸ This is especially the case with land-use plans that recognise the conflicting interests between different uses for land.

¹⁵² E.g., Directive 98/83/EC on the quality of water intended for human consumption, the Nature directives (92/43/EEC and 2006/21/EC). Scannell 2012, p. 205-207.

¹⁵³ Scannell 2012, p. 205.

¹⁵⁴ Scannell 2012, p. 202.

¹⁵⁵ Ibid.

¹⁵⁶ European Commission 2020, p. 7.

¹⁵⁷ Article 1 of the SEA Directive.

¹⁵⁸ Karageorgou 2016, p. 142.

3.3.2. The Environmental Impact Assessment (EIA) Directive

The Environmental Assessment Directive (EIA Directive) came into force in 1985 and has since been amended three times: in 1997, 2003 and 2009. In 2011, the directive of 1985 and its three amendments were codified in Directive 2011/92/EU. After a review process, the codified directive was amended further, and Directive 2014/52/EU amending Directive 2011/92/EU was adopted and came into force in 2014.¹⁵⁹

The EIA Directive requires MSs to adopt all necessary measures to ensure that projects that are likely to have significant impacts on the environment are made subject to a requirement for development consent and an assessment regarding their effects on the environment before a decision on development consent is given.¹⁶⁰ In an EIA, the direct and indirect significant effects of a project on the population, human health, biodiversity, land, soil, water, climate, material assets, cultural heritage, landscape, as well as the interaction between all these factors listed, need to be identified, described and assessed in an appropriate manner.¹⁶¹

The EIA Directive applies to a broad range of both public and private projects that would likely have significant impacts on the environment. An EIA is compulsory for mining projects of considerable scale, for quarries and open cast mining sites of 25 hectares or more, and for other projects that could be associated with mining. All such projects are listed in Annex I of the EIA Directive.¹⁶²

Additionally, in cases of significant expansions of existing mines, an EIA is often required. However, a screening process may be done in cases of smaller-scale quarries, open cast mines, underground mines and other mining related activities listed in Annex II. A screening is done to determine whether an EIA is required or not. Activities need to be subjected to an EIA process (see Box 3) if in the screening procedure it is determined that they are likely to have significant environmental impacts.

If installations relevant to mining activities are subject to all three directives, EIA, IED and Seveso III, a single or coordinated procedure can be set by the MS to fulfil the requirements of the given directives in "an integrated and cumulative way".¹⁶³

¹⁵⁹ European Commission 2020 p. 8.

¹⁶⁰ Article 2 of the EIA Directive.

¹⁶¹ Article 3 of the EIA Directive.

¹⁶² Projects that can be associated with mining activities listed in Annex I: waste disposal installations for hazardous waste, waste disposal installations for non-hazardous waste with a capacity of more than 100 tons a day, groundwater abstraction or artificial groundwater recharge schemes with annual volume of water abstracted or recharged equivalent or exceeding 20 million cubic meters a day. See: Karageorgou 2016, note 41 p. 143; Scannell 2012, note 2 p. 214.

¹⁶³ Karageorgou 2016, p. 147.

Box 3: Phases of the environmental impact assessment process as defined in the EIA Directive.¹⁶⁴

The EIA process

1. The preparation of an environmental impact assessment report (EIA report) by the developer.
2. Carrying out of consultations.
3. Examination by the competent authority of the information presented in the EIA report and any supplementary information provided by the developer as well as any relevant information received through the consultations.
4. The reasoned conclusion by the competent authority as regards any significant effects of the project on the environment, considering the results of the examination of the EIA report, possible supplementary information from the developer, and relevant information from the consultations.
5. Integration of a reasoned conclusion by the competent authority into the decision to grant or refuse development consent.

If development consent is granted, the decision needs to include:

- a) the reasoned conclusion,
- b) the environmental conditions attached to the decision,
- c) a description of the features of the project and/or measures outlined to avoid, prevent, or reduce the significant adverse environmental effects and if possible, to offset them, and
- d) the monitoring measures, if appropriate.

If development consent is refused, the main reasons for the refusal need to be stated.

Source: The EIA Directive.

MSs can introduce stricter protective measures than stated in the EIA Directive. This right is based on Article 192 of the TFEU. There are also cases in which the implementation of the EIA provisions are weaker, i.e. the measures are less strict than those set in the EIA Directive. In such cases, an infringement procedure is initiated by the European Commission.

Overall, the EIA Directive provides an adequate framework for assessing the environmental impacts of mining activities.¹⁶⁵ The EIA Directive is also a significant instrument for the effective application of the right to public participation, since it provides opportunities for public participation at a relative early stage of the designing process.¹⁶⁶ However, unlike the EIA, the assessment of social impacts of a project is not mandatory and the requirement of Social Impact Assessment (SIA) as a precondition for a mining permit is rare in the EU.¹⁶⁷

¹⁶⁴ Articles 1(2)(g) and 8a of the EIA Directive.

¹⁶⁵ Karageorgou 2016, p. 145.

¹⁶⁶ Karageorgou 2016, p. 144. More about public participation in 3.4.2.

¹⁶⁷ Tiess, Akhouri & Murguia 2019, p. 34.

An SIA is a management tool often used by project developers, financiers, competent authorities and affected communities to manage social impacts throughout the project cycle.¹⁶⁸ While the EU has adopted the Better Regulation agenda and toolbox to perform policy impact assessments - which also include a wide range of social impacts both on macro and sectoral levels¹⁶⁹ - there is no project-level guidance or regulation for SIAs. Some MSs, such as Finland, Portugal, Slovakia and Austria, require an SIA as a part of the EIA, and in such cases the local communities and other affected stakeholders also have the right to appeal.¹⁷⁰

3.4. Mining and rights

3.4.1. Human rights

Certain human rights which are guaranteed by the EU and its MSs can be impaired by mining activities.¹⁷¹ In this section, the relevant EU documents on human rights, focusing mostly on the European Convention on Human Rights will be briefly discussed. Also, public participation rights and the rights of indigenous peoples, as they too are relevant from the mining conflict perspective, will be examined.

In the EU, there are a few human rights instruments which can be relied upon to require the EU and the MSs to protect citizens' health, safety, and environment from serious actual or threatened environmental harm.¹⁷² They are: the European Convention on Human Rights, the Charter on Fundamental Rights of the European Union, and the European Social Charter. All three instruments are binding for the MSs.

The basis for fundamental civil and political rights is the European Convention on Human Rights (ECHR), which has been interpreted to obligate MSs to provide substantive and procedural rights to individuals who are affected by serious or imminent environmental damage.¹⁷³ It is the first instrument that gave a binding effect to the rights laid out in the Universal Declaration of Human Rights adopted by the United Nations General Assembly in 1948. The ECHR came into force in 1953, after having been open to signatures since the 1950s. It has since been amended multiple times. The European Court of Human Rights (ECtHR) rules on individual or State applications that allege violations of the rights laid out in the European Convention on Human Rights.

Despite the fact that there are no rights regarding the conservation of the environment or nature, the ECtHR has interpreted the ECHR in ways that have led to indirectly ensuring a minimum level of environmental protection.¹⁷⁴ Particularly the right to respect for private and family life and the home¹⁷⁵,

¹⁶⁸ Vanclay 2019, p. 126. An SIA used to be regarded as a regulatory tool like the EIA, but since the realisation grew on how different in nature the social problems are compared to environmental ones, also the focus of the SIA has shifted into managing the social issues in all phases of the project.

¹⁶⁹ Better Regulation policy impact assessments have been conducted on, e.g. policies on the responsible import of conflict minerals, the safety of offshore oil and gas prospection and exploration and production of hydrocarbons. See more in Mancini & Sala 2018.

¹⁷⁰ Tiess, Akhouri & Murguia 2019, p. 35.

¹⁷¹ Scannell 2012, p. 183.

¹⁷² Scannell 2012, p. 183.

¹⁷³ Scannell 2012, p. 184.

¹⁷⁴ De Sadeleer 2012, p. 61.

¹⁷⁵ Article 8 of the ECHR.

but also, for instance, the right to life¹⁷⁶ and the right to enjoy private property¹⁷⁷ have been referred to by the ECtHR regarding not only the environment, but also specifically mining-related cases.¹⁷⁸

The Charter of Fundamental Rights of the European Union (the Charter), which includes a wide range of political, social, and economic rights for the citizens and residents of the EU, came into effect in 2009.¹⁷⁹ It has the same legal value as the EU Treaties, so the EU must act and legislate consistently with it. It also applies to MSs when implementing EU law. The Charter is mainly based on the ECHR, the human rights case law of the European Court of Justice, and existing provisions of EU law. There are multiple rights in the Charter, some of which are like those in the ECHR, which can be relied upon when environmental rights or environments relevant for human rights need to be secured or protected.¹⁸⁰

Complementing the ECHR is the European Social Charter (The Social Charter) which guarantees social and economic rights, such as the right to health, employment and decent working conditions. It is a Council of Europe Treaty and was initially adopted in 1961.¹⁸¹ However, the original Social Charter was gradually replaced by the revised charter which was adopted in 1996 and added new rights and amendments to the original one.

Compliance with the Social Charter is monitored by the European Committee of Social Rights under two mechanisms. First, collective complaints can be lodged by the social partners and NGOs in MSs that have accepted the entire Social Charter and the complaints procedure. In these MSs the complaints procedure adds to the possible instruments for environmental protection in the EU.¹⁸² Second, the reporting system requires the MSs to annually submit a report on the implementation of provisions of the Social Charter.

3.4.2. Public participation rights

In Europe, the main instrument setting out public participation rights regarding environmental issues is the UNECE¹⁸³ Convention on access to information, public participation in decision-making and access to justice in environmental matters (the Aarhus Convention). The Aarhus Convention was adopted in 1998 and came into force in 2001. The EU concluded the Aarhus Convention by Decision 2005/370, making it “an integral part of the EU legal order”.¹⁸⁴ The Aarhus Regulation 1367/2006 was adopted by the EU in 2006 and amended in 2020 to improve access to justice in environmental matters within the EU.

By guaranteeing the basic participatory rights for natural and legal persons and their associations (referred to as “the public”) in environmental decision-making, the Aarhus Convention aims at contributing to protecting the right of the public and the future generations to live in an environment that is adequate for their health and well-being.¹⁸⁵ It also establishes the main principles, referred to as the ‘three pillars’, of public participation (see Box 4).

¹⁷⁶ Article 2 of the ECHR.

¹⁷⁷ Article 1 of the Additional Protocol to the ECHR.

¹⁷⁸ For more details see: De Sadeleer 2012, p. 61-73; Scannell 2012, p. 184-187.

¹⁷⁹ Scannell 2012, p. 187.

¹⁸⁰ Scannell 2012, p. 188.

¹⁸¹ Council of Europe, 2021.

¹⁸² Scannell 2012 p. 189.

¹⁸³ United Nations Economic Commission for Europe, UNECE.

¹⁸⁴ Milieu Consulting Sprl 2019, p. 9.

¹⁸⁵ Article 1 of the Aarhus Convention.

Box 4: The Aarhus Convention defines the three pillars of public participation.¹⁸⁶

Three pillars of public participation

1. Access to information: Environmental information (e.g. on the state of the environment or any measures taken on the environment) held by the public authorities must be made available to the public in response to a request for such information.
2. Public participation in decision-making: The public affected need to be ensured a possibility to early and effectively participate in the decision-making on environmental matters, such as project proposals or plans, and the outcomes from such participation must be taken into account in the decision-making process.
3. Access to justice: Members of the public have the right to a fair, timely and not prohibitively expensive review procedure before a court of law or another corresponding impartial body, if the public's rights to access information or to participate in public decision-making are not respected, or if the environmental law is otherwise not followed.

Source: The Aarhus Convention.

Regarding exploration and mining activities in the EU, public participation rights are often realised through the EIA processes.¹⁸⁷ Furthermore, the provisions of the IED and SEA Directive concerning participation implement the public participation rights laid out in the Aarhus Convention.

3.4.3. The rights of indigenous peoples

The only indigenous people within the European Union are the Sámi. According to the International Labour Organisation (ILO), peoples in independent countries are regarded as indigenous if they descend from the populations who inhabited the country, or a geographical region to which the country belongs, at a time of conquest or colonisation or the establishment of present state boundaries and, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.¹⁸⁸ Self-identification of indigenous peoples is regarded as a fundamental criterion when determining to whom the rights of indigenous peoples apply.

The Sámi inhabit the territory of Sápmi¹⁸⁹, which covers the northern parts of Finland, Sweden, Norway, and Russia. Extractive industries place increasing pressure on the Sámi livelihoods, especially reindeer herding, and culture in the Arctic regions. In Sweden, twelve active metal mines, as well as most of the value of mineral extraction, are located in the Sápmi.¹⁹⁰ In Finland, there are no active mines or mining permits in the Sápmi region, although some reservations and exploration permits have been granted in the area.¹⁹¹

¹⁸⁶ Articles 4-9 of the Aarhus Convention.

¹⁸⁷ Tiess, Akhouri & Murguía 2019, p. 12.

¹⁸⁸ Art. 1(b) of C169 – Indigenous and Tribal Peoples Convention, ILO 1989.

¹⁸⁹ It should be noted that many of the Sámi nowadays live outside the Sápmi, e.g., in cities. See for example: Melhus, Eliassen & Broderstad 2020.

¹⁹⁰ Raitio, Allard and Lawrence 2021, p. 1.

¹⁹¹ Pölönen, Allard & Raitio 2021, p. 104.

In 1994, a separate protocol on the Sámi people was negotiated between Finland, Sweden and the Member States of the European Union. The protocol established that exclusive rights to reindeer husbandry within the traditional Sámi areas can be granted to the Sámi. It also established that the protocol could be extended to consider “any further development of exclusive Sami rights linked to their traditional means of livelihood”.¹⁹² Amendments to the protocol regarding the development of exclusive Sámi rights can be adopted by the European Council, if proposed by the European Commission. In such cases, the European Parliament and the Committee of the Regions should be consulted.

The Arctic policy by the European Commission and the High Representative of the Union for Foreign and Security Policy, updated in October 2021, states that the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) is “integral to the EU’s human rights policy”.¹⁹³ The UNDRIP was adopted by the General Assembly in 2007 and it is an all-encompassing instrument which details the rights of indigenous peoples and provides for the recognition, protection and promotion of such rights in international law and policy. It establishes, for instance, that indigenous peoples have the right to autonomy or self-government in matters that relate to their internal and local affairs.¹⁹⁴ As a declaration UNDRIP is not legally binding. However, it has significance as it represents the principles that reflect the development of international legal norms as well as the development of commitment by States.

The updated Arctic policy also outlines that the EU aims to promote the rights and freedoms of indigenous peoples in line with the ILO’s Convention No 169, that is, the Convention concerning Indigenous and Tribal Peoples in Independent Countries (ILO 169).¹⁹⁵ ILO 169 was adopted in 1989 by the ILO and aims to ensure that indigenous and tribal peoples can enjoy human rights and fundamental freedoms without discrimination, that they can control their own development and participate in decision-making on matters that affect their lives.¹⁹⁶ Unlike UNDRIP, ILO 169 is the only international, legally binding treaty on indigenous peoples’ rights. It is open for ratification. Regarding the rights of Sámi people, so far only Norway has ratified ILO 169.

UNDRIP requires States to consult and cooperate with the indigenous peoples through their own representative institutions, e.g. Sámi parliaments, in good faith to obtain their free, prior and informed consent (FPIC, see Box 5) in matters that may affect them. FPIC is re-affirmed in ILO 169, which specifically emphasises the aim of achieving agreement or consent when indigenous or tribal peoples are consulted.¹⁹⁷ FPIC is also referred to in the EU’s updated Arctic policy, which states that the EU encourages “full consultation and cooperation” with indigenous peoples.¹⁹⁸

¹⁹² Article 2 of the Protocol No 3 on the Sami people, 11994N/PRO/03.

¹⁹³ JOIN(2021) 27 final, p. 14.

¹⁹⁴ Article 4 of the UNDRIP.

¹⁹⁵ JOIN(2021) 27 final, p. 14.

¹⁹⁶ C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169); Larsen & Gilbert 2020, p. 83.

¹⁹⁷ Raitio, Allard & Lawrence 2020, p. 5.

¹⁹⁸ JOIN(2021) 27 final, p. 14.

Box 5: Free, prior and informed consent (FPIC).¹⁹⁹

Free: No coercion, intimidation, or manipulation, or, in case of refusal by the communities, no retaliation by the governments or companies.

Prior: Consent should be sought and received before any authorisation or commencement of activities, and sufficient time should be provided for indigenous consultation and consensus processes.

Informed: Full disclosure of the plans and adequate knowledge is provided by the developers, in language understandable for the affected communities, so that they have a reasonable understanding of the impacts, including social impacts, the plan will likely have on the communities.

Consent: The communities have a genuine opportunity to choose and can approve or refuse the proposed plan, and the consent can be verified to cover the whole community and not just a small group of elites within the community.

Source: Hannah & Vanclay 2013.

According to the United Nations Human Rights Council, FPIC manifests “the indigenous peoples’ right to self-determine their political, social, economic and cultural priorities”, and constitutes three interrelated and cumulative rights of indigenous peoples.²⁰⁰ These are: 1) the right to be consulted, 2) the right to participate and 3) the right to their lands, territories and resources. In terms of exploration and mining activities, FPIC is a well-established principle that sets out the means for effective participation of and negotiations with the indigenous peoples.²⁰¹

¹⁹⁹ Based on Hannah & Vanclay 2013, p. 150.

²⁰⁰ A/HCR/39/62, p. 5.

²⁰¹ Raitio, Allard & Lawrence 2020, p. 5.

4. CONCERNS, DISPUTES, AND MAIN SOURCES OF MINING CONFLICTS IN THE EU

KEY FINDINGS

- The number of mining conflicts has been on the rise globally and in the EU.
- Mining conflicts can emerge in different contexts and on varying scales. Most often they are discussed at the local or regional level, where the conflict focuses on project-specific issues: extraction, processing, waste management, or transport of minerals.
- Despite the documented rise in mining conflicts, EU communications have, thus far, been mostly focused on the permitting processes and on securing the supply of raw materials for the energy transition.
- The existing, but limited literature suggests that there are several and varying reasons which are fuelling mining conflicts in the EU.
- According to Kivinen et al. (2020), 46% of the mining conflicts were related to metals and planned or realised openings of new mines dominated the conflicts in the EU.
- Top environmental concerns in the reported cases were: loss of landscape or aesthetic degradation, ground water pollution or depletion, surface water pollution or decreasing water quality.
- Land dispossession, loss of landscape/sense of space, displacement and loss of livelihood were present in more than 60% of the cases regarding the socio-economic impacts.

In this chapter, the main sources of mining concerns and conflicts in the EU are explored. As stated in the introduction to this study, in the global economy, mining activities can be understood as a complex struggle between global and local actors for the utilisation of local natural resources.²⁰² There are many issues and concerns associated with mining activities at the local level²⁰³, often concerning the quality of everyday life and the environment. Some of the concerns can be solved in negotiations between local stakeholders and the mining company.²⁰⁴ However, in some cases it may not be possible to solve or to find a satisfactory solution for all stakeholders, and this may lead to a dispute, which can further develop into a conflict. Such situations can stimulate activism and protests, and finally lead to the emergence of an anti-mining movement.²⁰⁵ Past negative experiences, injustices and the consequentially formed perceptions can also easily lead to preventive measures and resistance movements, which are often initiated even before the mining activities begin.²⁰⁶ Thus, the opposition may turn from being purely reactive to being preventive.

²⁰² Devlin 2020.

²⁰³ E.g., Conde 2017; Conde M & Le Billon 2017; Fjellborg et al. 2022.

²⁰⁴ Mononen & Sairinen 2021.

²⁰⁵ Mononen & Björn 2020.

²⁰⁶ Özkaynak, B. et al. 2015, p. 17–18.

4.1. Societal context of mining conflicts

Environmental conflicts are fuelled by changes in the environment and natural resources, but can also be brought about by changing societal values and focus points of environmental policy.²⁰⁷ For example, societal attitudes towards uranium and coal mining have changed significantly over the years, as the context and understanding around them transformed. Environmental conflicts are also often complex and sometimes seem impossible to reconcile. They involve numerous interests and require difficult decision making.²⁰⁸ Environmental conflicts do not always have well defined parties or even questions that need to be solved. Unlike private conflicts, environmental conflicts typically arise in the public domain, and they are debated in political arenas.²⁰⁹ Mining conflicts are no exception to this.

Mining conflicts can emerge in different contexts and on varying scales. Most often they are discussed at the local or regional level, where the conflict focuses on project-specific issues: extraction, processing, waste management, or transport of minerals. More general conflicts can, however, also be born out of disputes about the activities of entire industries, linking them to questions about legislation and public governance. Furthermore, disputes can be related to wider national and supra-national strategies or political programmes, such as national and EU mineral strategies. Finally, mining conflicts can also be categorised in terms of their intensity, which can vary between latent and high.²¹⁰ On the latent side, there is no visible organisation, whereas high-intensity conflicts are associated with widespread mass mobilisation.

During the past decades, the number of mining conflicts has been on the rise globally and in the EU.²¹¹ With demand for minerals required for the energy transition increasing and the geopolitical aspirations in the EU intensifying,²¹² the number of conflicts is predicted to rise accordingly.²¹³ It has also been suggested that the increasing demand for minerals may affect the industry's motivation to pursue more controversial projects in more sensitive areas.²¹⁴

Despite the documented rise in mining conflicts, EU communications have, thus far, been more focused on the permitting processes and on securing the supply of raw materials for the energy transition. Externally, the EU has acknowledged the potential impact of its mineral demands on developing countries. As a response, the new EU Conflict Minerals Regulation came into full force at the beginning of 2021. The regulation aims to stem the trade in four minerals (tin, tantalum, tungsten and gold), which are most often linked to financing conflicts or related to human rights abuses.²¹⁵ The regulation requires EU companies in the supply chain to ensure they import these minerals and metals from responsible and conflict-free sources only.

²⁰⁷ Peltonen & Kangasoja 2022, in press.

²⁰⁸ Daniel & Walker 2001.

²⁰⁹ Peltonen & Kangasoja 2022, in press.

²¹⁰ Kivinen et al. 2020.

²¹¹ Andrews et al. 2017; Rodríguez-Labajos & Özkaynak 2017; Kivinen et al. 2020.

²¹² Vidal-Legaz 2021; Tiess 2010.

²¹³ Kivinen et al. 2020; Zachrisson & Beland Lindahl. 2019; del Mármol & Vaccaro 2020.

²¹⁴ Zachrisson & Beland Lindahl 2019.

²¹⁵ European Commission 2021d.

4.2. Diverse concerns are fuelling mining conflicts in the EU

The existing but limited literature suggests that there are several and varying reasons which are fuelling mining conflicts in the EU. The only available systematic review of mining conflicts at the EU level, by Kivinen et al. (2020), uses the EJAtlas database²¹⁶ to map and investigate mining conflicts in the EU. The study found 44 reported conflicts in the EU (UK included with 6 cases) that were categorised under “mineral ores and building materials extraction” and “coal extraction and processing”. Excluding the UK, a visual mapping of the conflicts points to three to four clusters. These are in the western part of Europe in Spain and Portugal, and in the eastern part the east of Germany and the Balkans—especially Romania (map X). The conflict site locations correlate with the most important European mineral deposits, the Iberian Peninsula, the Baltic Shield and the Alpine-Balkan-Carpathian-Dinaride belt.

According to Kivinen et al. (2020), 46% of the conflicts were related to metals, 41% to energy minerals and 13% to industry minerals. Interestingly, over half of the metal mining conflicts were related to one metal, gold. The authors suggest that this may be due to the cyanide used in the gold production processes, which is toxic to many living organisms. Another major finding of the study is that planned or realised openings of new mines dominated the conflicts in the EU—accounting for about half of the total conflicts. 15% of the conflicts concerned the expansion of an existing mining activity and 13% were protests against operational mining activities. Only 7% of the cases were related to post-mining areas, another 7% to environmental accidents and 2% to mineral exploration.

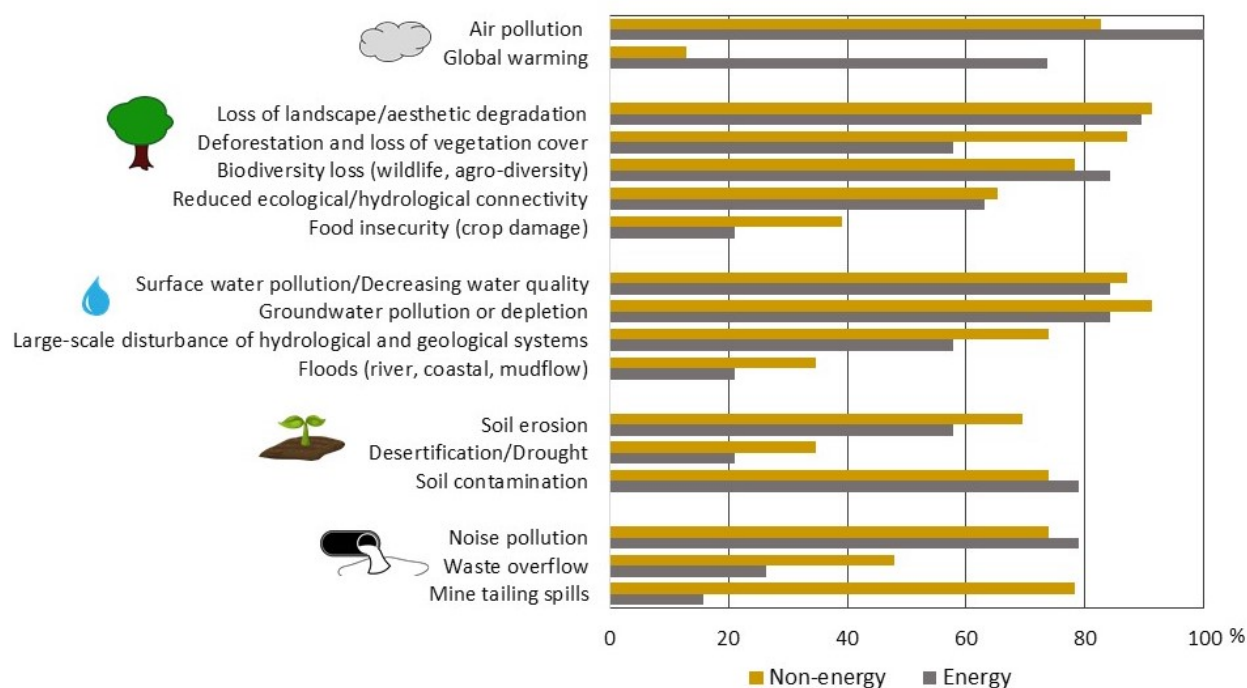
The results published by Kivinen et al. (2020) reveal that the top environmental concerns in the reported cases were loss of landscape or aesthetic degradation, ground water pollution or depletion, surface water pollution or decreasing water quality, deforestation and loss of vegetation cover, air pollution, and loss of biodiversity. These elements were all present in more than 80% of the mining conflicts (Figure 5).

Mine tailing spills were present in a high number of non-energy mineral conflicts but occurred rarely in energy mineral conflicts, whereas as regards concerns for global warming, the results were reversed. Other important environmental concerns were soil contamination, noise pollution, large-scale disturbance of hydrological and geological systems, soil erosion and reduced ecological/hydrological connectivity, which were present in over 60% of the conflicts.

Regarding socio-economic concerns in mining conflicts, Kivinen et al. (2020) report that issues such as land dispossession, loss of landscape/sense of space, displacement and loss of livelihood were present in more than 60% of the cases (Figure 6). The authors suggest that this could be explained by large coal mining projects which have resulted in the resettlement of tens of villages, loss of agricultural land and forests or reduced value of the area for tourism. Other concerns listed in the results, varying in presence between 5–55%, were increases in corruption, loss of traditional knowledge, practices and cultures, and various other instabilities arising from major changes in the regional socio-economic structure.

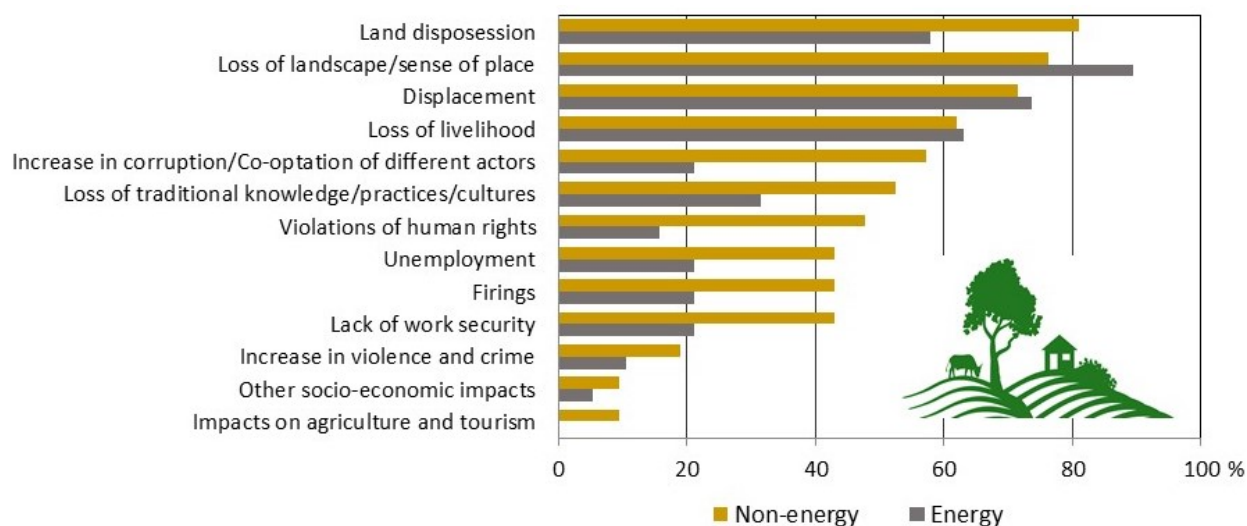
²¹⁶ The EJAtlas constitutes the largest existing online database that provides information on socio-environmental conflicts from an environmental justice perspective across the globe (Temper et al. 2015).

Figure 5: Environmental concerns related to non-energy and energy mining conflicts based on the EJAtlas data



Source: Redrawn from Kivinen et al. 2020.

Figure 6: Socio-economic concerns related to non-energy and energy mining conflicts based on the EJAtlas data



Source: Redrawn from Kivinen et al. 2020.

Another paper focusing on EU-level assessment, by Lesser et al. (2021), offers some observations on several illustrative cases—loosely defined as disputed mining projects within the EU. The data is not systematically assessed or gathered, but the paper gives some clues as to which issues are causing concerns around mining projects. Most of the paper's 38 cases (excluding 10 from the UK) highlight various environmental issues that come in many forms (not always specified in the paper), such as

noise, dust and contamination. Concerns regarding impacts on surrounding waterways and ground water are well presented in these cases.

Nearby environmental protected sites and Natura 2000 sites are often another source of concern. The third heavily featured thematic concern linked to environmental issues are the potential health impacts of mining. Of socio-economic concerns, the impact on other livelihoods such as tourism and agriculture are most mentioned. Other concerns, such as impacts on reindeer herding, increased transportation, and radiation, are mentioned only in a few cases.

5. ANALYSIS OF SELECTED PETITIONS

KEY FINDINGS

- In the selected petitions, a wide variety of concerns, potential impacts and legislative issues can be found.
- In most petitions, environmental and social impacts are tightly intertwined and are part of the whole issue and are difficult to deal with as independent impact categories. In many cases, petitions also involve legislative issues. Not all are expressed as impacts, but also as concerns and issues that come up.
- One of the potential environmental impacts mentioned was connected to water issues. Mining activities in or nearby Natura 2000 areas or other protected areas was among the major concerns.
- Inadequate or incomplete environmental impact assessments (EIAs), or lack of it also featured as a major concern.
- One of the groups of social concerns and impacts was connected to health issues among the local people, as mining activities were seen as a serious risk to health.
- Other serious social concerns and impacts were connected to municipalities and communities close to mining activities: the mining activities were seen as a threat to the local community.
- Many of the petitions were against mining activities in general, so the social issues, concerns and impacts mentioned were wide and significant.
- There is a clear tension between global mining activities and local communities and the environment.

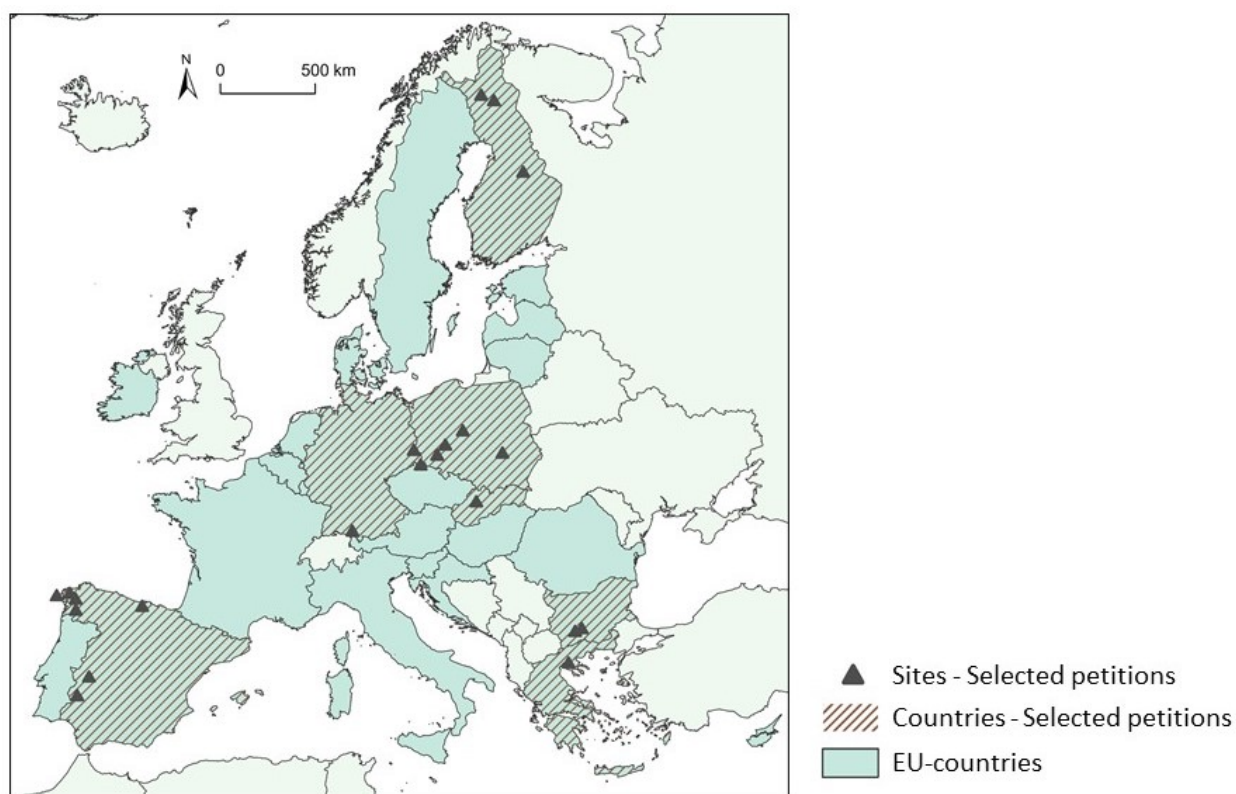
The main repertoires of activism connected to mining activities are meetings, letters and requests to the authorities and other stakeholders.²¹⁷ One instrument is petitions to the European Parliament. The objective of the petition process in the EP is: "to ensure that citizens have an opportunity to communicate with Parliament and express your right to petition, which is one of the fundamental rights of all European citizens and residents, enshrined both in the Treaty and in the Charter of Fundamental Rights."²¹⁸

In this chapter, 33 selected petitions the PETI Committee has received on the mining activities in EU, are analysed. The analysis is based on qualitative content analysis (Tuomi & Sarajärvi 2018). The aim is to point out the main environmental and social concerns and impacts arising from the petitions. Some remarks will also be made about the main minerals/metals and the main legislative issues mentioned in the petitions.

²¹⁷ Mononen & Björn 2020.

²¹⁸ European Parliament 2021.

Map 1: The geographical distribution of sites in the 33 selected petitions



Source: PETI Committee.

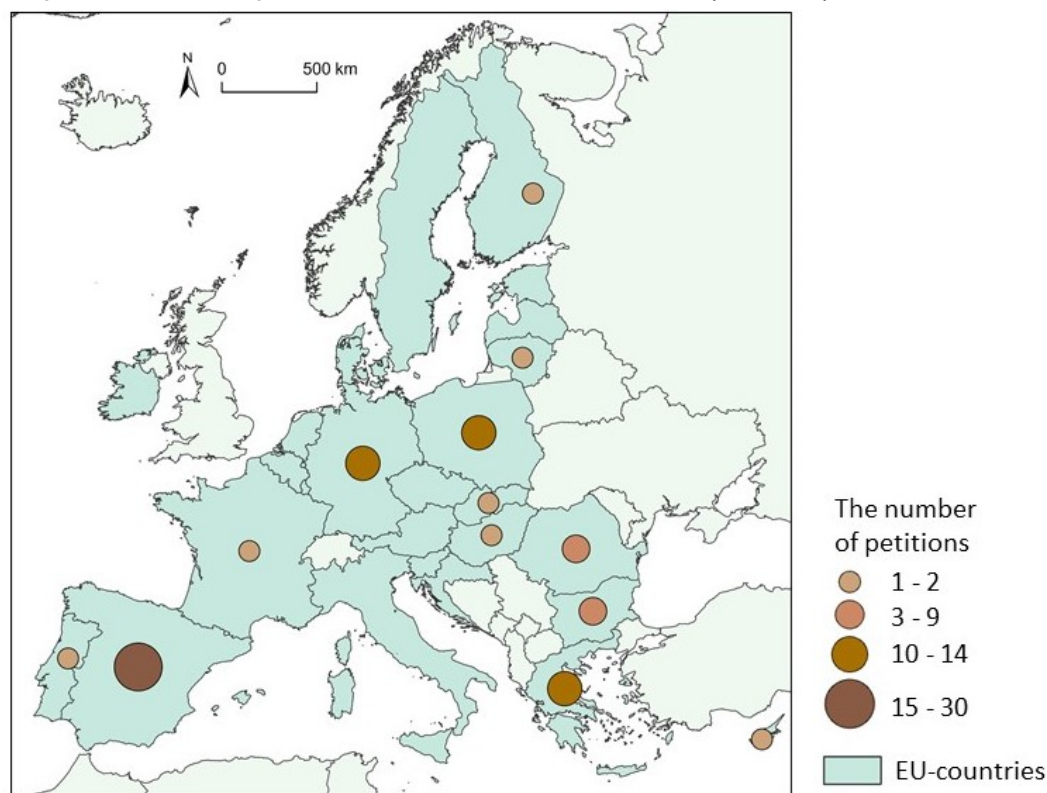
Geographically the selected 33 petitions originated from 7 EU-countries, distributed as follows:

Table 3: Geographical distribution and number of selected petitions by country

Country	Total number of petitions/country
Bulgaria	2
Finland	1 (connected to 3 mining projects)
Germany	2
Greece	3
Poland	8
Slovakia	1
Spain	16
Total	33

Source: PETI Committee

Map 2: Number of petitions in the EU in 2010–2021 by country



Source: PETI Committee.

5.1. Key issues arising from the analysis

The selected 33 petitions are from 7 EU countries: Bulgaria (2), Finland (1, but concerning 3 cases), Germany (2), Greece (3), Poland (8), Slovakia (1) and Spain (16). The main metals and minerals concerned the petitions are: gold, lignite, coal, brown coal, copper, cobalt, lithium, tin and tungsten. In the petitions, a wide variety of concerns, potential impacts and legislative and other issues can be found. Petitions were connected to both non-energy and energy activities. When it comes to the different stages of mining, there were petitions connected to all of them, and most often to open-pit mines. The main concerns, (potential) impacts and issues raised in the petitions are described in the following chapters.

5.1.1. Environmental impacts and issues arising from the sample

In most petitions, environmental and social impacts are tightly intertwined and are part of the whole issue, and thus difficult to deal with as independent impact categories. In many cases, petitions also involve legislative issues. Not all are expressed as impacts, but as issues, concerns and impacts that come up.

One of the potential environmental impacts mentioned was connected to water issues and water quality. These included the danger of losing drinking water in certain areas, the pollution of ground water, lack of valid water permits and problems with the management of wastewater. This is in line with the main social scientific literature in which water issues are also among the main concerns, especially among the people living near mines. Kivinen et al. (2020) also found that concerns regarding impacts on surrounding waterways and ground water are well represented as a cause for conflicts. It

has been suggested that the increasing demand for minerals may affect the industry's motivation to pursue more controversial projects in more sensitive areas.²¹⁹

Connected to sensitive areas, especially mining activities in or nearby Natura 2000 areas or other protected areas was among the greatest concerns in petitions as the activities were seen as a threat to protected areas. One petition requested banning open cast mining in Natura 2000 areas. As explained in Chapter 3.2.1, Natura 2000 is a central instrument of the Nature Directives. It implements the second main objective of the Nature Directives i.e. the conservation of habitats that are rare or endangered or crucial for the survival of certain rare or endangered species.

Natura 2000 sites are often located in rural areas, where the development of mining activities is also expanding. In one petition, mining activities were seen to damage the countryside. Potential environmental impacts and ecological damage of the surroundings and impacts on other sources of livelihood (in many cases agriculture, food production, nearby farms) were also a major concern in the petitions. These effects can also be interpreted as social impacts as they potentially affect especially people's incomes.

Other major concerns—with some serious potential impacts—were Environmental Impact Assessments (EIAs). In many petitions an inadequate EIA, lack of EIA or incomplete EIA was mentioned. The EIA Directive provides an adequate framework for assessing the environmental impacts of mining activities (see Chapter 3). The EIA Directive is a significant instrument for the effective application of the right to public participation, since it provides opportunities for public participation at a relatively early stage of the designing process. The EIA Directive requires the Member States to adopt all necessary measures to ensure that projects that are likely to have significant impacts on the environment are made subject to a requirement for development consent and an assessment regarding their effects on the environment before a development consent decision is made.

Other potential impacts that were mentioned in the petitions are: soil pollution, large increases in air pollution, radioactive material effluents (containing arsenic and antimony) from the tailings pond of a mine, deforestation, environmental pollution in general, and impacts on crops.

5.1.2. Social impacts and issues arising from the sample

At first sight, most of the petitions seemed to be connected with environmental impacts and issues. When taking a closer and more detailed look, however, a large variety of social impacts and issues were raised. As with the environmental impacts and issues, in most petitions social impacts are tightly intertwined with environmental aspects, and difficult to deal with as independent, stand-alone impact categories. In many cases, petitions also involved legislative issues.

One of the groups of social issues and impacts was connected to health issues among the local people, as mining activities were seen as a serious risk to health. This is in line with Kivinen et al. (2020), which found that health concerns related to non-energy and energy mining activities may cause conflicts.

Other significant social concerns and impacts mentioned in the petitions were connected to municipalities and communities close to mining activities. The mining activities were seen as a threat to the local community and to the quality of life. In some cases, there was a concern among the local people that residents may have to leave their homes. Mining activities were also seen as a reason for losing incomes and putting a region's economy at risk. According to some petitions, mining activities may cause irreversible damage, not only to the environment and the countryside, but also to private property and infrastructure. In some cases, local communities thought that plans for future mining

²¹⁹ Zachrisson et al. 2019.

activities threatened their social and economic interests. It was felt, in some instances, that there was a lack of respect for private property. Other, region specific issues included legal and political protection for a minority group, and protection of traditional reindeer herding culture.

It is possible for a local community to become too dependent on mining activities, as appeared in one case in the selected petitions. This can have severe consequences once the all-important mine is closed. Mine closure in general may have a broad range of social impacts and the sparse amount of research literature on the subject suggests that there is limited expertise in this domain. Among other broader issues arising from the sample was the transition to a low-carbon society and the circular economy, as well as the increasing demand for certain raw materials, notably the need for lithium.

A number of reported concerns and issues were connected to the incorrect application of environmental legislation and environmental information. One mining case was seen to be in serious violation of the relevant EU legislation. In general, many petitions questioned the legitimacy of certain mining activities. In some cases, there was no independent legal entity competent to deal with mining activities, nor were public hearings arranged. In one petition, it was stated that the consultation was not formally announced. Lack of information about the mining activities in a certain area was also a concern found in many petitions. In certain petitions mining activities were called a waste of public funds. Another petition alleged that there were problems with mining contracts. Corruption and illegal state aid were mentioned in one petition.

Many of the petitions were against mining activities in general, and thus, the social issues, concerns and impacts mentioned were broad and significant. There were also many cases of municipalities and communities opposing nearby mining projects. Based on the results of the analysis of the petitions, it is evident that there is a clear tension between global mining activities and local communities and the environment.

In two petitions social issues and rights were raised. In one petition this concerned potential breaches of the EU Charter of Fundamental Rights, and reference was made to the right of local communities to live on unpolluted land and not to be threatened by the implementation of a project which would result in mass displacement. The other petition referred to citizens' right to protection against the violation of private life and private property. The petitioners asked the EP to take all necessary measures to stop activities associated with coal mining that endanger the environment and human health. It was claimed that the Polish government had breached the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters, in that the government ignored the rights of society to live in a clean environment.

6. MEASURES TO MITIGATE THE NEGATIVE IMPACTS OF MINING ACTIVITIES

Mitigation of the negative impacts of mining activities (described in detail in Chapter 3) are implemented at multiple policy levels. Mitigation begins with EU wide strategical decisions, then moves to state and industry self-regulation, and eventually cascades down to the project level. While the higher policy level decisions may focus on the societal impacts, they usually provide less flexibility at the project level, at which individual decisions are made based on the unique environmental and social characteristics of the mining area.

Strategic level decisions, i.e. EU and state policies, dictate answers to questions such as how much mining is pursued in the EU, what extractives are mined, and where they are mined in the wider context. EU and state mineral and raw material policies determine the emphasis on new mining in relation to recycling and what minerals should be prioritised.²²⁰ They can also define the role of civil society in mining and the related decision-making.

At the industry level, the policies and regulations that govern mining activities set the minimum legal requirements. These come partly from the EU, but largely from the Member States (see Chapter 3). Regulation controls several impacts of mining activities, including permits, monitoring and pollution thresholds. On the voluntary self-governance side, there are different responsibility programmes and funding organisations that set standards for the individual mining companies.²²¹ At the industry level, investments in less destructive technologies²²² and the development of more socially responsible methods can also mitigate some of the impacts.

Project-level mitigation measures ultimately determine how the negative impacts of mining activities are addressed in practice. Mitigation measures are implemented to avoid, eliminate, reduce, control or compensate for negative impacts and improve the state of impacted systems. In some cases, locally negotiated collaboration agreements could provide more flexibility to address the concerns and needs of the local communities and the environment.²²³

Strategy and policy level

- EU mining, mineral and raw material strategies
- National mining, mineral and raw material strategies

Industry level

- State legislation
- Voluntary corporate social responsibility programmes
- Best practice development & technological innovations²²⁴

Project level

- Ecological compensation, restoration
- Planning and assessments, including cumulative and climate impact assessments
- Local collaboration models or agreements

²²⁰ See, e.g., Ali et al. 2017.

²²¹ See e.g., Hilson & Murck 2000.

²²² e.g., Endl et al. 2021.

²²³ Kotilainen et al. 2019; Kotilainen et al. 2021.

²²⁴ E.g., Endl et al. 2021.

While the literature notes several types of measures, according to Haddaway et al. (2019), the systems-level effectiveness of mitigation measures is missing and there is a need to gather this type of evidence in a rigorous manner.

Some examples of mitigation measures and strategies:

- Techniques and technologies to reduce the environmental footprint: improving energy efficiency; aerial and other non-invasive exploration methods; large-scale investments in green mining technology; concepts such as waterless and zero waste mines.
- Better monitoring and environmental reporting procedures: using and enforcing SIA; cumulative impacts assessments and climate assessments; collaborative environmental monitoring.
- Using and implementing voluntary and regulated biodiversity offsetting schemes. Rehabilitating shut-down mines.
- Improving participatory processes and procedural justice: starting the participatory planning processes with stakeholders in the early stages when the outcome can still be significantly affected.

Public participation rights are crucial in terms of planning and decision-making, since it has been argued that they support better implementation of legislation and policy, improve the reconciliation of diverse interests and objectives, as well as increase the acceptability of decisions and management practices.²²⁵

In the EU, the EIA is an often-used tool to realise the public participation rights during the permitting stage of mining activities. However, a number of issues regarding participation in the EIA have been identified. For instance, if the determination of forms and degree of public participation falls merely on the mining company, there is a risk that the EIA is used to promote the developer's interests instead of engaging in a collaborative and constructive dialogue with the public.²²⁶ Additionally, the timing of the EIA can be critical. If left to a late stage of the permitting process, it can lead to the public perception that the permitting process is too far along for them to have a real impact on it despite the official participation procedures.²²⁷

Despite these issues, the EIA has significant potential to strengthen the realisation of public participation rights in the permitting processes beyond the minimum standard²²⁸ enshrined in the Aarhus Convention, and this could also be encouraged at the EU-level. The SIA has a similar potential as a tool to enhance public participation rights, if it is conducted in a manner that promotes the active engagement and participation of the affected local communities.²²⁹

Additionally, the potential of integrating a Human Rights Impact Assessment (HRIA) into the existing procedures (e.g. EIA or SIA) could be assessed, especially regarding the rights of the Sámi.²³⁰ An HRIA refers to a specific impact assessment that is used to investigate whether a project or a policy complies with the human rights both from a substance and a procedural perspective.²³¹ Implementation of an HRIA in the Sápmi region has the potential to answer to the need to recognise the rights of and impacts

²²⁵ Pölönen, Allard & Raitio 2021, p. 101.

²²⁶ Pölönen, Allard & Raitio 2021, p. 120.

²²⁷ Pölönen, Allard & Raitio 2021, p. 117-118, 128; Leino & Miettinen 2020, p. 305-321, 348-354.

²²⁸ As stated by Pölönen, Allard & Raitio 2021, p. 103

²²⁹ Hossain & Petrétei, 2017, p. 312.

²³⁰ As suggested by Hossain & Petrétei, 2017.

²³¹ Hossain & Petrétei 2017, p. 306-307. The HRIA is based on the normative framework of international human rights and the UN Guiding Principles on Business and Human Rights (2011).

on Sámi people that the current EIA procedures often fail to do, and to improve their participation rights consistently with the FPIC principle.²³²

²³² Hossain & Petretéi, 2017, p. 326, 339.

7. FUTURE OF MINING ACTIVITIES IN THE FRAMEWORK OF A GREEN DEAL

The European Commission adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030 (compared to 1990 levels). The European Green Deal aims to "transform the EU into a modern, resource-efficient and competitive economy, ensuring: no net emissions of greenhouse gases by 2050; economic growth decoupled from resource use; and no person and no place left behind".²³³

The mining sector, within the broader industrial sector, has a role in harnessing the potential in global markets for low-emission technologies, sustainable products and services. Mining has a central role in the EU's Green Deal and the green transition. The main goals of the Green Deal for the mining sector can be roughly divided into three objectives:

- To improve mining projects' environmental impact in the EU area and to support similar goals in countries outside the EU.
- To ensure the supply of raw materials for the EU's industries that are critically dependent on minerals, e.g. the battery industry.
- To develop a circular economy of metals and minerals in the EU's internal market and to support the sector's technological development.

The shift from a linear economy to a circular economy means that raw materials are extracted from the waste stream by reusing, recycling and recovering them.²³⁴ Non-renewable metals can only be mined sustainably if they remain in circulation for long periods of time.

Recycling is a critical part of the value chain, but it does not currently meet the demand of the raw materials needed for several green technologies, particularly battery production. In this context and from the perspective of policy objectives, the role of battery metals appears to be contradictory. According to the EU's Green Deal and the circular economy programme, the consumption of raw materials should be reduced. However, to achieve the set climate goals, the production of battery metals and other critical materials should be increased, to support the manufacturing of battery, solar and wind power technologies.²³⁵

The Green Deal also includes a geopolitical dimension. It may even create new security risks as the EU is dependent on the import of several critical minerals which have no clear substitutes.²³⁶ The relation with and dependence on China in particular is expected to further increase as the demand for green technologies increases.²³⁷

The Green Deal includes the idea of a just transition, which brings forth the social effects of the transition alongside the socio-technical perspective. The concept of a just transition raises questions, such as who wins or loses in the transition, why, and whether there is something that can be done to prevent losses.²³⁸ The EU has adopted the Just Transition Mechanism (JTM)²³⁹ as a part of the Green Deal to address the social and economic effects the transition causes.

²³³ European Commission 2021e.

²³⁴ Arora et al. 2017.

²³⁵ Valtiontalouden tarkastusvirasto 2021.

²³⁶ Leonard et al. 2021.

²³⁷ Leonard et al. 2021.

²³⁸ McCauley and Heffron 2018.

²³⁹ Consisting of three elements: Just Transition Fund, Just Transition scheme and a public sector loan facility.

Although the JTM currently identifies the most affected regions and particular groups of society, such as workers of specific industries, there is also criticism saying that, despite the notes of solidarity, fairness and justice, the interpretation of a just transition is restricted and does not include all people affected by the transition.²⁴⁰ There is a growing recognition that justice impacts in a broader sense need to be considered as a part of the just transition.²⁴¹ In addition to regions and citizens within the EU, it is also useful to consider the justice impacts the transition can have, e.g. outside the EU²⁴² and for future generations.

The process of the just transition can bring forth tensions and trade-offs between different perceptions and experiences: what is just or fair and what should the justice and sustainability goals be?²⁴³ Tensions can arise, e.g. between efficient policy actions and the inclusivity of policy processes (how to make rapid and sufficient decisions without sacrificing public participation) or between sustainability and the distribution of benefits and burdens (how to mitigate climate change without causing significant harm to some groups or communities).²⁴⁴ These tensions and trade-offs need to be considered also with regard to the mining and production of minerals, which are critical in terms of the Green Deal's objectives.

The Green Deal has received criticism from several civil society organisations, particularly in the context of extraction.²⁴⁵ One of the main concerns is about the principle of how green growth is being pursued. Although the Green Deal aims to decouple growth from resource extraction, critical voices assert that it will inevitably lead to more destructive extraction in the EU and elsewhere, even if this is justified by the use of "cleaner" technologies.

Another major concern is that in addition to the negative environmental impacts originating from overconsumption, local communities and vulnerable groups will have to bear the negative consequences of mining. The increasing demand for minerals may incentivise mining activities to move into more sensitive and locally important conservation areas. From the perspective of realising the green transition goals, the increasing number of conflicts and opposition to mining projects may become a major obstacle (Chapter 5). This has also made some people question how realistic the plans are.

²⁴⁰ Fleming and Mauger 2021, p. 174-175, 180.

²⁴¹ See for example, Kaljonen et al. 2021; McCauley and Heffron 2018; Sovacool et al. 2021; Sunio 2021.

²⁴² For example, Sovacool et al. (2021) have studied the e-waste issue in Ghana and the use of child labor in cobalt mining in the Democratic Republic of Congo.

²⁴³ Ciplet and Harrison 2020.

²⁴⁴ See Ciplet and Harrison 2020; also, Kalt 2021.

²⁴⁵ See e.g., Bolger et al. 2021; Rhoades 2021; Home 2021.

8. CONCLUSIONS AND POLICY RECOMMENDATIONS

The variety of potential impacts from mining activities is broad, but only some of them are realised in individual mining projects. However, when the potential impacts are realised, they can be significant both environmentally and socially. In many mining cases, like those in the selected petitions, the concerns and impacts connected to the local environment and communities, and to the global economy are at odds. The global energy transition needs certain minerals which may be in protected areas, or near them. It is impossible to extract them without local impacts. This also makes the place-specific nature of mining activities real.

Among the many other concerns this kind of situation may lead to disputes and conflicts. Previously, concerns and related activism concerning mining activities were, in general, framed around economic and environmental issues. At the local level, this is about quality of life and incomes as well as concerns about everyday life and the local environment. Most of the activism is based on fear that potential concerns and impacts may become real.

It is important to increase people's knowledge and awareness of mining activities both in general and related to the use of critical materials. Identifying and considering different experiences and perceptions of mining activities allows for an exchange of ideas and is a starting point for mitigating the impacts and improving legislation. If the defenders of mining activities simply accept all mines and mining activities, and the nearby residents see them as a problem, the divisions will not disappear.

In addition to paying special attention to negative mining cases, as the literature often does, it would be worth looking at the lessons that can be learned from the positive mining projects that exist in the EU: how have local concerns and experiences been considered, and how have mining companies responded to them? There might be something to be learned for more sustainable and responsible mining from these projects. At the same time, however, it must be remembered that the locations, size and ore of mines vary. What works well in one place can have negative impacts and cause problems in another.

EU legislation concerning environmental regulation plays a significant role in providing instruments for the design and various phases of mining activities and can be used to ensure that mining and mining waste do not endanger human health and the environment unacceptably. The EU should look more closely into the role of SIAs with regard to mining activities. Does the current legislation allow fair opportunities for local communities to impact the projects and their plans? Do mines follow the socio-economic promises made in the planning stage, and how? Do mining activities in a certain area affect other livelihoods now, and in the long term?

The Aarhus Convention sets the minimum standard for public participation rights in the EU. These rights are often realised through the EIA processes. Integrating SIA, and regarding the Sámi, potentially also the human rights impact assessment, as a compulsory element in the impact assessment, could further improve the implementation of public participation rights during the permitting phase of mining activities. A fair permitting process would increase the acceptance of mining activities.

The Green Deal aims to secure the supply of the critical minerals needed for the EU's electrification and energy transition. More attention to the justice impacts of the Green Deal needs to be paid to understand and mitigate the ongoing and future tensions and conflicts arising from the increasing need for minerals for electrification and the production of renewable energy. An EU level survey is needed to systematically bring together the latest scientific insights and to identify the multiple dimensions of justice in the context of the EU's just transition, and this should include the production

and use of critical minerals.²⁴⁶ Moreover, monitoring and evaluation of a just transition and its progress in a comprehensive manner needs to be ensured.

Currently, the prevailing narrative for much of the mining activities is the growing demand for critical minerals and materials for the energy transition. However, several mines of non-critical minerals are putting additional strain on the system. Thus, the EU's attempts to secure raw materials from its own territory should focus on the "right" minerals to justify this reasoning. Regulation could, thus, favour critical minerals over others, such as gold. One option for mining activities (to be more acceptable) is that mines should be required to use 100% renewable energy. They should also be required to compensate for the biodiversity they destroy (e.g. through biodiversity offsetting)²⁴⁷. This means, that ecological compensation should be mandatory in legislation.

As this study progressed, it became apparent that there is no comprehensive database of mining activities at the EU level. This makes many types of assessments difficult or even impossible. An openly available database would also increase the transparency of the sector from the perspective of EU civil society, as well as increase the understanding of the scale and nature of all kinds of mining activities.

There is a clear lack of EU wide assessments of mining conflicts—only Kivinen et al. (2020) have published an EU level article. A systematic analysis at EU level of the environmental and social impacts is lacking. Information about actualised impacts is scattered and finding the existing research, if there is any to be found, is time-consuming.

Furthermore, an analysis of measures aiming to mitigate the impacts of mining activities, and especially the social impacts, is missing. This is needed, however, because every mine operates in a unique social and environmental context, and the same measures are unlikely to work in different cases. Literature as well as our analysis suggest that the number of mining conflicts is only going to grow in the future. The EU should prepare for this, whether it is by investing in public mediation and conflict resolution, or by assessing and reacting to the root causes of the conflicts.

²⁴⁶ As an example, the Finnish Climate Change Panel published a report on the social justice impacts of electrification in Finland in October 2021. The report also included policy recommendations for the Finnish government. For the report (in Finnish), see Lipsanen, Kivimaa & Leino 2021.

²⁴⁷ Moilanen & Kotiaho 2020.

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ANNEX – A LIST OF SELECTED PETITIONS

Petitions from Bulgaria (2)

Petition 0270/2016, with 337 co-signatures, is about an *illegal quarry* and asks for the Parliament to assist to get shut down.

Environmental impacts: According to the petition, the quarry has caused severe ecological damage to an EU protected area for birds. The residents have suffered damage to their crops and seen a huge increase in air pollution caused by the quarry dust. The area is particularly significant for the globally threatened Imperial Eagle as well as several other endangered species.

Social impacts: The quarry damaged the health of the residents. Locals are losing income and seeing their health being damaged. A consultation was not formally announced by the authorities, which is in violation of the Aarhus Convention, which has been ratified by Bulgaria. The quarry was established without any formal tender and constitutes unregulated state aid in breach of EU law. In 2019, the petitioner claimed that the municipality where the quarry is located, opposed the opening of the quarry. The petitioner also did not agree with the operator on the route of transportation of the stones from the quarry. The petitioner also informed, that the operator of the quarry violated the EIA prescriptions. The regional inspectorate did not sanction the operator. The petitioner later also alleged illegal State aid and corruption.

Petition 1164/ 2020 with 3 co-signatures, is on behalf of the Initiative Committee "Let's work for Velingrad" about the disputable mining concession contract. The contract approves the *extraction of metal* natural resources in the Velingrad municipality.

Social impacts: In August 2020, a citizens' note was adopted. It called on the authorities to terminate the contract. It was not seen to be economically beneficial and because it is against the public interest.

Legislative issues: The petitioner requested the EP to examine the disputed concession contract to see whether it follows the EU legislation and if the conclusion is legal.

Petition from Finland (1 petition connected to 3 mining projects)

Petition 0145/2012 is about *mining activities* in Lapland and Eastern Finland.

Environmental impacts: A number of mining activities take place in Natura 2000 areas. Mining activities pollute water, air and soil in the areas concerned.

Social impacts: Mining activities are threatening the traditional reindeer culture. Petitioner also refers to mining projects where radioactive materials are extracted.

Petitioner wanted all these activities to be investigated, especially those in the Natura 2000 areas.

Legislative issues: Habitats directive, Birds directive, Mining waste directive.

Later, in 2016, the petition was updated with information on the Kittilä gold mine operated by Agnicio-Eagle Mines.

Environmental impacts: Concerns about effluents – containing arsenic and antimony - from a tailings pond. Effluents are released into peat land close to the mine. Following the passage through this peat land, the effluents are discharged into the river Seurujoki. Furthermore, the petition points out releases of wastewater into this river following the leakage of a tailings pond of this mine.

Legislative issues: Directive on the management of waste from extractive industries, Water framework directive

Petitions from Germany (2)

Petition 0709/2015 is on *protection of the cultural identity and survival* of the Sorb community. In this case environmental and social impacts are tightly intertwined.

Social impact: It calls for the legal and political protection for the Slavic minority in the area that is largely characterised by mines and coal-fired power stations.

Environmental (and social) impacts: The community is endangered by loss of land, soil erosion, pollution of surface and ground water as well as air pollution caused by micro particles and heavy metals. A large proportion of the population is suffering from serious diseases.

Legislative and political issues: The petition calls for the introduction of legal and political measures to ensure that the areas inhabited by the above-mentioned minorities are protected. The petition also calls for plans for the closure of the coal plants and for banning of the new open-cast lignite mines. Related directives are the Ambient Air Quality Directive, the Industrial Emissions Directive, the Water Framework directive, and the Drinking Water Directive.

The European Commission has no powers concerning the protection of communities speaking regional or minority languages. The Commission does not have the competence to ban coal mining or coal use either at the Member State or at the EU level.

Petition 0294/2021 is about halting the *quarrying of gravel* in a large forest area of which parts are designated as a protected area.

Environmental (and social impacts): Increasing the existing gravel extraction will have negative consequences for the protected area. In this respect, the petitioner calls on the relevant authorities to halt the gravel extraction and to designate the entire area as protected. No further information can be found about this petition at the time this study was written.

Petitions from Greece (3)

All three petitions from Greece concern *gold* mining in the same area.

Petition 0917/2013 is about *gold* mining.

Environmental impacts: The mining activities will lead to environmental pollution.

Social impacts: According to the petitioner the planned mining activities represent a serious risk to public health. The activities will cause irreparable environmental damage and impair the quality of life of residents.

Legislative issues: The EIA is inadequate, especially for the earthquake-prone area in question and given that the project is not being properly supervised and that this is not a sustainable activity in the area. The petitioner is calling on Parliament to condemn these activities and to intervene to safeguard local ecological resources.

Petition 0001/2016 is on deforestation caused by *open-air mine*.

Environmental impacts: The mine is causing deforestation in the area, which is affecting *water* resources and contaminating aquifers.

Social impacts: The environmental impacts will put the region's economy at risk.

Legislative issue: The legitimacy of EIA is questioned.

Petition 0620/2018, with 43 co-signatures, is about the environmental protection of the certain area.

Environmental (and social) impacts. The petition denounces the implementation of the proposed investment as a flagrant violation of EU environmental law and international conventions. The petitioners call for an immediate halt to all mining activities as they pose an immediate threat to an area of great ecological value – a primeval forest with many threatened species and which is directly linked to Natura 2000 areas – and may cause irreversible damage to the environment, life, and health of the inhabitants of the wider region.

Legislative issues: The petitioner denounces the implementation of the proposed investment as a flagrant violation of EU environmental law and international conventions and calls for an immediate halt to all mining activities. The petitioner cites alleged infringements of, inter alia, Articles 11 and 191 TFEU, Directives 2001/42/EC, 85/337/EEC, 2000/60/EC and 92/43/EEC and the Aarhus Convention. An immediate halt to all mining activities is necessary, according to the petitioner, to comply with the procedure provided for by Directive 2001/42/EC, i.e. the full consultation of citizens and all economic and social actors in the area, as well as the drafting of a Strategic Environmental Assessment (SEA).

Petitions from Poland (8)

Petition 0046/2010 is on an open cast *lignite* mine on the behalf on the association "Stop open cast mining".

Environmental impacts: The petition refers to an open cast lignite mining project in Lower Silesia in areas which are partly protected by the Natura 2000 programme. This conflicts with the EU's principles of reducing CO₂ emissions and promoting innovative technologies with a view to developing fewer polluting types of energy production and protecting the natural environment.

Social issues: The competent authorities have neither held a public hearing nor provided any transparent and objective scientific or socio-economic data. Realisation of the project will result in mass displacement tearing up the social fabric of the local community. The petitioner claims that the area foreseen for the project is subject to restrictions concerning infrastructure development and that these restrictions are not legitimate since local people have clearly expressed their views against the project.

Rights: According to the petitioner, these results are ignored by the central authorities. Another concern is about the potential breaches of the EU Charter of Fundamental Rights with regard to the right of local communities to live on unpolluted land and not to be threatened by the implementation of a project which will result in mass displacement. Regarding the possible need to displace local communities as well as the fact that the Polish authorities seem to have ignored the results of the local referendum, it must be noted that these issues fall within the exclusive competence of the Polish authorities and the Commission is not in position to examine them.

Legislative issues: Since the petitioner considers that the implementation of this project will involve serious violations of the relevant EU legislation, the petitioner calls on the EP to take the matter up. The project will have significant consequences for the local environment, and it will result in the destruction of key ecosystems. Directive 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) and Council Directive 1992/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora as amended (the Habitats Directive).

The project would not be implemented before 2030.

Petition 0936/2012, bearing 9 co-signatures, about environmental damage caused by *coal* mining activities.

Environmental and social impacts: Coal mining endangers both the environment and health. The petitioner draws attention to the fact that the current provisions about public consultation and public participation in the allocation of concessions, as well as the affected citizens' right to protection of private life and private property are still being violated. The petitioners ask the EP to take all necessary measures to stop activities associated with coal mining in Poland that endanger the environment and health.

Legislative issues: The petitioners claim, that there are shortcomings in the Geological and Mining Law concerning public consultations of granting mining licenses, the parameters set for the effects of mining operations, procedures allowing the victims of planned and ongoing mining operations to access documentation on those operations. The petitioners also refer to irreversible damage to the environment, private property and infrastructure, including that co-financed from EU funds, caused by mining operations. There has been a lack of an independent legal entity competent to monitor companies' mining operations and improper supervision of mining facilities by the central administration.

The Commission has no evidence to establish that Polish law infringes the provisions of the EIA Directive. The petitioners do not offer any information on how Poland should be considered as lacking in a system of controls. Based on the information available, the Commission cannot establish an infringement of environmental EU legislation.

Petition 1565/2012 (from four persons) is about the project to construct a *surface mining facility*.

Environmental impacts: The mine threatens the local communities concerned, in that residents would leave, and houses, churches, schools and cemeteries would be demolished. The mine would also be injurious to the health of local inhabitants and destroy the Lake Brodzkie special protection area (PHL080052), which is part of the Natura 2000 network.

Legislative issues: The plans to construct a surface mining facility and a power plant violate national and European legislation. Most of the local population have voted against the plans to open the mine in two referendums. Politicians have nonetheless failed to take their opinion into account. The petitioners consider the plans to be a flagrant violation of Directive 2009/28/EC on the promotion of the use of energy from renewable sources and of the *Aarhus Convention* and call on the EP to help stop those plans.

There are **two similar petitions (1345/2009 and 0046/2010)** concerning the plans to construct *surface mining facilities*.

Environmental and social impacts, and legislative issues: The petitioners consider the plans to be a flagrant violation of Directive 2009/28/EC on the promotion of the use of energy from renewable sources and of the *Aarhus Convention* and they call on the EP to help stop those plans. The petitioners argue that the Polish government - by including in its strategic document 'Energy Policy for Poland 2030' the plan to construct a surface mining facility and a power plant - has ignored the rights of the local population which has voted against the plans in two referenda. Consequently, the petitioner claims that the Polish government has breached the *Aarhus Convention* on access to information, public participation in decision-making and access to justice in environmental matters, in that the government ignored the rights of the society to live in a clean environment.

Petition 0509/2012 is about plans to build a *lignite* mine.

Environmental impacts: The project will cause irreparable damage to the region's countryside, and pollute the environment. The residents are against the exploration works launched. The works are based on a decision (dated 11 May 2011) of the Minister of Environment allowing the exploration and identification of lignite reserves in the area. Open cast lignite mine was approved, the depression cone would also negatively affect the Natura 2000 site.

Social impacts: The region has economic and historical connections with modern agriculture. The local communities consider the plans to be threatening their social and economic interests.

Legislative issues, rights: The behaviour of the municipal authorities and of the Minister of Environment, agreeing to exploration works is in breach of Article 41 of the Charter of Fundamental Rights of the European Union. The petitioner raises the issue of the Polish provisions on expulsion and the compliance of such provisions with the Polish Constitution. The petitioner refers to decisions granting to the investor the right to carry out exploration works and containing the immediate applicability clause which, in the view of the petitioner, constitute a breach of property rights. In conclusion, according to the petitioner the current situation indicates a breach of Article 6 and Article 37 of the Charter of Fundamental Rights. In addition, the petitioner points to the plausibility of breach of the provisions of Article 6 of the Habitats Directive should the open cast mine be approved. The petitioner also alleges that the municipal authorities have not been consulted on the plans to have an open cast lignite mine in the location.

Petition 0169/2015 is on behalf of an association of local food producers on the construction of a *brown coal* mine in the agricultural region.

Social impacts: Despite the clear local opposition, the second largest producer of brown coal generated electricity in Poland is in the process of undertaking exploratory works related to a brown coal mine and potentially an adjoining power plant. The mine will have highly negative consequences for the local environment and community. Also, there are potential irregularities in the legal process.

Legislative issue: The petitioner calls on EU decision makers to consider the environmental, agricultural and social consequences of the planned mine, and to intervene with the Polish authorities to highlight the irregularities related to the granting of the concession. The EU should ensure that the rule of the law is upheld and the constitutional rights of the residents are respected. **Petition 0509/2013** raises the same issue. In 2013 a PETI delegation went on a fact-finding visit to Poland and discussed issues related to a large-scale lignite mining project.

Petition 1099/2018, with 531 co-signatures, is on the environmental disaster caused by open cast *coal* mining.

Environmental and social impacts: Residents of certain municipalities have been warning of the threat to the environment posed by lignite mines in the region for more than 10 years. Despite community protests, lignite mining remains a priority for the Polish Government, despite the damage and losses to citizens and the environment. The spatial planning programmes introduced by central and local authorities diminish the role and the ability of local communities to participate in decision-making relating to spatial planning and mining activities in the region.

Legislative issues: The petition calls for compliance with environmental regulations. One of the mines is operating without valid water permits, and the active mines are having an increasingly negative impact on the environment. Hydrological conditions, water resources and water quality are deteriorating, while numerous Natura 2000 protected areas, valuable species and habitats protected by the Birds and

Habitats Directives are under threat. Drought and heavy metal pollution are not the only effects of this extensive exploitation of lignite.

Petition 1236/2019 is on fears that 30 000 inhabitants of the Liberec Region are in danger of losing drinking water due of the activities and expansion of a *brown coal* mine in Turów.

Environmental and social impacts: Expansion of the mine negatively affects the quality of life of the inhabitants due to the noise and the dust in the air. The petitioner states that the mining licence is valid until April 2020, but its operator is applying for an extension until 2044 and an expansion with 150-200 meters. Petition asks for a fact-finding mission to the concerned territory and the adoption of recommendations on minimising the impacts of the mine on human health and the environment.

Legislative issues: In case of continued mining, drinking water will be lost. This authorisation process violates the SEA Directive (2001/42/EC), the EIA Directive (2011/92/EU), the Water Framework Directive (2000/60/EC) and the Paris Climate Change Agreement. The petition asks for an assessment by the Commission in advance of the requested extension, and a due check in accordance with to the relevant EU legislation.

Petition 0677/2020 is *against immediate closure of the lignite mine*.

Social impacts: There are 27,000 signatures in this petition on behalf of the Association for Development and Innovation in Zgorzelec. The petitioner expresses the concerns the inhabitants of the bordering regions of Poland, the Czech Republic and Germany have about alleged escalating attacks from Czech neighbours, supported by various ecological organisations from the Czech Republic, which allegedly aim at closing the mining and production energy complex. The petitioner claims that during the more than 100 years of its operating the mining and energy plant complex has always responded to any reservations from the Czech and German neighbours and has adapted to changing conditions related to ecology and environmental protection. The mine applied for continuing mining operations in the existing mining area for 6 years and additionally reduced its activity zone by several dozen square kilometres. This was met with strong resistance and criticism of some of the inhabitants of border towns who submitted a complaint signed by 13,000 residents regarding the closure of the Turów mine to the European Parliament's Committee on Petitions. This mining and energy complex provides direct work for around 5,000 residents and 10,000 people who work at companies working for it. The complex has been the only employer and source of income for thousands of families for years. Its liquidation would mean a total collapse of the labour market and dramatic social changes. In the petitioner's opinion, in a few decades both the mine and the power plant will cease its operations as is the case with lignite power plants in neighboring countries, but it will be a long-term process spread over years. Moreover, the petitioner argues that the protests are clearly depreciating only the Polish investment, while much larger Czech and German lignite mines operate nearby. The petitioner supports the continuation of mining operations in the coming years and at the same time asks for support for activities aimed at creating new jobs in this region in the coming years after the closure of the Turów mining and energy complex.

Petition from Slovakia (1)

Petition 0879/2017 is on the alleged danger to thermal water sources posed by the extraction of the *brown coal*.

Environmental and social impacts: The petitioner claims that the thermal water extraction site is threatened by the existing and planned mining activity. For instance, the Nováky power plant near the Bojnické medicinal baths, which will close in 2021, is responsible for approx. 7% of all CO₂ emissions in

Slovakia and is the second largest emitter of sulphur oxides throughout the EU. The further mining of lignite (brown coal) planned for 2023-2034 in the protected zone of thermal resources could seriously disrupt the sources of thermal water and cause irreversible damage to the medicinal water sources. The Mining Inspectorate of Spa and Sources of the Slovak Republic stated that the proposed operations affect the interests protected by law and threaten the medicinal sources. The petitioner claims that the Slovak state interferes in the calculation of the cost of production of lignite by buying the indigenous coal and that its price is established between the buyer and the monopoly supplier without any control by a national regulator or another regulatory authority. The petitioner adds that to maintain some 4,000 jobs linked to mining activity the state subsidises every employee of the mine.

Petitions from Spain (16)

Petition no 1409/2013 is about the decay and failure of the *coal* mining sector.

Social issues/impacts: Despite the intentions expressed in various successive plans over the years, there has been no progress environmentally and even less progress in youth employment. In this regard, the petitioner condemns the waste of public funds and queries how EU aid for the Spanish mining sector has been used.

Council Decision 2010/787/EU on state aid to facilitate the closure of uncompetitive coal mines provides a path for definitive and irrevocable closure of uncompetitive mines according to uniform requirements. Aid can also be granted to mining companies pursuant to Article 4 to cover the costs arising from the closure of coal production units (exceptional costs). These are mostly social costs such as the costs of social welfare benefits or early retirement, costs incurred in safety or site rehabilitation for the production units subject to closure, as well as "external liabilities" such as the pumping and cleaning of water from decommissioned mines, up to the total cost amount.

Petition 0815/2014 is on the breach of the Habitats Directive and jeopardisation of the Natura network by the government of Galicia.

Environmental issues/impacts and legislative issues: The petition states that the Natura network steering plan to be implemented by the government does not comply with the Habitats Directive. The petitioner blames the fact that, it authorises their extension to new sites. The petitioner underlines the gap between the Natura Network, which rejects open cast mines, and this plan which favours this kind of activity. The petitioner demands action from the Commission to prevent the implementation of the plan.

Petition 0817/ 2014 is almost identical to the previous petition and is on the incompatibility of the Natura network steering plan of the government of Galicia with the Habitats Directive. The petitioner states that the Natura network steering plan to be implemented by the government of Galicia does not comply with the Habitats Directive. The petitioner claims that it authorises extension to new sites. The petitioner underlines the gap between the Natura Network, which rejects open cast mines, and this plan which favours this kind of activity. The petitioner demands action from the Commission to prevent the implementation of such plan. The petitioner considers that Articles 4 and 26 of the Director Plan are incompatible with the Habitats Directive because they provide for the possibility to develop activities despite negative assessments of the implications for the sites. Finally, the petitioners denounce the insufficient designation of Natura 2000 sites in Galicia.

Petition 0869/2014 is about a *ban on open cast mining in Natura 2000 areas*. **Petitions 0815/2014 and 0817/2014** are on the same issue.

Environmental and legislative issues: The petitioner complains that the recently adopted Galician Decree 37/2014 permits open cast mining in Natura 2000 areas. The petitioner highlights following concerns: 1) the decree offers inadequate protection to the Natura 2000 areas; 2) it allows open cast mining in Natura 2000 areas; 3) the nearby Costa da Morte is not adequately protected by Natura 2000 and the total Natura 2000 area has already been scaled back by the Xunta de Galicia; and 4) question marks surround already planned open cast mining projects, such as Corcoesto, which lies just outside the Natura 2000 area, but has a direct impact on it. Article 23 of Decree 37/2014 allows for the exceptional authorisation of open cast mining operations in Natura 2000 areas.

Three next petitions are about the *lithium* mines in Cáceres. They refer to the potential impacts of the open cast lithium mining project on the natural surroundings. They also allege that violations of EU legislation may have taken place.

Petition 1174/2017: An open pit lithium mine threatens the natural surroundings. The petitioner criticises the spoil bank and the evaporation pond. He also criticises the sheer quantity of water the mine uses, making it impractical as it depletes and contaminates the aquifers.

Petition 0273/2018: An open-pit lithium mine threatens the natural surroundings. The petitioner criticises the waste disposal system and the evaporation pond. The mine is impractical as it uses a large quantity of water, depleting and contaminating the aquifers.

Petition 1140/2019: An open pit lithium mine, that an Australian company wants to open, is a threat to the city of Cáceres. In relation to this project, the General Directorate of Industry, Energy and Mines of the Junta de Extremadura is processing or has processed a series of mining rights procedures. The petitioner considers that violations of EU legislation have occurred, specifically:

- Directive 2003/4/EC of the EP and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC.
- Directive 2006/21/EC of the EP and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission.
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment and Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment. Text with EEA relevance concerning the evaluation of the impact of certain public and private projects on the environment, in relation to Council Directive 92/43/EC of May 21, 1992, on the conservation of natural habitats and wildlife and wild flora and with Directive 2009/147/EC of the European Parliament and of the Council, of November 30, 2009, concerning the conservation of wild birds.
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

The Commission considers that a transition to a low-carbon and circular economy can only be achieved if raw materials are sourced in an environmentally and socially friendly way, fulfilling all legal obligations imposed by EU and national laws, and engaging all relevant stakeholders and the public from the start of the project. It also considers that the EU needs to become more resilient to supply

chain disruptions by recycling more raw materials from existing products, sourcing raw materials from a wider range of third countries and by making good use of raw material deposits in Europe.

Three next petitions are about *copper* mine projects.

Petition 1194/2017:

Social and environmental issues: There is a lack of information on the copper mine project in Touro and about the risks that it may pose for the population and the environment if their aquifers become polluted. The environmental impact study on the project is incomplete and the petitioner calls for it to be rejected.

Petition 0174/2018:

Social and environmental issues: There is a lack of information on a copper mining project. The mining project poses several problems: it affects agricultural holdings that receive CAP payments, it could affect aquifers, and the ponds could be dangerous for neighbouring dairy farms. The petitioner asks for more information on the impact of the mining project on neighbouring livestock and agricultural holdings.

Petition 0386/2018:

Social and environmental issues: The site of the disused open cast mine (active between 1973 and 1986) is to be returned to its former state owing to its adverse effects on the environment, particularly its polluting of the Ulla River and the Arousa estuary. The petitioner asks for work in the copper mining project in O Pino, which affects areas within the Natura 2000 network, to be suspended.

The proposed copper mine has been subject to an environmental assessment pursuant to the EIA Directive, which has concluded with a negative Environmental Impact Statement. Accordingly, the competent authorities will not agree to the mining project. As regards the environmental effects of the abandoned mining facilities, it appears that the mine stopped its activity in 1986 and that the associated facilities for the management of the extractive waste have been abandoned since then. In that respect, the Commission observes that any waste deposited in those facilities must be managed without endangering human health and harming the environment. Moreover, under Directive 2006/21/EC, Member States must draw up and update periodically an inventory of closed and abandoned mining waste facilities causing serious negative environmental impacts or being a potential serious threat to human health or the environment. These inventories must be made available to the public and may provide a basis for an appropriate programme of measures.

Petition 0255/2019 is on behalf of the United Left of Cantabria, on possible irregularities regarding the granting of a *prospecting licence for mining* in Cantabria.

Legislative issues: The petition calls for an investigation to be carried out into whether Cantabria's regional government has acted in line with EU legislation in giving its approval to the Salia prospecting project. The petitioner alleges that the following directives have been breached: Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment; Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora; and Directive 2009/147/EC on the conservation of wild birds.

Petition 0511/2020 is about pollution from a *tin and tungsten* mine.

Environmental impacts: This mine, originally licensed under concessions granted between 1942 and 1947, extracted sulphur ore deposits but also removed significant amounts of arsenopyrite, pyrite and

chalcopyrite, causing acidic run-off that contaminated the groundwater and nearby rivers. The mine closed in 1986. The petitioner states that, although the concessions should have lapsed and been declared void, in 2008 they were purchased by a new company which has apparently submitted a new project to restore and re-open the mine. According to the information received by the Commission, the petitioner raises concerns over allegations of incorrect application of EU environmental legislation and environmental information being withheld by the Spanish authorities regarding two mine development projects.

Legislative issues: Although reports had been issued stating that an EIA on the mine was needed, the authorities approved the projects, in flagrant disregard of the EU directives on the EIA and public participation. An Australian company, Rafaella Resources Limited, intends to mine for tin and tungsten and open new open pit mines, without the necessary environmental permits. Meanwhile, an unconnected Swedish company, Eurobattery Minerals AB, intends to dig a huge open cast nickel-copper-cobalt mine in areas of natural habitats protected by EU legislation. The petitioner reports that the Galician Government has systematically blocked access to environmental information about the Santa Comba mine, in breach of the Aarhus Convention and the related directive, adding that this has given rise to a communication to the UN's Aarhus Convention Compliance Committee, currently under consideration as procedure No ACCC/C/2017/153.

Petition 0987/2020 is about the lack of environmental impact assessment studies regarding *lithium* mining projects.

Environmental impacts and issues: According to the petition there is a lack of environmental impact assessment studies and the artificial splitting of the 'Alberta I' project into a series of adjacent mines, to issue authorisations without an environmental impact assessment study, ignoring the cumulative effects of the mines.

Legislative issues: The petitioner complains that Directive 2003/4/EC on public access to environmental information is systematically infringed, in so far as it concerns this mining project. The petitioner has never had a reply to her letters, nor has there been a reply to the administrative appeal she lodged in January 2020. Given the absence of a reply, the petitioner has been permanently deprived of her right to access environmental information. The petitioner calls for an investigation into this, as well as into other mining projects in Galicia.

Petitions 1190/2020 and Petition 1219/2020 are identical, and about a macro-project for *gold and copper* mining.

Social issues and environmental impacts: The mining company is promoting an open pit metal mining macro-project. The petitioners consider that this project is at odds with EU environmental legislation and has led to strong social opposition. The petitioners state that the project aims to extract 8.2 million tonnes of copper and iron ore, which would directly affect the Site of Community Importance (SCI) (Natura 2000 Network) and infringe Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. The petitioners also point out that the project is in a large freshwater reserve.

Social issues, human rights: Despite social opposition to this project, the EU has granted funding to the mining company, through various European projects that seek to influence the local population with a view to obtaining their acceptance. The petitioners complain that the methods used to achieve this social acceptance have included threats to the physical integrity and property of the people who oppose the project, which constitutes an infringement of the European Convention on Human Rights.

Legislative issues: Also, the four Sites of Community Importance could be affected, together with local and regional aquifers, by acid mine drains that would contaminate them with heavy metals, in breach of the principle of non-degradation and the provisions of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. The petitioners add that the project has not been subject to a cross-border environmental impact assessment, as required by Directives 2014/52/EU, 2011/92/EU, and 2001/42/EC. Furthermore, the petitioners complain that the dividing up of the project into several sub-projects or phases which avoid considering the synergistic and cumulative effects of open cast mining is contrary to the criteria repeatedly established by the Court of Justice of the European Union in its case-law, e.g. in its judgments in Cases C-404/09 of 24 November 2011 on cumulative effects, C-392/96 of 21 September 1999, C-227/01 of 16 September 2004 and C-142/2007 of 25 July 2008.

Petition 1275/2020 is about on *offshore mining operations (cobalt, lithium)*

Social issues and environmental impacts: Greater control, protection and research in relation to potential mining operations and their effects is needed in a seamount located around 180 kilometres off the west coast of Galicia and which is home to huge cold water coral reefs and over 700 catalogued marine species, half a dozen of which are threatened with extinction. This seamount and its surrounding areas contain large deposits of cobalt and a significant amount of lithium. This means that this underwater area is potentially attractive for the mining of these metallic resources. The environmental impacts of such mining are not yet known, which is why, before any steps are taken in this direction, research must be carried out into the effects that mining would have on the area's biodiversity, as the entire food chain could be affected, and fish productivity could also be threatened. It has been declared a Special Area of Conservation (SAC) and a Site of Community Importance (SIC) within the Natura 2000 network. It is also classed as a Marine Protected Area within the OSPAR network.

This study, commissioned by the Policy Department for Citizens' Rights and Constitutional Affairs for the Committee on Petitions, provides a brief overview of the main social and environmental impacts of mining activities in the EU. It also gives an overview of the most important relevant EU legislation and a short assessment of implementation and compliance by Member States. It discusses and assesses a number of petitions on mining, as well as possible measures to reduce unwanted impacts of mining, and the future of mining. Finally, the study provides conclusions, policy recommendations and suggestions to help improve the existing EU mining policy and legislation.
