MinLand: Mineral resources in sustainable land-use planning

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679
www.minland.eu

Topic: SC5-15d - Linking land use planning policies to national mineral policies

Deliverable: D3.2 Case studies summary

Authors: Luodes Nike M. [1], Arvidsson Ronald [2] and WP3 task 3.2 Working Group[3]

[1]GTK Geological Survey Of Finland, Finland (WP3 Lead – Case studies of land use planning in exploration and mining, Task 3.2 Lead)
[2] SGU Sveriges Geologiska Undersökning, Sweden (Project Coordinator)
[3] Division of Mineral Policy Poland MEERI Pas,
Laboratorio Nacional de Energia E Geologia I.P. LNEG, Portugal
Geological Survey of Norway, NGU, Norway
Montanuniversitat Leoben, MUL, Austria
Minpol Gmbh, Austria
Wirtschaftsuniversitat Wien, WU, Austria
Department of Communications, Climate Action And Environment, GSI, Ireland
Maccabe Durney Barnes Ltd Mdb, Ireland
Polska Academia Nauk Instytut Gospodarki Surowcami Mineralnymi I Energia, PAS, Poland
Direcao-Geral De Energia e Geologia DGEG, Portugal
Instituto Geológico y Minero de España IGME Sp, Spain
Länsstyrelsen Västerbotten LV, Sweden
Boliden Mineral Ab, Sweden
Regione Emilia Romagna Rer, Italy
Institouto Geologikon Kai Metalleftikon Erevnon Igme Gr, Greece
Geological And Geophysical Institute of Hungary (Mfgi), Hungary
Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek Tno

Internally Published: July 2018
Submitted November 2018
Update: January 2019

Table of Contents

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Introduction

The scope of WP3 is to form a base of cases for analysing **how exploration and extraction of mineral raw materials in Member States are integrated in land use planning and practices at all levels** of implementation (national, regional, local), seeking the harmonization and convergence in national approaches towards minerals policies and land-use planning policies and practices.

The collection of studies on industrial and mineral policy land use cases performed in WP3 is going to enrich the data repository created in WP2, where information on legislations and policies forms a framework for understanding the cases. The analysis of the interactions between mineral and land use at different levels and performed in different legislative systems allow us to investigate strategies for (1) promoting the safeguarding of mineral deposits and prospects; (2) the implementation of the INSPIRE directive; (3) increasing transparency, in order to achieve a fair and equal priority of mineral exploration and extraction activities compared to other types of land use. These aspects are going to be explored in WP4, 5 and 6 and the cases address them following the framework defined in the deliverable D3.1.

The first set of cases were selected during the formulation of the MinLand project proposal. The case selection was then re-evaluated in Milestone report MS6, which increased the pool of cases for better definition of good practices. After the finalization of deliverable D3.1, describing the data compilation methodology and terminology, the case list was modified even further, and all data were subsequently collected and compiled. The MinLand cases are listed in Table 1, and all case study results collected by the partners are reported. The data is to be considered as raw data that will be elaborated further.

The case study survey is based partly on expert knowledge and consultations, and partly on interviews directed at industry, authorities, stakeholders and communities, as defined by the framework report D3.1. WP3 is required to involve civil society, land use practitioners and planners, as well as mining and public authorities at local, regional and national levels. All stakeholders are involved through the collection of case data, but also through taking part in the MinLand workshops organized by WP6 (providing a common structure for the workshops), in collaboration with WP2, 3, 4, 5 and 7.

Cases have been chosen to cover past and current exploration, current mining and quarrying, as well as land use planning practices dealing with undiscovered or unassessed resources. Some cases address both underground exploitation and surface exploitation, six cases address underground exploitation, twelve cases address surface exploitation.

Overall, the cases include a large range of commodities: Zn, Cu, Pb, Au, Ag , Fe, Cu, Ni, Be, REE, Tellurium, Pt and Pd, Co, Apatite, Quartz, Talc, Graphite, dolomites, carbonates, industrial limestone, clay, perlite, crushed rock, gravel, natural stone…. 20% of the cases are dealing with EU-critical commodities (CRMs) currently extracted, potentially extractible or under assessment. Approximately 28% of the cases address sand and aggregate.

The cases listed in the Milestone showed that several land uses are generally competing. Land use conflicts with mineral resources derive from nature conservation areas (e.g. Natura 2000, Natural Parks) in 26% of the cases, followed by vulnerable groups and forestry 13%, mainly in the Nordic countries. Other competing industries, infrastructure and tourism accounts for 6%,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

and a couple of cases for each of the activities: agriculture, housing, urban development and water management. It is not just the number of cases that are relevant for the study, but to understand how the competing land use are valued, and understanding also the processes within legislation/policy making for attributing the values and creating guidelines. These aspects, which are addressed in the survey, form a basis to assess how to achieve a fair and equal access to the land in parity with other activities, possibly without preclusion.

The basic premise for the methodological framework was to identify obstacles and solutions and to point out good practice aspects. The good practice stream is suggested to include:

A. assessment of the required data and how these have been used in policy formulation and land use planning
B. identify and evaluate actual and potential land uses
C. assessment of the values applied to select the land use, evaluating if the minerals have been addressed on equal footing as other land uses
D. assessment on how and to what level land use and mineral policies have been integrated – specifically how minerals can be extracted
E. assessment of how transparent the respective land use planning process has been
F. assessment of INSPIRE Directive compliance
G. assessment of how and to what extent societal aspects have been considered and whether civil society has been involved in the decision-making processes (social license to operate)
H. assessment to what degree strategic aspects of protecting mineral resources (safeguarding) have been considered

Part of survey has been dedicated to self-evaluate the development of the project in the context, the positive and negative aspects that affected its realization. This is based on table 6 of the framework D3.1. Summary of the self-assessment of the individual cases is presented in this report and more detailed findings are going to be shown along the project.

WP3, along with other work packages provide input to a MinLand good practise formulation.

Cases addressed in previous projects

Cases with CRM within the commodities

Case from third parties

The cases collected are

1	Sweden Fäbotjärn, Botnia
2	Spain,Ribera del Ebro South of the autonomous community of Navarra, local companies
3	Sweden, Boliden area
4	Norway, Nordland county
5	Ireland, mineral planning for Lead and Zinc
6	Poland Czatkowice Limestone Mine , Tauron Group
7	Finland Kevitsa, Boliden
8	Sweden Mertainen, LKAB Industrial Stakeholder
9	Italy, Regione Emilia Romagna, Baiso clay
10	Portugal land use planning methodology for mineral resources
11	Greece, Mineral and land use planning procedures with emphasis on best practice example of aggregate resources' exploitation
12	Austria, policy implementation
13	Portugal Somincor polymetallic mine
14	Hungary - Tokaj wine region

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

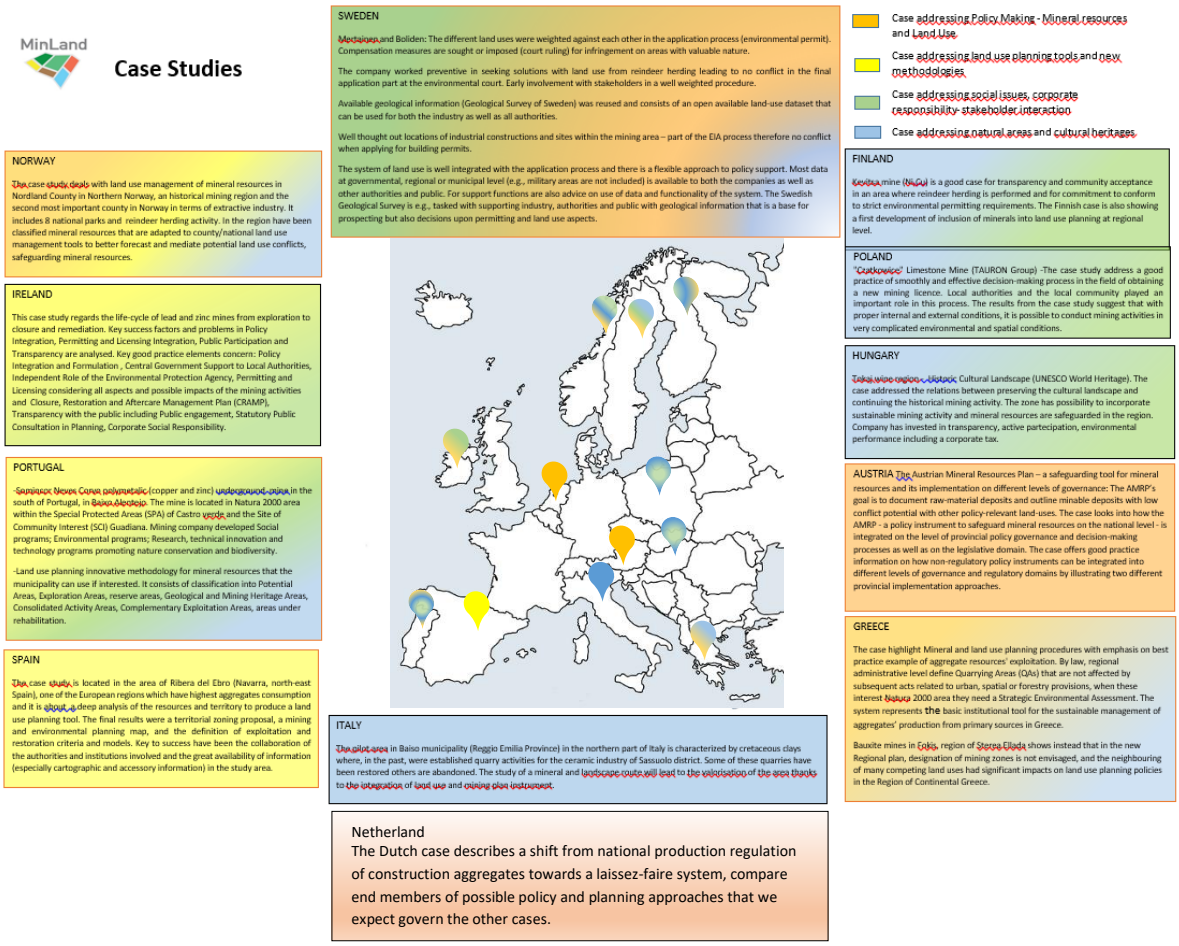
15	Greece – Fokida- Bauxite deposit

The Hungarian case that is from third party has been provided on voluntary bases

The collection of information done through interview goes under a process of refining and validation during other project's WP activities. Part of the survey involving interview to stakeholders/community (table 5 ref. D3.1) is not compiled or is partially filled either because of low participation, or because of no relevance for the case, as for example in cases relative to development of tools supporting land use planning, or policy development. For Austria, Spain, Greece and Netherlands interview to stakeholders/community (table 5 ref. D3.1) is not applicable to the case therefore not compiled. Some countries that present more than one case might have some tables filled up only for one case but valid for the country in general.

Summary of the cases

The cases have been 16 and are shown on the map below.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

The Dutch case is not presented as a success story, but compare end members of possible policy and planning approaches that we expect govern the other cases

SWEDEN

Case addressing Policy Making - Mineral resources and Land Use
Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

The Swedish cases show the importance to involve stakeholder in advance, to seek solutions when addressing possible conflicting land uses in advance. This is supported by a rich open available geological information (Geological Survey of Sweden) and land-use dataset that can be used for both the industry as well as all authorities. In this way it is possible to fast up the permitting process.
The system of land use is well integrated with the application process and there is a flexible approach to policy support. Most data at governmental, regional or municipal level (e.g., military areas are not included) is available to both the companies as well as other authorities and public. For support functions are also advice on use of data and functionality of the system. The Swedish Geological Survey is e.g., tasked with supporting industry, authorities and public with geological information that is a base for prospecting but also decisions upon permitting and land use aspects

The cases addressed in Sweden have been three:

Case	Stage of activity	Commodities
Sweden, Fäbotjärn, Botnia	Primary phases of exploitation	Au
Sweden, Boliden area	All	Zn, Cu, Pb, Au, Ag ,Tellur, (testing Antimony) CRM
Sweden Mertainen, LKAB Inustrial Stakeholder	Exploitation with compensation for impact on nature values in the surroundings (ecological compensation).	Primary: Fe (magnetite) Possible sub-product: Apatite (exists REE in waste rock)

Key success aspects first pointed out are relative to a method for improving the speed of the permitting process, as schematized in the case of Botnia

Key success factors	Problems encountered	Impacts achieved
- the company started in small-scale with a test mine. This gives information on the deposit and makes it easier to assess future environmental impacts. In this specific location there weren't any areas of national interest and there for no big conflict with other land uses	-long time for starting a mine. -need of several different permits depending on each other might create problems when the plans change during the process. In the case of Fäbotjärn the Exploration concession was issued in 2016. Since then the plans have changed and the company is now planning for a different kind of mine -> rehiteration of the process This example shows that it is hard to assess the effects from a mine in the early stages of the process. This is even harder now when the authority's need to address the entire mining area	The mine has an exploration concession and a permit for a test mine. The results from the test mine has been positive and the company will apply for permit for a full scale mine in 2018.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

	including infrastructure in the Exploration concession.	

Boliden area that stress the importance of the earlier involvement of the stakeholders

Key success factors	Framework conditions/contextual factors	Impacts achieved
Early involvement of stakeholders and continued contact throughout the duration of the project	Company has a long time experience with mining projects from prospecting to mining	Developed a methodology for communicating with stakeholders proven to be fruitful for new projects. This involves early engagement with stakeholders. The project has developed a landscape plan for old mining area established and closed before current legislation, showcasing the mining history, creating biodiversity in the area with future use of the area for stakeholders. The landscape plan has been developed through an extensive hearing process or citizens dialog

Mertainen case that stress the importance to value different land uses in the application process and engage the stakeholders as a key success factor.

Photo Mertainen deposit

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
The different land uses were weighted against each other in the application process (environmental permit)	Conflicts with Natura 2000 (land and water areas), NGOs (significant nature values)	Mining has been actively supported in Sweden in terms of active support to the industry in terms of	Mining permit was achieved with environmental permit. (The mining concession was

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

The company worked preventive in seeking solutions with land use from reindeer herding leading to no conflict in the final application part at the environmental court. Early involvement with stakeholders in a well weighted procedure. Case lead to new practice in procedure for co-existence with reindeer herding and (court ruling) compensation for infringements in areas with valuable nature. Available geological information (Geological Survey of Sweden) was reused and consists of an open available land-use dataset that can be used for both the industry as well as all authorities. Well thought out locations of industrial constructions and sites within the mining area.	Road of public interest, E 10, affected	geological data (for prospecting and land-use puposes).	granted in year 2000 and was then based on an older decision.) New practice in compensation of infringement upon areas of high nature values. Stakeholder conflicts avoided due to a strategy of early involvement.

SPAIN

Photo of the area

Case addressing land use planning tools and new methodologies
Case addressing natural areas and cultural heritages

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

The case study is located in the area of Ribera del Ebro (Navarra, north-east Spain), one of the European regions which have highest aggregates consumption and it is about a deep analysis of the resources and territory to produce a land use planning tool. The final results were a territorial zoning proposal, a mining and environmental planning map, and the definition of exploitation and restoration criteria and models. Key to success have been the collaboration of the authorities and institutions involved and the great availability of information (especially cartographic and accessory information) in the study area.

Case	Stage of activity	Commodities
Spain,Ribera del Ebro South of the autonomous community of Navarra, local companies	All	Aggregates (sand and gravel)

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
Two main factors were key to success: - the collaboration of the authorities and institutions involved (Geology and Geotechnical Service of the General Directorate of Public Works of the Government of Navarra, the Soils and Climatology Section of the Agricultural Structures Service of the Department of Agrarian Resources of the Government of Navarra and the Hydrographic Confederation of the Ebro, collaboration of the Prince of Viana Institution, attached to the Department of Culture and Tourism of the Government of Navarra) -the great availability of information (especially cartographic and accessory information) in the study area also at detailed level. The results of the case study were formally presented to the stakeholders (Mining authorities, Land –Use Planning authorities, mining companies and regional and local associations). The mining companies were very interested in the "Aptitude for the extraction of aggregates" Map. There were no objections on the part of the rest of the stakeholders.	During the conduct of the case study, the Land-Use Planning of the Ribera del Ebro Zone (POT5) was being developed. It was a great opportunity to include the results achieved in the case study in the Land-Use Planning and this was the final objective of the case study. The results of the project were directly applicable to the Land-Use Planning. Nevertheless, unfortunately, this did not occur, while it is true that the identified categories in the Land-Use Planning were consistent with those determined in the case study. This probably occurred due to a lack of coordination between the institution that commissioned the case study to the IGME and the Land-Use Planning authority. There were also constrains due to the short execution time of the project (10 months).	Two main factors facilitated the development of the case. Firstly, the interest of the Mining Service was appreciable due to that Navarra is one of the European regions which have highest aggregates consumption. Secondly, the collaboration of the institutions mentioned in the 6.1 section was essential to achieve the technical objectives of the project. Another two factors influenced in a negative way the development of the project. On one hand, conflicts with other land uses could be important (rivers, agriculture and transport infrastructures). In addition, in Navarra, the agri-food sector is one of the most important engines of the economic development of the region, both in terms of agricultural production, as in weight of the industrial sector oriented to the packaging and transformation of agricultural production, and the wine industry. In this sense, the mining-environmental planning project could be an essential tool to make compatible these land uses. On the other hand, there was neither collaboration nor	The impact achieved was very limited due to the lack of consideration of the results of the case study on the part of the Land-Use Planning authority and, finally the results were not included in the Land-Use Planning of the Ribera del Ebro Zone. Nevertheless, the results of the case study are a useful tool for the Mining Services in the permitting process of new mining projects in the study area.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		coordination with the Land-Use planning authority.	

NORWAY

Case addressing Policy Making - Mineral resources and Land Use
Case addressing land use planning tools and new methodologies
Case addressing natural areas and cultural heritages

The case study deals with land use management of mineral resources in Nordland County in Northern Norway, an historical mining region and the second most important county in Norway in terms of extractive industry. It includes 8 national parks and reindeer herding activity. In the region have been classified mineral resources that are adapted to county/national land use management tools to better forecast and mediate potential land use conflicts, safeguarding mineral resources.

Case	Stage of activity	Commodities
Norway	All	Iron, carbonates, quartz, Cu-Zn-Pb, Ni, talc, phosphate, graphite, beryllium CRM

Key success factors	Problems encountered	Impacts achieved
Nordland county is very proactive and one of the leading counties in Norway concerning mineral resources and mineral resource politics.	Updating national framework for mineral resources. Current legislation and processes are perceived as rejecting to exploration and mining companies. National standards on geospatial data must be updated. The Geological Survey of Norway do work on an update for mineral resources, but this is a process needing years to be fulfilled. On a more local level, developing updated IT solutions have taken a lot more time than the geological work itself, thus postponing when land use planners could utilise the newly updated data.	The work for Nordland county have served as a pilot project to the rest of the country. A new INSPIRE compatible framework has been developed and geological assessment procedures are on-going and data on mineral resources have been and are being made more available for land use planners. In time, national standards on geospatial data for mineral resources may be changed.

IRELAND

Case addressing land use planning tools and new methodologies
Case addressing social issues, corporate responsibility- stakeholder interaction

This case study regards the life-cycle of lead and zinc mines from exploration to closure and remediation. Key success factors and problems in Policy Integration, Permitting and Licensing Integration, Public Participation and Transparency are analysed. Key good practice elements concern: Policy Integration and Formulation , Central Government Support to Local Authorities, Independent Role of the Environmental Protection Agency, Permitting and Licensing considering all aspects and possible impacts of the mining activities and Closure, Restoration and Aftercare Management Plan (CRAMP), Transparency with the public including Public engagement, Statutory Public Consultation in Planning, Corporate Social Responsibility.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Case	Stage of activity	Commodities
Ireland	All (except pre-exploration)	Lead/Zinc

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
1. Policy Integration and Formulation Integration of mineral interest in spatial planning adeguate. The framework is a policy-lead statement which currently suits the needs. 2. Central Government Support to Local Authorities 3. Independent Role of the Environmental Protection Agency responsible for the assessment of the Integrated Pollution Prevention License regardless of whether planning permission has been granted for a mine 4. Permitting and Licensing allows for proper considerations of all aspects and possible impacts of the mining activities. + Closure, Restoration and Aftercare Management Plan (CRAMP) compulsory allows for appropriate and timely considerations of the options for the mine site upon closure of the mine - mining Companies must pay bonds to the State which can only be used in case of poor management towards rehabilitation. 5. Transparency with the public: 5.1 Public Engagement is an essential aspect by the mining companies. 5.2 Statutory Public Consultation in Planning 5.3 Corporate Social Responsibility	1. Policy Integration might not be adeguate should there be more mining activities in Ireland. 2. Fear of Environmental and Ecological Impacts and Irrational Fear of Mining Tailing facilities are particularly worrying infrastructure for local residents. In general, people do not necessarily oppose the principle of developing a mine. This is a problem which is difficult to overcome as it relates to people's attachment to a place. 3. Lack of information sharing at exploration stage due to commercial sensitivity 4. Lack of One-Stop-Shop for Permitting - process can be perceived as lengthy and costly. 5. 'Resources Nationalism' and Distribution of Benefits Some person or organisations are more inclined to objecting to the development of mines as they believe that the resources should be developed and for the benefit of the Irish State and not a private party. Similarly, other people perceive a lack of distribution of benefits at local levels. Although this may not be agreed by all parties.	1. Environment and Ecological Impacts If those cannot be prevented or mitigated, economic (mining) interests will be deemed secondary and permission will be refused or licences will not be granted / renewed. 2. Ireland's high position in the Survey of Mining Companies 2017 that rates the attractiveness of countries where mining is undertaken. It looks at a number of factors including but not limited to: • Administrative and environmental regulations certainty • Regulatory framework and legal system • Environmental and ecological designations • Infrastructure • Socioeconomic factors and access to social infrastructure • Political stability • Quality of geological database Etc.	1. Local Employment Opportunities Mines bring employment and economic opportunities for local rural communities + new infrastructure -> result in employment and training opportunities, spin-off economic activities in the local area (equipment hire, transports, etc.). 2. Contributions to the Exchequer The development of a minerals resources results in contributions to the Exchequer in the form of taxes and royalties. 3. Contributions to Local Groups Mining companies are generally supportive and contributing to local community life and can offer financial support to local community groups.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

POLAND

Photo of the area

Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

"Czatkowice" Limestone Mine (TAURON Group) -The case study address a good practice of smoothly and effective decision-making process in the field of obtaining a new mining licence. Local authorities and the local community played an important role in this process. The results from the case study suggest that with proper internal and external conditions, it is possible to conduct mining activities in very complicated environmental and spatial conditions

Case	Stage of activity	Commodities
Poland Czatkowice Limestone Mine, Tauron Group	Exploitation	Industrial limestone

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
• Functioning in the structures of the TAURON GROUP, • properly conducted (and early enough) detailed exploration work of the deposit, • early enough initiated by the Company the procedure for obtaining a extractive license,	The procedure for obtaining a extraction licence went very smoothly and in a relatively short time. During the procedures, no major problems were encountered. Some of the shortcomings could concern only delay of the environmental impact assessmen procedure also by the fact that extraction	- Positive Company image and related social acceptance based on several factors, benefit to the local society - participation in the local community life, partnership with other local entities. - Favorable attitude of local and regional authorities + demand for raw material ("Czatkowice" limestone	The Company has achieved its goal because obtained a new extractive license for the next 50 years. Anticipated impact on intended beneficiaries/stakeholders: • constant supply of significant raw material • maintaining jobs, • high care for employees -

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

• well-planned sequence of formal and administrative activities (including the development of appropriate documents) and production of high quality products (especially sorbents)	occurred near Kraków Valleys Landscape Park.	quarry provides sorbents for flue gas desulphurisation and fluidised-bed boiler combustion processes….)	• educational support for young • reclamation of post-mining areas, • planting trees and shrubs with the function of sound absorbing screens, • realisation of post ecological initiatives, positive impact of social initiatives

FINLAND

Photo V.Nykänen Kevitsa Mine

Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

Kevitsa mine (Ni,Cu) is a good case for transparency and community acceptance in an area where reindeer herding is performed and for commitment to conform to strict environmental permitting requirements. The Finnish case is also showing how minerals are included into land use planning at regional level.

Case	Stage of activity	Commodities
Finland Kevitsa, Boliden	Exploitation	Ni, Cu, Au, Platin and palladium, CRM

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
The company has been able to find an agreement with the local reindeer herders, the community has been	The main problems have been:	The fact that on the land use map there was already an area dedicated to mine has facilitated and fast up the	The mine has affected economically and socially the community

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

welcoming the mine by about 90%, some holiday cottage had been worried of the effects, the company has been able to build and manage the water treatment plan with the high standards required by the authority	- conflict of land use between mine and reindeer herding, -holiday cottages that searched clean and quite environment in Lapland, -the strict value of emission for waste water by the mining area mainly on Ni levels	process. It would had been more difficult to start changing the land use plans and it would had taken more time. Also the fact that it was conflict with reindeer herding and not Sami area (stricter).	

ITALY

Photo of the area

Case addressing social issues, corporate responsibility- stakeholder interaction

The pilot area in Baiso municipality (Reggio Emilia Province) in the northern part of Italy is characterized by cretaceous clays where, in the past, were established quarry activities for the ceramic industry of Sassuolo district. Some of these quarries have been restored others are abandoned. The study of a mineral and landscape route will lead to the valorisation of the area thanks to the integration of land use and mining plan instrument.

Case	Stage of activity	Commodities
Italy	Rehabilitation and valorization of geology landscape	clay

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
Decision making process in relation to mining and land use plan modification	Problem in relation to private ownership of closed mining area	Regional financing instrument for development of studies in	State in how far the case managed to reach its goal and achieve its anticipated

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		relation of quarries restoration (50.000,00€ of regional contribution for the mineral route development)	impact on its intended beneficiaries/stakeholders. Potentially describe on which parts it could still improve. we hope to achieve the final goal at the end of 2018

PORTUGAL

Case addressing land use planning tools and new methodologies
Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

Land use planning innovative methodology for mineral resources that the municipality can use if interested. It consists of classification into Potential Areas, Exploration Areas, reserve areas, Geological and Mining Heritage Areas, Consolidated Activity Areas, Complementary Exploitation Areas, areas under rehabilitation.

Case	Stage of activity	Commodities
Portugal land use planning methodology for mineral resources	All	All (CRM)

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
In Portugal there has been a lot of work done for about 30 years on articulation and coordination between DGEG and other authorities (environment and land use) at all levels), to raise awareness to the importance of access to mineral resources and to the possibility of coexistence of land uses foreseen in planning instruments. This work has made it possible to avoid major difficulties coming from central and regional authorities.	In general, people do not accept mining activities because are not aware about the dependency that the modern societies have on the mineral resources. Adding to this lack of awareness, there is the NIMBY effect. Because the municipal political power has a 4 year mandate and does not want to contradict the popular will, there is a great aversion to include spaces for the exploitation of geological resources in municipal LUP.	Local, regional and central Authorities have been, and continue to work together to find consensus and usually they do achieve them. Legal framework has mechanisms that favour these procedures. For the State owned minerals (mines) the Government through DGEG has defined on the contracts signed between the State and the mining companies that they may deduct up top 25% of the total amount of royalties due to the State and apply that money on projects and actions for the beneficiation of local communities. These measures have had a positive impact on local community's welfare and on the image of the mining activities. These are compliant with SLO.	The first Municipal Land use Plans date of 1990, and since then a lot has been done. Changes on legislation, a lot of reflexive work among authorities (mining, environment and land use, and other stakeholders). The inclusion of spaces for the exploitation of geological resources in municipal land use plans is mandatory because most of the mineral resources with known economic value have already some kind of protection that is a LUP easement (mining concession, quarry license, reserve area, etc). For the undiscovered/hypothetical mineral resources, safeguarding is not yet

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			improved or considered on LUP legislation. However, through the methodology applied by DGEG, most of the Municipal Land Use Plans safeguard these resources through the sub-category Potential Areas or because do they not prohibit extraction activities in the normative rules applied to the spaces addressed to other primary uses (eg. agriculture, forestry).

Somincor Neves Corvo polymetalic (copper and zinc) underground mine in the south of Portugal, in Baixo Alentejo. The mine is located in Natura 2000 area within the Special Protected Areas (SPA) of Castro verde and the Site of Community Interest (SCI) Guadiana. Mining company developed Social programs, Environmental programs, Research, technical innovation and technology programs promoting nature conservation and biodiversity

Case	Stage of activity	Commodities
Portugal Somincor polymetalic mine	Exploration, exploitation and rehabilitation	Polymetalic mine (Sulphide deposits, Cu, Zn)

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
1. Somincor vision and strategy include development of a high performance, motivated culture, achieving a safe, productive and healthy work environment, and to conduct their business activities ethically and transparently. Somincor belongs to Lundin Mining which is committed to giving back to the communities in which they operate by funding important social programs. 2. DGEG/Government policy on royalties: Since 2012: New royalties policy in which "*up to 25% of the value of the royalties due to the Government may be used directly on sustainable projects for the benefit of local communities. This value may be applied to local and regional programs, plans and projects*	There were no problems encountered. The Mining company always used the best available techniques and best solutions to operate within a sensitive Natura 2000 area. All required a big effort and investment from the mining company and from the stakeholders to overcome the challenges.	Positive SLO setting, because the mine is integrated in a traditional mining region (Iberian Pyrite Belt) and positive CSR actions of the mining company always keeping close to the populations and Government decision makers at local, regional and national level.	Positive acceptance of the mine, creation of direct and indirect jobs, increase of the biodiversity in the Natura 2000 area, strong regional economic and social development in a low density population region.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

proposed by the civil society." The Portuguese Mining Authority (DGEG) has to approve and monitor the results. The mining company develops several programs, Social programs; Environmental programs; Research, technical innovation and technology programs . - the existence of the mine has brought a big advantage for the local communities and the biodiversity in the area, good Nature conservation - Results from successfull networking work with stakeholders and communities.			

GREECE

Case addressing Policy Making - Mineral resources and Land Use
Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

The case highlight mineral and land use planning procedures with emphasis on best practice example of aggregate resources' exploitation. By law, regional administrative level defines Quarrying Areas (QAs) that are not affected by subsequent acts related to urban, spatial or forestry provisions, when these interest Natura 2000 area they need a Strategic Environmental Assessment. The system represents the basic institutional tool for the sustainable management of aggregates' production from primary sources in Greece.
The case addressing bauxite mines in Fokis, region of Sterea Ellada, shows instead that in the new Regional plan, designation of mining zones is not envisaged, and the neighbouring of many competing land uses had significant impacts on land use planning policies in the Region of Continental Greece.

Case	Stage of activity	Commodities
Greece	Mainly exploitation	All (with emphasis on aggregates' exploitation on regional level)

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
Policy related success factors: • The QAs constitute the basic institutional tool for the sustainable management of aggregates' production from primary sources in Greece;	Not applicable	Aspects influencing the development of the case in a positive way: As of the time of writing this report, a public procurement was announced (16.07.2018),	In spite of the enforcement of new legislation, that facilitates the permitting and licensing procedures, the procedure for the issuance of the Environmental Permit (i.e.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

• The QAs, do not modify their character and are not affected by subsequent acts related to urban, spatial or forestry provisions (article 48, paragraph 5 of Law 4512/2018); • According to the prevailing legislation, the licencing/permitting of aggregates' quarries, located within the legally established Quarrying Areas (QAs)", is facilitated and simplified as compared to the licensing of quarries that are located outside the Quarrying Areas; • All land use conflicts have been resolved and all necessary approvals by the competent authorities granted, before proceeding to the exploitation stage; • The extraction of aggregates from the licenced companies within the QA has priority, over all other activities, for the time span the licences are valid; • In principle, the aggregates' exploitation rights from established QAs prevails the exploitation rights of any other mineral commodity (unless metallic mineral, industrial mineral or marble deposits are located in the area and which are considered important to the national economy. In the latter case, according to article 48, paragraph 5 of Law 4512/2018, the exploitation rights of these commodities prevail over the aggregates' extraction).		regarding the elaboration of a "Special Spatial Plan for the Mineral Raw Materials" which constituted a consistent request on behalf of the social partners and particularly of the extractive industry. The aim of the "Special Spatial Plan for the Mineral Raw Materials" is the development of a policy for the spatial arrangement of the extractive sector, based on the sustainable development principles. It will encompass the main directions for the spatial planning of the extractive sector in accordance with the existing land use planning and it will be harmonized with the National Strategy for the strategic planning and development of the country's mineral wealth.	AEPO) still remains the most time consuming and demanding procedure within the licensing / permitting process in Greece.

A second case was introduced later on in order to address also state owned minerals in land use planning and in archeological rich area. Bauxite extraction in Fokis is one of the major aluminium plants at European scale. Delphi archeological site and landscape, environmentally sensitive areas (national parks, Natura areas etc) and the Mornos water resources that supply the capital are some aspects affecting the case and the land uses. The neighbouring of many competing land uses had significant impacts on land use planning policies in the Region of Continental Greece (Regional Spatial Plan under revision) and the terms and conditions for the

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

licensing of the individual mines. In the new Regional plan, designation of mining zones is not envisaged, despite the importance of these Mineral Raw materials.

Case	Stage of activity	Commodities
Greece- bauxite mines in Fokis, region of Sterea Ellada	All	Bauxite

AUSTRIA

Case addressing Policy Making - Mineral resources and Land Use

The Austrian Mineral Resources Plan – a safeguarding tool for mineral resources and its implementation on different levels of governance: The AMRP's goal is to document raw-material deposits and outline minable deposits with low conflict potential with other policy-relevant land-uses. The case looks into how the AMRP - a policy instrument to safeguard mineral resources on the national level - is integrated on the level of provincial policy governance and decision-making processes as well as on the legislative domain. The case offers good practice information on how non-regulatory policy instruments can be integrated into different levels of governance and regulatory domains by illustrating two different provincial implementation approaches.

Case	Stage of activity
Austria	Exploration, exploitation

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
TOPIC STREAM SAFEGUARDING a) Willingness and commitment to implement (provincial government actions) b) Planning and Policy Tools Austria presents 9 federal state Provinces are choosing different policy and implementation tools that are fitting to their political conditions <u>Styria: Policy tool - Regionalprogramme</u> (Ordinance: regulatory, regional) • Implementation of Priority zones • Alternative and disguised safeguarding mechanisms	Rohstoffplan - Technical planning approach and lack of political sensitivity in policy design (practise stream H) - >Limited policy performance, technically correct plan - implementation deficiencies - Soft Instruments (practise stream H) - Non-disclosure of Rohstoffplan (practise stream H) : - Monitoring (practise stream H) At the moment no policy and implementation monitoring is taking place. - Lack of data and information exchange (stream A)	Contextual factors and diverse legislation require collaborative governance approaches (good practise stream H) For policy making different responses might be discussed in the future: a) Active engagement and multi-level governance approaches including also representatives from lower organisational units should be involved in the design and drafting process; b) 9 different provinces and legislations make integrative policy making and integration even more important, if there is the expectation that policies are also implemented and	ROHSTOFFPLAN: The implementation and impact of the Rohstoffplan might be considered as limited and fragmented, due to its soft-tool character. Feedback on the national level was, that the Rohstoffplan is considered as documentation of deposits, serving as data basis for spatial planning on provincial level (and down streamed planning actions); Styria (stream H) • Safeguarding and protection of mineral deposits is implemented in spatial planning in "Regional Development Programs" via zoning of different priority zones

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

• Increased public transparency of zoning areas: <u>Tyrol – Gesteinsabbaukonzept</u> (Sectoral Plan: voluntary, regional): • Soft policy instrument • Comprehensible illustration of important regional, provincial interests for nature conservation - there is weighing of different land-use options is part of the land use planning decision making process • Sectoral plans as integrative policy outlook & planning tool: • Support for decision-making basis.	Rohstoffplan Implementation on provincial level: - Soft Instruments (practise stream H) - strategic securing of land on regional and provincial scale is not facilitated	facilitated at a certain moment c) A Cross-scale working group might be beneficial that is meeting and working on a regular basis (not lobbying groups such as "Forum Rohstoffe") to establish a "learning space" for peer learning and policy feedback and to discuss alignments, interests etc.; Tyrol: Planungsverbände and spatial planning on the regional scale is not very active to not active at all. No mandatory and clear tasks identified and legislated in the Tyrol Spatial Planning Law which would the regions force to act and get active, b) the pressure on municipal level (i.e. economical – so that municipalities can fulfil their tasks any longer) is still not high enough, that municipalities would start to cooperate on regional level. Benefits for local communities/municipalities (good practise stream G) Interviews (esp. Tyrol) indicated that local communities and municipalities consider mineral extraction as little to non-beneficial - perceived limited added value -> difficulties in community involvement Different/Changing course of action from extraction industry can impact on the future revision safeguarding areas (stream H)	• Regional development programs are delineating mineral extraction priority zones: outside those zones mineral extraction (apart from existing ones and extending existing ones) is prohibited • To avoid speculation (goal of the ministry) safeguarding of deposits was achieved indirectly via a) keeping the zoning of forests (forestry is very strict, clearing is only possible after gaining a permit) b) zoning as priority zone agriculture (keeps free from building and construction and agricultural use does not inhibit later use and re-zoning for mineral extraction), c) keeping areas free from buildings etc. (i.e. buffer zones around mining sites) Tyrol: ● Sectoral Plan for Minerals and Mineral Extraction, safeguarding, also estimating the need/demand on raw materials ● Implementation of a soft-tool: leaves sufficient room for negotiation and discussion – however, also remains limited regarding strategic safeguarding of areas

HUNGARY

Case addressing social issues, corporate responsibility- stakeholder interaction
Case addressing natural areas and cultural heritages

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Tokaj wine region - Historic Cultural Landscape (UNESCO World Heritage). The case addressed the relations between preserving the cultural landscape and continuing the historical mining activity. The zone has possibility to incorporate sustainable mining activity and mineral resources are safeguarded in the region. Company has invested in transparency, active partecipation, environmental performance including a corporate tax

Case	Stage of activity	Commodities
Hungary, Tokaj wine region	Exploitation in Cultural heritage, wine growing area	Perlite

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
• Mining activity has had centuries-long tradition in the region therefore locals familiar with mining activities, it's advantages, products and it's role in the economy in their region. • <u>From Company side</u>: Perlite quarries provide job opportunities Corporate tax adds to budget It performs it's work on quality standards. Reliability - Type of activity, management and employees have been well known by local people for decades Transparency - Active communication with local government and local people and active participation in local/regional initiations. • <u>From the Government side</u>: Legislation background of mineral resources protection/safeguarding Involvement of local community and stakeholders to land use planning decisions is mandatory These key factors provide an active and open communication environment to harmonize and coordinate different competing land use.	• Mining sites/prospective areas are situated within or in buffer zone of Tokaj Wine Region Historic Cultural Landscape (UNESCO World Heritage) • According to a recent Government Decree (485/2016. (XII. 28.)), the Tokaj wine region should be safeguarded as a cultural heritage area. This region is rich in minerals, so a mining and raw material management strategy has to be prepared which will include the attempts to reduce the impact of quarrying as well as the degree of exploitation and to move quarrying to other parts of the country if possible. • Historical aspect: During Soviet era industrialisation was forced, environmental, cultural, traditional aspects were often not respected (or even they were destroyed). During transition period (1990-1993) heavy industries collapsed, a large-scale privatisation programme started and investors started to build up export oriented, low energy intensity branches. Furthermore local people	<u>Positive aspects:</u> Project of Volcanic Geoheritage and Geotourism Perspectives in Hungary (2016) aims to integrate the long interaction between society and environment among others incorporate geological and mining heritage into the geoeducational and touristic potential. World Heritage Act: Special attention should be paid to the impact of mines, quarries and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property. (Aspects of this aim depends on the final decision) <u>Negative aspects:</u> Recent Government Decree (485/2016. (XII. 28.)): a mining and raw material management strategy has to be prepared which will include the attempts to reduce the impact of quarrying as well as the degree of exploitation and to move quarrying to other parts of the country if possible.	• Despite of more and more strict local regulations mining activity is still living in the region • Legal background prevents area from sterilization, mineral resources are safeguarded • Ongoing Management plan – possibility to incorporate sustainable mining activity.Based on the World Heritage Act, the appointment of a management body by the Minister responsible for culture is under way. The new management plan and the management body will provide transparent governance arrangements with clear responsibilities, where the different interests can manifest themselves and where the institutional framework and methods for the cooperation of the different stakeholders are available. The overall aim of the management is to maintain and enhance the environmental, social as well as economic conditions. The living cultural landscape must remain an asset for the benefit of the sustainable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	and governments had no rights to represent their opinions and interests. These factors are resulted a significant awareness/fear of people about industrial activities. • Legislative aspects: Although strategic plans, legislative background provide a relatively strict framework for mining activities and safeguarding of mineral resources however missing national energy strategy and decision-making rights of regional and local municipalities can confine or hinder mining activities and safeguarding of mineral resources. • Global environment and heritage protection tendencies are against industrial activities.	World Heritage Act: Special attention should be paid to the impact of mines, quarries and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property. (Aspects of this aim depends on the final decision)	development of local communities. Once the Management Plan is approved and finalised, the revision of the boundaries of the property and its buffer zone shall be considered, in order to enhance the integrity and the appropriate protection of the property. Special attention should be paid to the impact of mines, quarries and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property. • Dissemination and integration: In protected areas (e.g. geoparks, UNESCO sites),the identification of the different aspects of geoheritage site values is part of a holistic concept of protection, education and sustainable development. Project of Volcanic Geoheritage and Geotourism Perspectives in Hungary (2016) aims to integrate the long interaction between society and environment and gives a peculiar connection among others between geological and mining heritage into the geoeducational and touristic potential of the area.

THE NETHERLANDS

Case addressing Policy Making - Mineral resources and Land Use

This case study describes a shift from national production regulation of construction aggregates towards a laissez-faire system, which occurred in the Netherlands in the early 2000s. The national government had planned the production of certain types of sand for 20

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

years, effectuated through regional permit quota, in order to keep production at the level of national demand. It was then decided leave the responsibility to keep up supplies to the private sector. The two consecutive approaches actually represent the far ends of the policy spectrum (economic liberalism – interventionism), which would normally have to be compared by studying two or more countries. The Dutch shift allows for a *ceteris-paribus* comparison, which has the additional advantage of being well-documented and clearly reflected in statistics.

Key success factors	Problems encountered	Framework conditions/contextual factors	Impacts achieved
The Dutch case is not presented as a success story, but compare end members of possible policy and planning approaches that we expect govern the other cases.	These questions are basically tailored to case studies focussing on single mining projects. The Dutch study doesn't concern the framework conditions to a case, it studies the framework as such.		

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 1 Case Description Sweden - Fäbodtjärn

Case Study Identification

Fäbodtjärn	
Sweden	
County administrative board of Västerbotten (CAB)	
Type of mineral resources? (distinguish primary commodities and associated commodities ; e.g. primary: kaolin, sub-product: silica sand; primary: Cu & Zn, sub-product: Au, Ge). Are the minerals (elements) part of the EU CRM list of 2017?	Primary Au
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Primary phases of exploitation
Is the case about open-pit or underground mining, both or not applicable?	Underground
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other? Please (a) describe and (b) explain.	Local
Extents of the project (km2) or not applicable?	0,1 km^2
Company or companies involved (identify) or Not Applicable?	Botnia Exploration AB
Are the mineral resources private and/or public owned? (e.g. minerals are state-owned and a concession is given to companies under the conditions xxx, minerals are private-owned, …)	Botnia Exploration holds one exploitation concession at Fäbodtjärn which gives the holder of a concession the right to exploit a proven, extractable mineral deposit for a period of 25 years. (Gold is one of many metals listed as concession minerals according to the Swedish Minerals Act).

Case study description

Development of project

The project is about a gold deposit located at the edge of Skellefte mining field but also in connection of the larger so-called Gold line. There are currently two operating Gold mines within the district and two are being applied for final permits for mining. If finalised the Fäbodltjärn project will be developed into a small-scale mine, one of two such metal mines in Sweden in terms of size, with a few tens of employee's. Generally, acceptance for mining is high in the region. The project is localised close to one major river (nature conservation area) and within the areas of movements of reindeer herds (reindeer husbandry).

The project was initialised with an exploration permit, thereafter followed by a concession in 2016 after determination of mineral resource. The mineral resource has been determined according to the FRB (similar to JORC) by a Qualified Person. The project used available, public data from the SGU, as a beginning for the prospecting. Among the data were drill cores within what is now the concession area and surroundings.

The present case has, similarly to many other mining projects in Sweden, has support from the created policies around mining. The authorities have several roles – the Geological Survey of Sweden has had and has an expressed task from the government to support the industry and other authorities (and public) with data and guidelines regarding mining.

Similarly, to other companies involved in mining in Sweden today, stakeholder contacts have been seen as an important aspect with early involvement.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Below a description of land-use issues come into play in the different stages of the mining project.

Description of the stages in mining and the role of the county administrative board (CAB)
Exploration permit
The initial stage in mining is to find out whether there are minerals worth mining. The company applies for an exploration permit, which grants them solitary rights to explore the minerals. The Mining Inspectorate leaves the permit and consults the CAB in the process. The CAB informs the Mining Inspectorate about areas of national interest, protected areas etc in the applied area. Applications for an exploration permit are hardly ever denied.
Before actual exploration work can be done a valid plan of operations (work plan) needs to exist, the validation of a work plan is a process with the holder of the exploration permit, the landowners and holders of special rights to the land.
If the exploration investigations might affect the natural environment significantly (eg. drilling) the company should consult with the CAB, which in most cases stipulate terms for the exploration to minimize the impact on nature values.

Land use - national interests
The Environmental Code contains special provisions on the management of land and water areas (Chapters 3 and 4). These provisions are designed to promote a reasonable use of natural resources in both the long and short-term from a comprehensive societal perspective. Accommodation of both preservation interests and exploitation opportunities is to be made possible. Large virgin areas of land and water, ecologically sensitive areas, and agriculture and forestry of national importance are always to be protected to the maximum extent possible. The same applies to areas of importance, e.g., for reindeer husbandry, natural beauty, cultural interest, outdoor recreation, valuable substances they contain or for purposes of national defence. These areas can also constitute national interests, in which case they must always be protected.

When an area is of national interest for several incompatible purposes, priority must be given to the purpose best conducive to long-term management of the land, except where defence interests of outstanding importance are involved. Various national governmental agencies are required to furnish particulars of areas judged to be of national interest. Geological Survey of Sweden, for example, is responsible for the assessment of national interests in areas containing valuable substances such as minerals (i.e. mineral deposits of national interest). In addition, the Environmental Code specifies certain geographical areas that come under direct protection and are regarded as national interests for purposes of tourism and outdoor recreation. These areas are designated along the coasts, rivers and in certain mountain regions. The area protection described above, national interests included, is safeguarded insofar as palpable damage can be prevented. Measures, e.g. mineral extraction, which palpably harm a national interest are an absolute impediment to mining operations, unless the deposit in itself also constitutes a major national interest. In summary, the management provisions in the Environmental Code can be seen as a planning instrument preceding decisions on changed land use.
Exploitation concession
Next step is an application for an exploitation concession which is granted by the Mining Inspectorate. An EIA is needed, but with focus on land-use issues. In the process the CAB is consulted and obliged to leave a statement whether the CAB approves of the application or not. The CAB must decide if mining is the best land use in the area. Central aspects of the judgement is if there are areas of national interest (NI:S) that are affected by mining practise. In the decision land use that promotes sustainable development should be given priority if there are NI:s that can´t co-exist. The system with NI:s is regulated in the environmental code, (national legislation). Bergsstatens bedömning
If the CAB and the Mining Inspectorate comes to different conclusions if an exploration concession should be granted or not the application must be handled by the government for final decision.
If an exploration concession is granted, the company can go on with an application for an environmental permit, either for full scale mining or for a test mine. A full EIA is needed. A test mine can be licensed

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

before or after exploitation concession is granted. This is also the case for a full-scale mine, although the possibility is almost never used.

An application for a test mine is sent to and handled by the CAB. The Swedish name for the licensing authority that decides on the matter at the CAB is Miljöprövningsdelegationen (MPD). The MPD is composed of a chairman and a person with expert knowledge in the environmental matters. The chairman is a legal expert with court experience and with a special experience from environmental matters and all issues related to the environmental code. The person with expert knowledge in environmental matters has an education in the field of technology and science, and has particularly good experience in matters related to damage and detriment to human health and the environment. The MPD is a licensing authority within the CAB and not part of the authority's ordinary chain of command.

A license for a test mine is restricted in terms of the purpose of the activity. The only allowed objective for a test mine is to more thoroughly examine the properties of the ore.

Environmental permit

Environmental permit for a full-scale mine is granted by the Land and Environmental court. In the whole process of opening a new mine legal practice states that an exploitation concession states that a mining operation is permissible. This means that the object of the environmental permit is to set the conditions for the mine in terms of levels of outlets, transportation, working hours etc. In the court process the CAB represents the state and public interest.

Designation of land (access to land)

The Chief Mining Inspector together with two trustees makes decisions on designation of land needed for a mining activity if not an agreement is reached between the concession holder and the landowners and the holders of special rights. If the concession holder agrees with the landowners and the holders of special rights, land or other space shall be designated in accordance with that agreement. Insofar as an agreement has not been reached, the land or space that is needed shall be designated.

Building permit

In the last step a building permit according to the Swedish Planning and Building Act for facilities etc. is sought and usually granted since all aspects of the industrial area location has been overviewed and accepted from environmental perspective in the environmental permit.

Mining Operations

After the mining operations start the CAB (in some cases also the municipality) supervises the operations. The supervision aims at minimizing the environmentally negative effects the mining causes. All mines are obliged to leave an annual environment report, describing how they fulfil the terms set by the environmental court.

The CAB is also supervising authority for the remediation of the mining area when the exploitation is finished. Normally the remediation is carried out by the responsible company under supervision by the CAB. The company is obliged to set up a financial guarantee so that there are resources for the remediation if the company will go bankrupt.

Development of legal practise concerning exploitation concessions

Until 2016 the CAB only assessed the impact on other interests within the applied area for an exploitation concession and did not consider the effects of the mining infrastructure necessary for full scale mining of the deposit. The positive side of this method was that the company only had to describe and make an EIA for the actual planned pit. The negative side was that when it came to the application for an environmental permit there might be unexpected terms set by the environmental court that result in difficulties in planned operations. For the CAB this process created an uncertainty concerning the total area needed for a future mine and the impacts on other forms of land-use in the vicinity. In some cases, the CAB stated that an exploitation concession was permissible, but that the CAB might change opinion when the company applied for an environmental permit, depending on what information that came in the full-scale EIA.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

In February 2016 the supreme administrative court passed a ruling that states that the entire mining area, including infrastructure, must be considered in the exploitation concession process. This meant that many exploitation concession applications had to start from the beginning again, creating a delay of several years.

Interaction of current mineral resources legislative and administrative procedures with land use planning legislative and administrative procedures.

The main part of all land use planning is conducted by the municipalities. They must however take into account restriction in land use, that are enforced by the state. Examples of land use restriction are, national parks, Natura 2000 sites and legislation concerning waterbodies. National authorities responsible for a specific sector can also appoint areas to be of national interest. These areas can be of different types. Conservation purposes such as nature conservation, culture, unexploited mountains. Exploiting purposes such as minerals, energy production, infrastructure. National security purposes and ecosystem usage such as fishing, forestry and reindeer herding.
Until there is an application for a new form of land use, several forms of protection and national interest co-exist without any clear decision on which interest that should be of highest priority. But when there is an application for eg. an exploitation concession in an area of national interest both for mineral deposits and reindeer herding there is an investigation conducted to assess the level of conflict between the different interests, if it is possible for them both to coexist in the area or if one part should be granted priority over the other.
In the decision of which interest that should be given precedence the main factors to be assessed are:
-economic sustainability,
-ecological sustainability and
-social sustainability.
Precedence should then be given to the interest that in the best way ensures a long-term use of the land, water and physical environment.

How minerals enters into land use – description of the system

The Swedish mineral strategy aims to increase the competitiveness of the Swedish mining and minerals industry so that Sweden maintains and strengthens its position as the EU's leading mining nation. Sweden's mineral assets are to be exploited in a long-term sustainable way, with consideration shown for ecological, social and cultural dimensions, so that natural and cultural environments are preserved and developed.
The ownership of mineral deposits is not defined in Swedish law. The right to grant access to concession minerals, listed in the Swedish Minerals Act (1991:45), and permits to extract mineral deposits is reserved to the state. An exploitation concession gives the holder the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged. The right to extract other 'non-concession' minerals belongs to the landowner.
The Chief Mining Inspector grants permits for the extraction of concession minerals and the terms and conditions governing such a license are set down in the Swedish Minerals Act. An exploration permit gives the holder ex¬clusive rights to exploration (prospecting) and priority rights to an exploita¬tion concession (mining permit). Before actual exploration work can be done a valid plan of operations (work plan) needs to exist, the validation of a work plan is a process with the holder of the exploration permit, the landowners and holders of special rights to the land.

If the exploration work done indicates there are deposits of such quality that they would be economically profitable to extract and that their geographical location is suitable with regards to the principles of natural resource management, the Chief Mining Inspector may grant an exploitation concession. Mineral resources must be estimated according to international reporting codes for classifying mineral resources, the categories "indicated" and "measured" resources can be used in the estimation. An application for exploitation concession must include an environmental impact assess¬ment where land use questions are central. The Chief Mining Inspector shall consult the county administrative board regarding the application

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

of Chapters 3, 4 (provisions for management of land and water) and 6 (environmental impact statements) of the Environmental Code. The application for the granting of an exploitation concession shall be referred for consideration by the Government if the Chief Mining Inspector, in applying Chapter 3 or 4 of the Environmental Code, finds reason not to follow the recommendations of the county administrative board. In the initial stages of the assessment process, consultation is sought from all potential stakeholders (landowners and holders of special rights), who will be given information and the opportunity to submit comments. Both agencies and the public are included in the consultation. If an application relates to an area covered by a municipal detailed development plan or area regulations under the Planning and Building Act (1987:10), the Chief Mining Inspector shall obtain an opinion from the municipality. A concession must not be contrary to a detailed development plan or area regulations. If the purpose of the plan or the regulations is not thwarted, however, minor deviations may be made.

The Chief Mining Inspector also makes decisions on designation of land needed for a mining activity. If the concession holder is in agreement with the landowners and the holders of special rights, land or other space shall be designated in accordance with that agreement. Insofar as an agreement has not been reached, the land or space that is needed shall be designated.

Environmental permits for mining activities (Chapter 9 and 11 of the Environmental Code) are issued by the Land and Environment Court as the first instance. An application must include a broad environmental impact assessment, a waste management plan and a plan for how closure and remediation is to be carried out after the activities have ceased. In the initial stages of the assessment process, consultation is sought from all potential stakeholders, who will be given information and the opportunity to submit comments. Both agencies and the public are included in the consultation. An environmental permit specifies the conditions that apply both to the operation of the mine and to site remediation. The environmental permit also includes states that financial security must be submitted to ensure that sufficient resources are available for closure and remediation in case the en¬terprise lacks the financial capacity to close and remediate the site as planned. The operator of the mine is supervised, according to environmental performance, by the county administrative board or the municipality.

Sweden has no cross-sector planning for land on the national level (except for maritime planning). The state provides frameworks for the municipal and regional level through national objectives and by identifying claims of so-called national interests. The decisions of national interests form a basis that county administrative boards and municipalities must consider in their long-term planning.

Land use plans are only indicative, except for municipal detailed development plans (mostly used in built areas) and area regulations in the comprehensive plan. Area regulations enable the municipality to regulate the basic characteristics of its land and water use if necessary to safeguard the purposes of the comprehensive plan or to satisfy a national interest. The municipalities are responsible for the planning of land and water areas within their geographical boundaries. It is only the municipality that has the authority to adopt plans and decide whether the planning is to be implemented or not.

In the comprehensive plan, the municipality must present the basic characteristics of its intended use of land and water areas; how the built environment is to be used, developed and preserved; what consideration is to be given to public interests; and what the intention is regarding how national interests and environmental quality standards are to be served. The plan must also indicate how the municipality intends to consider national and regional goals, plans, and programmes of significance for sustainable development within the municipality.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	One positive factors were that the company started in small-scale with a test mine. This gives information on the deposit and makes it easier to assess future environmental

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

	impacts. This affects final designation of land uses such as location and size of tailings deposits. In this specific location there weren't any areas of national interest and therefore no big conflict with other land uses. Coexistence exist with reindeer herding. Conflict was avoided by early dialogue so that no apparent conflict was persisting at time of application for environmental permit.
6.2 Problems encountered	Initially resistance from certain key stakeholders but avoided by communication meeting stakeholder needs.
6.3 framework conditions/contextual factors	The region has an existing procedure and expertise for working with applications for mining. Exploration no great impact upon other land uses – therefore this part is easy to obtain. Public data on land use and geology is available for industry as well as the public. There are supportive functions such as a division of the Geological Survey of Sweden has a one of the main functions to support industry, authorities and the public with geological information and maps, storing information on deposits (from investigations and outdated exploration permits) with data available for gis systems. Further, that all important land uses designed through the national interest system is also available and used in the decision process during permitting. The minerals within this system is e.g., available here – http://apps.sgu.se/kartvisare where also exploration permits as well as other type of geological information is being made available.
6.4 Impacts achieved	The mine has an exploitation concession and a permit for a test mine. The results from the test mine has been positive and the company has applied for permit for a full scale mine in 2018. Early involvement with stakeholders can help to resolve conflicts.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

ANNEX 1. Survey

Table 1- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Sweden has no cross-sector planning for land on the national level (except for maritime planning). The state provides frameworks for the municipal and regional level through national objectives and by identifying claims of so-called national interests. The decisions of national interests form a basis that county administrative boards and municipalities must consider in their long-term planning. Areas of national interest can be of many different kinds, eg. Mineral deposits, military, reindeer-herding, natural or cultural values, infrastructure, energy production etc. Areas of national interest are indicative until there is an application for some kind of change in land use. Then the authority responsible for the permitting process must decide whether there is a conflict between the interests in the affected area or if they can coexist. If there is a conflict the land use that facilitates the most sustainable (economically, ecologically and socially) land use shall be given priority. National interests must also be included in the municipal comprehensive plan. For further description of areas of interest see Fäbodtjärn case description Table 2. Area regulations enable the municipality to regulate the basic characteristics of its land and water use if necessary to safeguard the purposes of the comprehensive plan or to satisfy a national interest. Specific land use plans are being done at municipal level for detailed development plans (mostly used in towns and villages) and area regulations in the comprehensive plan (for Lycksele Municipality – site of current project see http://www.lycksele.se/globalassets/dokument/5-bygga-bo-och-miljo/dokument/bygg-plan/hela_tryck.pdf) . The municipalities are responsible for the planning of land and water areas within their geographical boundaries. Outside of the villages and towns the land use planning is to a large part depending upon making decisions when a facility is being constructed. At this stage the areas of National Interest is an instrument that is being adopted. Whilst applying for a mine the land use aspects will be a part of the decision. In the concession and the environmental permit the land-use planning is actually accommodated to mining with given restrictions.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	For areas of national interest it is up to the responsible authority to review the areas. There is a large variation between the need for reviews among different kinds of NI:s. At the municipal level there are the more general plan, översiktsplan – overview plan and the detailed detaljplanen, comprehensive plan. The overall direction of the land use in a municipality is indicated in a comprehensive plan. The municipality must have a current comprehensive plan and a review is to be done at least every fourth year. The land use planning is following the law PBL: 2010:900, https://lagen.nu/2010:900 . Areas of national interest can be reviewed continuously by the appointing authority.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	In the land-use process outside of the towns and villages the land use that minerals belong is considered as one of the group of National Interests. These are not being used as a detailed land use map rather as an instrument when specific use of a particular land is being determined, say for an industrial facility, a mine or something else. One area can have several National Interests that will be weighted first when need for use is at hand. Land use designation is possible to change.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	A complete protection or safeguarding of minerals is not possible in land use planning. In the comprehensive plan, the municipality must present the basic characteristics of its intended use of land and water areas; how the built environment is to be used, developed and preserved; what consideration is to be given to public interests; and what the intention is regarding how national interests and environmental quality standards are to be served. The plan must also indicate how the municipality intends to take into account national and regional goals, plans, and programmes of significance for sustainable development within the municipality**.** Assigning areas of national Interst, is done dynamically, no specific time frame given, allowing for fast changes at need, e.g., when a new mine is being established. The only actual safeguarding is done for the area given for the mining concession (e.g., only valid for three years unless the company is doing significant development of the project) and later when the process is ready for ming, the it is performed designation of the mining area.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	Areas of particularly valuable mineral substances may be declared national interests by the Geological Survey of Sweden (SGU). The provisions on national interests are found in the Swedish Environmental Code. Chapter 3, Section 7, second paragraph of the Swedish Environmental Code states that areas containing deposits of valuable substances or materials that are of national interest shall be protected against measures that may be prejudicial to their extraction. Within such areas, municipalities and central government agencies may not plan for or authorise activities that might prevent or be prejudicial to the exploitation of mineral resources. In other words – the general idea behind the instrument Areas of national Interest is that it is a tool to be used to select the land use that gives the optimal sustainability, in terms of ecological, social and economical values, and as such is not really a safeguarding except for in a loose form, but rather an instrument that allows for dynamical and rational decisions regarding land use. True safeguarding of minerals exists when an exploitation concession has been granted. Then the holder of the concession has the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	The ambition in all land use is to facilitate coexisting of different interests as often as possible. In the mineral value chain this I most often accomplished in the pre-exploration and exploration stages. During the exploitation of a mineral finding co existing is often limited concerning the mining area. Specifically, outside of the town and villages different land uses can co-exist. Prospecting is often done where forestry or agriculture is pursued. Claims of areas of different national interests is so structured that land uses coexist and overlap each other. If multiple areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable (economically, ecologically and socially) management of land, water and the physical environment in general. The final weighting is made in each trial when applying for permits (e.g. exploitation concession).
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	During prospecting this is the case – prospecting is so constructed legally that other land use is assumed in parallell. No, not until an exploitation concession has been granted. A concession (the Mineral Law - https://lagen.nu/1991:45#K1P1) precludes land use

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		that can influence the possibility of a mining operation negatively. In earlier stages there is no such preclusion.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	See 3.4 -36. Typically at least the mining concession area is zoned as mining area (possibly even larger area). Also the land use plan contains instructions that define the land use on each specified area.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes, all land use needed for a mining operation, including mining infrastructures, must be considered in an application for an exploitation concession. In the process of issuing an exploitation concession, the CAB must decide if mining is the most adequate land use in the area. In this decision mining infrastructure must be included after a recent judgement by the Supreme Administrative Court in 2016. Before that, the infrastructure was considered later in the process, in the environmental permitting process.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Part of data is INSPIRE compatible and all data is planned to be INSPIRE compatible by 2020 according to plan.
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	The CAB, the Mining Inspectorate and the Geological Survey of Sweden (among others) share GIS layers and permits/decisions. The agencies can be consulted during the process, particularly the Geological Survey has one division appointed for support towards the industry. All land use is available upon request in GIS format for the users (industry, other agencies, NGOs, public) as a consequence of Swedish law that lal information should be publicly available with restriction for certain proected areas (e.g., national defense purposes). The Geological Survey of Sweden, SGU, is the expert agency for issues relating to bedrock, soil and groundwater in Sweden. A very important part of SGU's work is to survey and document the geology of Sweden – not least with a view to facilitating mineral exploration. SGU's information on bedrock geology, bedrock quality, Quaternary (superficial) deposits, geochemistry and geophysics provides a basis for exploration for metal ores, industrial minerals and dimension stone.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	The principle of public access to information is applicable for all government agencies. Exploration permits, exploitation concessions, areas claimed as mineral deposits of national interest and other geological information are digitally available, adapted to GIS and easily accessible to all planning authorities
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Athe Västerbotten County Bord level there is sufficient expertise as on the Mining Inspectorate and Survey. We have not investigated other County Bords but naturally there might be differences for County Bords that process an application with long time since precious application. Simlirly could be the case for the municipalities – we do not have statistics to underline these options though.. GIS information exist and is available see 3.12.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Half yes – for everything no. Different legislations (Minerals Act, Environmental Code, Planning- and Building Act etc.) are applicable and handled by different authorities. However, the Geological Survey has as a service to parties involved in mining activities including all geological data, taking care of large part of drilled cores in prospecting and making them publicly available, assisting with information and guidances in the application process – it does not give advice on all aspects but who to ask, supporting with official guidelines. The legislation as such does not allow for a full one-stop shop since several authorities are involved. It is however recognized that it is important for a place and a function where

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		companies and others can seek advice upon mineral extraction with data, guidelines and some recommendations which authorities to approach.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	SGU may, after consultation with Boverket (the National Board of Housing, Building and Planning), the county administrative board and the municipality, decide that a certain mineral deposit constitutes an area that is of national interest regarding valuable substances or materials. Thus far, SGU has decided that 147 deposits of valuable substances or materials are of national interest (i.e. mineral deposits of national interest). Of these, 89 have been demarcated in detail and marked on maps, while the others have been positioned using a centre coordinate. The decisions are available according to the principle of public access to information. Evaluation has only been done for prospected and mined areas (by the industry and according to industrial codes). When applying for an exploitation concession the mineral resources must be estimated according to international reporting codes for classifying mineral resources, the categories "Indicated" and "Measured" resources can be used in the estimation. The information is confidential outside the Chief Mining Inspector. The industry has up-to recently used the Fennoscandian Review Board (similarities to JORC) but has now adopted PERC code
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.? How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	Areas claimed as areas of different national interest can overlap and are indicative for land-use planning. The final weighting is made in each trial when applying for permits. The county administrative boards are involved in the weighting in a trial for an exploitation concession. However, the Areas of national Interest (mineral resources one of these) should also be used in all planning processes not only for mining but as a safeguard that important deposits are not being used for other "deemed less important purposes".
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Geological information is needed and is reviewed by the Geological Survey of Sweden before an area of mineral deposit of national interest can be pointed out.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes. Sweden have large areas with good geological potential for exploration of mineral deposits
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No, but there are some mineral deposits of national interest that includes some CRM:s (for example, Norra Kärr for REE:s, Granlidknösen for fluorspar, Nunasvaara and Kringelgruvan for graphite, Kiskamavaara for cobalt).
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims	No, but in the assessment of pointing out a mineral deposit of national interest, there are some criteria that must be fulfilled. A mineral deposit is considered to be of national interest if it satisfies the following criteria: • the deposit is of great importance for the society´s need on a national level, or of particular regional importance, in terms of employment, economic development and resource supply in the long term.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	• the deposit has particularly valuable properties, as regards e.g. purity, composition, quality, appearance, technical features or volume, • the area containing the deposit is well defined, examined and documented.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	An assessment of the socio-economic value of a <u>new</u> mining operation can be/is normally included/ in an application for exploitation concession.
	3.25 Are there and which are incentives to implement minerals into land use planning?	The main reason for appointing an area as NI concerning mineral deposits is to improve the mineral interests position in physical planning and permitting processes and promote prospecting and extraction of minerals.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Areas of different national interests can coexist and overlap each other. If areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable management of land, water and the physical environment in general (Chapter 3 in the Environmental Code). The Areas of National Interest is an instrument used in the permitting process. The permitting is used to determine which land use should be given priority and involves both the concession as well as the environmental permit.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Community-economical effect, social and ecological sustainability. However, different stakeholder issues has been a growing aspect in terms of influence in the process (e.g., EIA process in the Environmental Permit
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	The municipal comprehensive plan for overall land use is open for public comments for two months. No special engagement is made for mining stakeholders in municipal land use planning. In the permitting process, stakeholders are though involved heavily and have influence. In prospecting, e.g., land owners has to be informed reindeer herders has to be consulted: Further, in the EIA process in the environmental permit all affected stakeholders have a possibility to influence the process and do so through consultations and active involvement in many cases.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The public comments may influence the municipal comprehensive plan.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Most common conflicts are the water framework directive and Natura 2000 sites (water habitats). Conflicts might be mitigated by terms for the mining processes and adjustments of location for mining infrastructure. Other possible conflicts might be with nature protection areas and national parks. National parks override all other land use, and normally that´s the case for nature protection areas as well even exceptions are easier to accomplish for protection areas. Exploration are not allowed in natural parks. The CAB and the Land and Environmental Court are authorities who normally are involved in the conflict management. It is not rare (in case of appeal) that the government gets involved too.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Table 2: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?		No/Yes for testminging	Yes	Yes
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	Only in such a fashion that if known – the knowledge of respective elements are publicly made available through SGU data bases.	No not for permitting but during prospecting – used FRB which was the accepted industry standard at the time. However, not used for exploration permit. This instrument is used by the company to assess the project as the prospecting project develops.	Yes. In the future PERC code will be used since the industry organisation, SVEMIN, has accepted PERC as the standard industrial code.	Yes – however financed and included throughout mining phase - necessary for economic sustainability of the company for remediation
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	When the land is needed for a specific purpose the designation will be decided. See earlier descriptions in Table upon system of areas of national Interest and Mining permitting. . All decisions by authorities are public by law and available.	Yes – exploration permits – exploration areas are not seen as being in conflict normally. Exceptions are areas within larger villages and towns for which city planning exist. In the prospecting is usually not permitted. All decisions by the mining inspectorate (deciding authority) are public as well as the area of the prospecting permit.	Exploitation concession is decided by the Mining Inspectorate and all decisions are public. Even if the area will be granted as being an area of national interest for mineral deposit it means only that it is being part of the decisive process when a specific land use (mining or otherwise) is being determined. In case of mining this is taken in the next step in the environmental permitting phase.	- Yes- Decision by the Land and Environmental court. All decisions and material are publicly available upon request.
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	No	No – forestry primary use but no major conflict exist in the prospecting phase.	No – forestry primary use but no major conflict exist in the permitting process. Reindeer herding – company has consulted with the reindeer herders for functional coexistence.	
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?		See 3.10		

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?		Forestry - however no central land use plan		
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	Available infrastructure. Local knowledge regarding mining from the stakeholders.	Local population very positive to the mining project. Project within old and existing mining project. Project on private land but so far no conflict.	Local population very positive to the mining project. Project within old and existing mining project. Project on private land but so far no conflict	
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.		NO change of land use – part of permitting process. If exploration permit given then if the company keep to the demands of the permit then land is open for exploration.	Yes – result of final environmental permit – land is assigned to mining and land within one km from the mining area is protected (for mining).	
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?		Part of permitting process which assigns land use rights. Landowners contacted early in the process. No conflict in this particular case.	See earlier answer for prospecting.	
4.11 Which were the benefits and costs to the communities from the boosting of new activities?		Use of local entrepreneurs, use of local workforce, make the community known. So-called Botnia days when local community has been for information regarding status of company. Use of part of waste as by-product – qz for smelters	Gives the community an opportunity for future employment and local investments	

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are*	The designation of areas of national Interest and areas of valuable nature (Natura2000) is a continuous process used in the	SH1 (local community): Transparency: Information from the company has been good. SH2 (local community): There is a wish of better communication from the company – the stakeholder has understood that the enrichment of the ore is not yet decided. The opinion of SH2 is that the company informs on positive aspects not negative. SH2 is		

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

decisions communicated publicly, do authorities have to respond to…)	municipal comprehensive plan but no specific land-use planning for final land-use.	skeptical to heavy transport over the bridge - will it be strong enough *(necessary rout for transport of ore – note interviewer)*. SH3 – authority: Yes, there is an open process. Affected parties however has a responsibility to follow the process. All documentation is filed with authorities and the public can ask to get access. In such a case the the authority is responsible for give access promptly.	
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?		. SH1 – Unfortunately has the stakeholders from the local community been involved too late – have been many earlier companies that has not taken concern over water (taken samples and tested drinking water). Would have like that there had been referens samples for the water quality before the project (Vargbäcken – related mining project run by Botnia Exploration – note interviewer). SH2 – Fäbodtjärn project – coupled to another area – Vargbäcken – possible enrichment plant – this project has been running for a long time (Vargbäcken) with several companies – Botnia Exploration is the latest. SH2 not satisfied how the company (Botnia Exploration) ran the testmining – there was a contract about the usage of the road to the vargbäcken deposit – SH2s experience was that the planning with the road owners was very poor also under what circumstances the road was used – unsure that the road was suitable for the weight of the heavy transport *(Botnia did testmining of Vargbäcken and transported ore with heavy trucks – interviewers note).* SH2 became involved firstly at concession stage. SH2 not affected stakeholder before this. SH3: Yes prospecting permit, concession, environmental permit.	
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?		SH1: The project was very well accepted. No known local opposition. SH2 – Believes that there are mixed views regarding the project. SH2 do not believe many local jobs will be created. SH3: Do not know – not many requests regarding the project.	
5.5 Which were the benefits and costs to the communities from the boosting of new activities?		SH1: Advantages for the lcoal society – possibly some local entrpreneur used and e.g., for transports – the company has a local office in the village. Company uses some local labour There is a need to strengthen the bridge (note – there is a bridge across the river which the company need to use for transport of ore and heavy goods). SH2: Do not see any advantages.However, In a good world – if the company take care of maintenance of the road (if transport to Vargbäcken is being done – note interviewer) and keep the road in a good state there is an advantage. At the same time access for	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		land owners and lumber trucks and care of the woods, access to fishing and hunting, must continue in a satisfying manner. An example of good practice is Boliden company (have nearby mine). – note interviewer) SH3: Local politicians always positive to mining. See advantages with new jobs. From the point of view of the local authority treated according to legislation.	
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why		SH1: Ifall vattenkvalitet påverkas – behövs åtgärd – if there area ny effects from Vargbäcken area. SH2: Want to see a funcitonal road (for locals – intervewers note). Do not want to observed spoiled water for local use. Want that lost land for hunting is replaced with other (nearby) leased land for hunting - no such demands exist today. SH3 No – not known– process (final permits not yet ready.	
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?		SH2: No SH2: No SH3	
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed		SH1: SH2: Do not think that there is enough with information for such a decision. SH3: Do not know – municipality has specific obbjectives that has to be addresseed as well the legislation including areas of National Interest, the environmental code, valuable nature, if a project is place at the right site.	
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]		SH1 It is very high in the area. It is common being employed in mining – there another operational min in the vicinity – the Kristineberg mine. SH2: Kristineberg mine is very important for the local community. SH3: Tourism is important. Howeve,r no conflict. Kristineberg mine is a tourist attraction – has e.g., an underground church open for visitors.	

(Internal use - note 3: Answer 5.9- important to maintain during evaluation of the answers the knowledge of the person who answered, keep the answers disaggregated.)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 2 Case Description Spain - West Ribera del Ebro

Case Study Identification

Mining-environmental planning in the West Ribera del Ebro	
Spain	
IGME SP	
Type of mineral resources?	Primary: Aggregates (sand and gravel). The products are not part of the EU CRM list of 2017.
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	The case is about the assessment of the potential for exploitation of known resources (capability assessment). Also recommendations for models of exploitation and rehabilitation were performed. While all these elements are finally focused on the land use planning procedures encompassing all the stages.
Is the case about open-pit or underground mining, both or not applicable?	Open-pit mining.
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	The scale is sub-regional. The case study covers a part of the southern region of Navarra Autonomous Region and includes several municipalities.
Extents of the project (km2) or not applicable?	350 km^2
Company or companies involved	Several companies were consulted for relevant information but they were not involved in the mining-environmental planning survey.
Are the mineral resources private and/or public owned?	Mineral resources are state-owned and a concession is given to companies under the conditions: the company must develop both exploitation and restoration projects prior to the authorisation. Mining and environmental authorities could impose additional conditions (e.g. spatial and temporal limits, geometry, depth, etc.).

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Case study description

Framework of the case study

The mapping of potentially exploitable mineral resources can be a valuable tool as a starting point for the integration of mineral resources in the Land Use Planning process. However, there are other important variables that should be considered to select the most appropriate location. The IGME (Spain), developed a line of work called Mining-Environmental Planning of mineral resources. The principal work consists on the establishment of a balance between the environmental sensitivity to mining, and the potential for the development of this activity. The main objective was to perform Mining-Environmental Planning Maps. The aforementioned maps show areas with different categories of exploitable resources and environmental protection zones in which mining is not recommended and exploitable areas with different levels of priority.

The case study represents an application of this line of work to the aggregates resources of the Ribera del Ebro in Navarra, as part of other works included in a Master Plan for Mining Activities of the Autonomous Community of Navarra. The works, commissioned by the Department of Innovation, Enterprise and Employment of the Government of Navarra (the Mining Service specifically), were developed during the years 2008 and 2009.

Land-use planning legal framework

In Spain, the Land-Use Planning competences are transferred to the Autonomous Communities. The Land-Use Planning authority at each Autonomous Community establishes the general legal framework for land-use planning development. Under this general framework, more detailed plans are developed. Some Autonomous Communities develop detailed Land-Use Plans by dividing their territory in regions and establishing land-use categories. In the smallest Autonomous Communities, it is very common that the competence for the development of the general Land-Use Plans and the establishment of land-use categories correspond to the municipal governments. Typically, there is no a legal land-use category safeguarding the mining resources. When a mining company requests a mining concession, when this concession is entirely located in a particular Autonomous Community, needs an authorisation from the Regional mining authority and the Regional environmental authority (when the activity is included in the EIA regulation). When the area where concession is located concerns to two or more Autonomous Communities, the competent authorities are the National Mining authority (Ministry of Industry) and the National Environmental authority (Ministry of Environment). Mining and environmental permit procedures are coordinated. In any case, the mining companies need to obtain an activity permit from the municipal government that allow the mining use in an area previously dedicated to another use.

In the case of Navarra, the Foral Law 35/2002, relating to the Land-Use Planning and Urbanism, (modified by the Foral Laws 2/2004 and 4/2008) was, on the date on which the case study was being developing, the main reference in land-use planning of the Autonomous Region of Navarra. The norm included the need to ensure the exploitation and rational use of natural resources, by means of guidelines compatible with the preservation and improvement of the environment. The law created new planning instruments and figures:

- The Territorial Strategy of Navarra.
- Regional Land-Use Plans (POT).
- Territorial Action Master Plans.
- The figure of the Sectorial Plans and Projects of Intermunicipal Incidence. In addition, the Regulation of Natural Resources Plans, the Road Master Plan for Navarra and other similarly expressly declared ones, which will be governed by their specific legislation, will be considered territorial management instruments.

The Territorial Strategy of Navarra is a broad management instrument, of a strategic and informative nature, whose forecasts are referred to the whole territory of Navarra. The ETN proposes a series of criteria, guidelines and action guidelines on the physical land planning, its natural resources, large

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

infrastructures, spatial and urban development, economic activities, residential use, large facilities and protection for the cultural heritage.
The Regional Land-Use Plans (POTs) establish more detailed land-use planning in an intermunicipal approach. Thus, the territory of Navarra is divided in more or less homogeneous regions and one POT is performed for each of them. Their determinations are binding, unless expressly pointed as indicative. The POTs are also configured as a reference of first order for municipal urban planning.
The Regional Land-Use Plans must be submitted to public information and audience of local entities. The Councillor for the Environment of the Autonomous Region, propose the approval of the POT, which must be accepted by the Government of Navarre through a Regional Decree. After its approval, this instrument will have an indefinite validity, although it may be subject to revision. For the case study, the Regional Land-Use Plan for the Ebro Axis (POT5) was approved in the Foral Decree 47/2011.
In Spain, Land-Use planning classifies the land in three general categories: *Urban land*, *Land for urban development* and *Land protected from urban development*. In Navarra, the Foral Law 35/2002, relating to Land-Use Planning, distinguishes two subcategories within the *Land protected from urban development* category: for *protection* and for *preservation*.
Included in the *protection* subcategory are those lands that, according to sectorial legislation, are subject to a special protection regime, or have been excluded from the urbanization process by some management instrument, considering their landscape, natural, environmental, agricultural values, or because of its historical values, artistic, scientific or cultural, incompatible with their transformation, or by reason of the territorial development model that it is sought to promote. Soils that, in the past, have had some of the values described and that currently lack them due to fires, devastations or other circumstances are protected in order to favour their recovery. Thus, the extractive activity is prohibited in the *Land protected from urban development designated for protection*.
Therefore, the exploitation of aggregates would only be an authoritative use in the Land protected from urban development designated for preservation with the requirement of authorization established by regulations.
This complex land-use planning legal framework implies constrains for the determination of areas suitable for mining activity.

Methodology for the development of the mining-environmental planning

For the realization of the Mining-Environmental Planning Map was required:

- An environmental inventory: study of the physical and socioeconomic environment.
- An analysis of the mining activity: collection of data from active and abandoned quarries in field templates.
- A geological-mining survey.

This kind of work is only feasible when enough information is available or can be acquired at the working scale. The need for information and thematic cartographies of the different elements that make up the natural and socioeconomic environment, in order to acquire a greater knowledge of the characteristics of the territory, was noteworthy. The information and thematic cartographies generated constituted the so-called “environmental inventory”. Also of great importance is the geological and mining characterization of the potentially exploitable resources, together with their geographical delimitation in a “resources map”. A technical and environmental characterization of the mining operations (active, inactive and abandoned), called “analysis of the mining activity” was also carried out in order to identify the environmental problems that these activities induced.
Finally, a model of Mining-Environmental Planning of the territory was performed, expressed through the mapping of zones or categories to which the different levels of use of the territory by the mining activity were assigned. These zones were defined on the basis of criteria such as the capability of the territory to accept the mining activity and other considerations such as the legal status of the land, the sectorial laws of application, the protection of the population and the norms that protect exceptional environmental and cultural elements, as well as the possibilities for the recovery of the foreseeable degradations. All of them were grouped into “exclusion criteria” and “conditions for extractive activity”, respectively. This

This project has received funding from the European Union’s Horizon 2020
research and innovation programme under Grant Agreement No 776679

methodology was supported on a Geographical Information System (GIS), having a systematic and easily reproducible character.

Environmental inventory

The abundant graphic information (orthoimages), cartographic and written information available was compiled and analysed, selecting the most interesting and useful for the Mining-Environmental Management. It is important to mention the great collaboration of the Geology and Geotechnical Service of the General Directorate of Public Works of the Government of Navarra, the Soils and Climatology Section of the Agricultural Structures Service of the Department of Agrarian Resources of the Government of Navarra, as well as the Hydrographic Confederation of the Ebro. The collaboration of the Prince of Viana Institution, attached to the Department of Culture and Tourism of the Government of Navarra, was also of great value.

From the cartographic information, a series of maps, that were directly valid to work in the tasks of assessment and diagnosis through GIS analysis, were performed: Map of Potentially Exploitable Mineral Resources, Hydrogeological Map, Map of Floodplains, Map of Soils, Map of Land Uses and Map of Territorial Affections.

Analysis of the mining activity

All the quarries recognized in the area, with one exception, were located on the fluvial terraces of the Ebro and Ega rivers, except one. From the lithological point of view, all the quarries were located over heterometric gravels of well-rolled limestone and, to a lesser extent, quartzite, sandstone and microconglomerate, with variable contents in sandy and sandy-silty matrix. The thickness of the terrace levels was of the order of metric to decametric and the gravel pits had exploitation fronts with heights between 2 and 30 meters.

As the materials are generally poorly consolidated and lightly or not cemented, the extraction is done by front loader or backhoe loader. The use of the extracted materials as aggregates usually required only a sieving at the quarry, with washing being carried out on rare occasions to raise the appropriate quality and value of the materials.

Most of the active quarries in the exploitation areas did not have aggregate treatment facilities beyond screens. The extracted aggregate was taken to facilities that companies had in a nearby place, often occupying old exploitation pits.

A map of surfaces affected by aggregate exploitations was made. This map showed zones of different status of the land affected, depending on whether the exploited area was simply abandoned or was rehabilitated and a new use of the land after abandonment was implemented.

Geological-mining research

The main objective of the Geological-Mining research was to perform the geological characterization and to assess the exploitability of the resources, defining different types or varieties of potentially exploitable resources, as well as their geographical delimitation. The cartographic expression of this research was the Map of Potentially Exploitable Resources. In this territory a high quality geological and geomorphological cartography existed on a very detailed scale (1:25,000). This map was obtained in a simple way, by means of the simple selection of suitable geological formations.

It is common to consider that the mining potential of a deposit of natural aggregates depends on the following factors: thickness and variability of the overburden; thickness and extension of the resources; physical, chemical and mineralogical properties of the resources; accessibility of the deposit; availability of sufficient quantity of water, and depth of the water table. The factors referring to the physical, chemical and mineralogical properties of the resource and to the availability of water cannot be considered with the information available at the scale 1:25,000.

The aggregate extraction sites were almost always separated from the places where the treatment facilities were located, which eliminated the problem of water availability at the points where the gravel

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

pits were located, while centralizing in more favourable points the water supply. Finally, the accessibility was not an element that allowed discerning different classes in the work area. In addition, the concentration of aggregate treatment facilities at generally very accessible points minimizes the importance of this factor in the work area. In addition, the concentration of aggregate treatment facilities at, generally, very accessible points minimized the importance of this factor in the work area.
It was judged that the most determining factors from the point of view of the analysis of the potential or aptitude of the territory for the production of natural aggregates in the work zone were:
a) Quality or parameters of the material (size, degree of cementing and content of fines).
b) Thickness and extension, which defined the form and the volume of the resource.
c) Water table position. In addition to the constrains for the exploitation, an environmental imperative stipulates that the exploitation is only feasible up to one meter above the water table. Thus, where the position was higher, the exploitable power decreases in practice.
These parameters were deducted from the geological and hydrogeological cartographies, the existing geophysical data, observations made in the field and from the data collected in the visits to the active and inactive quarries.
Through the joint consideration of all the elements mentioned above, and their geographical distribution, four categories of aptitude for the extraction of aggregates were established and mapped: low aptitude, medium aptitude, high aptitude and very high aptitude.

Territorial diagnosis and mining-environmental planning map

Once all this starting information was available, the so-called territorial diagnosis was addressed. The ultimate purpose of the territorial diagnosis was to determine the capacity of the territory to support the exploitation of aggregates (carrying capacity for aggregates mining). For this purpose, an analytical type assessment was carried out, consisting of an individualized evaluation of the most relevant elements of the environment: mining geology, fluvial systems (including river beds and banks), flood areas, groundwater, soils, current vegetation, wetlands, fauna, land uses, settlements and infrastructures, archaeological sites and other territorial factors. Regarding the visual impact, given the soft relief of the area especially in the areas of greatest interest, the scale of work was insufficiently detailed to highlight the unevenness of the terrain with clear effects on the visuals that could be established between points with high visualization potential and areas of interest for the exploitation. Therefore, it was not possible to incorporate more criteria for zoning, on the basis of visual incidence.
One of the main objectives of the territorial diagnosis was the identification of the most valuable or vulnerable environmental elements, in order to guarantee their preservation or to minimize the foreseeable impact. Within the study area, the following elements were analysed, in risk terms, due to their high conservation value or to their high vulnerability in the face of a future mining exploitation:
- Points of Geological Interest
- Groundwater
- Channels and banks of the rivers.
- Wet areas.
- Flooding areas
- Best soils
- Vegetation and fauna.
- Cultural heritage.
- Urban areas and road and agricultural infrastructures.

The aptitude was rated as “Very high” in certain places in the work area. Formally, and to handle homogeneous scales, it was considered that the aptitude was “Very low” in all those geological formations that were not considered as possessing potentially exploitable resources, as well as in all those elements of the natural and cultural heritage of unquestionable value, often already protected.
Finally, the carrying capacity was determined by applying an impact/aptitude model, that is, a balance between the vulnerability or the fragility of the environment before the extraction of natural aggregates and the aptitude or potential of the territory to support this activity.

This project has received funding from the European Union’s Horizon 2020
research and innovation programme under Grant Agreement No 776679

The criterion adopted by consensus among the members of the drafting team was to exclude for the exploitation of natural aggregates those surfaces in which the carrying capacity was qualified as "Very low". Also, many of the areas to which this carrying capacity was assigned were already protected by some law or planning norm. These surfaces were designated as "Non-Exploitable Zones" in the Mining-Environmental Planning Map, and were detailed in the Map of Excluded Surfaces for the Exploitation of Natural Aggregates.

Among the excluded areas were those that represented infrastructures or surfaces in which the current use of the land is basic for the normal development of the activities of the population, that is to say, zones for the population protection and productive areas (roads, industrial areas, towns and irrigation infrastructures). In addition, the zones for the protection of the cultural or natural heritage were also determined as not exploitable. The areas referred to the protection of riverbeds and riverside vegetation were also excluded. All the surfaces excluded with cartographic representation were grouped in Environmental Protection Areas (areas were the capacity for the extraction of aggregates was considered very low). Low and medium aptitude surfaces with strong environmental limitations were also added.

In addition to the areas excluded for exploitation described above, the following land use planning categories were defined:

- Priority 1 Areas: surfaces with high or very high aptitude for the extraction of aggregates, in which no valuable or protected environmental elements were detected, nor basic elements for the normal development of the activities of the general population, nor located in flood zones for a return period of 50 years. These areas had a "High" or "Very high" reception capacity.
- Priority 2 Areas: surfaces with a "medium" aptitude for the extraction of aggregates, in which no valuable or protected environmental elements were detected, nor basic elements for the normal development of the activities of the general population, nor located in flood zones for a return period of 50 years. These were surfaces with high or very high aptitude, fulfilling all the previous constrains except that they held soils with high agrological value. These areas were determined to have an "Average" reception capacity. The extractive use could be considered compatible with conditions.
- Priority 3 Areas: surfaces with low aptitude for the extraction of aggregates, in which no valuable or protected environmental elements have been detected, nor basic elements for the normal development of the activities of the general population, nor located in flood zones for a return period of 50 years; surfaces with medium, high or very high aptitude, fulfilling all the previous constrains except that they were located in flood zones for a return period of 50 years, and might affect soils with high agrological capacity; surfaces with high or very high aptitude located within the delimitation of habitats of Community Interest. These areas were determined to have a "Low" reception capacity. The extractive use could be considered compatible with strong environmental constrains.

Final considerations

The results of the case study were formally presented to the stakeholders (Mining authorities, Land –Use Planning authorities, mining companies and regional and local associations). The mining companies were very interested in the "Aptitude for the extraction of aggregates" Map. There were no objections on the part of the rest of the stakeholders.

During the conduct of the case study, the Land-Use Planning of the Ribera del Ebro Zone (POT5) was being developed. It was a great opportunity to include the results achieved in the case study in the Land-Use Planning and this was the final objective of the case study. The results of the project were directly applicable to the Land-Use Planning. Nevertheless, unfortunately, this did not occur, while it is true that the identified categories in the Land-Use Planning were consistent with those determined in the case study. This probably occurred due to a lack of coordination between the institution that commissioned the case study to the IGME and the Land-Use Planning authority.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Table 6: Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	Two main factors were key to success: the collaboration of the authorities and institutions involved and the great availability of information (especially cartographic and accessory information) in the study area. It was especially noteworthy the contribution of the following institutions: the Geology and Geotechnical Service of the General Directorate of Public Works of the Government of Navarra, the Soils and Climatology Section of the Agricultural Structures Service of the Department of Agrarian Resources of the Government of Navarra and the Hydrographic Confederation of the Ebro. The collaboration of the Prince of Viana Institution, attached to the Department of Culture and Tourism of the Government of Navarra, was also of great value. These institutions attended to enquiries from the IGME in order to acquire specific information and provided extremely valuable cartographic information on a scale that allowed to develop the Mining-Environmental Planning very precisely. Geological and geomorphological maps with a scale of 1:25000 were provided and they were key for the definition of the aptitude of the territory for the production of natural aggregates. Also, soil maps at a detailed scale were provided. In addition, the Autonomous Community of Navarra has a wide environmental cartography digitally available. The results of the case study were formally presented to the stakeholders (Mining authorities, Land –Use Planning authorities, mining companies and regional and local associations). The mining companies were very interested in the "Aptitude for the extraction of aggregates" Map. There were no objections on the part of the rest of the stakeholders.
6.2 Problems encountered	During the conduct of the case study, the Land-Use Planning of the Ribera del Ebro Zone (POT5) was being developed. It was a great opportunity to include the results achieved in the case study in the Land-Use Planning and this was the final objective of the case study. The results of the project were directly applicable to the Land-Use Planning. Nevertheless, unfortunately, this did not occur, while it is true that the identified categories in the Land-Use Planning were consistent with those determined in the case study. This probably occurred due to a lack of coordination between the institution that commissioned the case study to the IGME and the Land-Use Planning authority. There were also constrains due to the short execution time of the project (10 months).
6.3 framework conditions/contextual factors	Two main factors facilitated the development of the case. Firstly, the interest of the Mining Service was appreciable due to that Navarra is one of the European regions which have highest aggregates consumption. This Spanish autonomous region is a net importer of this kind of materials. At the date, is the only Spanish region with an aggregate consumption above the European average (despite the crisis in the construction sector). Secondly, the collaboration of the institutions mentioned in the 6.1 section was essential to achieve the technical objectives of the project. Another two factors influenced in a negative way the development of the project. On one hand, conflicts with other land uses could be important. Due to the proximity of the exploitation areas to the rivers (as happens in many parts of the world), the occurrence of conflicts with agriculture and transport infrastructures was very likely. In addition, in Navarra, the agri-food sector is one of the most important engines of the economic development of the region, both in terms of agricultural production, as in weight of the industrial sector oriented to the packaging and transformation of agricultural production, and the wine industry. In this sense, the mining-environmental planning project could be an essential tool to make compatible these land uses. On the other hand, there was neither collaboration nor coordination with the Land-Use planning authority.
6.4 Impacts achieved	The impact achieved was very limited due to the lack of consideration of the results of the case study on the part of the Land-Use Planning authority and, finally the results were not included in the Land-Use Planning of the Ribera del Ebro Zone. Nevertheless, the results of the case study are a useful tool for the Mining Services in the permitting process of new mining projects in the study area.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

ANNEX 1. Survey

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria		Answer
	3.1 Are land use plans legally binding or simply indicative?	Yes	Land use plans are legally binding. For instance, the extractive activities are prohibited in areas such as the so-called "zones with risk of mass movements, falls of blocks and landslides" and in the "system of fluvial channels and riverbanks".
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	No	After its approval, the land use instruments will have an indefinite validity, although it may be subject to revision, modification or update, when considered necessary.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	No	The Land use designation include the next categories: Urban land, Land for urban development and Land protected from urban development. In Navarra, the Foral Law 35/2002, relating to Land-Use Planning, distinguishes two subcategories within the Land protected from urban development category: for protection and for preservation. Regarding the case study, the exploitation of aggregates would only be an authoritative use in the *Land protected from urban development designated for preservation* with the requirement of authorization established by regulations
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed, in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	Not addressed in the regional planning instruments	
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	A protection or safeguarding figure does not exist.	There are not safeguarding areas even for resources such as magnesite (critical raw material in the European Union and existing in Navarra)
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	Yes	For instance, the land-use planning category "Land protected from urban development", subcategory "preservation" would admit the coexistence of multiple land uses.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	The land-use figure "land use for minerals" does not exist in Navarra	In relation to concessions, a concession for one type of mining resource does not prevent the granting of another concession for another type of mining resource in the area if it is considered compatible, depending on the nature or type of resources involved.
	3.8 Which kind of tools and at which level safeguarding of minerals in	Spanish Mining Law	The Spanish Mining Law contemplates a figure called "reserve in favour of the state" for geological

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	land use planning are performed? (Rules, zoning, both?)		resources that may have special interest for economic and social development or for national defence. But this Law (at the national level) has no influence on the land use planning tools (regional).
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes	The facilities associated are part of the same mining project that is subject to evaluation in the permitting process.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Yes	Geological information from the IGME (Geological Survey of Spain), mining cadastre, SIOSE (Land Cover and Use Information System of Spain) and IRENA and SITNA digital platforms of the Government of Navarra.
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	Low in Navarra	
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	No	Mining authorities consult with others when it is needed.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	No	There is not an adequate expertise for the inclusion of the mineral resources in land use planning. For this reason, the project to which the case refers was developed. However, there are adequate experts and tools in the working groups dedicated to general land use planning.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	No	The main obstacle is the diversity of public agencies and laws involved in the permitting processes.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available	No As it happens everywhere, there are more known resources in some areas than in others, depending on many factors, among them the type of resource. No	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	and describe how it is used by different authorities		
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	No	Land designation for minerals was not considered by those responsible for land use planning. In the specific case that concerns us, we attempted to establish a balance between the environmental sensitivity in relation to the mining activity and the potential for the development of mining.
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	The authorities decide on the information collected, obtained and presented by the promoters of the extractive activity	
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	In general, the geological information available in Navarra, complemented by the information presented by the promoters, is sufficient for decision-making.	
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No	Even for resources such as magnesite (critical raw material in the European Union and existing in Navarra)
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	No No, in general	There is not any assessment of the mineral resources so that it cannot be weighed against that of other natural resources. In the specific case that concerns us, we attempted to establish a balance between the sensitivity of environmental, cultural and resources of other nature and the potential for the development of mining activities. In the River del Ebro case, yes.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	No	
	3.25 Are there and which are incentives to implement minerals into land use planning?	No	The case that concerns us may not be an incentive, but it could be a model for other areas where it is

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			sought to incorporate mineral resources into land use planning.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No	
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	No	
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	The existence and capability of urban development	
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Yes / Local and regional, including every stakeholder	All the land-use planning instruments contemplated in the Foral Law is submitted to a period for public participation.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	It is impossible to know it without having all the documentation associated with the approval procedure of each approved land use plan. The case before us was not submitted to public participation but the results of the case study were formally presented to the stakeholders (Mining authorities, Land –Use Planning authorities, mining companies and regional and local associations). The mining companies were very interested in the "Aptitude for the extraction of aggregates" Map. There were no objections on the part of the rest of the stakeholders.	In certain cases (with a high level of conflictivity) the public participation could influence over the authorities and get some specifics aspects..
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?		The coexistence of the safeguarding of mineral resources is perfectly compatible with the existence of protected areas, rivers and banks, and other valuable elements of the natural and cultural environment. However, mining is not compatible with the preservation of this type of elements. The extraction of aggregates implies the elimination of the vegetation or the uses of the soil, of the soil itself and of the fauna on the affected surface, being able to add: in addition to any other element buried or located on the ground within said surface (archaeological remains, roads, irrigation channels, pressure irrigation pipes, etc.).

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Table 4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	-	In this phase, only a report from the environmental authority is needed.	Yes, when mining activity is included in the EIA legislation, the EIA process is imperative. Usually projects specifications and restoration plans are presented at once and are coherent with the EIA process.	
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	No / No	In the permitting phase, the mining companies must do an assessment of the mineral resources value. The codes for classifying depend on the mining companies.	In the permitting phase, the mining companies must do an assessment of the mineral resources value. The codes for classifying depend on the mining companies.	No
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented*? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Yes. The land-use planning process, performed by the regional authorities All the land use planning instruments are subjected to a public participation process, in which any stakeholder can make allegations. The authorities must to answer all of them.	-	The promoters propose a final designation for the land use in the project, included in the restoration plan. The environmental authorities are on charge on the final decision about the ultimate land use. When a mining project is included in the EIA legislation, is also subjected to a public participation process, in which any stakeholder can make allegations. The authorities must to answer all of them.	The promoters propose a final designation for the land use in the project, included in the restoration plan. The environmental authorities are on charge on the final decision about the ultimate land use. When a mining project is included in the EIA legislation, is also subjected to a public participation process, in which any stakeholder can make allegations. The authorities must to answer all of them.
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	No. The primary uses were agricultural and forestry	No. The primary uses were agricultural and forestry	No. The primary uses were agricultural and forestry	No. The primary uses were agricultural and forestry
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	No (was developed before the birth of the INSPIRE directive)	No (was developed before the birth of the INSPIRE directive)	No (was developed before the birth of the INSPIRE directive)	No (was developed before the birth of the INSPIRE directive)

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	Yes. When a mining permit is requested, a priori, the land use does not change. At the final stage of the permitting process, mining companies need to obtain an activity permit from the municipal government that allow the mining use in an area previously dedicated to another use.	Yes. When a mining permit is requested, a priori, the land use does not change. At the final stage of the permitting process, mining companies need to obtain an activity permit from the municipal government that allow the mining use in an area previously dedicated to another use.	Yes. When a mining permit is requested, a priori, the land use does not change. At the final stage of the permitting process, mining companies need to obtain an activity permit from the municipal government that allow the mining use in an area previously dedicated to another use.	The land use previously assigned to the area can change after the restorarion phase if it was accepted by the mining, environmental and municipal authorities. If it happens, the new land use is incorporated to land-use planning in the review processes (the review process is not periodic).
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	The case was not submitted to public participation but the results of the case study were formally presented to the stakeholders (Mining authorities, Land – Use Planning authorities, mining companies and regional and local associations). The mining companies were very interested in the "Aptitude for the extraction of aggregates" Map. There were no objections on the part of the rest of the stakeholders. The plan had a high acceptance from promoters. There is no information about the acceptation of the plan by the community.	-	-	-
4.9 If it was necessary to change the type of land use to be according to	When a mining permit is requested, a		-	-

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	priori, the land use does not change. At the final stage of the permitting process, mining companies need to obtain an activity permit from the municipal government that allow the mining use in an area previously dedicated to another use.			
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	No	-	-	-
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	-	Benefits: Prize of interesting land (from the mining point of view) probably increased / Cost: Minor environmental inconveniences	Benefits: Employment growth / Costs: Major environmental inconveniences. Temporary or permanent opportunities linked to the previously designated land use (not mining)	Benefits: Land recovery, new land use opportunities / Costs: -

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

There are two aspects which must be taken into account regarding the mining-environmental planning case:

1) Even though there were no objections on the part of any stakeholders, there was not a public participation process as such.

2) The results of the project should be directly applicable to the Land-Use Planning. Nevertheless, unfortunately, this did not occur, despite the identified categories in the Land-Use Planning were consistent with those determined in the case study.

Having regard to the above, we are not able to give answer to the questions of this table.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 3 Case Description Sweden – Boliden Area

Case Study Identification

Boliden Area Operations (Skellefteå field)	
Sweden	
Boliden Mineral AB	
Type of mineral resources?	The Boliden Area is located in the mineral-rich Skellefte field in Västerbotten, northern Sweden, operated by Boliden since the 1920s. The area currently comprises of the Renström, Kristineberg and Kankberg underground mines and the Maurliden open-pit mine. All of the mines in the area, with the exception of Kankberg, produce complex polymetallic ores that contain zinc, copper, lead, gold and silver. The mines supply ore to the concentrator at Boliden, which is also home to leaching plants for gold and tellurium production.
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	The case comprises all stages of from early exploration, project development, active mining, rehabilitation and longterm use of land
Is the case about open-pit or underground mining, both or not applicable?	Both
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	Local, Regional In this area Boliden has a long history of how to work with different types of interest to land like landowners, hunters, community, reideer herders (several sami villages) etc. A lot o good examples on how to work together with other interests has been established. Examples are coordination of exploration, transports of ore, changes in construction of new mines. New measures and expansions need a good coordination and relation to other interests which is in Bolidens focus.
Extents of the project (km2) or not applicable?	The county of Västerbotten is 55 432 km2 and the Boliden area Operations is the northern part of the county, approximately 20-30 % of the county area could be described as the Boliden Area or the Skellefteå field.
Company or companies involved	Boliden Mineral AB

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Are the mineral resources private and/or public owned?	Land The Minerals Act is applicable to exploration and exploitation on land no matter what is the ownership. Exploration permit An exploration permit (undersökningstillstånd) gives access to the land and an exclusive right to explore within the permit area. It does not entitle the holder to undertake exploration work in contravention of any environmental regulations that apply to the area. Applications for exemptions are normally made to the County Administrative Board. Exploitation concession An exploitation concession (bearbetningskoncession) gives the holder the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged. Permits and concessions under the Minerals Act may be transferred with the permission of the Mining Inspector

Boliden Area (Skellefteå field)

The first gold discovery, which laid the foundation for the business, was in Boliden in the mineral rich Skellefteå field in Västerbotten in northern Sweden. Since starting production in the 1920s, Boliden has mined ore in almost 30 mines. Further exploration is ongoing as well as a number of rehabilitation projects. Today the area has 4 active mines - Renström, Kristineberg and Kankberg underground mines, as well as the Maurliden open-pit mine. With the exception of Kankberg, complex sulphide ores, which contain zinc, copper, lead, gold and silver, are produced by all the mines. The area also has a concentrator and a leaching plant for gold and tellurium production. The concentrates are then delivered to Boliden smelters in Scandinavia, lead smelters in Europe and tellurium customers in Asia.

Social Licence to operate

Boliden has a history in the area of almost 100 years and are planning to be operative for a several more decades. This means that there has to be a strong focus on sustainability and local understanding. The communities in the area is dependant om the mining industry and the city of Skellefteå is described as the "Gold town".

Land-use planning and stakeholder involvement is one of Bolidens most important focus areas. Working with this has to be present in all stages of operations from early exploration through operations and into rehabilitation and long-term planning for future landuse.

Some ways that Boliden works :

- Set aside time and make a personal commitment
- Adapt to the location and stakeholders
- Identify stakeholders and get to know each other
- Talk to each other early on and throughout the project
- Establish meeting places and informal contacts
- Arrange visits to operations

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- Participating in community planning
- Annual meetings with stakeholders
- Open, credible talks

Developing a landscape plan

The old tailings pond Gillervattnet was closed down in 2011 and the remediation of the site was started in 2015. The technical part of the remediation is ongoing and will be finished during 2017. At the same time planning is ongoing on how to rehabilitate the old open pit in Boliden were the operations started in the 1920s.

The ambition of the company is that these former industrial areas will showcase the mining history of this geographical area, combined with biodiversity and the future use of the areas in question.

The project has developed a landscape plan that combines showcasing the mining history, creating biodiversity in the area with future use of the area for stakeholders. The landscape plan has been developed through an extensive hearing process or citizens dialog with input from residents in the area, employees, school children, sami, authorities and other stakeholders.

The results from the project, the landscape plan will be presented for everyone involved during the autumn 2018. Developing the landscape plan has been a very interesting and learning process improving local understanding and communication.

Managing Sami relations

Boliden is focusing to have a good dialogue with the Sami villages concerned in the area. The Boliden area involves 6 different Sami villages. The company has a long history of cooperation with the sami and operations are continuously adapted to avoid, localize and minimize the effects for the sami. Remaining impacts for the sami are settled in different ways for example creating new migrant routes for the reindeers, rehabilitation with reindeer grazing plants, food for reindeer etcetera. In the Boliden area research and development projects has also been started in cooperation – GPS project to evaluate effects and ways to improve reindeer grazing in rehabilitation and how to reduce traffic incidents.

Rehabilitation projects

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Boliden Area Operations

Mineral rights

The legislation is different for different mineral resources. Minerals that are deemed particularly essential to society are called concession minerals and are subject to the provisions of the Minerals Act. Most metals belong to this category. For other minerals ('landowner minerals') except energy peat, the provisions of the Swedish Environmental Code apply. For energy peat, the Certain Peat Deposits Act applies.

The Minerals Act

The Minerals Act encompasses specially designated valuable mineral substances, known as concession minerals. Our Swedish bedrock has a great geological potential for these minerals, but despite this, economically mineable deposits are difficult to find. Finding and extracting them requires special skills, a lot of capital and, particularly for exploration, access to large areas of land. Therefore, in Sweden, those who have the prerequisites to explore or mine a mineral deposit are granted a permit to do so under the Minerals Act, regardless of who owns the land. In the event of several interested parties, the Minerals Act also has the important function of determining which one should be given priority access to the deposit and the right to extract it.

The role of the Mining Inspectorate of Sweden

The Mining Inspectorate of Sweden is an organisational unit at SGU whose role is to process matters concerning exploration and extraction of minerals. The Inspectorate is headed by the Chief Mining Inspector who decides on matters falling under the Minerals Act.

Permits for exploration and mining

It is the Chief Mining Inspector who issues exploration permits. This is regulated in the Minerals Act. The Minerals Act also regulates who should have exclusive exploration rights and extraction precedence.
To mine a deposit it is necessary for the Chief Mining Inspector to issue a permit called an exploitation concession. This is also regulated in the Minerals Act. In addition, a permit is also required under Chapters 9 and 11 of the Swedish Environmental Code. This permit is granted by the Land and Environment Court. Other permits may also become relevant depending on the deposit's surroundings.

Legislation for other minerals

The issuing of permits for other minerals is regulated in the Swedish Environmental Code.
The permission of the landowner is always needed to search for minerals that are not concession minerals. It is the County Administrative Board that grants production permits, but the landowner must approve mining.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Environmental permit

To be able to operate a mine there has to be an environmental permit according to the Environmental Code (1998:808). The permit is granted by a land and environmental court. Land and Environmental Courts are special courts which hear cases that, for example, concern environmental and water issues, property registration and planning and building matters. There are five Land and Environment Courts are part of the District Courts in Nacka, Vänersborg, Växjö, Umeå and Östersund. Land and Environmental Court of Appeal is part of Svea Court of Appeal.
Supervision of operations and the environmental permit is normally the county administration but in some cases the municipality
An application for an environmental permit needs an environmental impact assessment. This is a substantial assessment studying several options on how to conduct the mining operations and the effects this will have on the land,bedrock, soil, water, air, flora and fauna etc. The assessment also involves the request of feedback from other authorities, landowners and other stakeholders, including reindeer herders.

Land use planning

The Planning and Building Act (PBL) is a law in Sweden that governs the planning of land, water and construction. The PBL contains provisions that make all municipalities obliged to establish an overview plan for the entire municipality. The Act also contains regulations on detailed plans, building permits, building supervision etc which is the responsibility of the municipality.
On a national level appoited authorities has the right to regulate landuse by areas of national interest. National interest in Sweden is a land or water area that is to be protected in the long term from measures that can significantly damage the value of established national interest. National interests are protected according to the household regulations in Chapters 3 and 4 of the Environmental Code. National interests are handled first in connection with government investigations according to a number of listed laws, the Planning and Building Act, the Roadmap, etc., and do not apply to individuals. In Sweden, the Boverket has overall responsibility for national interests. According to a regulation, there are a number of central administrative authorities that are responsible for assessing which land or water areas should be considered as national interest. The municipalities will then show in their overview plans how to utilize the national interests.

National interests in Sweden may include untouched natural resources, cultural historical environments, energy supply, mining and communications. The national interests are guarded by the county administrative board and must not be significantly damaged by, for example, new construction projects.
"black building" and the building boards' activities. The Act came into force on May 2, 2011, replacing the old 1987 and 10th Planning and Building Act 1987: 10 which, in its turn, replaced the 1947 Building Act and the 1959 Building Act. A difference with the Planning and Building Act is that the interests of individuals also should be taken into account

Main conflicting land uses with minerals' life cycle's land use.

Boliden Area Operations

Most of the mines in Sweden are located in the northern part of the country.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

The northern part of the country is sparsely populated and the conflicts tend to be related to land protected for nature conservation, forestry, hunting/fishing, recreational use of the land and reindeer herding.
Conflicting interests when it comes to exploration and mining is dominated by nature conservation areas and reindeer herding.
The reindeer herding is ongoing in an area covering about half of the country.
In the Boliden area there is a long history of cooperation and consultation with the Sami and operations are continuously adapted to avoid, localize and minimize the effects for the Sami. Remaining impacts for the Sami are settled in different ways for example creating new migrant routes for the reindeers, rehabilitation with reindeer grazing plants, food for reindeer etcetera. In the Boliden area research and development projects has also been started in cooperation – GPS project to evaluate effects and ways to improve reindeer grazing in rehabilitation and how to reduce traffic incidents

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	Early involvement of stakeholders and continued contact throughout the duration of the project.
6.2 Problems encountered	
6.3 framework conditions/contextual factors	Company has a long time experience with mining projects from prospecting to mining.
6.4 Impacts achieved	Developed a methodology for communicating with stakeholders proven to be fruitful for new projects. This involves early engagement with stakeholders.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	The project has developed a landscape plan for old mining area established and closed before current legislation, showcasing the mining history, creating biodiversity in the area with future use of the area for stakeholders. The landscape plan has been developed through an extensive hearing process or citizens dialog

ANNEX 1. Survey

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Sweden has no cross-sector planning for land on the national level (except for maritime planning). The state provides frameworks for the municipal and regional level through national objectives and by identifying claims of so-called national interests. The decisions of national interests form a basis that county administrative boards and municipalities must consider in their long-term planning. Areas of national interest can be of many different kinds, eg. Mineral deposits, military, reindeer-herding, natural or cultural values, infrastructure, energy production etc. Areas of national interest are indicative until there is an application for some kind of change in land use. Then the authority responsible for the permitting process must decide whether there is a conflict between the interests in the affected area or if they can coexist. If there is a conflict the land use that facilitates the most sustainable (economically, ecologically and socially) land use shall be given priority. National interests must also be included in the municipal comprehensive plan. For further description of areas of interest see Fäbodtjärn case description Table 2. Area regulations enable the municipality to regulate the basic characteristics of its land and water use if necessary to safeguard the purposes of the comprehensive plan or to satisfy a national interest. Specific land use plans are being done at municipal level for detailed development plans (mostly used in towns and villages) and area regulations in the comprehensive plan. The municipalities are responsible for the planning of land and water areas within their geographical boundaries. Outside of the villages and towns the land use planning is to a large part depending upon making decisions when a facility is being constructed. At this stage the areas of National Interest is an instrument that is being adopted. Whilst applying for a mine the land use aspects will be a part of the decision. In the concession and the environmental permit the land-use planning is actually accommodated to mining with given restrictions.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	For areas of national interest it is up to the responsible authority to review the areas. There is a large variation between the need for reviews among different kinds of NI:s. At the municipal level there are the more general plan, översiktsplan – overview plan and the detailed detaljplanen, comprehensive plan. The overall direction of the land use in a municipality is indicated in a comprehensive plan. The municipality must have a current comprehensive plan and a review is to be done at least every fourth year. The land use planning is following the law PBL: 2010:900, https://lagen.nu/2010:900 . Areas of national interest can be reviewed continuously by the appointing authority.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	In the land-use process outside of the towns and villages the land use that minerals belong is considered as one of the group of National Interests. These are not being used as a detailed land use map rather as an instrument when specific use of a particular land is being determined, say for an industrial facility, a mine or something else. One area can have several National Interests that will be weighted first when need for use is at hand. Land use designation is possible to change.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not	A complete protection or safeguarding of minerals is not possible in land use planning. In the comprehensive plan, the municipality must present the basic characteristics of its intended use of land and water areas; how the built environment is to be used, developed

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	and preserved; what consideration is to be given to public interests; and what the intention is regarding how national interests and environmental quality standards are to be served. The plan must also indicate how the municipality intends to take into account national and regional goals, plans, and programmes of significance for sustainable development within the municipality**.** Assigning areas of national Interest, is done dynamically, no specific time frame given, allowing for fast changes at need, e.g., when a new mine is being established. The only actual safeguarding is done for the area given for the mining concession (e.g., only valid for three years unless the company is doing significant development of the project) and later when the process is ready for mining, the it is performed designation of the mining area.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	Areas of particularly valuable mineral substances may be declared national interests by the Geological Survey of Sweden (SGU). The provisions on national interests are found in the Swedish Environmental Code. Chapter 3, Section 7, second paragraph of the Swedish Environmental Code states that areas containing deposits of valuable substances or materials that are of national interest shall be protected against measures that may be prejudicial to their extraction. Within such areas, municipalities and central government agencies may not plan for or authorise activities that might prevent or be prejudicial to the exploitation of mineral resources. In other words – the general idea behind the instrument Areas of national Interest is that it is a tool to be used to select the land use that gives the optimal sustainability, in terms of ecological, social and economical values, and as such is not really a safeguarding except for in a loose form, but rather an instrument that allows for dynamical and rational decisions regarding land use.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	The ambition in all land use is to facilitate coexisting of different interests as often as possible. In the mineral value chain this I most often accomplished in the pre-exploration and exploration stages. During the exploitation of a mineral finding co existing is often limited concerning the mining area. Specifically, outside of the town and villages different land uses can co-exist. Prospecting is often done where forestry or agriculture is pursued. Claims of areas of different national interests is so structured that land uses coexist and overlap each other. If multiple areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable (economically, ecologically and socially) management of land, water and the physical environment in general. The final weighting is made in each trial when applying for permits (e.g. exploitation concession).
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	During prospecting this is the case – prospecting is so constructed legally that other land use is assumed in parallell. No, not until an exploitation concession has been granted. A concession (the Mineral Law - https://lagen.nu/1991:45#K1P1) precludes land use that can influence the possibility of a mining operation negatively. In earlier stages there is no such preclusion.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	See 3.4-3.6.Typically at least the mining concession area is zoned as mining area (possibly even larger area). Also the land use plan contains instructions that define the land use on each specified area.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes, all land use needed for a mining operation, including mining infrastructures, must be considered in an application for an exploitation concession. In the process of issuing an exploitation concession, the CAB must decide if mining is the most adequate land use in the area. In this decision mining infrastructure must be included after a recent judgement by the Supreme Administrative Court in 2016. Before that, the infrastructure was considered later in the process, in the environmental permitting process.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]?	Part of data is INSPIRE compatible and all data is planned to be INSPIRE compatible by 2020 according to plan.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	The CAB, the Mining Inspectorate and the Geological Survey of Sweden (among others) share GIS layers and permits/decisions. The agencies can be consulted during the process, particularly the Geological Survey has one division appointed for support towards the industry. All land use is available upon request in GIS format for the users (industry, other agencies, NGOs, public) as a consequence of Swedish law that lal information should be publicly available with restriction for certain protected areas (e.g., national defence purposes). The Geological Survey of Sweden, SGU, is the expert agency for issues relating to bedrock, soil and groundwater in Sweden. A very important part of SGU's work is to survey and document the geology of Sweden – not least with a view to facilitating mineral exploration. SGU's information on bedrock geology, bedrock quality, Quaternary (superficial) deposits, geochemistry and geophysics provides a basis for exploration for metal ores, industrial minerals and dimension stone.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	The principle of public access to information is applicable for all government agencies. Exploration permits, exploitation concessions, areas claimed as mineral deposits of national interest and other geological information are digitally available, adapted to GIS and easily accessible to all planning authorities
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Yes
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Half yes – for everything no. Different legislations (Minerals Act, Environmental Code, Planning- and Building Act etc.) are applicable and handled by different authorities. However, the Geological Survey has as a service to parties involved in mining activities including all geological data, taking care of large part of drilled cores in prospecting and making them publicly available, assisting with information and guidances in the application process – it does not give advice on all aspects but who to ask, supporting with official guidelines. The legislation as such does not allow for a full one-stop shop since several authorities are involved. It is however recognized that it is important for a place and a function where companies and others can seek advice upon mineral extraction with data, guidelines and some recommendations which authorities to approach.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	SGU may, after consultation with Boverket (the National Board of Housing, Building and Planning), the county administrative board and the municipality, decide that a certain mineral deposit constitutes an area that is of national interest regarding valuable substances or materials. Thus far, SGU has decided that 147 deposits of valuable substances or materials are of national interest (i.e. mineral deposits of national interest). Of these, 89 have been demarcated in detail and marked on maps, while the others have been positioned using a centre coordinate. The decisions are available according to the principle of public access to information. Evaluation has only been done for prospected and mined areas (by the industry and according to industrial codes). When applying for an exploitation concession the mineral resources must be estimated according to international reporting codes for classifying mineral resources, the categories "Indicated" and "Measured" resources can be used in the estimation. The information is confidential outside the Chief Mining Inspector. The industry has up-to recently used the Fennoscandian Review Board (similarities to JORC) but has now adopted PERC code

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	Areas claimed as areas of different national interest can overlap and are indicative for land-use planning. The final weighting is made in each trial when applying for permits. The county administrative boards are involved in the weighting in a trial for an exploitation concession. However, the Areas of national Interest (mineral resources one of these) should also be used in all planning processes not only for mining but as a safeguard that important deposits are not being used for other "deemed less important purposes
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Geological information is needed and is reviewed by the Geological Survey of Sweden before an area of mineral deposit of national interest can be pointed out.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes. Sweden have large areas with good geological potential for exploration of mineral deposits
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No, but there are some mineral deposits of national interest that includes some CRM:s (for example, Norra Kärr for REE:s, Granlidknösen for fluorspar, Nunasvaara and Kringelgruvan for graphite, Kiskamavaara for cobalt).
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	No, but in the assessment of pointing out a mineral deposit of national interest, there are some criteria that must be fulfilled. A mineral deposit is considered to be of national interest if it satisfies the following criteria: • the deposit is of great importance for the society´s need on a national level, or of particular regional importance, in terms of employment, economic development and resource supply in the long term. • the deposit has particularly valuable properties, as regards e.g. purity, composition, quality, appearance, technical features or volume, • the area containing the deposit is well defined, examined and documented.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	An assessment of the socio-economic value of a <u>new</u> mining operation can be/is normally included/ in an application for exploitation concession.
	3.25 Are there and which are incentives to implement minerals into land use planning?	The main reason for appointing an area as NI concerning mineral deposits is to improve the mineral interests position in physical planning and permitting processes and promote prospecting and extraction of minerals.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Areas of different national interests can coexist and overlap each other. If areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable management of land, water and the physical environment in general (Chapter 3 in the Environmental Code). The Areas of National Interest is an instrument used in the permitting process. The permitting is used to determine which land use should be given priority and involves both the concession as well as the environmental permit.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Community-economical effect, social and ecological sustainability. However, different stakeholder issues has been a growing aspect in terms of influence in the process (e.g., EIA process in the Environmental Permit
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	The municipal comprehensive plan for overall land use is open for public comments for two months. No special engagement is made for mining stakeholders in municipal land use planning. In the permitting process, stakeholders are though involved heavily and have influence. In prospecting, e.g., land owners has to be informed reindeer herders has to be consulted: Further, in the EIA process in the environmental permit all affected stakeholders have a possibility to influence the process and do so in many cases.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The municipal comprehensive plan for overall land use is open for public comments for two months. No special engagement is made for mining stakeholders in municipal land use planning. In the permitting process, stakeholders are though involved heavily and have influence. In prospecting, e.g., land owners has to be informed reindeer herders has to be consulted: Further, in the EIA process in the environmental permit all affected stakeholders have a possibility to influence the process and do so through consultations and active involvement in many cases.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Typically environmental designations have a very strong status against other land uses. It may be possible to override or change such designations but argumentation needs to be really solid on those cases. Most common conflicts are the water framework directive and Natura 2000 sites (water habitats). Conflicts might be mitigated by terms for the mining processes and adjustments of location for mining infrastructure. Other possible conflicts might be with nature protection areas and national parks. National parks override all other land use, and normally that´s the case for nature protection areas as well even exceptions are easier to accomplish for protection areas. Exploration are not allowed in natural parks. The CAB and the Land and Environmental Court are authorities who normally are involved in the conflict management. It is not rare (in case of appeal) that the government gets involved too.

Table 4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA?	no	No/Yes test mining	yes, both for an environmental permit and	Yes, a part of the environmental permit

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

at what stages and what is included?			for exploitation concession	
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	Only in such a fashion that if known – the knowledge of respective elements are publicly made available through SGU data bases.	No not for permitting but during prospecting – used FRB which was the accepted industry standard at the time. However, not used for exploration permit. This instrument is used by the company to assess the	Yes. In the future PERC code will be used since the industry organisation, SVEMIN, has accepted PERC as the standard industrial code.	Yes – however financed and included throughout mining phase - necessary for economic sustainability of the company for remediation
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	When the land is needed for a specific purpose the designation will be decided. See earlier descriptions in Table upon system of areas of national Interest and Mining permitting. All decisions by authorities are public by law and available.	Yes – exploration permits – exploration areas are not seen as being in conflict normally. Exceptions are areas within larger villages and towns for which city planning exist. In the prospecting is usually not permitted. All decisions by the mining inspectorate (deciding authority) are public as well as the area of the prospecting permit.	Exploitation concession is decided by the Mining Inspectorate and all decisions are public. Even if the area will be granted as being an area of national interest for mineral deposit it means only that it is being part of the decisive process when a specific land use (mining or otherwise) is being determined. In case of mining this is taken in the next step in the environmental permitting phase.	Yes- Decision by the Land and Environmental court. All decisions and material are publicly available upon request.
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	no	no	Yes	
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?		See 3.10		
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	No	No	Yes	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 4 Case Description Norway- Nordland county

Case Study Identification

Nordland county	
Norway	
NGU	
Type of mineral resources?	The case involves a range of commodities from aggregates to industrial minerals and metals, and all stages from pre-exploration to active mining. From a land use perspective, commodity type does not affect implemented procedures, even if the commodities are underlain by different legal and permitting conditions. The most important aspect for land use management of the resources is the stage of development and the quality of data. The case study includes: Fe, Cu, Zn, Ni, Be, REE, gr, apa, qz, cc, dol, talc, crushed rock, gravel and natural stone. Be, REE, P, graphite and Si are on the 2017 CRM list.
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	The case covers all stages from pre-exploration/undiscovered resources to active mining and post-mining.
Is the case about open-pit or underground mining, both or not applicable?	The case includes active and historic open pit and underground mining, as well as 3D modelled of undeveloped resources.
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	The case is regional with Nordland County as the primary land use authority on mineral resources in the region.
Extents of the project (km2) or not applicable?	Nordland County covers 38 456 km^2
Company or companies involved	Active mining and quarrying: SMA mineral (dol), Rana Gruber (Fe), Elkem (qz), Omya (dol), Brønnøy kalk (cc), Norwegian crystallites (qz), Norcem (cc), Franzefoss minerals (dol). In addition, Directorate of mining list 85 sites for construction materials and aggregates (though several smaller and local deposits are not included in this number) and 4 natural stone quarries (dolomite, marble and granite). Other stakeholders are Ofoten Minerals (Ni, gr), LNS (talc), Nye Sulitjelma Gruber (Cu, Zn), + additional exploration companies and operators in quarrying.
Are the mineral resources private and/or public owned?	Both. State minerals are defined by the Mining Act as metals with densities above 5 g/cm3 with additional inclusions (Ti, As, iron sulphide). All remaining

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	resources, as well as alluvial gold, are privately owned.

Case study description

The Nordland case study deals with land use management of mineral resources in Nordland County in Northern Norway. The county has a rich history of mining with current extraction of a range of commodities. Nordland County is the second most important county in Norway in terms of extractive industry, with more than 600 people employed in mining and quarrying (Directorate of Mining, 2017). In addition to active mining, the county hosts important mineralizations of future potential; most of them unassessed and poorly documented. Nordland County, with 250 000 inhabitants, is highly industrialized (22 000 companies) with an extensive fish farming industry and the biggest ore shipping harbour in Europe (Narvik). A significant proportion of the county is made up by 8 national parks, Sami people are entitled to use of land along the entire length of the county, and areas dedicated to reindeer herding are used by both Norwegian and Swedish Sami people for reindeer grazing and transport. The competition for land between various industrial, cultural and nature protection interests is apparent.

In 2014 the Geological Survey of Norway and Nordland County initiated a cooperation to evaluate and assess the importance of deposits for which tonnage and quality have been quantified to a certain confidence level. Occurrences have been partly reclassified to INSPIRE compliant terms of deposits, prospects and occurrences and assessment of importance is performed in compliance with Raw Material Initiative into the categories “international”, “national”, “regional” and “local”, as well as “unassessed”, based on a specific set of factors. For unquantified resources, prospective geology, and indicated prospectivity, the INSPIRE term “prospect” is used. Areas for deposits and prospects are defined and adapted to county/national land use management tools to better forecast and mediate potential land use conflicts. This will increase the knowledge base and hopefully prevent the sterilization of potential resource rich areas in political processes due to ignorance of the mineral resources. Use of land containing deposits of regional, national or international importance automatically release an intervention by the Norwegian Directorate of Mining. Prospective areas are not formally protected in a similar way, but the county will be aware of possible future values and can take precautions, such as requesting additional surveys for better precision in the assessment of resource potentials. Nordland County has a dedicated “County Geologist,” thus the geological competence in the county administration must be considered high; The dialogue between the county geologist and the Geological Survey of Norway is close.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

Interaction of current mineral resources legislative and administrative procedures with land use planning legislative and administrative procedures.

Mineral deposits of public interest are defined, and their significance is classified (National/International, Regional, Local or not assessed) by the Geological Survey of Norway. This data is a part of national data sets which are made available for land use planners.

There are three levels of land use planning: National, regional and local. Responsibility for planning pursuant to this Act lies with municipal councils, regional planning authorities and the King (i.e. the constitutional monarch and the Council of State). Different levels of responsibility and tasks are described in the national the Planning and Building Act, sections 3-3 to 3-7. In general, the most detailed land use planning happens at local level (municipalities), but sometimes regional level (counties) may take over all or part of the functions of the municipal planning administration and regional planning authorities relating to the organisation of planning work and preparation of planning proposals.

In addition, there are planning policies/strategies for all levels being revised minimum every 4th year. On national level, there is a policy called "Nasjonale forventninger" (national expectations). Regional and local levels have planning strategies. The regional and local planning authorities prepare regional/local planning strategies in cooperation with municipalities/counties, central government bodies, organisations and institutions that are affected by the planning work. Affected central government and regional bodies may make objections to proposals regarding the land-use element of the municipal master plan and the zoning plan in issues that are of national or significant regional importance (section 5).

In the case of all regional and municipal plans, and zoning plans that may have significant impacts on the environment and society, a planning programme shall be drawn up, as part of notification of the start of planning, to serve as a basis for the planning work (section 4). Societal safety, risk and vulnerability assessments are a part of the plan programme. The Directorate of Mining may make objections when the plans consider areas of quantifiable resources, classified as national/international or regionally important.

The land-use element of the municipal master plan shall determine future use of land in the area and, when adopted by the municipal council, is binding for new projects or the expansion of existing projects. The land-use element of the municipal master plan shall indicate the considerations and restrictions that affect the use of land. Zones requiring special consideration includes mineral resources (Planning and Building Act, section 11-8c).

The land-use element of the municipal master plan shall to the necessary extent show the land-use objectives, such as areas for raw material extraction (Planning and Building Act, section 11-7).

The most detailed part of the planning system are the zoning plans (Planning and Building Act, section 12). The zoning plan is a land-use plan map with appurtenant provisions specifying use, conservation and design of land and physical surroundings. A zoning plan is required for the implementation of major building and construction projects and other projects which may have substantial effects on the environment and society. Detailed zoning plans are used to follow up the land-use element of the municipal master plan and, in the event, any requirements established in an adopted area zoning plan. Detailed zoning plans may supplement or alter an adopted zoning plan.

Safeguarding and land use plans for mineral resources

Minerals are safeguarded through the local land use plans and the possibility of objections from the Directorate of Mining.

To have mineral extraction in an area, it must be regulated for such, usually in the local area plan. Otherwise the regulation plan area must be changed (according to the Planning and Building Act). When applying for operating licences, current regulations must be presented and ideally the applicant should present an approved zoning plan for the area.

In general, there are no current sectoral plans for mineral resources. There was a national strategy for mineral resources (2013), but current government does not follow it. Then there are some regional mineral strategies (see WP2 survey); some strategies cover all minerals, other just building materials.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Permitting for mineral resources and Environmental Impact Assessment

For exploration for private owned minerals, an agreement with the land owner is required.
For exploration for state-owned minerals, applications to Directorate of mining and duty to give notice both to land owners, the municipalities and county municipality/governor. Special rules apply to exploration in Finnmark. In Finnmark, an exploring party shall in addition give written notice to the Sami Parliament and the relevant area board and district board for reindeer management and whenever practically possible, the siidas (local Sami communities). The notice shall contain a plan for the work to be carried out and for access to and within the exploration area, and an account of any damage that may be caused and the measures that are to be implemented to prevent such damage.

For pilot extraction requires special permits from the Directorate of Mining as well as agreements with the landowner for all mineral types. Special regulations apply for Finnmark, particularly for the State-owned minerals.

General extraction requires agreement with landowner for private owned minerals. Applications for extraction permits for state owned minerals are governed by the Directorate of Mining. Special regulations apply for Finnmark, particularly for the State-owned minerals.
Operations on mineral deposits shall be carried out in accordance with good mining practice. Extraction of more than 500 m3 of matter requires at notification to the Directorate of Mining, while extraction of mineral deposits totalling more than 10,000 m3 of matter requires an operating license from the Directorate of Mining. Any extraction of natural stone requires an operating license. An operating license may only be granted to a party that holds an extraction permit. Special regulations apply correspondingly to the processing of applications for operating licenses in Finnmark.

There are special regulations concerning applications on exploration and extraction of state-owned minerals, shape and size of exploration/extraction area, reporting requirements at end of exploration/extraction, clean-up and safety measures (any mineral type), qualification requirements regarding the working of mineral deposits and mining engineer in charge, fees and charges, and maps of underground and opencast mining facilities.
Mineral deposits of public interest are defined, and their significance is classified (National/International, Regional, Local or not assessed) by the Geological Survey of Norway. This data is a part of national data sets which are made available for land use planners.
There are three levels of land use planning: National, regional and local. Responsibility for planning pursuant to this Act lies with municipal councils, regional planning authorities and the King (i.e. the constitutional monarch and the Council of State). Different levels of responsibility and tasks are described in the national the Planning and Building Act, sections 3-3 to 3-7. In general, the most detailed land use planning happens at local level (municipalities), but sometimes regional level (counties) may take over all or part of the functions of the municipal planning administration and regional planning authorities relating to the organisation of planning work and preparation of planning proposals.
In addition, there are plan strategies for all levels being revised minimum every 4th year. On national level, there is a policy called “Nasjonale forventninger” (national expectations). Regional and local levels have plan strategies. The regional and local planning authorities prepare regional/local planning strategies in cooperation with municipalities/counties, central government bodies, organisations and institutions that are affected by the planning work. Affected central government and regional bodies may make objections to proposals regarding the land-use element of the municipal master plan and the zoning plan in issues that are of national or significant regional importance (section 5).
In the case of all regional and municipal plans, and zoning plans that may have significant impacts on the environment and society, a planning programme shall be drawn up, as part of notification of the start of planning, to serve as a basis for the planning work (section 4). Societal safety, risk and vulnerability assessments are a part of the plan programme. The Directorate of Mining may make objections when the plans consider areas of quantifiable resources, classified as national/international or regionally important.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

The land-use element of the municipal master plan shall determine future use of land in the area and, when adopted by the municipal council, is binding for new projects or the expansion of existing projects. The land-use element of the municipal master plan shall indicate the considerations and restrictions that affect the use of land. Zones requiring special consideration includes mineral resources (Planning and Building Act, section 11-8c).

The land-use element of the municipal master plan shall to the necessary extent show the land-use objectives, such as areas for raw material extraction (Planning and Building Act, section 11-7).
The most detailed part of the planning system are the zoning plans (Planning and Building Act, section 12). The zoning plan is a land-use plan map with appurtenant provisions specifying use, conservation and design of land and physical surroundings. A zoning plan is required for the implementation of major building and construction projects and other projects which may have substantial effects on the environment and society. Detailed zoning plans are used to follow up the land-use element of the municipal master plan and, in the event, any requirements established in an adopted area zoning plan. Detailed zoning plans may supplement or alter an adopted zoning plan.
Concerning EIA, for exploration of state-owned minerals in Finnmark, a notice containing a plan for the work to be carried out and for access to and within the exploration area, and an account of any damage that may be caused and the measures that are to be implemented to prevent such damage. This is not required at this stage in other parts of Norway.
An Environmental Impact Assessment is required for any activity that may cause pollution and is regulated by the Pollution Control Act and related regulations. It is mandatory when applying for operating licence and revising the operating and clean-up plans of a mine, but should be considered even when an area is regulated for extraction.
Local municipalities when regulating use of areas and zoning plans, regional authorities overseeing area plans, Ministry of Climate and Environment as the final level.
Duty to notice landowners and users of land, public inquiries and interactions on local and regional area plans and possibilities to object at several stages (from exploration to final operating licences). Area plans and EIAs are public.

Table 5- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Binding. The Planning and Building Act (section 11-6) states clearly that future land use plans are binding for new uses or when existing uses want to expand. There are national, regional and local land use plans.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Major plans are review and revised every 4th year (every election period). Local plans are in addition reviewed yearly. National expectations: Every 4th year. National land use plans when planning major infrastructure or protection areas. National direction of plans might be changed 6 weeks ahead of change. As the plans are reviewed after every election period, the obvious reason for renewal is changing political prioritations.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Yes. This is done through municipality land use plans and zoning plans. If it is a very small quarry (total <10 000 m³), concession is not needed and there is no conflicting use of the land, and the operator may apply for dispensation/exemption from local municipalities (maybe <1 year). However, if it is a larger quarry or mine, making a zoning plan or waiting for the revision of the municipal land use plan according to the process of the Planning and Building Act, including Impact Assessments, public inquires etc. This will take at least 1 year, maybe as much as 4 years or more if there are many conflicting interests. Land use must be designated for mining/quarrying before applications to the Directorate of Mining for extraction permits.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed, in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	Optional. Local municipalities have the final decision on land use in their area. The most recent National Expectations (2017) states that mineral resources must be taken in account, and an addition of PBL 11-8c also includes consideration zones for mineral resources. Well-documented and classified deposits (i.e. of regional, national or international significance) are safeguarded, and the Directorate of Mining may make objections when the plans consider areas of quantifiable resources, classified as national/international or regionally important. There are no safeguarding of undocumented mineral resources or less documented and unclassified deposits, prospects and occurrences.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	No. Areas that are designated for extracting mineral resources are not equal to the safeguarding areas. The latter is based on geological assessment by the Geological Survey, while the areas that are designated for extraction are defined in zoning plans and local land use plans. Their extensions are usually smaller than the geologically assessed areas being the source of the mineral safeguarding areas.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	Ideally, the government strive for coexistence between various interests and that this is a resolved problem early in the process, but this requires that all affected parties are in dialogue and agrees. If this is not the case (such as one party refusing to be in dialogue or cooperate), level of conflict is prone to rise. In general, local agreements between different users of the same areas will make land use conflicts smaller in all stages.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	Yes and no. Quantifiable resources classified as national or regionally important, release a mandate to the Directorate of Mining to intervene in the land use planning process and thus may preclude other land use. Un-quantifiable and unclassified resources do not preclude other land use. On the opposite, the Mining Act §47 describe which areas that preclude land use for minerals and exploration, such as military areas, home fields and areas less than 100 m from housing and cabins, industrial areas and mines in operation. Areas of protected nature may also preclude exploration activities, depending on the regulations for each area.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Safeguarding of mineral resources are mentioned in National expectations (policy document) and Planning and Building Act §8-11c (consideration zones for mineral resources). When there are conflicting interests, classification is important such as national vs regional significance. For active mines, having zoning plans and local land use plans that safeguard their future resource are crucial.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? If yes at which stage of prospecting/ extraction and through which means. If not, explain.	Exploration permits: In general, no. Exploitation permits: Yes, in zoning plans and concession areas.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]?	Information on mineral resources registered in the national mineral databases is publicly available and partially INSPIRE compliant. Data may be downloaded from ngu.no or through portals such as geonorge.no. Land use data are in general not INSPIRE compliant. Geonorge.no is the main map catalogue for official Norwegian geodata.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	Land use planners usually have higher education in various fields of expertise (i.e. land use management, nature management, geography, etc.). Land use planners with competence in geology are rare. Availability of inter-disciplinary teams, tech support etc. are highly dependent on the available resources in the local municipality or county. Smaller municipalities have less resources than larger, thus cross-municipality cooperation for land use planning are common.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	Apart from the exchange of the official Norwegian geodata through Geonorge.no, there are no specific mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	According to Planning and Building Act, land use planners must have adequate expertise. All data in the national mineral databases are available and adapted for general GIS tools used by land use planners.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	No. There are several independent governmental bodies working in parallel with the Directorate of Mining on different issues.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered?	3.15 The designation of areas for minerals in land use planning process does not consider the value of the minerals, but recent classification of deposits (by NGU) do consider the value of the minerals. Classification is based on one or more of these criteria: in situ-value, life time of mine, annual production, quality, location, export and national supply. 3.16 Yes. Knowledge reflects whether an area is a well-documented and quantified deposit, a prospect (unquantified) or an occurrence (level of knowledge may vary from a lot to almost nothing). 3.17 Where international reporting codes (JORC, CRIRSCO etc) are publicly available, this has been taken into consideration when assessing in situ-value and life time of mine during the classification process by NGU.
	3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)*	
	3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral	Yes, but only where the mineral deposit is quantified to be big enough to be of regional, national or international significance. Unquantified resources are not considered. Other competing land use may be weighted similarly. Nature protection and conservation are very strong in Norway.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision-making process and which kind of data and information are often needed?*	Compared to other local policy priorities and a general public perception/ignorance, mining is not "popular" compared to nature protection etc.
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Qualitative and quantitative. The Geological Survey combine all available data; summary of geological and geophysical data and analyses and expertise.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes. Always.
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	Yes and no. It is considered during the classification of the mineral resource deposits, but not in the land use planning and permitting decisions.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims.	3.22 Both quantified mineral deposits and other land use (such as nature protection) are classified by significance (local, regional, national/international) and thus makes it possible for one to be weighed against the other. Quantifiable resources, classified as national or regionally important, release a mandate to the Directorate of Mining to intervene in the land use planning process.
	3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? Please describe.	3.23 Yes. Mineral occurrence type is harmonized with INSPIRE: Occurrence, prospect and deposit. Significance of deposits is classified according to national legislation as local, regional, national/international.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	Yes, this is included in the classification, but unquantified prospects and occurrences are not included.
	3.25 Are there and which are incentives to implement minerals into land use planning?	Land use planning must take mineral resources into consideration, according to the Planning and Building Act section 11-8 c.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	The prospective/hypothetical resources are generally not safeguarded, although the Geological Survey of Norway do provide data and information on this as well.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	AMR: Yes. If local municipalities will not agree, the conflict is raised to county level and then national level (ministeries). Eventually, the King will decide if no agreement have been made.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Politics and major land use plans in general. Thorough work on impact assessment are important when designing the land use plans and zoning plans. Politics may change drastically every 4th year due to elections and what have been decided earlier may be changed after the election if majoring opinion opposite previous decisions. Other than that, lobbying and people opinion (although not always informed) may be influential.
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	On local level, stakeholders may suggest changes in land use plans and zoning plans as well as object to suggested plans. There are similar possibilities at regional and national level, although objections must be relevant to regional and national policies and interests.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	Sometimes changes do happen, other times it does not. Public participation is mostly influential.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Nature protection is very strong in Norway.

Table 6: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	No	No	Yes	Yes
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used?	No The deposit is not assessed by those who give the permits. Geological Survey of Norway asses mineral	No	No, not in this case, but mining companies do use international reporting codes.	No

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	resource deposits of public importance.			
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land?	Yes It is described in the Planning and Building Act and relevant regulations.	n.a.	Yes	Yes, areas are redesignated when rehabilitation is completed.
4.4 How is transparency in the process implemented? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Public documents and inquiries through the process.	n.a.	Public documents and inquiries prior exploitation.	Plans for rehabilitation must be presented during application for exploitation.
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	No. The case covers all kinds of land uses. Mineral projects are present in all stages, from not being explored, through exploration phase, permitting for exploitation, active mining and post mining.			
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	Public geological data are partly INSPIRE-compliant and available from NGU. Land use data are generally not INSPIRE compatible. All public data offered by Norwegian governmental institutions are available at geonorge.no. Municipalities manage their own data, and most are available online (but in Norwegian/Sami only).			
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	Yes. Unless the areas are developed, land use are usually designated to agriculture, nature and outdoor space and reindeer herding.		Before permits to exploits are given, land use must be designated to mining or quarrying.	Post-rehabilitation, it will most likely go back to the area class agriculture, nature and outdoor space and reindeer herding.
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	n.a.	n.a.	n.a.	n.a.
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	No, the national legislative and regulative framework has not been changed, but there is ongoing work on updating the national standards on geospatial data (SOSI) to make the mineral resource part more harmonized with INSPIRE. Although, if Norwegian government want increased activity of prospecting and mining in the future, the framework need to change.			
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	n.a.	n.a.	n.a.	n.a.
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	n.a.	n.a.	n.a.	n.a.

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Yes. Land use plans and processes are public, and stakeholders and other are invited to give their opinions.	n.a.	Yes. Same as pre-exploration/planning phase.	
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? How were the results of the participation process considered in the decision making?	General land use planning	n.a.	General land use planning, political decisions on mining.	
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	n.a.	n.a.	n.a.	n.a.
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	Benefits: Better knowledge base for decision makers. Development of improved national framework for mineral resources in land use planning. Costs: Money	n.a.	n.a.	n.a.
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? If yes, please explain Are these perceived as adequate? If not, please explain why	n.a.	Yes. If adequate depends on point of view. A searching party shall, without regard to guilt, pay compensation for damage caused by works to land, buildings or facilities. This apply correspondingly to inconvenience caused to the landowner or the user of the land. (Minerals act section 52).	Yes. If adequate depends on point of view. Fees will be payed to land owner during mining operations and as compensation for damage caused by works to land, buildings or facilities. Other users may get compensation if the operations causes loss of income during project period. (Minerals act section 52, 56-58).	Companies are obliged to lay down money for rehabilitation post mining prior getting permission to exploit (Minerals act section 51).
5.7 Were any mandatory and/or voluntary compensatory measures taken? If yes, please explain. Were these perceived as adequate by the company and by those compensated?	n.a.	n.a.	n.a.	n.a.
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the	Both mineral resource deposits and protection areas are valued by significance (national,			

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

decision-making process and which kind of data and information are often needed	regional, local) which are compared in the land use planning process. If two different have the same significance, nature protection is prone to 'win'.			
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	Mining/mineral issues is not 'popular' among other local policies compared to nature protection cultural heritage, and rights of indigenous people, despite of importance of raw materials in daily life and economic growth for society and new job opportunities. Because the municipal political power has a 4-year mandate and does not want to contradict the popular will, there is a great aversion to include spaces for the exploitation of geological resources in municipal LUP.	n.a.	In general, people do not accept mining activities because are not aware about the dependency that the modern societies have on the mineral resources. Adding to this lack of awareness, there is the NIMBY effect. Awareness of impotence of mining/mineral issues should be lifted in society by public institutions.	

Table 6: Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	Nordland county is very proactive and one of the leading counties in Norway concerning mineral resources and mineral resource politics.
6.2 Problems encountered	Updating national framework for mineral resources. Current legislation and processes are perceived as rejecting to exploration and mining companies. National standards on geospatial data must be updated. The Geological Survey of Norway do work on an update for mineral resources, but this is a process needing years to be fulfilled. On a more local level, developing updated IT solutions have taken a lot more time than the geological work itself, thus postponing when land use planners could utilise the newly updated data.
6.3 framework conditions/contextual factors	
6.4 Impacts achieved	The work for Nordland county have served as a pilot project to the rest of the country. A new INSPIRE compatible framework has been developed and geological assessment procedures are on-going and data on mineral resources have been and are being made more available for land use planners. In time, national standards on geospatial data for mineral resources may be changed.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 5 Case Description Ireland – Mineral planning for Lead and Zinc

Lead and Zinc Mining in Ireland

Authors: Barnes Jerry[10], Berne Sybil [10] , Stanley Gerry [9],

[9]GSI Department of Communications, Climate Action and Environment (Task leader in WP6- Case synthesis and preparation of Good Practice Guidance documents)
[10]MDB MacCabe Durney Barnes Ltd, Ireland
Published: August 2018

Presentation of the Case Study- Case Study Identification

Mineral Planning for Lead and Zinc in Ireland	
Ireland	
Geological Survey of Ireland (GSI) and MacCabe Durney Barnes (MDB)	
Type of mineral resources?	Lead and Zinc (Pb and Zn) Neither element is on the current EU CRM list
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Land use planning procedures encompassing all stages of the mining value chain.
Is the case about open-pit or underground mining, both or not applicable?	Underground mining.
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	The case addresses the exploration, exploitation and reclamation of lead and zinc mining in Ireland using the examples from three mines: Galmoy: closed but currently in the planning system for potential reopening Tara mine: currently active Lisheen: closed
Extents of the project (km2) or not applicable?	n/a but generally exploration area is c.35km2
Company or companies involved	Galmoy: • Closed mine: Galmoy Mine Ltd • Planning application: Shanoon Resources Ltd Tara Mine: Boliden Tara Mines Ltd. Lisheen: Lisheen Mines Ltd.
Are the mineral resources private and/or public owned?	Private companies holding State mining facilities. The minerals are a mix of private and public ownership.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Case study description

The case regards the life-cycle of three lead and zinc mines in Ireland, at different stages, from exploration to rehabilitation.

Types of Consents Required for Mineral Exploration and Development

A prospecting license is required for exploration. Only license holders can be considered for the development of mining facilities within the license area. The development of lead/zinc mines in Ireland is subject to three separate procedures:

a) A prospecting licence/lease from the Minister for Communication, Climate Action and Environment (CCAE) is required to undertake mineral exploration.

b) Planning permission in accordance with the Planning and Development Act, 2000 as amended, from the planning authority and/or An Bord Pleanála for the development of the surface and sub-surface mining infrastructure.

c) An Integrated Pollution Prevention Control (IPPC) licence is required from the Environmental Protection Agency.

The Development Process

A planning application is made to the local planning authority and permission is either granted, partly granted both with conditions and reasons, or refused with reasons. If refused, the developer may take on board the reasons for refusal and amend the development proposal and resubmit the proposal to the Local Authority. Following the decision of the planning authority, the decision may be appealed to An Bord Pleanála, the independent national planning board. Appeals against the decision or conditions attached by the Planning Authority may be made by the developer or any person or body. Appeals were made in all three cases, with first and third-party appeals. The Board may decide to hold an oral hearing where all interested parties may present further evidence supporting or opposing the determination. The application is assessed by a planning inspector who makes recommendations on whether to grant (with conditions and reasons) or refuse (with reasons) planning permission. The extension to Tara mine in 2016-2017 was the subject of an oral hearing.

Timeframe

After lodging a planning application, the Planning Authority must issue a notification of a decision or seek additional informational within 8 weeks of the date received. Anyone wishing to make an observation must do so within 5 weeks of date application received. If additional information is sought, a decision will be issued within 4 weeks of receipt of that information (in most circumstances). One must provide further information within 6 months of request unless the applicant seeks and is granted additional time. If the additional information is deemed significant, the Planning Authority may require the development be re-advertised to the public. An appeal must be lodged within 28 days of date of notification. If no appeal is made, a final decision be issued one month and 3 days after the appeal period expires. Third parties generally may only appeal if they had made an observation (there are exceptional circumstances) and first parties may appeal a condition. Once an appeal has been made, there is a statutory objective to process appeals within 18 weeks, but this is not mandatory. The Board may also seek revisions from the applicant during the appeal process. In summary, the planning process for a mine would take around 15 months. However, it may either be shorter or longer.

Evolution over Time: Extension of Mines

Planning permission for a period of 10 to 12 years was granted to the mines to cover the period of exploitation. However, during the exploitation period, a continuous programme of exploration was undertaken and further resources were identified. The exploration permitting process is a separate process which lies with the Minister for Communication, Climate Action and Environment (CCAE), who issues mineral exploration licenses.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Planning permission was then sought to extend the area and period of exploitation, which was usually granted subject to conditions. Development and extension of the mines and other associated development, such as tailings facilities were the subject of EIA and AA. However, two mines, Lisheen and Galmoy went through the planning process prior to the implementation of the Directives. However, some of their extensions and infrastructure were permitted according to those regimes as these were developed after the directives were transposed. Lisheen was active for 17 years, Galmoy was active for 15 years and Tara Mines has been active since 1977.

Rehabilitation of the mine site was considered at application stage and therefore was subjected to the planning process. Both the Galmoy and Lisheen mines have been successfully rehabilitated, with new uses planned or considered for the sites. Planning permission was sought in both cases to change the use of the former mine sites once the rehabilitation process was completed. Prior to seeking to reopen the mine in 2018, planning permission to use the Galmoy site as a bioenergy facility was granted in 2012. The Lisheen mine site has been rehabilitated and put on the market. Although, not determined by the planning system, there are discussions considering the potential development of a bio-refinery on the site.

Public participation

Public consultation forms part of the prospecting licence procedure whereby the Minister must publish in a newspaper circulating in the vicinity his/her intention to renew/grant such licenses. Any person or body has 21 days to submit their objection.

In accordance with the Planning and Development Act 2000, as amended, any person or body may make a submission on a planning application once it has been submitted to a planning authority. To that effect, the developer must erect site notices and place an ad in a newspaper circulating in the vicinity. The developer may also opt to undertake separate public consultation and use other means of notification, but these are not mandatory. Once a planning application is lodged, any other person or body (Third Parties) may comment for or against the development on the application during a five-week period from the date of submission. In all cases, submissions were received from private citizens, prescribed bodies and private companies. Following the decision of the Planning Authority, any third party may make an appeal to An Bord Pleanála against the decision or any conditions attached to the grant of planning permission. The developer may decide to appeal the conditions of the grant or if the determination is against the development. An Bord Pleanála may decide to hold an oral hearing providing all parties with an opportunity to present their case and evidence.

Public Engagement in practice

A review of all cases has shown that all developments, and subsequent extensions, were subject to third party submissions. Many of these generally regarded the preservation of residential amenities and potential environmental impacts.

Tara mine has been active in Navan since 1977 and is the town's biggest employer, with c.700 staff. In recent years, there has been some opposition to the development of a new tailing facility due to local concerns for possible environmental impacts, impacts on residential amenities and risk to human health. However, the local population appears generally supportive of the mining operations. During the planning process for the extension of the mine in 2016, Boliden engaged with the local population and organised public meetings and met with local politicians. A small number of residents opposed the development of the facilities. A review of submissions shows that in general people made submissions asking to consider the impacts and risks as perceived to be associated with the tailing facilities and the number of Heavy Goods Vehicles (HGV) which may result from the operation of the mine. In other words, concerns generally regards the environmental impacts which may be generated by the tailing facilities and the risks of water pollution. The number of HGVs is also an issue for residential amenities as these can result in dust and noise. Similar concerns were raised for the other two mines. The newly proposed Galmoy mine resulted in two submissions, neither of which came from individual citizens. One of them came from an environmental NGO and the second one from another business.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

The Role of AA and EIA in the Consenting Process

Appropriate assessment (AA) is undertaken by the Minister for CCAE when determining whether a prospecting license should be granted or renewed. AA also forms part of the planning process if an area subject to a natural designation is located in the vicinity.
Planning applications for the development of mines must be accompanied by an Environmental Impact Assessment Report (EIAR) and undergo environmental impact assessment by the Local Authority. An AA may also be required if the development covers part of a Nature 2000 site. The former forms also part of the IPC process, under the jurisdiction of the EPA.

Level of expertise regarding geology and mining involved throughout the process

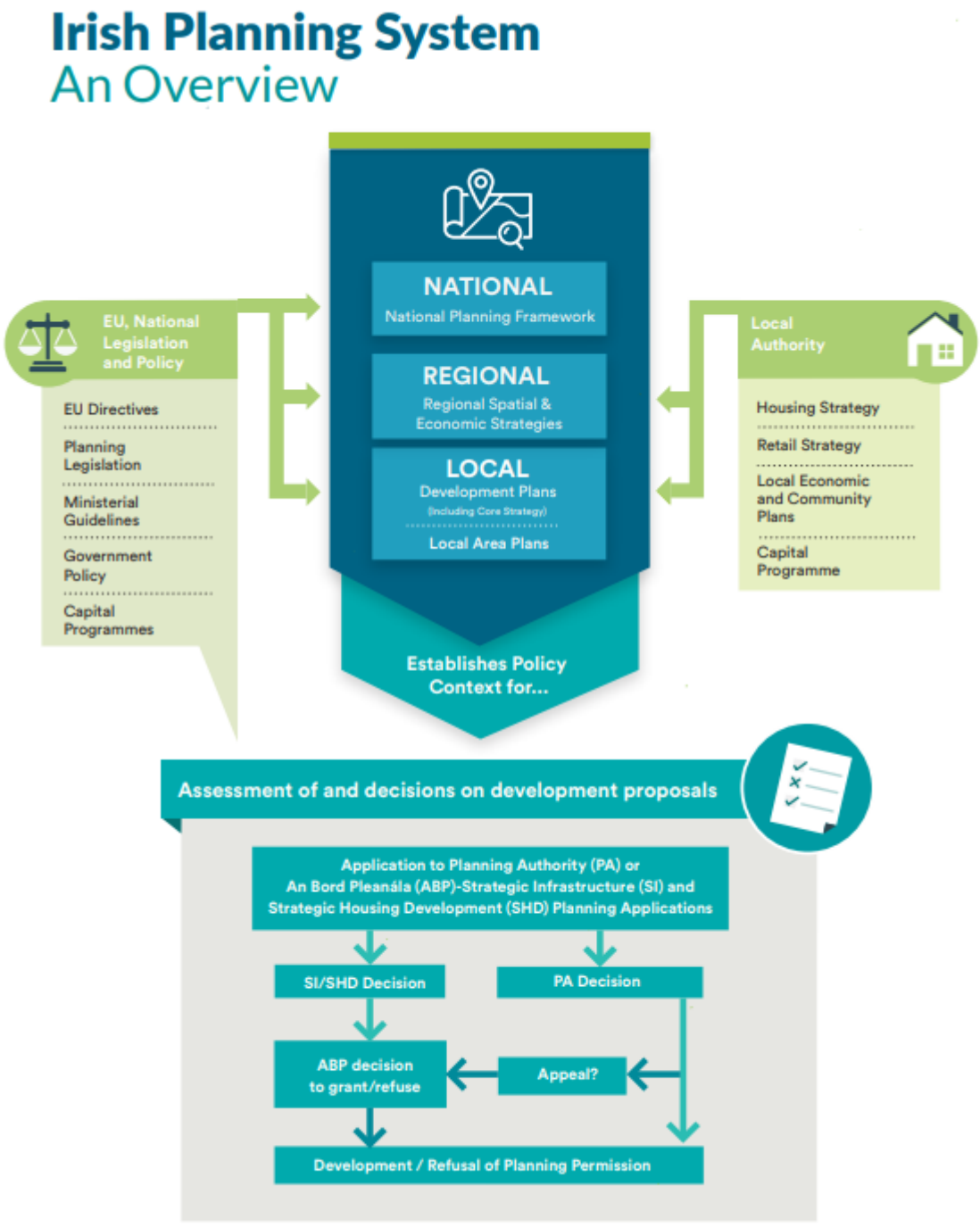
Much of the mining and geology expertise lies within the DCCAE, the Geological Survey of Ireland and the Environmental Protection Agency. The former delivers the mining exploration licenses and the mining lease/ licence, whereas the latter issues an IPC licence. The planning authority and An Bord Pleanála may require specific expertise on certain EIA topics, such as hydrogeology or water when undertaking EIA and AA. If such expertise is required, they may use external experts on an ad-hoc basis.

Description of the Planning System

The planning system in Ireland is a **top-down** three-tiered system (see diagram below), where at the top, sits the National Planning Framework (NPF) which provides the vision for the spatial development of Ireland, up to 2040 in its current form. This high-level policy was adopted in 2018 and replaces the National Spatial Strategy. The plan is strategic in nature and contains one policy objective which addresses the extractive industries, as follows:
"National Policy Objective 23: Facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy and extractive industries, the bio-economy and diversification into alternative on-farm and off-farm activities, while at the same time noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism."

The NPF is supported at regional level by Regional Planning Guidelines (RPGs) which are soon to be replaced by Regional Spatial and Economic Strategies (RSES). Again, these RPGs contain policies supportive of the extractive industries. Finally, the lower tier of the hierarchy, is split into two: the County Development Plan and the Local Area Plan. These plans set out the spatial policies, land use zoning and objectives at county level or lower.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679



Source: National Planning Framework 2040

A review of the County Development Plans where lead and zinc mines have been developed shows that although all plans contain policies addressing the safeguarding of mineral extraction interests, none of them include a spatial land use designation or zoning designation to that effect. Development Plans set out the overall strategy for the 'proper planning and sustainable development' of an area and indicate the development objectives. Their contents must include provisions for zoning, infrastructure, (including

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

transport, energy and communications), environment (including but not limited to archaeological heritage; natural heritage, protected areas, special areas of conservation, special protection areas, natural heritage areas), social community and cultural considerations, landscape character preservation, amenities, etc. All three tiers are screened for both the appropriate assessment (AA) and strategic environmental assessment (SEA) processes. A full SEA and/or AA may be carried out if necessary.

Mining and quarrying form part of the generic term 'extractive industries' in terms of land use. These policies usually form part of the economic development strategy and are considered as a part of rural enterprise and industry. Other policies affecting mineral extraction (and development in general) are the prevention of environmental impacts and impacts on the Natura 2000 sites.

Once a mining company intends to develop a mine, and providing it has appropriate rights and licenses issued by the Minister for CCAE to do so, it must apply for planning permission to the local planning authority. An Environmental Impact Statement is submitted as part of the application to be assessed by the planning authority. A Natura Impact Statement may be prepared if necessary. The authority then:

- Assesses the principle of development against the policies of the Development Plan; and
- The environmental impacts.
- Grants with or without conditions the permission or refuses it.

An appeal may be made to An Bord Pleanála by a third party against the decision to grant permission or by the developer against the decision to refuse permission or against a condition attached to the grant of permission. An Bord Pleanála is the national appeal board. is responsible for the determination of appeals and certain other matters under the Planning and Development Act 2000, as amended, and associated legislation, and determination of applications for strategic infrastructure development including major road and railway cases. It is also responsible for dealing with proposals for the compulsory acquisition of land by local authorities and others under various enactments. The Board also has functions to determine appeals under the Local Government (Water Pollution) Acts and the Building Control Acts. An Bord Pleanála is the Competent Authority for Project of Common Interest under European Regulation No. 347/2013 which deals with trans-European energy infrastructure.

Measures to protect or safeguard mineral resources in land use planning

Irish land use plans do not include further measures or procedures for the protection or safeguarding of mineral resources. They generally seek to ensure that the extraction activities do not generate environmental impacts.

Land use sectoral plans for mineral resources

Currently, there is no sectoral and /or land use plans looking specifically at mineral licenses. Mineral extraction is legislated and forms part of development plans and other higher levels policies, such as the RPGs and the NPF.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Types of permitting

It has been estimated that about 60% of the minerals in Ireland are State owned. However, the exclusive right to work minerals is vested in the Minister under the Minerals Development Act 1979, with the exception of a small number of mines, which are no longer active. There are several types of permits based on the ownership of the mineral resources. These are:

- Prospecting licence to undertake mineral exploration, which gives the exclusive rights to explore for certain specified minerals.
- State Mining Lease/ Licence which can be sought by prospecting licence holders for the development of a mineral deposit, whether the minerals are State- or privately-owned.
- State Mining Leases are required to develop State-owned minerals under the 1940 Minerals Development Act while State Mining Licences are required to develop privately owned minerals under the 1979 Mineral Act.Together they are referred as State Mining Facilities.

Reporting Requirements for Prospecting Licences

Licence holders are required to submit exploration reports bi-annuallyfor prospecting licenses.

Civil Society Involvement

Upon deciding to grant or renew a **Prospecting Licence**, the Minister must publish a notice in a local newspaper inviting comments from any interested person or body for a period of 21 days.
With regard to the development of a mineral deposit, the applicant must place a notice in a newspaper and several notices around the site advising that a planning application has been lodged with the planning authority. The notices must also state whether an Environmental Impact Statement and a Natura Impact Statement have been submitted. Any person or body has then a period of five weeks to make a submission on the application.

Public submissions are also allowed on **IPC licence** applications. To that effect, the mining company must: place notices in a local newspaper and on site as well as notify the planning authority. Any person or body may then comment. Following a period of 8-weeks, the EPA publishes a notice which indicates how it intends to determine the application and notify those who made a submission. A period of 28 days then follows in which any person or body, including the applicant, to submit an objection. An oral hearing may form part of the IPC process, if requested by the objector.

The involvement of civil society in the determination of land use application was described in table 1. In **forward and land use planning**, civil society is also given opportunity to comment on the plans being put forward, including SEA and AA. All tiers of plan-making follow the same process, albeit over different periods of time and intertwine successive plan-making periods with public consultation periods. All three tiers of plan-making result in plans which are adopted by elected representatives. The Cabinet adopts the NPF, Local Councillors elected to the Regional Assemblies adopt the RPGs and Local Councillors adopt the Development Plans and Local Area Plans.

The SEA and AA processes are accompanied with consultation with the statutory consultees. In the case of SEA, the environmental authorities are consulted at scoping stage, these are the Environmental Protection Agency (EPA), the Minister for Housing, Planning and Local Government (HPLG), the Minister for CCAE, the Minister for Agriculture, Food and the Marine, the Minister for Culture, Heritage and Gaeltacht and any adjoining Planning Authority. In the case of AA, the National Park and Wildlife Service is to be consulted with.
During the assessment of planning applications, particularly where those include an Environmental Impact Assessment Report and/or and Natura Impact Statement, the Planning Authority may refer the application to prescribed bodies. These are:

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

- The Arts Council
- Fáilte Ireland (the national tourism board)
- An Taisce (the national trust for Ireland)
- Waterways Ireland
- Adjoining planning authorities
- Regional Fisheries Board
- Irish Aviation Authority
- Córas Iompair Éireann, the national public transport provider
- Transport Infrastructure Ireland
- EPA
- Minister for Culture, Heritage and the Gaeltacht
- Údarás na Gaeltacht, the regional state agency responsible for the economic, social and cultural development of Irish speaking regions.
- Minister for Rural and Community Development
- Minister for Justice, Equality and Law Reform
- Minister for Agriculture, Food and the Marine
- The Heritage Council
- Health Service Executive
- Minister for CCAE
- Commission for Energy Regulations
- Irish Water

Conflicting Uses

A review of the three mine cases has shown that the concerns of the Planning Authority regarded mainly conflicts with:

- Water
- Additional traffic volumes (on existing road network)
- Visual impacts and landscape (the surrounding area)
- Noise (on sensitive receptors such as residential units or fauna)
- Flora and Fauna
- Dust

Other parties considered that there may be issues with archaeology, flooding, contamination and pollution (in relation to human and animal health). All possible conflicts which were identified by either the Planning Authority or An Bord Pleanála were local in nature. As part of its assessment, the Planning Authority utilised its own resources and involved several divisions, in particular, the roads and drainage departments and the environment health department. Some Planning Authorities also sought advice from more experienced Planning Authorities and as well as external consultants for specific topics such as water.
Other authorities which specifically deal with other matters such as water infrastructure, railway, environmental protection, Natura 2000 sites, etc. form part of the list of prescribed bodies which are notified as part of the Environmental Impact Assessment procedure in accordance with article 121 of the Planning and Development Regulations 2001 as amended. These bodies may make recommendations and require that further assessment(s) be undertaken.

Conflicts are usually resolved through the use of mitigation measures or planning conditions which sometimes involves the undertaking of monitoring programs. Should a conflict be deemed to unresolvable, then the Planning Authority or the Board can decide to refuse planning permission. For instance, the most recently decided case is that of Boliden Tara Mines in County Meath where the mining company applied for permission to extend their tailings management facility and an integrated constructed wetland. The facility was permitted but the wetland refused as the Board was not convinced that it would not impact on a designated European site.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	**1. Policy Integration and Formulation** Integration of mineral interest in spatial planning is relatively light. However given the level of mining activity currently ongoing in Ireland, the degree of integration appears sufficient as it does not prevent mining or other activities from taking place. The framework is a policy-lead statement which currently suits the needs.
	2. Central Government Support to Local Authorities Due to the complexity of mining projects and of impacts which may be associated with them, the Irish central government can provide and has provided support to local authorities in dealing with applications for mines. A number of authorities have availed of this support during the assessment of mining projects.
	3. Independent Role of the Environmental Protection Agency The Environmental Protection Agency is responsible for the assessment of the Integrated Pollution Prevention License. Its works independently in its assessment of environmental impacts regardless of whether planning permission has been granted for a mine.
	4. Permitting and Licensing 4.1 Types of Permits: Three different permits are required to develop a mine in Ireland: the Mining License, the planning permission and the Integrated Pollution Prevention Control License. As a result, it allows for proper considerations of all aspects and possible impacts of the mining activities. 4.2 Closure, Restoration and Aftercare Management Plan (CRAMP): Those plans are compulsory as part of the IPC licence process and updated annually. They allow for appropriate and timely considerations of the options for the mine site upon closure of the mine. As part of the process, mining Companies must pay bonds to the State which can only be used in case of poor management towards rehabilitation. CRAMP are very important documents which are reviewed every year and with the interested parties, including the planning authorities. They are a blueprint for the closure of a mine site and include solutions for affected communities and redundant employees. They clearly set out what will be done by the company.
	5. Transparency with the public: 5.1 Public Engagement: Mining companies have an open-door policy with local communities, where information which is not commercially sensitive is shared with the public. To communicate with communities, they use a variety of means, including local radio and papers to give updates to local communities. Transparency is a key ingredient to a successful mining company in Ireland. By communicating with local groups, mining operators promote transparency and trust ('This is what we are doing'). It also helps in the planning process, particularly when mines seek planning permission to extend their facilities. 5.2 Statutory Public Consultation in Planning: The planning system also allows for local concerns to be heard and addressed during the planning process. There are several opportunities from forward planning to development management during which local communities can get involved and formulate their concerns against development proposals. 5.3 Corporate Social Responsibility: Irish mining companies are very involved with their CSR and as a result become very involved with the daily activities of local communities. To that effects, they provide funding towards social and community infrastructure (some of them imposed by the Planning Authorities) and sponsor events and local groups and club activities. It is important for mining companies to be seen to be involved with local groups as it helps them integrate with communities and gain trust.
6.2 Problems encountered	**1. Policy Integration** Given the low level of policy integration, it cannot be ascertained that the existing framework would suffice, should there be more mining activities in Ireland.
	2. Fear of Environmental and Ecological Impacts and Irrational Fear of Mining A key issue which is clear when reviewing the cases and interviewing the various parties is the fear of ecological and environmental impacts associated with lead. Tailing facilities are particularly worrying infrastructure for local residents. In general, people do not necessarily oppose the principle of developing a mine. They tend to object to some of the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	facilities included in the mining complex, particularly tailing facilities. This is a problem which is difficult to overcome as it relates to people's attachment to a place.
	3. Lack of information sharing at exploration stage: Due to commercial sensitivity at exploration stage, there is limited information available. This might give rise to suspicions from local residents as to who is doing what and why. If a company fails to communicate early with the population, it might lead at a later stage to objections to the development of a mine should this be considered.
	4. Lack of One-Stop-Shop for Permitting As there is currently no one-stop-shop for permitting, it takes longer for mining companies to effectively secure all the required permissions before proceeding with mining. Currently, the process can be perceived as lengthy and costly.
	4. 'Resources Nationalism' and Distribution of Benefits Some person or organisations are more inclined to objecting to the development of mines as they believe that the resources should be developed and for the benefit of the Irish State and not a private party. Similarly, other people perceive a lack of distribution of benefits at local levels. Although this may not be agreed by all parties.
6.3 Framework conditions/contextual factors	**1. Environment and Ecological Impacts** Environmental and ecological impacts are the overarching considerations for planning authorities. If those cannot be prevented or mitigated, economic (mining) interests will be deemed secondary and permission will be refused or licences will not be granted / renewed.
	2. Ireland's position in the Survey of Mining Companies 2017 Ireland cames fourth in the Fraser Institute's 2017 Survey of Mining Companies. The survey rates the attractiveness of countries where mining is undertaken. It looks at a number of factors including but not limited to: • Administrative and environmental regulations certainty • Regulatory framework and legal system • Environmental and ecological designations • Infrastructure • Socioeconomic factors and access to social infrastructure • Political stability • Quality of geological database • Etc.
6.4 Impacts achieved	**1. Local Employment Opportunities** Given their location in predominantly rural areas, mines bring employment and economic opportunities for local rural communities. Along with the new infrastructure which might be developed for mining activities, they generally result in employment and training opportunities, as well as spin-off economic activities in the local area (equipment hire, transports, etc.). During the economic recession (c.2008-2013), rural Ireland particularly suffered economically. Although, the Irish economy has now recovered, the benefits of the upturn has not necessarily been felt by rural Ireland. Large infrastructure projects such as mines, can bring substantial opportunities when and where there is limited Foreign Direct Investments and general interest. Employment and economic opportunities are particularly important for local communities as they are the prime receivers of any impacts which may arise from the operation of the mine.
	2. Contributions to the Exchequer The development of a minerals resources results in contributions to the Exchequer in the form of taxes and royalties.
	3. Contributions to Local Groups Mining companies are generally supportive and contributing to local community life and can offer financial support to local community groups.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

ANNEX 1. Survey

Table 7- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	Answer
	3.1 Are land use plans legally binding or simply indicative?	Land use development plans are prepared in accordance with Part II of the Planning and Development Act 2000, as amended.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Every 6 years. Progress reports must be prepared not more than 2 years after the making of a development plan. The periodic reviews allow the Planning Authorities to ensure that the objectives set out in the plan are achieved.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Amendments and variations to land use zoning, policies and objectives can be made during the lifetime of the plan. The normal duration for the process is 14 weeks. The normal procedure for making an amendment is as follows: a) the planning authority publishes a notice of making a variation stating the reason(s) for making the variation and inviting submissions. b) put the amended plan on display. c) notify the Minister, An Bord Pleanála, where appropriate the prescribed bodies and any adjoining planning authorities. d) The Manager of the Planning Authority then prepares a report summarising and responding to any submissions or observations and submits it to the members of the authority for their consideration. e) The Members then decide whether to make the variation with or without condition or refuse it. Usually mining activities take place on unzoned lands, so no amendment / variation are required.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	Optional. The safeguarding of mineral interest is not a mandatory objective of the Development Plan. Proposed development is assessed against the Development Plan policies and other relevant environmental considerations. The planning authority makes the decision, which can be appealed to An Bord Pleanála, the national planning board, which then would make the decision.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	Not applicable in the reviewed cases
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	PA1. We try to integrate however such considerations are done on a case-by-case basis. If the infrastructure is already available, then there would be a preference for maximising the potential of the infrastructure, within reason. In general, we do our best to mix in mineral land uses with other land uses. However, we recognise that the policies in our County Development Plan need to be updated. The current ones are too loose.
		PA2. It does, even if it is limited in [NAME] mine. There is exploration going on the site of the mine at the moment to see if there are future activities possible. They are drilling horizontally to there is co-existence of activities between above and below ground. The mine goes under the motorway so yes there is coexistence. Agriculture is another use. We don't want to limit the possibilities. Also white zoning helps as it prevents that exclusions between different uses.
		PA3. It does. But not necessarily throughout the value chain. We have a policy in our county development plan which states that mineral development shall not impege on other uses but it has not been tested in real life cases. We were not aware that there were new resources in [NAME OF THE LOCAL MINE] until the planning application came in. We do not necessarily distinguish between stages.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain	PA1. Not necessarily. Rehabilitation in particular looks at new uses to be implemented once the mine has closed. In particular, former mine sites can

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Analytical Criteria	Answer	
	(e.g. a mining concession may preclude other uses, but an exploration permit area does not)	provide good habitats for biodiversity and allow to reconcile with environmental objectives.	
		PA2. Not in general. Once relevant zoning criteria are applied then it's ok. The key point is not to hinder mineral extraction while ensuring safety. It also depends how close to the surface the mining is taking place in.	
		PA3. The aggregate potential is mapped in our county development plan. But it is not really tested. We try to ensure that development does exclude / preclude other types of development, nor favour any in particular. I am not sure if the zoning of minerals would be a good idea either because of its extent and the quality of the minerals resources. I am not sure it would be worth it.	
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Policies at all levels of the planning hierarchy.	
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes. Planning permission for the mining infrastructure can be sought once the Minister has granted the State Mining Lease and given permission to proceed with the planning phase.	
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]?	Land use zoning designations are INSPIRE compliant. Mineral data as per the GSI map viewer is INSPIRE compliant.	
	What type of information *(i.e. land use data and raw materials data*) is publicly available and where?		
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	Interdisciplinary teams which includes planners, engineers and other technical staffs. However, geologists usually do not form part of these. PA1. We ask advice from other more experienced Planning Authorities PA2. We have some capacity in-house. But some topics are so specific we get external help. PA3. We use external consultants	For mineral exploration, application for prospection are assessed by geologists
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	In accordance with the Irish INSPIRE Data Sharing Agreement, measures have been put in place to facilitate the sharing and 'INSPIRE' use of INSPIRE spatial data sets and services between Irish public bodies; between Irish bodies and institutions and bodies of the European Community; between Irish bodies and bodies established by international agreements; and between Irish bodies and bodies other Member States.	
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the	PA1. There is not enough expertise in Planning Authorities to deal with mining as it is very specific, in particular in relation to engineering. We have sought the advice of our neighbouring planning authority on occasions as they are more experienced than us.	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Analytical Criteria	Answer
	mining and land use planners? Is data adapted to GIS?	PA2. There is not enough expertise in house. But in reality, there are so few cases, there is also no point having somebody full time to look after mining cases. Some impacts can be difficult to assess such as the underground impacts, drawdown from water tables and on groundwater. We hire experts to help us on cases. We also refer cases to departments and agencies like the Department of Communications, Climate Action and Environment or the Fisheries. The groundwater is reallydifficult to assess. Staff available to advise Planning Authorities would be very useful, maybe in a section of the DCCAE. We also need more expertise on extraction / mining and help to assess impacts on water tables.
		PA3. Not enough in house expertise. We have some in our authority. The most difficult part is the impact assessment. Sometimes we use external expertise. We commissioned expert who travelled to America to understand how mining was working. It helped determine the conditions for the grant of planning permission so we would be sure.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	No. Three authorities required for mining development: the Minister for Communications, Climate Action and the Environment, the Planning Authority or An Bord Pleanála and the Environmental Protection Agency
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered?	No
	3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)*	For mineral exploration, application for prospection are assessed by geologists. Planning authorities have more general knowledge of geology as required (what can be mined where for instance)
	3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	Mandatory reporting to PERC code for mining companies (no remit or reporting to Planning Authorities).
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*	Yes at all stages from exploration to rehabilitation but not through the use of land designation. The exploration or development of a mineral deposit is usually assessed against environmental designations, including European Designations, protected sites and monuments (all stages) and other designations at planning stage.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Analytical Criteria	Answer	
	How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?	PA1. Dewatering is our biggest concern and would prevail over the other issues. We would require statutory guidance to help us make determine the priorities. The guidance probably does not exist because there are only few cases around the country. It would be helpful to have a list of requirements to be met. In the meantime, we have our own list which includes requirements from other state bodies such as National Parks and Wildlife Service, the Inland Fisheries Board, etc. We, as planning authorities, often act as the mediator between the applicants and these bodies, as it is a big part of our role in the process. Our development plan has a policy which seeks new economic opportunities. Our county is very agricultural, so new economic opportunities would be welcome and therefore weigh heavily in the balance in the assessment. Each application is assessed on a case-by-case basis so the weighting of the policies will depend on the case., it is difficult to have a standard weighting criteria.	
		PA2. From the planning point of view, the County Development Plan is the starting point. It is fairly encouraging of the use of mineral resources. But, the assessment is done on a case-by-case basis. The design, nature, the context, residential amenities, road network, groundwater, river, dust, noise, nature conservation, all this need to be taken into account.	
		PA3. We have national guidance for quarrying but not for mining. We would need clearer guidance. Our first priority is to safeguard natural resources. We can be hesitant to make policies. Policies are geared towards the protection of the environment and people. We do not protect natural resources. There is no guidance and no help.	
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Mining companies make this decision themselves, using their own expertise and data which is made available through the DCCAE / GSI once licences are surrendered	
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Once licences are surrendered, the information provided as part of the reporting requirements attached to prospecting licences is made publically available	
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	Not in planning.	
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims	PA1. No. Minerals resources are not weighted lower or higher than any other objectives. Each application should be assessed on its own merits.	
		PA2. The County Development Plan weighs all the activities. Then it comes down to site specific cases where it is evaluated against the specificities. In our case, [IMPORTANT SITE NAME] is the most important, it has big implications for tourism and landscape. So we will assess against that.	
		PA3. This is not applicable to us. We first and foremost look at Natura 2000 sites and water quality. We seek to protect other resources from mining activities. We don't want any deterioration of the water quality. That's not negotiable.	
	3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	PA1. No	
		PA2. No weighting in particular. We promote exploration and exploration in our development plan.	
		PA3. Same as above.	
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	Not as per Legislation or guidelines on Development Plan	Not as per Legislation or guidelines on Development Plan

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Analytical Criteria	Answer	
	3.25 Are there and which are incentives to implement minerals into land use planning?	PA1. It is difficult to say what could help the integration without appearing biaised.	
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	PA1. No it is currently ignored.	
		PA2. Not addressed very well. There is an historic awareness, but we don't know if resources are viable or not. It is up to the planning authorities to promote this or not, as it is its job to foster economic development measures.	
		PA3. We have a coal mining past in our county. Apart from the aggregate mapping in the county development plan, we do not have any guidance.	
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Not in the legal framework. Land use conflicts may be addressed as part of plan-making	Not in the legal framework. Land use conflicts may be addressed as part of plan-making
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	PA1. The strategic important nature is the key factor. Then zoning. Again, we would require statutory guidelines to help with the assessment. This would be the absolute first step.	
		PA2. Given our location, it will have to be landscape. We need to consider the suitability of mining in a rural area. Then impact on the environment, natural environment and groundwater. Then impacts on utilities.	
		PA3. Our priority is the Habitats directive and protected species. Impacts on human come second then other environmental impacts. We don't want any permanently irreversible impacts. Then we would look at economic impacts and on infrastructure. Other impacts such as noise and dust would impact on the above. Anyway, mostly the assessment is at micro level.	
	3.29 Has civil society including mining stakeholders been engaged in land use planning?	Yes as part of the plan-making and development processes, 'any person or body' may make a comment or a submission.	
	If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not?	All levels from National to Local and project level	
	How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Notification as part of consultation. Planning Authority may engage in more engaging activities at plan-making stage, but it is discretionary. Same for project level. All three mines undertook significant engagement with the local communities and businesses (public meetings, information days, etc.)	
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	Comments and submissions are not binding, but may influence the outcomes. In both plan-making and decision-making, the planning authority must summarise all comments and states how these are addressed.	
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Different types of assessments are carried out generally in accordance with European Directives (i.e Habitats and Birds Directives, Floods Directive, Water Directive, EIA Directive, SEA Directives). If negative effects from mining are identified as part of the assessment and no mitigation possible, then the possibility that planning permissions be refused is likely. The body involved in conflict management will depend on the conflict arising.	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Table 8: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	n/a to Ireland	No. Only screening for appropriate assessment undertaken	Yes - Across the three applications, the principal topics included: traffic; floooding, impacts on groundwater and surface water; air pollution and noise; visual impacts	Yes as part of the permitting phase
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	n/a to Ireland	Company 1. Yes there is an assessment of the viability of the project from the early stages. This is balanced with ecological and social costs which can be very high and make the development unviable. Impacts on the environment are a huge consideration which can prevent the development going further. We use the PERC code. The JORC code is recognised by the banks.		
		Company 2: There are several stages of assessment of economic resources, pre-feasibility, feasibility to check how the resources would convert to a reserve. The higher the proof, the better the reserve. Financial models are developed as well. We report using the JORC. To declare a reserve JORC compliant, a geologist is required.		
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land?	n/a to Ireland	Yes. Either during the plan preparation cycle or as a variation to the development plan.	Yes. Either during the plan preparation cycle or as a variation to the development plan.	Yes. Rehabilitation is agreed at permitting phase for exploitation when planning permission is sought. A Closure, Remediation and Aftercare Management Plan (CRAMP) is developed as part of the permitting process. It is a requirement to prepare a CRAMP as part of the IPPC licence. It agrees at the outset the financial instruments and funding in place for unplanned and planned closure of the mine. It also sets out how the mine will be closed and rehabilited. The plan must be agreed with the Planning Authority, the Environmental Protection Agency and the DCCAE. It is a dynamic document which evolves over time. It also seeks other industry of possible for plant site.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.4 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	n/a to Ireland	Company 1. It depends on the stage in the process. At the exploration stage, it is very local due to the local settings. We usually keep an open door policy with the community. We have also invited the planning authorities to see the drill cores. We cannot share the results because these are commercially sensitive. The new Minerals Development Act includes retrofit communications and requires communications with the neighbours as well. At the start we mainly talk to the neighbours but as we progress, we organise public meetings. There are companies that use the local radio and are in touch with a local journalist so that he can give regular updates on the project. We work in both Irish and English so everybody is included. Nothing is hidden except the commercially sensitive information. In the past, it was not so open but now the process is much more open. We usually operate an open-door policy and honesty. This is as much in the interest of the community than ours.		
		Company 2: Transparency is very important in the process, particularly in planning. Mining companies are obliged to communicate. It gives a good representation of the mining company. Prior to planning, we get informally involved with communities, during planning we follow the formal route. Communication also allows companies to appear to be in 'a good position' and might help them raise finances. Public statements are regular.		
4.5 Does the application/case refer to an area addressed for minerals as a primary priority?	n/a to Ireland	Not specifically designated as priority by land use zoning.	During exploitation cattle breeding was tested on former TMF facility at **Lisheen**.	In **Galmoy**, located in County Kilkenny, planning permission was granted for a bio-energy plant on the site for the conversion of brown bin waste to electricity. Cattle is grazing on site.
If Yes, what are the possible secondary/coexistent uses? If not, what is the primary use?	n/a to Ireland	Other uses may (have) occurred on site: peat extraction, agriculture (including cattle breeding)	In **Tara Mine**, the site is just outside a town. It is located on 'white zoning' with no zoning applied. There is a motorway above the site.	In **Lisheen**, located in County Tippeary, the mine site was designated for strategic employment to accommodate: industries, employment, clean technology based industries currently not provided for within the county. After a successful test run on the former TMF facility, the cattle bred is Bord Bia approved (high quality) in Lisheen. A mushroom substrate (compost) production facility was permitted in 2018 on the site of the former mine
4.6 Regarding the case study data, are these INSPIRE compliant?	n/a to Ireland			
If yes, which kind of data and are public available and where?				
4.7 Before the case, was the land assigned to a different land use? If yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land	n/a to Ireland	No. Used as grazing or field. No site was zoned for minerals extraction prior to the development of a mine.	No. Used as grazing or field. In some of the cases, small number of houses / farms have been bought by the mining company as to either extend or avoid impacts on them. In all cases, these were one-	No. Used as grazing or field

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
use review process or an exceptional modification process?			off houses in the countryside so not on zoned lands.	
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	n/a to Ireland	Company 1. Definitely jobs and training. Mining brings new opportunities to rural Ireland. Also it leads to indirect benefits such as spin-off in the local economy (services, transports, trade, equipment rental etc.) The concerns generally regard the fear of pollution through air or water. They can aslo be quite land specific. The indefinable sense of place also comes very high in the concerns. There is a fear of change. But generally the biggest fear regard the impacts on the environment. Traffic and noise can also cause people to worry.		
		Company 2. The key positive aspect is employment. People want to see opportunity. Young people can get job and training opportunities. Then a mine brings infrastructure so that is beneficial for the local community, in particular road and power supply, but also mines usually contribute to social and community development. Mining companies are very careful with their Corporate Social Responsibility so they are very involved. they can sponsor events etc. On the other hand, the population can be fearful of development as is the case with large scale developments. People are also worried about impacts on the environment. But this is often driven by fear and lack of knowledge. A key concern that often comes up is water and risks associated with dewatering and blasting, dust and noise. We can minimise those impacts but they still exist. It depends on people's tolerance and their sensitivity. Impacts are a very emotive issue, very similar to wind farm developments. If people don't like a development, they will get upset.		
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	n/a to Ireland	Not necessary to change the type of land use to develop mineral	Not necessary to change the type of land use to develop mineral	Not necessary to change the type of land use to develop mineral
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	n/a to Ireland	Company 1: There is no zoning for minerals in Ireland unlike Northern Ireland. Zoning / an excellent map system would make development clearer. The lack of zoning is an issue for the industry. For example an operator may be well established for three generations, then a one-off house gets planning permission near the site and then the owners will object to development taking place there. That is a real problem. The industry has been pushing for zoning for a long time. It would be appropriate for non-metallic as well such as aggregates and quarries. Each county should have very clear mapping of the resources		
		Company 2: The process is straightforward. You need to apply to the State for an exploration licence. If the exploration is successful, then carry on with planning. There is no need to own the land and technically there are limited interactions with landowners. However, we do engage with various parties to let them know what is going on as it may cause disturbance. We try to negotiate with landowners amicably.		
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	n/a to Ireland	Company 1: The visual impact is a strong concern because that's what people relate to the most ('sense of place'). The cost mainly comes into play when the mine closes. I remember when one mine closed down and the local newspaper report looked like a eulogy. The closure was like a funeral. The loss of jobs is a big cost to the community.		
		Company 2: In general very little costs. The key benefit is the employment opportunities which are brought by the mine. Once we closed the [mine site name] site, we cleaned the site and try to develop it and find a suitable replacement. It is important to make use of the existing infrastructure. The only negative aspect is the tailing and rock dump as this is what people see and what the community has to live		

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
		with. Ireland is very proactive toward rehabilitation. An insurance is set aside toward protection. If the mining company does not carry out its rehabilitation properly, the government can use that money to do the closure themselves. The CRAMP as part of the IPPC licences allows for closure methods to be identified and bonds to be ringfenced to that effect.		

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land?	n/a to Ireland	Yes.	Yes.	Yes.
5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	n/a to Ireland	Decision to grant a prospecting licence or State Mining Facility is publically communicated by the Minister. Upon notification, a period of public consultation starts where any person or body may make a submission or object to the decision	Public consultation forms part of the planning assessment process. Once the prospective mining company applies for planning permission to the planning authority, it must notify the public by placing ads on site and in a newspaper. It must also notify prescribed bodies as part of the EIA and AA processes. Then opens a period of 6-weeks, where any person or body may make a submission or object to the development. During the assessment period, the planning authority then must consider all submissions made on the applications, from the public and prescribed bodies alike. If it decides to request further information, should it be deemed significant, then the prospective mining company must place notices a second time to notify the public. Finally, once the decision is taken, any person or body, including the applicant, may appeal the decision of the planning authority to An Bord Pleanála, the national planning board. This opens another period of consultation, but more narrowed (no notices required), where any person or body can comment either as appellant (provided they have been involved during the first phase of the application) or as an observer. A public oral hearing may be held, either upon request from any of the involved parties or upon decision of the Board. Once the assessment process is complete, An Bord Pleanála advertises	Closure, Rehabilitation and Aftercare Plans are prepared outlining the plans for rehabilitation and made public.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
			on its website its decision to either grant or refuse the permission. It must set out in a specific report called a 'direction' the reasons for the decision.	
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate?	n/a to Ireland	Civil society 1 - At proposal stage, the community is well informed and consulted with. However, it is not the same at exploration stage which could be better. People are very scared of 'lead' particularly in water		
a. How were the results of the participation process considered in the decision making?	n/a to Ireland	Civil society 1 - at exploration stage, there is little consultation so not much regard. The company is allowed to drill on a large area. Unlike planning application for exploitation where there is a lot of consultation and communication. Measures are needed at exploration phase.		
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	n/a to Ireland	Civil society 1 - yes projects are well accepted. If you look at the most recent cases, Galmoy and Lisheen , there has been a lot of consultation and liaison with the community and it created local employment. When a problem arises, the community gets in touch with us [NAME OF THE CIVIL SOCIETY ORGANISATION] and asked them to help them. Other industries lead to similar complaints like plywood and piggeries. Since the 1990s there have been no major issues due to mining. Because of the legacy of Silvermines, mining companies are very careful now and very conscious. Tara mine is right beside a very large town and creates no problems.		
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	n/a to Ireland	Civil society 1 - new infrastructure comes in with the mine. We are definetly supportive of reusing the infarstructure as far as possible. It makes sense to re-use the infrastructure at Galmoy as everything is already there. The rehabilitation is very important as well. Tara mine is a very interesting case because it is a very large mine beside a relatively large town. Lisheen and Galmoy very well screened and people are not aware that they are there.		
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures?	n/a to Ireland	Civil Society 1: No compensation measures envisaged in legislation aside from environmental ones (forming part of either EIA or AA processes).		
a. If yes, please explain	n/a to Ireland			
Are these perceived as adequate?	n/a to Ireland			
b. if not, please explain why	n/a to Ireland			
5.7 Were any mandatory and/or voluntary compensatory measures taken?	n/a to Ireland		Civil Society 1: Development contributions paid to the Planning Authority may be applied (social infrastructure, roads, etc.)	Civil society 1: Bonds are paid to the state toward the rehabilitation of the mine site. If the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
				mining company manages poorly the site, the State will use these bonds to rehabilitate this site themselves.
a. If yes, please explain.	n/a to Ireland			
b. Were these perceived as adequate by the company and by those compensated?	n/a to Ireland			
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	n/a to Ireland		Civil society 1 - these are done on a case-by case basis. For instance Tara Mine is under a river. The EIA directive is the framework for consent. Unless there is an overriding consideration then it's ok. Traffic generation is also a consideration. As an organisation, we prefer large mines to travel by rail to a port, it is more sustainable. In Galmoy, we tried to argue for the use of rail. Sustainable transport options are a very big consideration for us. At the end of the day, the operators are asked to pay development contributions toward the infrastructure they use.	
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	n/a to Ireland		Civil society 1 - in the past mining was very labour intense. It is more mechanised now so not as it is not as good for local employment as before. But they use local services so that's good nonetheless. In Ireland, mining is not a leading economic provider. FDI is more important, mining always needs an exit strategy as it can quickly become unviable.	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 6 Case Description - Poland

Case Study Identification

(Case title) "Czatkowice" Industrial Limestone Mine	
(Country) Poland	
(Responsible Partner) MEERI PAS	
Type of mineral resources?	Industrial limestone (EU CRM list - NO)
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	exploration
Is the case about open-pit or underground mining, both or not applicable?	open-pit
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	regional
Extents of the project (km2) or not applicable?	48 hectares (81 ha with buffer zone)
Company or companies involved	"Czatkowice Limestone Mine", TAURON GROUP
Are the mineral resources private and/or public owned?	

Case study description

In "**Czatkowice" Limestone Mine belonging to TAURON Group** (Southern Poland, Małopolska Province, fig. 1) works associated with the preparation of the area for mining from a new deposit have been launched. The investment located across the **area of approximately 50 hectares guarantees a possibility of extraction in the mine until 2060**. **Sorbents** produced by Czatkowice Limestone Mine **are mainly used by power plants and combined heat and power plants in modern flue gas purification technologies**. On an annual basis, owing to the mine products, it is possible, inter alia, to eliminate approximately 140 million of cubic metres of sulphuric acids. While implementing the investment the company simultaneously mitigates the environmental impact. Activities carried out include the creation of a protective forest belt (so far approximately 100 thousand trees have already been planted, and ultimately the protective belt will occupy the area of 33 ha) and establishing migration corridors for bats. Following the completion of the investment in 2060 the whole area of the excavation (both the currently exploited and a new one), i.e. approximately 120 hectares, will be reclaimed.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Figure 1. Location of "Czatkowice" Limestone Mine

The expansion of exploitation was related to the following local conditions (fig. 2):

- Kraków Valleys Landscape Park (abolition of extraction ban) -_the new part of deposit is located in park boundary,
- Natural Reserve "Eliaszówka Valley",
- Natura 2000 area,
- Carmelite Monastery,
- Krzeszówka Stream,
- drinking water intakes (for Krzeszowice Community).

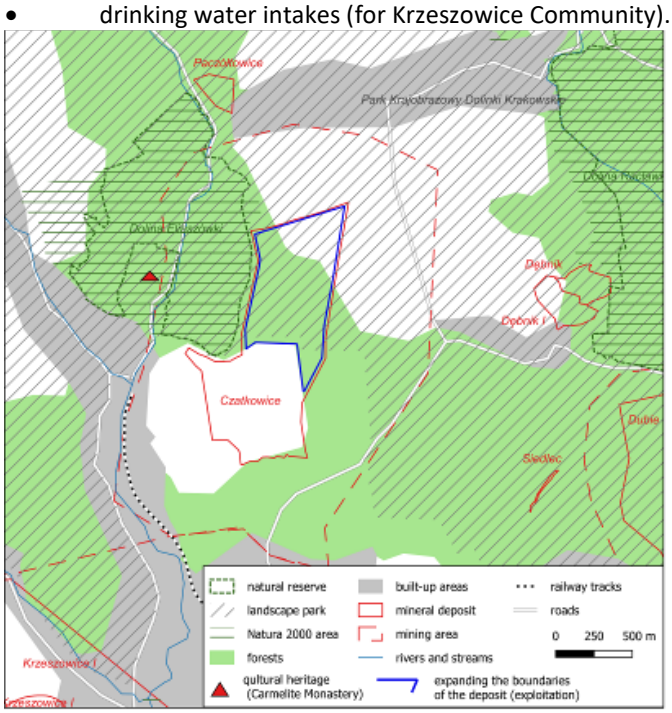


Figure 2. Location of the "Czatkowice" Limestone Mine on the background of environmental and spatial conditions.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

The **"Czatkowice"** deposit was first extracted by the Germans in 1943. The extraction was resumed after the Second World War, in 1947. In 1996, the Minister of Environmental Protection, Natural Resources and Forestry granted a concession No. 25/96 of 18 Jul 1996 for the extraction of carboniferous limestone in the "Czatkowice" deposit, valid for 30 years.
"Czatkowice" Limestone Mine **commenced actions aimed at expanding the carboniferous limestone resources in 2002**. For this purpose, in 2003, the Company commissioned to carry out "**The Evaluation of possibility of reporting on additional geological resources of limestone at Czatkowice site**". The work indicated the need for a geological exploration covering the northern part of the excavation existing in that time, towards Paczółtowice village. The Evaluation served as the basis for a Geological Exploration Design and application for geological works, both developed in 2004. The following documents were attached to the application:
1. A study of the possibility of expanding the extraction of the Czatkowice deposit located within **Kraków Valleys Landscape Park**, developed in 2004,
2. An **environmental impact report** for drilling works, developed in 2006.

In next step, the Company **obtained concession for the exploration of limestone deposit** in Paczółtowice village (granted by the Marshal of Małopolskie Voivodeship in 2006). Based on the drilling results, a supplement No. 4 to the geological documentation of "Czatkowice" deposit was drawn up. That was an **indispensable attachment** to **application for changing the concession decision** in respect of expanding operations relating to the extraction of carboniferous limestone at the "Czatkowice" deposit. The supplement determined the total resources of exploited deposit, as well as a newly documented part of deposit. In reply to the Company's application, **the Marshal of Małopolskie Voivodeship**, in January 2009, accepted – without any comments – the Supplement No. 4 to the geological documentation referring to the "Czatkowice" site in "B and C2" category. **Geological resources were actually approved**. Based on the Geological and Mining Law, the Company had an exclusive and free of charge right to dispose of geological documentation of deposit for five years after the expiry of the concession for deposit exploration. Based on the above right to the geological documentation, **a concession for the extraction of a new part of "Czatkowice" deposit was obtained.**

The newly documented part of carboniferous limestone deposit extends to the north of the existing deposit and has **area of 48 ha** which covers:
• state forests – **29 ha** (protection forests),
• private areas – **19 ha**, owned by the Krzeszowice Municipality, the State Treasury, a private entrepreneur and private owners (soils class 3 and 4).

Some site are located beyond deposits boundaries, within a **buffer zone** created in the northern and eastern part of the new mining area. The buffer zone, which is covered with planted vegetation, have a **area of 33 ha**. Company may purchase this sites from private owners, for afforestation purposes. The forests area formed in this way, will be greater than area of forest designated for clearance (29 ha) and will alleviate a negative impact on the environment arising from extraction activities.
As part of the project, **the Company had to acquire title to land having a total area of approx. 81 ha**.

Social dialogue

At a village assembly held in October 2009 in Paczółtowice, the governing of the Company presented a map with marked boundaries of the newly documented deposit. Citizens took a positive attitude to expanding the extraction area only if the sites within buffer zone will be bought. They argued that the value of plots will be lower, making them less attractive for recreational or residential purposes.
In 2010 the Company was **negotiating with the Regional Directorate of the State Forests** in Kraków on the lease of forest areas in order to obtain appropriate declarations on the right to dispose of the land for mining purposes. They were obligatory components of application for changing a concession. The Company obtained preliminary acceptance, which was contingent upon **changing the use of the land into industrial use** in the **Local Development Plan of the City and Municipality of Krzeszowice**. In order to

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

commence the change procedure of local plan, it was necessary to obtain **permission for the planned extraction in the boundary of the landscape park**.

Amendment to Regulation of Kraków Valleys Landscape Park (abolition of extraction ban)

Due to the fact that the new part of deposits **is situated in Kraków Valleys Landscape Park**, the Company (in January 2011) submitted the application to the **Marshal of Małopolskie Voivodeship** for **rescinding the ban** of extraction of raw materials in this landscape park. The Marshal decided on the basis of the result of **Environmental Impact Report**, which was enclosed to the application. In next step, the Regional Director of Environmental Protection in Kraków approved the draft resolution of the Regional Parliament of Małopolskie Voivodeship, claiming that: "a change of protection system for Kraków Valleys Landscape Park regarding to Czatkowice deposit area is economically and environmentally justified. "Czatkowice" limestone quarry provides sorbents to several largest power plants in the south-western part of Poland, where they are used for both the flue gas desulphurisation and fluidised-bed boiler combustion processes. Furthermore, carboniferous limestone is used in the construction industry, including the road building sector" (fragment of justification). The ban was finally lifted in December 2011. This decision was decise for the further implementation of the Project

Amendment to Study of Conditions and Directions of Spatial Development of City and Municipality of Krzeszowice

At the request of the mine, the Mayor of Krzeszowice Municipality revealed to the public (in January 2012), the Company's intention to carry out a procedure to **change the Study of Conditions and Directions of Spatial Development of the City and Municipality of Krzeszowice**. A **draft of changes** of the Study **was submitted for comments and approval, and subsequently, made available for public inspection.** The change procedure of local planning document **was closed in July 2012.** The change of the Study, proposed by the Company, related to the plots to be included in an expanded extraction area within the boundaries of the documented "Czatkowice" deposit and within the limits of expected extraction impact.
The whole process lasted for 6 months[1].

Amendment to Local Development Plan

Krzeszowice City Council carried out a resolution on the preparation of **local development plan** in respect of the new mining site boundaries in March 2012. As part of development a new local plan, it was necessary to **change the purpose of agricultural and forest land** and to define a **new direction of use for them (mining).**
A draft plan **was also submitted for comments and approval**. The local plan was approved in May 2013 by the Krzeszowice City Council and subsequently, published in the Official Journal of Małopolskie Voivodeship on June 2013. According to the local plan, plots situated above the new part of "Czatkowice" deposit (in the Paczółtowice village) are classified as PG1.1 land – **lands designated for planned mining, extractive industry**, whereas the present mining excavation is located on land classified as PG1 – mining, extractive industry grounds.
The whole process lasted for 15 months[1].

Decision on Environmental Conditions

The Company commissioned the preparation of **Environmental Impact Report** in May 2009 (based on decision of City and Municipality Office of Krzeszowice on determining the environmental conditions of the project). The title of document was: "The Expansion of Carboniferous Limestone Deposit towards Paczółtowice Village". The first version of report was ready on October 2010. The Report was submitted in the City and Municipality Office to consider and obtain a **decision of environmental conditions** of new project. In next step, the **Regional Director of Environmental Protection** decided that the Report should be extended by adding a "forest option" – which entailed extraction within the forest boundaries including

[1] some activities were carried out (to some extent) in parallel

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

a 200-metre-wide buffer zone in the northern and eastern part of the planned project. In subsequent stages the Report was also been changed to include an cumulative impact assessment arising from the planned resumption of extraction in the "Dębnik" deposit. The **final version** of the Report was drawn up in April 2012 and attached to the application of decision on environmental conditions.

The development of the environmental impact report lasted 28 months*.

The application was submitted by the Company to the Mayor of Krzeszowice Municipality on June 2013. The final acceptance was issued by **Regional Directorate of Environmental Protection in Kraków** in April 2014. One month later (May 2014), the the Mayor of Krzeszowice Municipality issued decision of environmental conditions.

Obtain of environmental decision (after ended of development of environmental impact assessment report) **lasted 10 month**[1].

Local community took part in the decision-making process. People had been notified of the proceedings and had possibility to review all documents connected with process. Comments and conclusions made during **social consultations** referred mainly to negative environmental and people's health impact of project.

Deposit Development Plan

A **Deposit Development Plan** was another document which was being drawn up in parallel with the process of obtaining the decision on environmental conditions. The works was started in August 2013. The document determined, among other, requirements for rational deposit management and extraction process. The Plan included also provisions of decision on enviornmental conditions. The Deposit Development Plan was ready and submitted in Company in August 2014.

The whole process lasted for 11 months[1].

OBTAINING CONCESSION DECISION

An **application for mining license** was submitted in the **Marshal's Office** on 13.08.2014. The relevant procedure was carried out and concluded with the decision by **Marshal of Małopolskie Voivodeship**, which amended the previous concession. The decision became final and binding on 13.11.2014. It includes the newly documented "Czatkowice" carboniferous limestone deposit and sets, among other, a new mining area, a right to dispose of area, geological boundaries and resources of deposit, requirements for carrying out operations in accordance with the decision on environmental conditions. **The mining license will expire in December 2060.**

The whole process (from the moment of submitting a complete application) lasted for 2 months.

Top-down approach in Polish spatial management system

The Polish spatial management system is compliant with the subsidiarity principle, but **its nature is hierarchical, i.e. the lower levels of planning have to take into account the projects important from the national or regional perspective**. In Poland, the most important document related to spatial development – National Spatial Development Concept until 2030 (NSDC 2030) – was approved by government in December 2011, while Action Plan of NSDC 2030 – in June 2013. It was developed on the basis of "Long-term National Development Strategy 2030" and "The National Development Strategy 2020" (fig. 3). The NSDC 2030 is the most important national strategic document that addresses the spatial planning management of Poland. It has been developed in accordance with the Act on Land Use Planning and Space Management of 27th March 2003. The arrangements and recommendations resulting from NSDC 2030 and applicable to the preparation of voivodeship (provincial) spatial development plans have also been defined pursuant to the statutory requirements.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

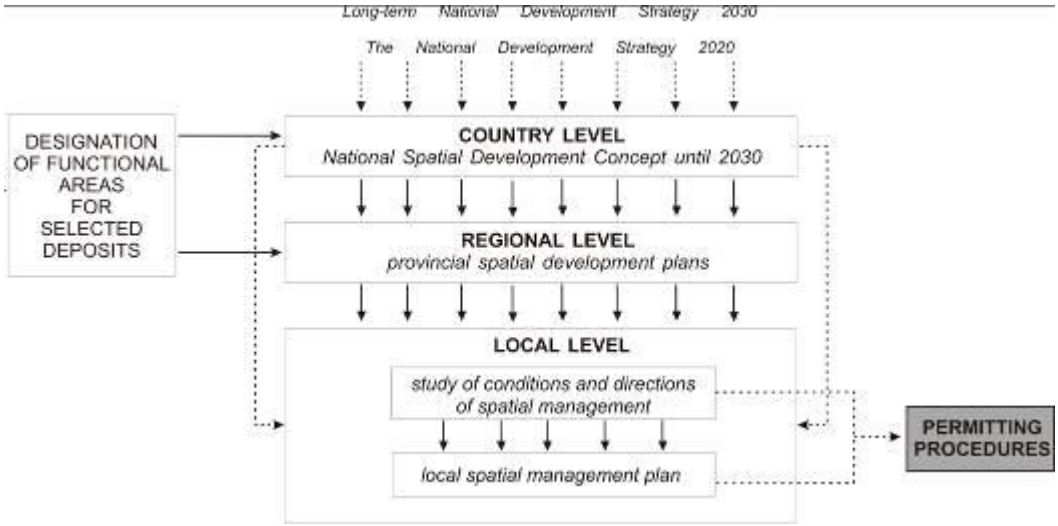


Figure 3. The schema of spatial policy in Poland

In relation to voivodeship (provincial) spatial development plans, NSDC 2030 imposes an **obligation to implement the requirements and recommendations concerning a delimitation of functional areas (also for strategic deposits)** and to implement spatial planning measures involving a development of strategies, plans and studies on spatial development. **Recommendations of NSDC 2030 should be included during the preparation of provincial spatial development plans (obligatory for each province)**, and finally – also in spatial development plans of each commune. Spatial policy on local level (commune) is realized on the basis on two documents: **Study of Conditions and Directions of Spatial Management of Commune** (obligatory for each commune) and **Local Spatial Management Plan of Commune** (optional document).

Horizontal approach

The **spatial development policy in Poland** is a measure for implementation of **long-term national development strategy**. It is implemented based on and by means of:

• **National Spatial Development Concept 2030**,

• long- and mid-term strategic documents concerning socio-economic and spatial development (**Long term Development Strategy for Poland 2030**, **Mid-Term Development Strategy for Poland 2020**),

• **nine integrated development strategies** (among others **Strategy for energy security and the environment**)

• planning documents concerning: **regional level** (voivodeship development strategy and the related spatial development plan), **local level** (municipal spatial development conditions and directions studies, local spatial development plans) **and functional level** (strategies and related development plans for functional areas, such as urban, rural, mountainous and **strategic minerals deposits**),

- investment projects laid down in development programmes and operational programmes,
- regulatory framework,
- respective institutional solutions, including the integrated spatial monitoring system.

Environmental Impact Assessments (EIA) and Strategic Environmental Assessment (SEA)

Auxiliary to spatial planning is the system of environmental impact assessments (EIA); it relates to all the planning documents. The **EIA system is based on the Act of 3 October 2008 on provision of information about the environment and protection thereof, public participation in environmental protection and environmental impact assessments**. In the context of spatial development policy's impact on the preservation of environmental resources and the quality of living, the regulatory framework of establishing ecological networks, conservation planning in protected areas, water management,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

emissions reduction, acoustic climate in cities, etc., that of tools used to assess environmental burden, reduce development-related conflicts and ensure environmental compensation plays an important role.
The rules of **strategic environmental assessment (SEA)** are described also in **Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessment** (EIA Act).

The **strategic environmental assessment** (SEA) is a procedure which is **used for specified types of documents** developed or accepted by the administration bodies or other subjects of public functions. The above-mentioned documents include:
1. The concepts of **national spatial development**, **conditions and directions of spatial development of community**, **regional spatial development plans** and regional development strategies,
2. Policies, strategies, plans or programs in the field of industry, energy, transport, telecommunication, water management, waste management, forestry, fisheries, agriculture, tourism and land use, setting the framework for later implementation of projects having a significant environmental impact,
3. Remaining policies, strategies, plans and programs, if their implementation may cause significant environmental impact on a Natura 2000 site and if they are not immediately connected with the protection of Natura 2000 sites or do not result from the said protection,
4. Documents other than those listed above, if they set framework for later implementation of projects which may have significant environmental impact, or when the implementation of their provisions may cause significant environmental impact.
Carrying out a strategic environmental assessment is also required for changes to the above-mentioned already adopted documents.

The **complementary element of a SEA is the public participation**. The information on the following should be publicised:
- beginning of the works on the document draft and its subject,
- the possibility to read the document draft, prognosis and available, at the current stage, positions of other bodies, and the place where the documents are available for viewing,
- the possibility to file comments and conclusions,
- the manner and place for submitting comments and suggestions, and information about period for their submission - minimum 21-days,
- the relevant authority to consider the comments and applications,
- actions in case of transboundary environmental impact, if undertaken.

Before the document is accepted the entity developing its draft considers the findings of the environmental impact prognosis, the opinions of respective authorities, and considers the comments and applications submitted referring to the public participation.

Procedures for protection or safeguarding of mineral resources

The **(ONLY)** elements of safeguarding of mineral deposits are included in:

1. The Act of 09 June 20011 Geological and Mining Law. Based on act, within **two years from the date of approval of the geological documentation (or 6 months in case of hydrocarbon deposits) the area of the documented mineral deposit must be obligatory included in the Study of Conditions and Directions of Spatial Management of Commune** (the basic document of local spatial planning). The Act, however, primarily protects the exploited deposits, by ordering the rational use of primary and accompanying minerals.
2. Spatial Planning and Development Act of 27 March 2003. The legal instruments of unexploited mineral resources protection are stated in spatial planning documents. In particular, these documents are formulated by the municipalities and presented as the Study of Conditions and Directions of Spatial Management of Commune as well as the of Local Spatial Management Plan Commune. The first document (obligatory for each commune) **should take into account conditions associated with the**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

occurrence of mineral deposits and its terms should be included during preparation of Local Spatial Management Plan.

3. The Act of 27 April 2001 Environmental Protection Law. Mineral deposits **shall be covered by the protection consisting of the rational management of their resources and a comprehensive use of minerals, including the accompanying minerals**. Mineral deposits shall be exploited in an economically viable manner, taking measures to limit the damage to the environment and ensuring rational exploitation and management of minerals. The entity which undertakes or carries out exploitation of mineral deposits shall be obliged to take the necessary measures to protect the resources of the deposits, to protect the land surface, surface waters and groundwater, to successively reclaim post- exploitation sites and to restore other natural elements to their proper state.

The legislations are addressed only for mineral deposits with mineral resources (prospective areas are not included).

Permits

The permitting procedures in Poland are described in details in Geological and Mining Law (enacted on the 9th June 2011). New 2011 GML introduced also so-called "**mining property" of the State Treasury**. List of minerals, deposits of which are included into this "mining property", includes all **fuels, metallic ores, sulfur, rock salt, potash salt, gypsum and anhydrite, and gemstones**. Deposits of **other minerals belong to land property owner**. In case of deposits which are "mining property" of the State Treasury, State Treasury can dispose its ownership rights through establishment of mining usufruct, with proper compensation related to it. Establishment of mining usufruct must be preceded by tender, but company which recognized mineral deposit takes precedence in such case. Only after establishment of mining usufruct entity may initiate the procedure to obtain a license. **The implementation of the activities specified in GML is permitted only if does not violate the function of area which are described in Local Spatial Management Plan of Commune (if exist) or in Study of Conditions and Directions of Spatial Management of Commune** and separate regulations.

Licences are required for both **prospecting and exploration works** (fig. 4) and for **mining** (fig. 5). They can be valid from 3 to 50 years. Such licences related to mineral deposits which are "mining property" of the State Treasury are issued by the **Minister of the Environment**, licences for open-pit mining without explosives at the level of up to 20,000 m^3py in the area of up to 2 ha are issued by **District Head**, while the remaining licences by **Province Marshal**.

To obtain **prospecting and exploration licence, company or private person must** (fig. 3)**:**

- obtain permission to enter an area of the planned geological works,
- prepare the project of geological works,
- obtain appropriate **environmental decision** (possible to carry out **environmental impact assessment**).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

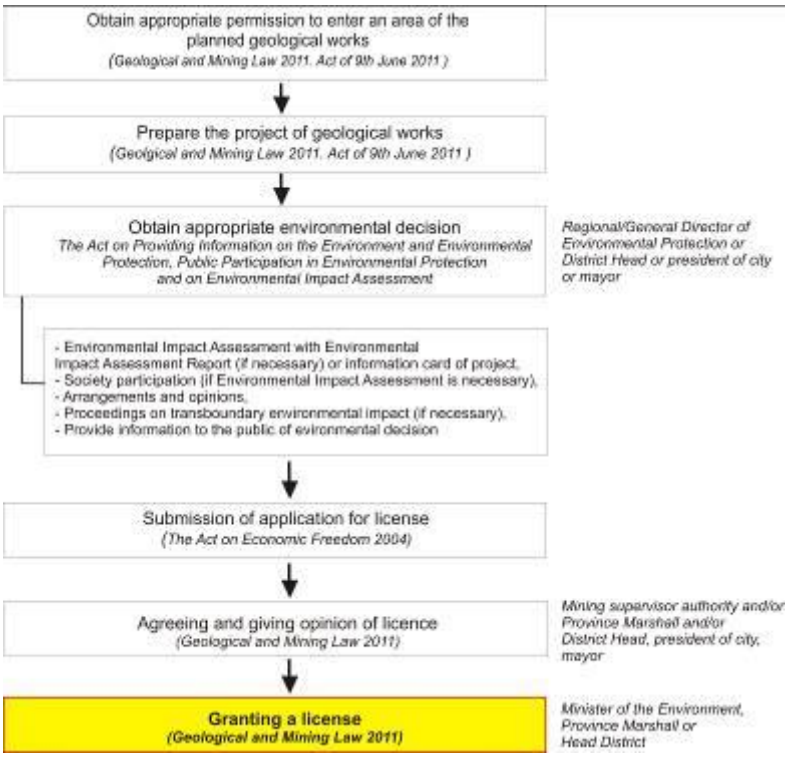


Figure 4. The scheme of permitting procedures in Poland - prospecting and exploration licence

To obtain mining licence, company or private person must (fig. 3):

- prove its rights to land property (this obligation does not apply to lignite deposits),
- **attach information on land use in local spatial management plan of commune, or in case of the absence of the local spatial management plan, planned activity must be consistent with the study of conditions and directions of spatial management (it is also possible to change the entries in local spatial management plan or enacting of new local plan),**
- obtain appropriate **environmental decision** (possible to carry out **environmental impact assessment**),
- prepare Deposit Development Plan with details on type and size of operation, resources utilization rate, mining area and mining protective area.

Granted mining licence sets all above mentioned parameters, as well as its duration. License does not exempt from the requirements specified in separate regulations, including obtaining necessary decisions. Licence can be transferred or – in some cases – withdrawn. 2011 GML in its 2014 amendment introduced also separate mechanisms of hydrocarbon licensing, compliant to EU regulations.

Environmental Impact Assessment is applied during the process of obtaining decisions on environmental conditions for mining project (fig. 4 and 5).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

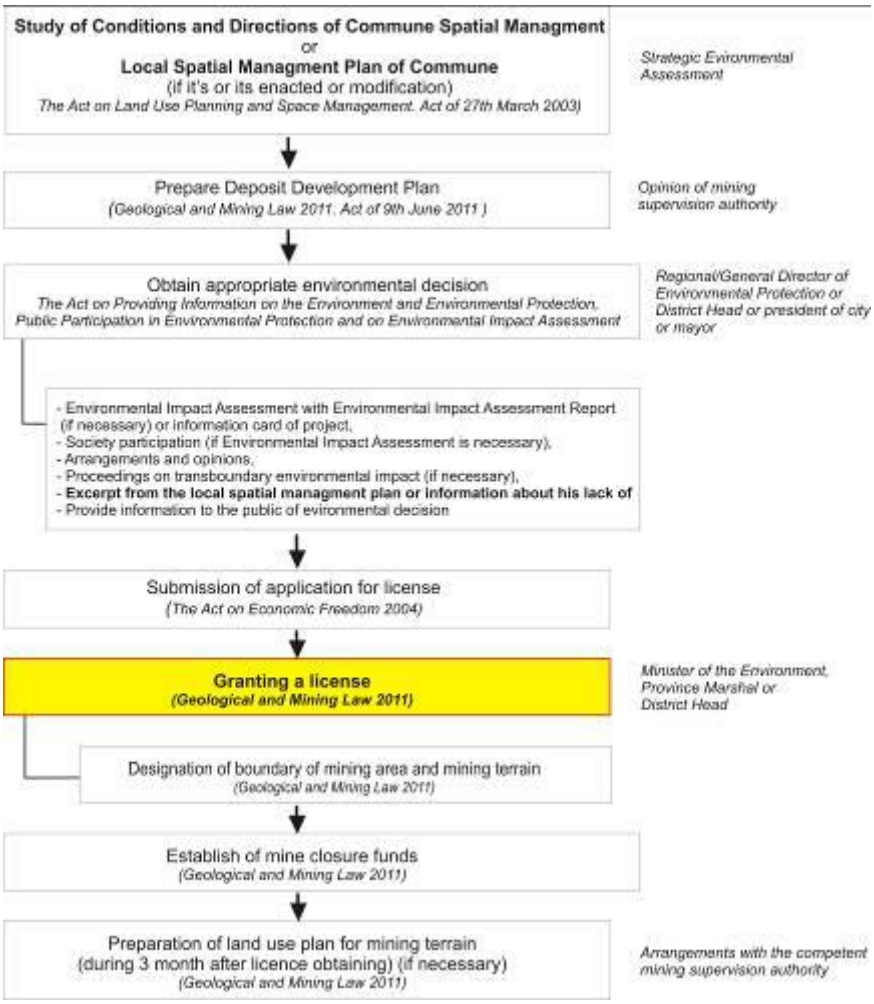


Figure 5. The schema of permitting procedures in Poland - mining licence

Scope of the Civil society participation

1. Environmental impact assessment

The **society participation** in the procedure including the environmental impact assessment is ensured before issuing the environmental decision. The **society participation in the EIA procedure is one of the more important stages of this procedure** and is required from the authority which is competent for issuing the environmental decision. The **society participation** in the course of the procedure (social consultations) **is ensured, in particular, by**:

- **publishing information** about: initiating the EIA, initiating the procedure, subject of the decision which is to be issued, authority which is competent for issuing the decision and the authorities which are competent for issuing opinions and making arrangements, opportunity to familiarize oneself with essential documentation of the case, opportunity to submit comments and motions, the way and place to submit them as well as the authority which is competent for investigating them, time and place of the administrative hearing (if such is to be conducted), procedure related to the cross-border environmental impact if such a procedure is conducted;
- ensuring the right to familiarize oneself with essential documentation of the case, which includes: the application for issuing a decision with necessary enclosures and opinions of other authorities if such opinions are available at the time for submitting comments and motions;

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- ensuring the right to submit comments and motions within 21 days from publication (ina written form, orally for the record, by means of electronic communication without the need to provide a safe electronic signature);
- ensuring the right to participate in the administrative hearing if such is to be conducted.

Everyone has the right to submit motions and comments in the procedure which requires the society participation.

Early initiation of social consultations of which goal is to clarify doubts accompanying the planned project should enable to conclude the consultations in the statutory term of 21 days and, consequently, should enable shortening the length of the procedure.

2. Adopting local planning documents

In Poland **public participation** in land use management has developed based **on Spatial Planning and Land Management Act from 2003**. According to this Act, **ways of public participation are included in the planning procedure**. There is a possibility **for everyone** to express the o**pinion after announcement about proceed to preparing local spatial plan and study of conditions and directions in spatial planning of municipalities**. It is also **obligatory to organize public inspection** with public discussion about the draft of plan or study. **Public discussion**, which was introduced in 2003, is one of the key elements in the Polish procedure. **It often appears as a negotiation between the local authorities, planners, investors and the inhabitants of the areas included in local spatial plan**. During this process everyone has an opportunity to present their point of views, doubts and comments related to the plan. During and after the public inspection everyone can express their opinion about the inspected draft of plan or study by submitting comments in written form.

After have performed the description of the case with the support of expertise in mining and land planning fields in case the partner does not possess the competence in the field, it is performed the interview to authorities, to the companies (if relevant), to the other identified stakeholders and community associations or other associations interested or affected by the case. It is not performed a survey person by person to the community. (Contact information handled and stored according to MinLand procedures-contacts are verified for quality control)

It is preferable to collect answers in form of an interview, in order to be able to go deeper in getting informations when it is seen that the answer got is too superficial for our scopes. **The table 3,4,5 are the base for questionnaire, Annex 1.** Many answers include descriptions and explanations to understand the systems and what is behind decisions. Table 3,4,5 are addressed to different groups that each MinLand partner proposing a case identify to answer about the case and the case's area.

After have collected the answers and have reported the basic description the MinLand partner that present the case should use own expertise to answer the questions in table 6. They are not standalone questions, but rather should be seen in the light of already acquired results from questions in table 1, 2, 3, 4 and 5. Thus, the questions below act as an "overlay" to the "analytical questions". These results need to be validated by the responsible MinLand partner elaborating the case (with support from WP 6), not the case owner (=person/organization who is involved in the case) to guarantee objectivity.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	**<u>Internal case factors that contributed its success:</u>** • functioning in the structures of the TAURON GROUP, • properly conducted (and early enough) detailed **exploration work of the deposit,** • **early enough** initiated by the Company the **procedure for obtaining a extractive license,** • **well-planned sequence of formal and administrative** activities (including the development of appropriate documents) • **production of high quality products (especially sorbents)**
6.2 Problems encountered	The **procedure for obtaining a extraction licence** went **very smoothly** and in a **relatively short time**. During the procedures, **no major problems were encountered**. Some of the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	shortcomings could concern only the environmental impact report. The procedure would have been shorter if the "forest option" and estimated the cumulative impact on the environment (related to the planned exploitation of a nearby other deposit) had already been included in the first version of the report. A slight extension of the procedure for obtaining a new license was influenced by the extractive in the boundaries of the Kraków Valleys Landscape Park.
6.3 framework conditions/contextual factors	**External factors which influenced the development of the case in positive way:** • **positive Company image** and **related social acceptance** based on: - its previous activities in the field of mining, reclamation of post-mining areas and minimization of the mining activities impact on the environment, - accepted standards of Corporate Social Responsibility (CSR) in the field of: social dialogue, environmental protection, customer relations, fair market practices, personal development and employee satisfaction, - the company successfully combines business activities with all activities for the benefit of the local society. The company actively and responsibly participates in the local community life by engagement in solving the local problems and supporting many local initiatives. It is willing to take action in partnership with other local entities. • **favorable attitude of local** (Mayor of Krzeszowice Municipality) and **regional authorities** (the Marshal of Małopolskie Voivodeship), • **demand for raw material** ("Czatkowice" limestone quarry provides sorbents to several largest power plants in the south-western part of Poland, where they are used for both the flue gas desulphurisation and fluidised-bed boiler combustion processes. Furthermore, carboniferous limestone is used in the construction industry, including the road building sector and agriculture)
6.4 Impacts achieved	**The Company has achieved its goal because obtained a new extractive license for the next 50 years.** **Anticipated impact on intended beneficiaries/stakeholders:** • **constant supply of significant raw material** for several largest power plants in the south-western part of Poland, • **maintaining jobs,** • **high care for employees -** providing development opportunities through training in order to acquire new skills and expand specialist knowledge, strong emphasis on work safety, proper flow of information, simple and clear rules of professional promotion • **educational support for young people** by enabling apprenticeships and internships • **reclamation of post-mining areas,** • planting trees and shrubs with the function of sound absorbing screens, • **realisation of post ecological initiatives** compatible with programs for Małopolskie Voivodeship (realisation of post ecological initiatives compatible with programs for Małopolskie Voivodeship), • **positive impact of social initiatives** of Company which is compatible which her **CSR policy** (e.g. permanent support for orphanages, nursing homes and foundations for disabled people, organization (every year) of Children's Day and World Earth Day in Krzeszowice, occasional family picnics, repairs of local roads and numerous churches in the commune)

ANNEX D3.1_1. Survey POLAND

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the case.

	Analytical Criteria	
	Are land use plans legally binding or simply indicative?	The **province spatial development plan** is **not a universally binding legal act**. It can be regarded as act of internal management, binding the commune when drawing up its Study of Conditions and Directions of Spatial Management. **Study of Conditions and Directions of Spatial Management of Commune** (obligatory for the commune and drawn up within its administrative borders) is **not an act of local law**. It can be also regarded as act of internal management. **Local Spatial Management Plan of Commune is an act of local law** in force in the area of a given commune. Findings of this document shape the manner of exercising the right of ownership. There is no obligation to adopt a local plan - it is decided by the commune

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		council. If the municipality wants to change the purpose and functions of the area (e.g by introducing construction areas or mining activity area in a given area), it must develop and adopt a Local Spatial Management Plan . The Krzeszowice Commune has a Study of Conditions and Directions of Spatial Management (the last change of the study took place in 2016). **For the mining area of the "Czatkowice" Limestone Mine, the "Local spatial management plan for the area located within the planned boundaries of the mining area designated for the exploitation of the "Czatkowice" deposit" (2013) was adopted.**
	3.1 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	In order to assess the timeliness of the study and local plans, the commune head analyzes the changes in the spatial development of the commune, assesses the progress in developing of local plans and draws up long-term programs for their preparation in relation to the findings of the study. **The commune head must analyze the timeliness of documents at least once during the council's term (4 years)**. The commune council adopts a resolution regarding the topicality of the study and local plans. If documents are deemed outdated (in whole or in part), commune council undertakes actions aimed at changing planning documents**. Some of the mandatory changes are result of separate provisions** (e.g. Geological and Mining Law, Water Law, Environmental Protection Law)
	3.2 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	**It is possible to change the land use outside required by law updating of planning documents**. Change of land use in local planning documents (municipal level) is necessary step in the process of obtaining a mining license (if in the document the direction of land use is different from mining). A point change in Study of Conditions and Directions of Spatial Management of Krzeszowice Municipality was also carried out during the process of obtaining a mining license by "Czatkowice" Mine. Originally, the document provided for agricultural and forestry development. The change of the document took place within 18 months. In the case of local plan change, the first step is submitting an application for the change of Local Spatial Management Plan of Commune. The plan change procedure can also be initiated by the commune council on its own initiative (e.g. after asses of timeliness of document)**. Based on polish law - the deadline for considering the application is not specified**. After recognizing the application, the commune council adopts a resolution to proceed with the change of the local spatial development plan. An integral part of the resolution is a graphic appendix showing the boundaries of the area covered by the draft plan. In the case of land use change related to Czatkowice Limestone Mine, the procedure lasted 16 months
	3.3 Is? If it is optional, please describe what influences the decision and who makes the decisions	The protection or safeguarding of minerals is mandatory in the land use planning process.
	3.4 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	**It is not always synonymous with their protection.** In the case of "Czatkowice" Mine the deposit was properly safeguarded in planning documents.
	3.5 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-*	Local spatial planning documents define the boundaries of mining terrain, mining area and deposit. Moreover, potential exploitation possibilities and directions of post-mining land reclamation are indicated. Sometimes the boundaries of the prognistic areas are also indicated. **The plan rarely specifies the possibility of conducting of exploration works**. The spatial plan for the "Czatkowice" mine specifies the development methods enabling the deposit exploitation.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	exploration, exploration, exploitation, rehabilitation)	
	3.6 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	The findings of the local spatial development plan for the area located within the boundaries of the mining area designated for the exploitation of "Czatkowice" deposit, **does not exclude others land use direction**. The area, covered by plan, has a total area of 443.5 ha and has three basic functions: **exploitation of mineral deposit, natural and recreational**. The settlement function is limited only to small parts of the area.The exploitation of mineral deposits have a dominant role in current development of this area. Along the southern border of the analyzed area is also the boundary of the mining area established for the Krzeszowice deposit (desposit of mineral water and healing water). Due to the high natural values of this region, there are large areas with a natural function and extensive forest areas, additionally providing a recreational function. On east of the mine there is a monastery complex - Carmelite Monastery. Settlement areas are characterized by the occurrence of separate residential buildings. In boundaries of area covered by plan, there are bans and restrictions resulting from the location within the boundaries of: landscape park, Natura 2000 area, nature reserve and within the boundaries of the "Czatkowice" deposit.
	3.7 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	The legal instruments of **unexploited** mineral resources protection, in accordance with Polish law, are stated in spatial planning documents. In particular, these documents are formulated by the municipalities and presented as the Study of Conditions and Directions of Spatial Management of Commune as well as the Local Spatial Management Plan of Commune. The first document (obligatory for each commune) **should take into account conditions associated with the occurrence of mineral deposits and its terms should be included during preparation local land use plan. Moreover, based on Geological and Mining Law, local government should update the documents on the occurrence of new mineral deposits**. Within two years from the date of approval of the geological documentation (or 6 months in case of hydrocarbon deposits) the area of the documented mineral deposit must be included in the Study of Conditions and Directions of Spatial Management of Commune. The **exploited** deposits are protected on the basis of Geological and Mining Law.
	3.8 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	The commune is not the authority issuing the license. BUT: local spatial management plan of commune determines the possibility of implementation equipment, construction facilities and infrastructure for the exploitation of deposits. The lack of such provisions in the plan may have negative consequences for the company due to the anticipated production process.
	3.9 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	**YES/ Source:** www.geoportal.gov.pl. Kind of data: orthophotomap, topographical map, sozological map, hydrography map, transport network (rail, road, cable transport network, water transport network), world heritage properties list UNESCO, geographical names, cadastral parcels, administrative units, immovable monuments, archeological monuments, monuments of history, address. The information about mineral resources are publicly available at the address http://baza.pgi.gov.pl/ (among others: boundary of mineral deposits and prognostic areas)
	3.10 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and	A **geologist** (or other person with relevant knowledge about mineral deposits in a given region) **may participate in the creating of regional and local level planning documents (but there is no such legal obligation).** **BUT**: projects of planning documents (at regional and local level) - prior to their adoption - **are mandatory reviewed by the regional geologist** (province spatial development plan) and **district geologist** (study of conditions and directions of spatial management of commune, local spatial management plan of commune) Also within the **competence of regional mining offices** is the **opinion** on solutions adopted in the project of the study of conditions and directions of spatial development of commune (in the area of mining areas development); agreeing on the projects of local spatial

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	sharing of expertise between authorities?	development plans for mining areas and issuing opinion of draft voivodeship spatial development plans.. **No geologist works at the Office of City and Commune Krzeszowice.**
	3.11 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	NO exist But The Polish Geological Survey provides for free geological and spatial data, which can be used in the spatial planning process by competent authorities.
	3.12 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	They probably exist, but in the Krzeszowice Municipality they are not used
	3.13 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	NO exist
The Value	3.14 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.15 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.16 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	3.15. Designating areas for minerals during the land use planning process does not considering the value of the minerals. Czynnikiem najczęściej decydującym o wyznaczeniu w dokumencie planistycznym terenów eksploatacji złóż, jest konfliktowość środowiskowa danego złoża. 3.16. In the polish conditions exist different levels of reflecting the knowledge of the minerals: perspective area (without estimated resources), prognostic area (with inferred resources) and mineral deposits (with mineral reserves) 3.17. Prospective and prognostic deposits are not determined according to the international reporting codes for classifying mineral resources. The information about potential deposits are publicly available but not described how they are used by various authorities
	3.17 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when*	-

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.? *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	
The importance	3.18 Which geological information is used by the authorities to decide whether an area has geological potential?	**Potential sources of informations**: The Detailed Geological Map of Poland 1:50000, Bilans Perspektywicznych Zasobów Kopalin Polski, "The balance of mineral resources deposits in Poland" (updated every year), database on Polish mineral raw material deposits – MIDAS, spatial data on deposits boundaries, mining areas and mining - provided: by prepared mapping compositions (mapping components of the MIDAS and InfoGeoSkarb systems, geographical viewer of the Central Geological Database (CBDG), mobile application GeoLOG) in raster form through the WMS service and in vector form in the Shapefile format, Geoenvironmental Map of Poland, 1 : 50000 scale. **Krzeszowice Commune is based on information contained in the Spatial Development Plan of Malopolska Province and data obtained from institutions associated with mining activities**.
	3.19 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	The level of geological recognition of Poland is very high
	3.20 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	EU critical raw materials list is not considered in land use planning and permitting decisions.
	3.21 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.22 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	3.22. In Poland a **multicriterial valorization of unexploited rock minerals deposits has been developed in recent years** (modified in the MINATURA2020 project). It includes other natural resources (as forests, soils, waters) and their protection as well as surface forms of nature conservation. **BUT: this valorisation is not legalized and is not used in spatial planning procedures to protect the deposits.** 3.23. not applicable
	3.23 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	No

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.24 Are there and which are incentives to implement minerals into land use planning?	Not exist **(there are threats - making a plan by the voivode at the cost of the commune)**
	3.25 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	The prospective and prognostic resources (areas) are **not safeguarded**.
Community	3.26 Does the legal framework foresee land use conflict management procedures? If yes, describe	The legal framework does **not foresee** land use conflict management procedures
	3.27 Which are the factors - from the most important to the least important - that influence land use designations?[3]	**The answer to this question is not unambiguous. The hierarchy of factors always depends on local conditions.** In the case of the "Czatkowice" Limestone Mine: the factor that decided to abolition of operating ban within the boundaries of landscape park was the main direction of mineral use - flue gas desulfurization. The abolition of the ban made it possible to change study of conditions and directions of spatial management and adopt the appropriate local spatial management plan. Findings of the local spatial development plan for planned future exploitation take into account the high values of the natural environment in this region (landscape park, nature reserve, Natura 2000 area) and recreational functions. Urbanized areas, due to the high degree of dispersion of buildings and their distance from the designed boundaries of the extraction,were less important in determining the land use directions.
	3.28 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	**Public participation** in the spatial planning process is **obligatory** (based on The Act on Land Use Planning and Space Management (2003) and The Act on Providing Information on the Environment and Environmental Protection, Public Participation in Environmental Protection and on Environmental Impact Assessment (2008)). Based on Polish law: projects of planning documents (local and regional) are available for public inspection for 21 days. During this time, a public discussion about the project is organized. **Anyone who challenges the findings of the draft plan, including entities related to mining operations, may submit comments to the draft local plan. BUT not all the comments have to be taken into account in the next stages of adopting the document.** **In the case of Czatkowice Limestone Mine, public consultations** were organized during the change of Study of Conditions and Directions of Spatial Management of Krzeszowice Commune and during the adoption of the Local spatial management plan for area located within the planned boundaries of the mining area which was designated for the exploitation of "Czatkowice" deposit.
	3.29 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	**During the social consultation of planning documents related to the "Czatkowice" Limestone Mine, no comments were received.**
	3.30 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	The Polish Nature Conservation Act explicitly forbids the mining activities only in national parks nad reserves. For other forms of nature conservation (e.g. landscape park, protected landscape area), the voivodeship authority decides about these ban (in the resolution setting the form of protection). This decision is never final and the ban may be abolished at any time (also by voivodeship self-governance). The location of deposit within the boundary of Natura 2000 is also not unequivocal with the mining activities ban. An environmental assessment of mining project (located in the Natura 2000) is required at the appropriate stage of the procedure for obtaining a mining license. Based on results of this assessment, the final decision is made. **"Czatkowice" Limestone Mine obtained a mining license within the boundaries of a landscape park (Malopolska Valley Landspace Park). This was preceded by the abolition of ban on exploitation of minerals for economic purposes, which was included in the resolution establishing a landscape park.**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		The mine also operates on the border with the nature reserve, the Natura 2000 area and within the boundaries of areas managed by the State Forests. Complicated environmental conditions influenced of the content of environmental decision, which imposes many obligations on the mine. The Regional Director of Environmental Protection is the authority responsible for controlling the compliance of the mine with the imposed obligations.

Table 4: Survey for case owner. This part is addressed to the <u>company</u>, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases…. CZATKOWICE LIMESTONE MINE - POLISH CASE STUDY

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	not applicable	Obtaining a exploration permit (license) of deposit **always requires an environmental impact assessment**. For this purpose, an "Environmental Impact Report for drilling works" was performed by "Czatkowice" Limestone Mine. The report was a mandatory attachment to the application for issuing the **environmental decision**. The environmental decision is a mandatory annex to the application for **exploration license.**	Obtaining a permit for "Czatkowice" deposit exploitation (mining license) **requires an environmental impact assessment.** For this purpose, an environmental report (entitled "The Expansion of Carboniferous Limestone Deposit towards Paczółtowice Village") was performed by "Czatkowice" Limestone Mine. The report was a mandatory attachment to the application for issuing the **environmental decision**. The environmental decision was a mandatory annex to the application for **mining license**.	Environmental Impact Assessment was not carried out for the project of reclamation for mining area of "Czatkowice" mine.
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	not applicable	**Assessment of the mineral resources value was not carried out** (in Poland there is no such obligation). The deposit was examined in terms of quality and quantity parameters. **International reporting codes were not used.**	**Assessment of the mineral resources value was not carried out** (in Poland there is no such obligation). The deposit was examined in terms of quality and quantity parameters. **International reporting codes were not used.**	not applicable
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land?	not applicable	not applicable	Yes, in the case of forest direction of land reclamation	Yes, in the case of forest direction of land reclamation. "Czatkowice" Limestone Mine will carry out reclamation (after 2060) in the forest direction.
4.4 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	not applicable	Access to public information about issued administrative decisions is obtained at the request of the interested parties. The final list of exploration licenses is available on the website of Małopolska Marshal	Access to public information about issued administrative decisions is obtained at the request of the interested parties. The final list of mining licenses is available on the website of Małopolska Marshal.	-

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	not applicable	During the exploratory work of the "Czatkowice" deposit, the main/priority land use direction was the forest and agricultural direction. **However, this did not hinder conducting exploratory works in the scope provided by the "Czatkowice" Mine.**	At present, the priority direction of land use is industrial activity and planned industrial activity related to extractive of Czatkowice deposit. **Nevertheless, in boundary of mining area of the Czatkowice mine, there are areas with other use directions** (sports and tourism areas, forest areas and areas intended for afforestation, agricultural areas, and areas of single-family housing).	
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	not applicable	**YES/ Source:** www.geoportal.gov.pl. Kind of data: orthophotomap, topographical map, sozological map, hydrography map, transport network (rail, road, cable transport network, water transport network), world heritage properties list UNESCO, geographical names, cadastral parcels, administrative units, immovable monuments, archeological monuments, monuments of history, address. **The information about mineral resources** are publicly available at the address http://baza.pgi.gov.pl/ (among others: boundary of mineral deposits and prognostic areas).	**YES/ Source:** www.geoportal.gov.pl. Kind of data: orthophotomap, topographical map, sozological map, hydrography map, transport network (rail, road, cable transport network, water transport network), world heritage properties list UNESCO, geographical names, cadastral parcels, administrative units, immovable monuments, archeological monuments, monuments of history, address. **The information about mineral resources** are publicly available at the address http://baza.pgi.gov.pl/ (among others: boundary of mineral deposits and prognostic areas).	**YES/ Source:** www.geoportal.gov.pl. Kind of data: orthophotomap, topographical map, sozological map, hydrography map, transport network (rail, road, cable transport network, water transport network), world heritage properties list UNESCO, geographical names, cadastral parcels, administrative units, immovable monuments, archeological monuments, monuments of history, address. **The information about mineral resources are publicly available** at the address http://baza.pgi.gov.pl/ (among others: boundary of mineral deposits and prognostic areas).
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	not applicable	Obtaining a exploration permit (license) did not require changing the land use. During the exploratory work of the "Czatkowice" deposit, the main/priority land use direction was the forest and agricultural direction.	The area of new documented deposit is 48 ha including: **national forests** (with a protective function) - 29 ha, **private areas** (**agriculture**) - 19 ha. **Before obtaining the mining license the direction of land use should have been changed (changed to industrial areas)**. It required a change of local land use documents (Study of Conditions and Directions of Spatial Development of the Town and Commune of Krzeszowice and Local Spatial Development Plan for the planned mining area). The	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			process of changes took 6 months in case of "Study of..." and 15 months in case of "Local...".	
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	not applicable	The local community did not raise any objections on the project of exploratory work of the "Czatkowice" deposit.	**Inhabitants accepted the extended of the mining activity** provided that their plots in buffer zone (approx. 33 ha) will be bought. In their opinion, the value of these areas could decrease (there may be difficulties with their development for recreation or housing purposes). Due to the fact that the exploitation of Czatkowice deposit has been going on for several decades, the local community sees positive aspects related to mining activities in its commune. During the public consultation related to issuing environmental decisions, the following concerns were raised: depletion of water resources in the area of investment, loss of value of neighboring plots, increased car traffic. All concerns have been described and included in the environmental decision.	The project of reclamation of post-mining areas was not consulted with the local community.
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	not applicable	not applicable	Special regulations and rules related to land use (including the principles of environmental protection, nature and landscape protection, cultural heritage protection) are included in the Local Development Plan for the planned mining area.	Special regulations and rules related to reclamation process are included in project of reclamation of post-mining area (reclamation after 2060)
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?		The changing of land use direction was not required.	Before the planned change of land use directions, the Company's authorities **held a conversation with the local community** (during village meeting) presenting investment plans (October 2009). In the next steps, an external company (after obtaining corporate consent**) held talks with proper owners of plots** located in the boundaries of extended deposit	The reclamation process will be carried out in areas that belong to the mine or which they lease.
4.11 Which were the benefits and costs to the communities from the	not applicable	not applicable	The mining activity allowed to obtain financial benefits, among others: from the sale of plots, taxes, fees for extracted	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

boosting of new activities?			minerals, as well as maintaining employment at the current level - employees are close neighbors (local benefits). Limestone is used like a sorbent in large Polish energy plants (country benefits)	

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations. 1 Stakeholder

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	-	I do not have knowledge on this subject	I do not have knowledge on this subject	I do not have knowledge on this subject
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	-	5.3. We were not involved in the process 5.4. We were not involved in the process, which is why our postulates were not included	5.3. We were not involved in the process 5.4. We were not involved in the process, which is why our postulates were not included	Not applicable (reclamation after 2060)
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	-	Yes, the project of exploration of Czatkowice deposit was accepted by the local communities.	Yes (maintaining jobs)	-
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	-	The exploration process of deposit did not entail any negative impacts in relation to the monastery area.	Czatkowice mine support our monastery especially through: financial donations for events and celebrations organized in the monastery (e.g. Carmelite Youth Days) and material donations in the form of limestone for construction and other purposes.	I do not have knowledge on this subject

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			Potential costs could be connected with building damage. BUT at the moment, they do not occur	
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	-	I do not have knowledge on this subject. Probably the entrepreneur is responsible for the damage which were a result of the operations of the mining plant.	5.6. I do not have knowledge on this subject. Probably the entrepreneur is responsible for the damage which were a result of the operations of the mining plant. At present, the mine established seismic monitoring on the monastery buildings. Reports, which are made every quarter, do not indicate a threat from mine operations.	Not applicable
5.7 Were any mandatory and/or voluntary compensatory measures taken? If yes, please explain. a. Were these perceived as adequate by the company and by those compensated?	-	The exploration process of deposit did not entail any negative impacts in relation to the monastery area.	The mine (in relation to the monastery) does not cause mining damage. Donations made by mines are **voluntary compensatory measures** (details in 5.5. point). **They are perceived by us as appropriate. We never met with the refusal of help from the mine.**	Not applicable (reclamation after 2060)
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	-	I do not have knowledge on this subject.	I do not have knowledge on this subject.	I do not have knowledge on this subject.
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	-	Not applicable	Very important. Mining in the municipality of Krzeszowice has a long history and brings many benefits to the region.	Not applicable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations. 2 ***Stakeholder***

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Not applicable	**5.1.** Determining the local rules of spatial policy (including the directions of land use) belongs to the municipality's own tasks. Records of local land use documents **projects** (and their findings) **may be consulted** with various institutions. **The formal process to assess the final use of land not exist.** **5.2**. The Complex of Landscape Parks of Malopolska Voivodeship **was not directly** inform about final decision regarding to exploration plan and land use plan of Czatkowice mine.	**5.1.** Determining the local rules of spatial policy (including the directions of land use) belongs to the municipality's own tasks. Records of local land use documents **projects** (and their findings) **may be consulted** with various institutions. **The formal process to assess the final use of land not exist.** **5.2**. The Complex of Landscape Parks of Malopolska Voivodeship **was not directly** inform about every final decision regarding land use plan of Czatkowice Mine. The new version of resolution of Kraków Valley Landscape Park was available on the website of Marshal Office of Małopolska Province and website of The Complex of Landscape Parks of Malopolska Voivodeship (public information bulletin). The final decisions regarding to land use directions were available on Krzeszowice commune website (local land use documents)	The Complex of Landscape Parks of Malopolska Voivodeship does not participate in defining the land use directions and rules of reclamation of post-mining land. It may issue a non-binding opinion on this matter at the request of another Institution.
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	Not applicable	The Complex of Landscape Parks of Malopolska Voivodeship does not participate in the decision-making process regarding to geological research of Czatkowice deposit. Formally it is possible (in the case of request of Investor or other responsible institutions) to obtain a non-binding opinion from The Complex of Landscape Parks of Malopolska	Participation of the The Complex of Landscape Parks of Malopolska Voivodeship **is necessary** at the stage of **possible incompatibility** of the proposed mining project with a resolution regarding a given landscape park and its prohibitions and a protection plan. It may block the investment and requires changing the provisions of the relevant resolution (if it is justified)	The Complex of Landscape Parks of Malopolska Voivodeship does not participate in defining theland use directions and rules of reclamation of post-mining land. It may issue a non-binding opinion on this matter at the request of another Institution.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		Voivodeship. In practice, this was not the case. Conducting prospective/explorative works in landscape parks without breaking its prohibitions (e.g significant distortion of the area, change of water relations) does not require involvement or opinion of The Complex of Landscape Parks of Malopolska Voivodeship	In this case it was **Kraków Valleys Landscape Park** (in first version of resolution of Małopolska Marshal existed prohibition of raw material extractive in boundary of park). **In final decision the opinion of the Complex of Landscape Parks of Malopolska Voivodeship was considered.**	
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	Not applicable	As above	The project was accepted by the Complex of Landscape Parks of Malopolska Voivodeship.	As above
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	Not applicable	Not applicable	**Costs** - damages of environment and social cost (inconvenience to the proximity of the mine) **Benefits** - jobs for the local community (if they include the right specialists who can apply for employment), taxes paid by the mine to the commune budget, fees for extracted minerals paid to the municipal budget.	The Czatkowice Mine designed reclamation on the forest direction. Therefore, after completion of the reclamation process, over 50 ha of forests will be put into use.
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	Not applicable	Based on polish Geological and Mining Law, the entrepreneur is responsible for the damage which were a result of the operations of the mining plant and created during exploration works.	Based on polish Geological and Mining Law, the entrepreneur is responsible for the damages which were a result of the mining activity during extractive of deposit. **Polish law does not regulate this in detail.**	Not applicable
5.7 Were any mandatory and/or voluntary compensatory measures taken? If yes, please explain. a. Were these perceived as adequate by the company and by those compensated?	Not applicable	Not applicable	For valuable natural areas (such as the Krakow Valleys Landscape Park), the mandatory compensation measures resulting for mining activities are included in the **environmental decision** (it is **obligatory document** for such activity as the Czatkowice Mine; was issued by the mayor). The detailed conditions included in environmental	Not applicable (reclamation after 2060)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			decision have been agreed with Regional Director for Environmental Protection. **They are perceived as not adequate (according to the Complex of Landscape Parks of Malopolska Voivodeship)**	
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	Not applicable	-	-	Not applicable (reclamation after 2060)
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	Not applicable	Not applicable	Mining/mineral issues as compared to other local policy priorities are very important especially in municipalities with long mining traditions (such as Krzeszowice Community)	Not applicable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 7 Case Description Finland - Kevitsa

Case Study Identification

Kevitsa	
Finland	
GTK	
Type of mineral resources?	Primary: Nickel, copper Sub-product: Gold, Platinum, Palladium, Cobalt Pd, Pt and Co are on the CRM list
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Exploitation
Is the case about open-pit or underground mining, both or not applicable?	Surface
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	Local The case affects one municipality only on all other aspects except the transport of the concentrate to a smelter in the southern part of the country
Extents of the project (km2) or not applicable?	14 km2
Company or companies involved	Kevitsa Mining Oy. Part of Boliden
Are the mineral resources private and/or public owned?	Minerals are state owned and a concession is given to the mining company. The mining concession is granted for a fixed term or indefinitely. The conditions for the operation is given in the environmental permit.

Case study description

The deposit was discovered in 1987 by GTK (Geological Survey of Finland) who held claims covering the deposit during 1984-1992. The deposit was put up for international tender and subsequently the claims where transferred to Outokumpu Oy in 1993. Outokumpu Oy dropped the project in 1998 and it was picked up again by Scandinavian Minerals Ltd in 2000 who developed the project for several years and eventually sold it to First Quantum Minerals Ltd in 2008. The claims where converted to a mining concession in 2009. First Quantum Minerals LTD transferred the mineral rights to Kevitsa Mining Oy (owned by FQM Ltd) which was sold to Boliden in June 2016.

Land use planning in Finland is governed by Land Use and Building Act (Maankäyttö- ja rakennuslaki, no. 132 of 1999) and Land Use and Building Decree (Maankäyttö- ja rakennusasetus), no. 895 of 1999. The current act came into force in January 2000 and it is under renewal. This act replaced the old Building Act that had been in force since 1958. The **new act consists of three levels of land use planning: regional plan, local master plan and local detailed plan**. Local master plan and local detailed plan not always exist, being the regional plan the basic reference. In this case local plans are defined when a new activity is applying for development in a defined area. For the activities relevant for the exploitation of mineral resources only mining projects are included into the land use map.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Relatively to the Kevitsa mine case, there has been a first phase of **EIA (Environmental Impact Assessment), permitting and land use planning**

- Scandinavian Minerals Ltd initiated the EIA (covering also the assessment of social aspects) in November 2005 and it was completed in July 2006. This EIA covered mining and processing of 4…5 Mtpa ore and outlined the essential operational areas around the deposit
- At that time the land use plan situation was such that **an old regional plan was in force** on the area (this had been completed during the old Building Act (1958). Kevitsa area was shown there as forestry land but the deposit was outlined with 90 km2 area reservation. **Parallel to EIA a new Northern Lapland regional planning process was on-going, initiated in 2002**. Regional Council of Lapland approved the new regional plan in May 2006 and Council of State respectively ratified it in December 2007. In the plan Kevitsa was marked as specific mining area (coded as EK 1904). Koitelainen area was marked as protected area (SL 4310) following closely the respective Natura 2000 area. Finnish Natura network has since 1998 been incrementally built up based on respective EU legislation

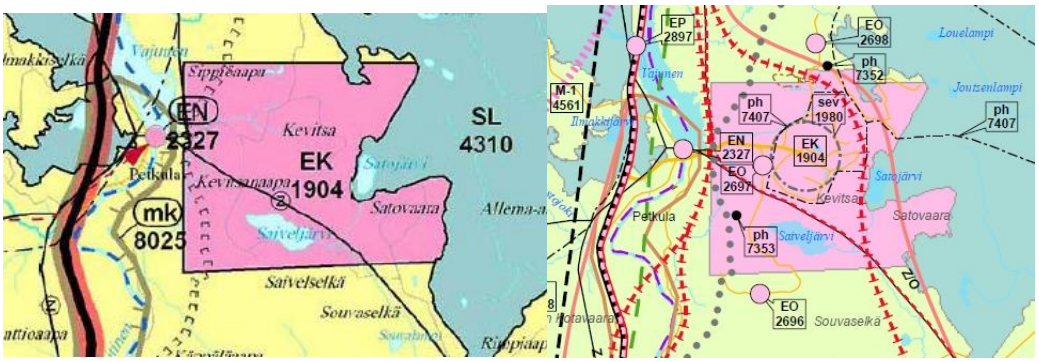


Figure 1 Land use map (on the left), land use plan 2040 in planning (on the right)

- **Moreover, a local master plan (legal effect)** was in force on the area, since September 2001 after Lapland Regional Environmental centre ratification (municipal approval in November 1999). The plan had been done during the old Building Act (1958). Most of Kevitsa area and surroundings were shown as extractable resource area including soil & aggregate extraction and mining (coded as EO). However Natura 2000 area was not specified there as the plan had been done before the network came into existence but still the areas east of Kevitsa were mainly shown as protected area (SL).

Figure 2 Local plan

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- The environmental and water discharge permit was granted on July 2009. The application had been submitted in June 2007, mainly based on EIA technical option VE1 plan. Permit conditions were ca. 5 Mtpa annual ore mining + 8-16 Mtpa waste rock and processing producing some 60 000 tpa copper concentrate and 80 000 tpa nickel concentrate. Known ore reserves by that time were 95 Mt.
- Mining concession was granted in September 2009, hence all necessary permits being in place to start construction and operation.
-

Second phase of EIA, permitting and land use planning

- Mine construction started in June 2010 based on environmental permit (2009). Production started in 2012.
- Parallel to mine construction First Quantum Minerals Ltd made a decision to double the production capacity (ore mining and processing max 10 Mtpa, waste rock mining max 63 Mtpa, max 120 000 tpa Co-concentrate and 160 000 tpa Ni-concentrate) and therefore another EIA was done in 2010-2011 and a new environmental and water discharge permit application was submitted in 2011. The permit was granted in July 2014. In the permitting phase the known mineral reserves were 166 Mt.
- Over the years the actual production (milled ore) reached the record 7,9 Mt in 2017. Boliden aims to expand the production up to 9-10 Mtpa according to new environmental permit
- **At this time the Northern Lapland regional plan was in force on the area as well as local master plan (2001).** Municipality of Sodankylä gave a statement that even the expanded project qualifies with the valid master plan, hence there is no need to revise the local master plan. Also the municipality stated that no local detailed plan is needed for mine construction. **Based on this all construction on site was done based on exceptional building permits**.
- The mine made an agreement with the reindeer herding district Oraniemi of a compensation for loss of herding areas in November 2009.
- **The local detailed plan** was done 2015-2017 and approved by the municipal council in May 2017. The plan was eventually needed as the volume of construction on site was higher that could be managed with exceptional permits anymore. Detailed plan included land use planning within the mining concession only. The new plan enables more straightforward building permitting and also bigger volume of construction on the site. New EIA was not necessary because EIA 2011 was adequate for the purposes of local detailed plan.

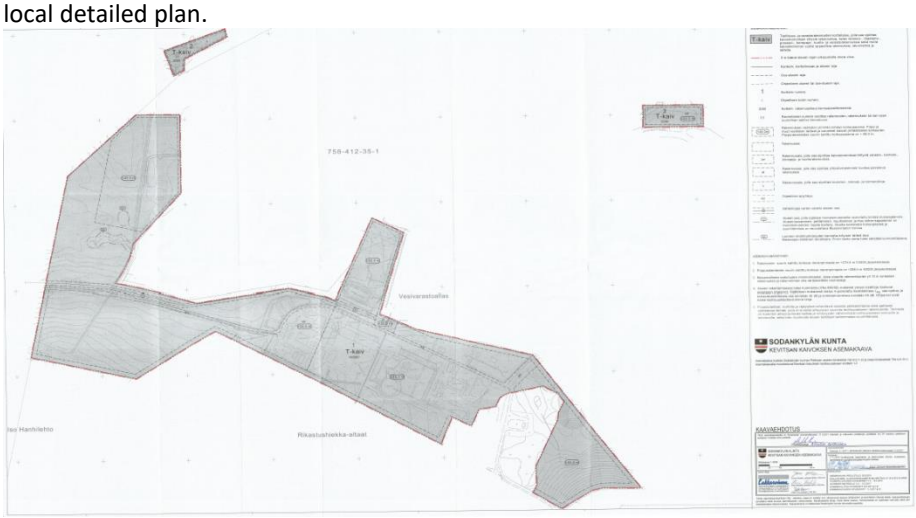


Figure 3 Local detailed plan

Expansion of mining licence area 2018

- Mining licence expansion process was initiated in October 2010. Mining authority decided on mining concession transaction on April 2018. Long processing time was due to several conflicting application processes (several exploration and mining companies had parallel applications on the area). After concession procedure the authority will grant the expansion mining licence.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- The expansion area is 4 km2 and shown in the map below (orange fill). The expansion is according to the current land use plans except the northernmost parts of the expansion area. **It has been stated that the planned auxiliary mining operations do not unnecessarily prevent other land use on the surrounding areas.**
- In connection to this, the municipality has stated that this land use designation shall be planned in connection to on-going Northern Lapland regional planning (see hereafter). Parallel to that the municipality will initiate revision of local master plan that needs updating also for many other areas besides Kevitsa surroundings.

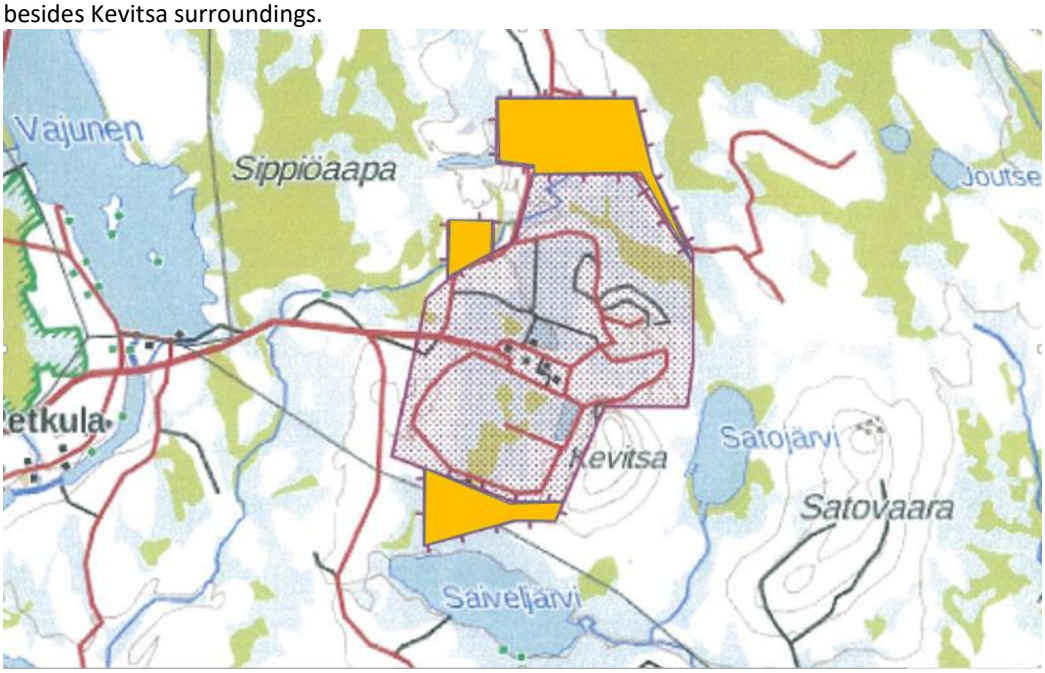


Figure 4 Expansion plan

SUMMARY

- **Currently the following land use plans are in force in Lapland: Regional land use plan (2007), local master plan (2001) and local detailed plan (2017)**
- For the moment (end of 2017), the mineable mineral reserves of the case study are ca. 134 Mt and the life of mine (LOM) continues to the 2030s.
- The deposit is a low-grade deposit and the first company investigating possible exploitation gave it up and handed it back to the government. Scandinavian Minerals Ltd managed to design an economically viable feasibility study by downscaling the operations and focusing on the higher-grade core parts of the deposit only. However it was only FQM that had resources and know-how to do the actual construction and ramp-up the production. After Boliden took over, the company has been able to optimize the process, increase the production, cost efficiency and recovery as well.
- Currently Kevitsa is the only mine in Western Europe to produce significant amounts of PGE (Platino Group Elements) being No 29 and 31 globally in terms of production (2016). Regarding cobalt the mine is No 28 and nickel No 38 globally (2016)
- Throughout the development stages of the project the community support and social license to operate have been strong, possibly due to the depopulation and unemployment in the municipality that continued for decades. One contributing factor is that GTK explored the site for 12 years and it took an additional 17 years until mine construction. During nearly 30 years people got used to the project. In addition the mine is located in a sparsely populated area. The latest environmental permits have been granted without appeals from the locals. Furthermore there are no complains of operations from the local stakeholders in the Sodankylä municipality. People from the nearby villages are regularly invited to visit the mine and discuss the main investment and environmental issues.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- The site is located outside of the Sami homeland but still within active reindeer herding.

Development of the regional plan

New Northern Lapland regional plan has been initiated in April 2017 and the plan is to get the plan in force by the end of 2020. One important aspect in the plan is the routing of the planned Arctic Ocean railway that could be potentially important for the mines operating on the area.
Several regional land use programs are under renewal from 2018. In Lapland the regional council has taken into consideration the different strategical inputs visualizing them into a map.

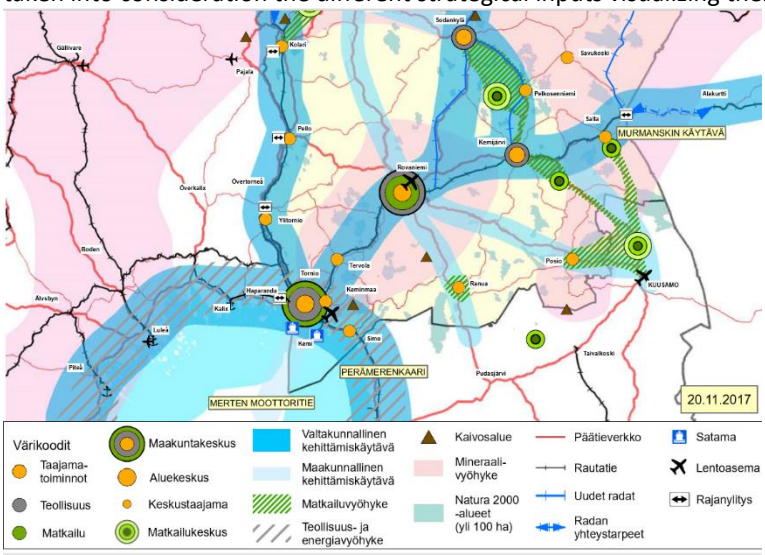


Figure 5 Regional planning process
http://www.lappi.fi/c/document_library/get_file?folderId=3589265&name=DLFE-32814.pdf

This new concept adopted in Lapland introduced also mineral information into the regional land use. Mineralization is shown on the map, not as a limiting factor but as an information useful in the decision-making process, as a value.

Also the region of Pohjois Pohjanmaa is renewing the regional land use plan and has included aggregates and quarry areas, mines and mineral resource areas (Mineraalivarantoalue red lines in Fig.6). Mineral resource areas are zones where significant ore and mineral reserves have been found. The mineral potential zone assigned by the additional marking -1 needs for assessment of specifc regional/local priorities for example for housing, tourism and so on. The map is also showing different levels of mineral potential zones according to the knowledge of the deposit (tunnettut= known, lupaavat: promising, todennakoiset: probable).

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

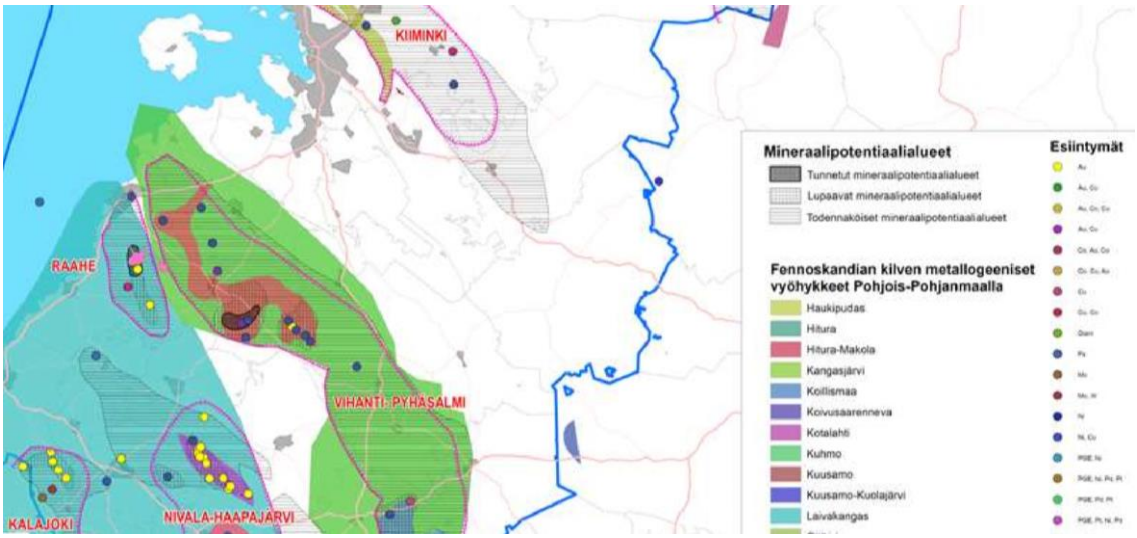


Figure 6. North Pohjanmaa Land use planning document of 2017 published for public hearing
file:///C:/Users/nluodes/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/3MKK-Selostus-Master_LAUSUNTOAINEISTO_Nettiin2%20(1).pdf

Description of how current mineral resources legislative and administrative procedures interact with land use planning legislative and administrative procedures.

There are three main procedures and respective legislation that govern the exploration and mining industry in Finland:

1) mineral rights according to Mining Act https://www.finlex.fi/fi/laki/kaannokset/2011/en20110621.pdf

2) Environmental protection based on Environmental Act http://www.ym.fi/en-US/The_environment/Legislation_and_instructions, including EIA process if applicable http://www.ym.fi/en-US/The_environment/Legislation_and_instructions/Legislation_on_environmental_impact_assessment

3) land use planning based on Land use and Building Act https://www.finlex.fi/fi/laki/kaannokset/1999/en19990132.pdf

Mineral rights

Commodities governed by Mining Act are specified in the act. Surficial earth resources like sand and gravel are not included in the Act scope but are governed by Environmental protection Act (see hereafter).

The exploration process for state owned mineral rights is guided by the Mining authority and the Mining Act and can grant an exploration license nationwide. There are 3 types of permits: reservation for an exploration license (valid 2 years), exploration permit (valid 4+3+3+3+2 years) and mining concession (valid indefinitely unless specified otherwise).

There are a number of areas excluded from exploration: mainly urban areas, areas in use by the defence forces and also in practise national parks. Environmentally protected areas including Nature 2000 are open for exploration but require an additional permit from the Ministry of the Environment. Exploration in Nature 2000 areas have recently caused heated debate. The mining authority also grants the mining concession.

The application/granting process of both the exploration license and the mining concession involves the request of feedback from other authorities, landowners and other stakeholders, including reindeer herders. An application affecting the Sami homeland also requires a statement from the Sami parliament.

An annual report is required by the mining authority.

Appeal procedure exists for mineral rights permits.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Environmental protection

Environmental aspects including the mine closure are permitted through environmental permit, the governing authority being the Regional State Administrative (Environmental) Agencies (AVI). Supervision of operations and consequent rehabilitation is governed by the Regional Centre for Economic development Transport and the Environment (ELY Keskus).

Private owned minerals are rock, gravel, sand, clay and organic soil and need exploitation permit only. The permit is obtained from the municipality (valid for 10 years). Annual reporting to the municipality is required. Regular inspections is made by the municipality.

A mining operation exceeding excavation of 550 000 tpa (or 25 ha open pit) requires a completed EIA prior to the mining concession being granted. This process is initiated by the mining company but supervised by the Centre for Economic Development, Transport and the Environment (authority). This is a substantial assessment studying several options on how to conduct the mining operations and the effects this will have on the bedrock, soil, water, air, flora and fauna. In addition it studies the effects on other local and regional enterprises and activities and the community. This assessment also involves the request of feedback from other authorities, landowners and other stakeholders, including reindeer herders. EIA is not a legal process but provides material for legal permitting and decision making, the main emphasis being in the study of various alternatives for project implementation.

After completion of the EIA the mining company selects one of the options in the EIA and based on this applies for an environmental and water discharge permit for the mining operations with more detailed respective technical plans. This is processed by the Regional State Administrative Agencies (authority). Again the request of feedback from other authorities, landowners and other stakeholders, including reindeer herders is required.

Appeal procedure exists for permits according to Environmental protection Act.

Land use and building permits

Land use planning (zoning) goes parallel to other permit procedures. Also the building permits are granted based on the same Land use and Building Act but typically these are acquired in the very final stage just prior to mine construction.

The municipality is responsible for the local master plan and the local detailed plan. In many cases the municipality has opted not to require these plans but there are several mines also that do have these plans in place due to municipality will. The municipality can, if they so choose, refuse or include the mining operations into the land use plan. This way they can on a way make a veto to a project. However legal praxis is not well tested on this issue as the tight connection between Mining Act and Land use and Building Act is relatively new, only being in force since New Mining Act (2011). There are cases on-going in Finland where the municipality and mining company have conflicting interest on zoning but Kevitsa is not one of them.

The Regional land use plan is the responsibility of the Regional Council. Typically mining areas are designated as EK areas (minerals exploitation areas). Often these are areas that contain mining concession or are in the process applying such, ie. rather advanced projects. Presently there is no direct automatic link between a mineral deposit and land use planning. This is done retroactively by the enterprise aiming to exploit the deposit. Regional plans are revised time to time. Typically, the EK areas are also considered based on consultations with the companies. If a company wants to get EK zoning for their area at some other time, they may undertake a partial regional plan revision that is similar in process but governs only the project area and is financially paid by the company altogether.

All these permitting steps except the EIA process can be appealed to the administrative court and to the supreme administrative court thus delaying the process with a possible 2-3 years at each step.

Main conflicting land uses with minerals' life cycle's land use

The majority of the mining projects are located in the northern and eastern parts of the country and since these are sparsely populated the conflicts tend to be related to environmentally protected land, recreational use of the land and reindeer herding.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

The reindeer herding is ongoing in an area covering about one third of the country and is therefore in the eastern and northern parts unavoidable. The solution so far has been monetary compensation. These conflicts have traditionally been resolved with direct dialogue in-between the mining company and the reindeer herding association. These agreements are confidential by nature.
30% of the land in Lapland is under some form of environmental protection so also here conflicts are likely and there are presently two high profile exploration projects ongoing presenting these kind of conflict. These conflicts are so far not resolved. Exploration is feasible on protected land, the conflict arises with the transition from an exploration permit to a mining concession. The authorities involved are the Mining Authority and the Centre for Economic Development, Transport and the Environment.
In addition there are two mine development projects not competing for the same land but in the vicinity and in plain sight of winter skiing resorts.

Following table 6, Identification and characterisation of case aspects relevant for peer learning and good practice learning

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

6.1 Key success factors	The company operated into an environment that accepted through the years mining operations and where social acceptance developed gradually and steadily. Community has been welcoming the mine by about 90%, the company has been able to find agreement with the local reindeer herders, and even if some holiday cottage had been worried on the effects of the mining activities, the company has been able to build and manage the water treatment plan with the high standards required by the authority.
6.2 Problems encountered	The main problems have been: - conflict of land use between mine and reindeer herding, -holiday cottages that searched clean and quite environment in Lapland, -the strict value of emission for waste water by the mining area mainly on Ni levels
6.3 framework conditions/contextual factors	The fact that on the land use map the area of interest was already dedicated to mine activity facilitated and fast up the process. It would had been more difficult to start changing the land use plans and it would had taken more time also because of the nearby protected areas. Nowadays the regional planning programme has developed in a way to show, in a map, mineralization areas as a value for sustainable development. This would also support future decision-making process. The development and expansion of the mine affecting reindeer herding areas and not Sami area allowed also progress of the work and establishment of agreements at different decision-making levels.
6.4 Impacts achieved	The mine has affected economically and socially the community and its mineral extraction is importance at international level.

ANNEX 1. Survey

Table 39- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES – Industry representative from the case has been interviewed, permit expert of the Geological Survey of Finland has also contributed.

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Land use plans are legally binding but each level of plans have certain status and effects in terms of land use requirements. Each land use planning level needs to comply with the superior land use plan that guides the subordinate plan, for example local master plan guides the local detailed plan. Usually building permits are granted based on local detailed plan. In generally land use should not take place against the definition in the land use plan. Kevitsa land use planning has taken place according to authority guidance (basically the municipality).
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	This is dependent on the governing authority. In case of local master plan and local detailed plan the municipality. In case of regional plan the regional council. But there are no strictly defined review periods.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Typically permanent change of land use designation requires a review of land use plan or establishment of new land use plan (in case lacking). But this is not tied to periods (see above). Length of land use planning procedure depends on level of plan but with lower level plans it typically takes 2-3 years (not counting possible appealing processes) and with regional plans considerably longer, ie. 4-5 years.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	According to new Land Use and Building Act (2000) as well as New Mining Act (2011) mining areas need to have a proper land use designation. So in case of any new mines there is no alternative for land use designation. In case of old operating mines there may be exceptions due to old legislation being in force when the mines were permitted and started operation.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	When an area is recognized for exploitation of mineral resources, that area is dedicated to that activity. Exploration does not affect the land use zoning yet, until it is applied a permit for exploitation of the resource. Exploration can happen also on Natura2000 zones with prescriptions
	3.6 Does land use planning consider the possibility of coexistence of multiple	Especially on Regional Plans so called potential deposit areas may be outlined as specific areas (secondary land use), hence applying to exploration phase projects.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	In those cases the main land use designation may be something else, e.g. forestry. However if mining becomes actual these areas need to be designed properly, possibly requiring a partial regional plan to be undertaken. In case of Kevitsa, only mining may take place on the mining concession area. Outside the concession area other land use may happen (e.g. forestry despite the EK zoning definition)
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	In certain cases yes. For example typically one cannot obtain building permit (for a cottage for example) if the area has been designed as a mining area. Exploration areas do not preclude other land uses, see above.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Typically at least the mining concession area is zoned as mining area (possibly even larger area). Also the land use plan contains instructions that define the land use on each specified area. In case of Kevitsa there are both.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	These are not considered in exploration phase. In EIA phase these are studied (various alternatives, not legally binding). Binding plans are only undertaken in actual permitting phase (environmental permit, mining permit and land use planning). Each permit process should contain the same major aspect of necessary infrastructure but level of detail and approach differs depending on the process. This has been the case in Kevitsa as well. In local detailed plan for example the sites and volumes of buildings need to be specified in detail.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Minerals Information provided by Tukes and eventually stored and distributed by GTK is Inspire compliant. Land use planning documentation and data is dependent on municipalities and Regional Councils. Their Inspire compliance needs to be requested from them directly.
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	Land use planning authorities typically have no specific expertise on mineral resources but they may utilize external experts like consultants (or the company that is preparing a detailed local plan for example).
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	There is data sharing mechanism between geological survey (GTK) and mining authority as GTK is responsible for national longterm Geodatastorage but mining authority initially handles the data provided by the companies. However such system is not in place towards the land use planning authorities that although have access to all public geodata held by GTK.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Each organization relies on their own GIS resources. All data provided by mining authority and respectively by GTK is GIS compliant.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	No. Such system is being constructed, so called National Supervisory Authority (Luova-authority) but the eventual schedule and implementation is unclear for the moment being (probably starts activities in 2021). AVI and ELY Keskus will be part of it while the Mining authority will not be part of it.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered?	There is no such designation except that in strategy level documents (regional programme) these may be mentioned. In practice however land use plan designations do not take this aspect into account for state owned minerals.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	Similarly the level of knowledge on minerals is not really reflected on land use plans except the difference between (see question 6) potential deposit areas and actual mining areas (zoned). International reporting codes are only utilized by mining authority in their permit consideration. No other authority considers them.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.? How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	Supposedly there is no systematic way how to do this. A subjective evaluation is likely undertaken. Operator (mining companies) cannot really answer this question. *In the regional programme the aspects strategic for the region are highlighted and these are valued against each others according to the act that rule the regional activities*.
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	All public GTK data is available to authorities as well as other parties. However typically the authorities simply rely on GTK statement(s) that are given on request.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Definitely there is need for new geological information. Mineral potential in Finland is still poorly understood.
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	Yes but most likely it has no role in land use planning decisions. It may have some importance in other permitting considerations (definitely in mining permitting).
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	*GTK collects information on mineral resources, if the regional development program contains also aspects of sustainable management of natural and economical resources (state owned minerals in specific), mineral resource information has been gained from GTK by the Regional council through consultation and has been included for example as regional value in the regional program (example Lapland, link added in the main text)* *There is no prioritazion until the area is not defined as a mining area.*
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	There is no such procedure although it would be very useful in order to be able to do comprehensive decisions on land use.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.25 Are there and which are incentives to implement minerals into land use planning?	*Incentives have come to explore mineral resources of strategic minerals but not related to their inclusion to land use planning. Co financed regional development projects nation wide have been relative to the evaluation of potential areas for extraction of aggregates and natural stones also considering the water resources and the natural environment (Poski projects in different regions) Results can be transposed into land use if the region decide to do like this (Pirkanmaa region)*
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No.
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	No. However the legislation includes the procedures for public hearings. Appealing procedures are defined for each permit procedure separately.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	*From the Regional council is it told: The national objectives for the use of the regional areas, set by the Government, are taken into account in regional planning. Special plans are for natural, cultural aspects, tourism but also geolgical features are taken into consideration. (To be deepen with authority)*
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Yes, at all levels of land use planning. There are specific public consultation procedures on these
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	They may influence the decision.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Typically environmental designations have a very strong status against other land uses. It may be possible to override or change such designations but argumentation needs to be really solid on those cases.

Table 4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	no	no	yes, exploitation permit or mining permit cannot be granted without proper EIA (according to new Mining Act). In case of Kevitsa the mining concession (2009) included EIA (2006). Also the environmental permit	(yes), closure aspect needs to be covered in EIA on generic level but details are generated on the course of LOM. Kevitsa closure plan has been revised

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			application and the new mining concession expansion are built on top of EIA	several times since the 2006 EIA
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	no	no, although the mining authority requires geological argumentation that supports the exploration plans.	Yes, but only in case of mining permit (land use planning requires nothing). The applicant shall demonstrate that economical mining is feasible. Typically this may be supported by adequate feasibility study that for resources/reserves estimation utilizes these reporting codes. In environmental permitting there is no such component in place besides that known resources/reserves are reported as part of project technical description.	no
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	no	no, as exploration is temporary land use anyhow.	Land use planning procedure does not really consider post-mining land use although it is considered in the other permitting processes (like mining permitting). Likely a new land use process may be undertaken eventually if need be.	see, exploitation permit on the left
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	no	no	Yes, Kevitsa area (mining concession) is reserved for mining activity. Any other land use designations shall be subject to separate procedure. In the other areas (outside of concession area but still on EK area) there may be other uses (forestry, cottages, reindeer herding) but these shall not prevent exploitation of potential minerals on the area.	No.
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	there is no this level data	geological data produced and eventually distributed by GTK is Inspire compliant	geological data produced and eventually distributed by GTK is Inspire compliant Municipality and Regional Council are responsible for land use planning data and need to answer directly on Inspire compliance.	geological data produced and eventually distributed by GTK is Inspire compliant
4.7 Before the case, was the land assigned to a different land use?	No	No	No, during the actual mine project the area has been reserved for mining designated area.	No

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?			Originally the land use on the area has been forestry but it was changed in the late 1990s. This took place during very different legislative framework and none of the actual mine operators (FQM or Boliden) was active on the area then. Hence it makes no sense to evaluate the process back then. All possible future expansions or other changes will take place according current legislation which will be exceptional type of processes.	
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]			The project was well accepted. As in big projects always there are some stakeholders who feel disadvantaged.	Yes
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.			No. See question 6.	No
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?			No. See question 6. In case of any new land use changes (around the current mining concession for example), the procedures would be according to valid legislation.	No
4.11 Which were the benefits and costs to the communities from the boosting of new activities?			Refrestment of groceries and many supporting livelihoods. Increase of cost of housing and lot of new housing construction. Municipality needed to invest to new daycare systems (shift workers).	Not possible to evaluate at the moment.

Nature associations and complementary industry have been invited to participate to answer the tables but there has not been interest. Also the nordic workshop did not presented vulnerable groups or natural asscociations within the partecipants. Between the stakeholders from Finland participating to other meetings and online surveys there is also the ministry of environment, municipalities and other industries, so it possible to have direct feedbacks during other WP activities.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 8 Case Description Sweden Mertainen

Case Study Identification

Mertainen 	
Sweden (Country)	
SGU MinLand partner - LKAB (Responsible Company)	
Type of mineral resources?	Primary: Fe (magnetite) Possible sub-product: Apatite
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Exploitation with compensation for impact on nature values in the surroundings (ecological compensation). Rehabilitation is part of project.
Is the case about open-pit or underground mining, both or not applicable?	Open-pit
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	National scale, Mertainen is pointed out as a mineral deposit of national interest. Regional scale, Mertainen is important for retaining future mining industry in the Svappavaara region. Local scale, mining in Mertainen impacts other alternative land use like reindeer husbandry, high nature values, recreational opportunities, forestry.
Extents of the project (km2) or not applicable?	About 13 km2
Company or companies involved	LKAB (state owned company)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Are the mineral resources private and/or public owned?	LKAB holds three exploitation concessions concerning iron in Mertainen. An exploitation concession gives the holder the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged.

Case study description

Mertainen is located in Kiruna municipality about 12 km northwest of the village Svappavaara, where LKAB has an existing mine and in pelletizing plant.

The mineral deposit of magnetite in Mertainen was discovered in 1897. Mining concessions, according to elderly mining law, was granted in the early 1900's. In 1956-1958 about 400 000 tonnes of iron ore was mined in an open-pit. A major drilling programme was performed by the Swedish geological survey in 1959-1963. In year 2000 the old mining concessions were transformed into exploitation concessions (named Mertainen K nr 1-3) according to the Minerals Act (1991:45). Further exploration work has been done by LKAB since year 2000, including a test mining of 380 000 tonnes in 2011. The Geological Survey of Sweden (SGU) declared Mertainen as a mineral deposit of national interest in 2011. The environmental permit required for mineral extraction under the Swedish Environmental Code was issued by the regional Land and Environmental Court of Appeal in 2014. Mining activity in Mertainen is right now on standby due to metallurgical research to obtain a high-quality iron ore product.

The location of the mineral resource is geographically beneficial in relation to LKAB's already existing processing plants in Svappavaara. Ore occurrence is large and the mineral resource is easily accessible and located near existing road and rail infrastructure. There are no residential areas close to the planned mining site, which is also an advantage. Thus, the direct disturbance to people in the form of noise, dust and vibrations etc. is limited.

Mining operations will have impacts on reindeer husbandry since the area is important in terms of providing winter grazing for reindeers. Two Sami villages are affected by the mining site; Gabna and Laevas. Mining in Mertainen will also affect areas with high nature values and recreational opportunities in the area, such as berry picking and hunting.

The mining operations at Mertainen will use approximately 720 hectares of land for an industrial area, storehouses and auxiliary operations, but also impact wetlands, coniferous forests and mixed forests in the surroundings. Following the Land and Environment Courts approval of LKAB's compensation plan for its operations at the Mertainen mine, the company will be required to compensate for its impact on the nature values identified in an area located to the north of the mine. The ruling states that LKAB has signed an agreement to protect an area at least equal in size to the impacted area of 1220 hectares. The company's compensation plan includes restoration, protection and management measures for forest land and wetlands in an area which, without formal protection, risks being used for forestry purposes. The compensation proposal is based on the idea that the company will help create new nature values, rather than simply protecting a particular area. Among other steps, dead wood will be moved from the exploited area to the compensation area.

The Mertainen project was used as a case in a pilot project to develop a methodology for calculating losses and gains. A full project report "Biodiversity Offset Design – the Mertainen case study" can be found at:
http://www.enetjarnnatur.se/site_specific/uploaded_files/55404/biodiversity-offset-design_20140707_final-with-front-page.pdf
http://www.euromines.org/news/newsletters/3-2016/lkabs-work-with-compensation-of-natural-resources-for-the-mertainen-site

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Description of how current mineral resources legislative and administrative procedures interact with land use planning legislative and administrative procedures.

The Swedish mineral strategy aims to increase the competitiveness of the Swedish mining and minerals industry so that Sweden maintains and strengthens its position as the EU's leading mining nation. Sweden's mineral assets are to be exploited in a long-term sustainable way, with consideration shown for ecological, social and cultural dimensions, so that natural and cultural environments are preserved and developed.

The ownership of mineral deposits is not defined in Swedish law. The right to grant access to concession minerals, listed in the Swedish Minerals Act (1991:45), and permits to extract mineral deposits is reserved to the state. An exploitation concession gives the holder the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged. The right to extract other 'non-concession' minerals belongs to the landowner.

The Chief Mining Inspector grants permits for the extraction of concession minerals and the terms and conditions governing such a license are set down in the Swedish Minerals Act. An **exploration permit** gives the holder ex¬clusive rights to exploration (prospecting) and priority rights to an exploita¬tion concession (mining permit). Before actual exploration work can be done a **valid plan of operations** (work plan) needs to exist, the validation of a work plan is a process with the holder of the exploration permit, the landowners and holders of special rights to the land.

If the exploration work done indicates there are deposits of such quality that they would be economically profitable to extract and that their geographical location is suitable with regards to the principles of natural resource management, the Chief Mining Inspector may grant an **exploitation concession**. Mineral resources must be estimated according to international reporting codes for classifying resources, the categories "indicated" and "measured" resources can be used in the estimation. An application for exploitation concession must include an environmental impact assess¬ment where land use questions are central. The Chief Mining Inspector shall consult the county administrative board regarding the application of Chapters 3, 4 (provisions for management of land and water) and 6 (environmental impact statements) of the Environmental Code. The application for the granting of an exploitation concession shall be referred for consideration by the Government if the Chief Mining Inspector, in applying Chapter 3 or 4 of the Environmental Code, finds reason not to follow the recommendations of the county administrative board. In the initial stages of the assessment process, consultation is sought from all potential stakeholders (landowners and holders of special rights), who will be given information and the opportunity to submit comments. Both agencies and the public are included in the consultation. If an application relates to an area covered by a municipal detailed development plan or area regulations under the Planning and Building Act (1987:10), the Chief Mining Inspector shall obtain an opinion from the municipality. A concession must not be contrary to a detailed development plan or area regulations. If the purpose of the plan or the regulations is not thwarted, however, minor deviations may be made.

The Chief Mining Inspector also makes decisions on **designation of land** needed for a mining activity. If the concession holder is in agreement with the landowners and the holders of special rights, land or other space shall be designated in accordance with that agreement. Insofar as an agreement has not been reached, the land or space that is needed shall be designated.

Environmental permits for mining activities (Chapter 9 and 11 of the Environmental Code) are issued by the Land and Environment Court as the first instance. An application must include a broad environmental impact assessment, a waste management plan and a plan for how remediation is to be carried out after the activities have ceased. In the initial stages of the assessment process, consultation is sought from all potential stakeholders, who will be given information and the opportunity to submit comments. Both agencies and the public are included in the consultation. An environmental permit specifies the conditions that apply both to the operation of the mine and to site remediation. The environmental permit also includes states that financial security must be submitted to ensure that sufficient resources are available for remediation in case the en¬terprise lacks the financial capacity to remediate the site as planned. The

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

operator of the mine is supervised, according to environmental performance, by the county administrative board or the municipality.

Sweden has no cross-sector planning for land on the national level (except for maritime planning). The state provides frameworks for the municipal and regional level through national objectives and by identifying claims of so-called national interests. The decisions of national interests form a basis that county administrative boards and municipalities must consider in their long-term planning.

Land use plans are only indicative, except for municipal detailed development plans (mostly used in built areas) and area regulations in the comprehensive plan. Area regulations enable the municipality to regulate the basic characteristics of its land and water use if necessary to safeguard the purposes of the comprehensive plan or to satisfy a national interest. The municipalities are responsible for the planning of land and water areas within their geographical boundaries. It is only the municipality that has the authority to adopt plans and decide whether the planning is to be implemented or not.

In the comprehensive plan, the municipality must present the basic characteristics of its intended use of land and water areas; how the built environment is to be used, developed and preserved; what consideration is to be given to public interests; and what the intention is regarding how national interests and environmental quality standards are to be served. The plan must also indicate how the municipality intends to consider national and regional goals, plans, and programmes of significance for sustainable development within the municipality.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	The different land uses were weighted against each other in the application process (environmental permit) The company worked preventive in seeking solutions with land use from reindeer herding leading to no conflict in the final application part at the environmental court. Early involvement with stakeholders in a well weighted procedure. Case lead to new practice in procedure for co-existence with reindeer herding and (court ruling) compensation for infringements in areas with valuable nature. Available geological information (Geological Survey of Sweden) was reused and consists of an open available land-use dataset that can be used for both the industry as well as all authorities. Well thought out locations of industrial constructions and sites within the mining area
6.2 Problems encountered	Conflicts with Natura 2000 (land and water areas), NGOs (significant nature values) Road of public interest, E 10, affected
6.3 framework conditions/contextual factors	Mining has been actively supported in Sweden in terms of active support to the industry in terms of geological data (for prospecting and land-use puposes).
6.4 Impacts achieved	Mining permit was achieved with environmental permit. (The mining concession was granted in year 2000 and was then based on an older decision.) New practice in compensation of infringement upon areas of high nature values. Stakeholder conflicts avoided due to a strategy of early involvement.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

ANNEX 1. Survey

Table 3 Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Sweden has no cross-sector planning for land on the national level (except for maritime planning). The state provides frameworks for the municipal and regional level through national objectives and by identifying claims of so-called national interests. The decisions of national interests form a basis that county administrative boards and municipalities must consider in their long-term planning. Areas of national interest can be of many different kinds, eg. Mineral deposits, military, reindeer-herding, natural or cultural values, infrastructure, energy production etc. Areas of national interest are indicative until there is an application for some kind of change in land use. Then the authority responsible for the permitting process must decide whether there is a conflict between the interests in the affected area or if they can coexist. If there is a conflict the land use that facilitates the most sustainable (economically, ecologically and socially) land use shall be given priority. National interests must also be included in the municipal comprehensive plan. Area regulations enable the municipality to regulate the basic characteristics of its land and water use if necessary to safeguard the purposes of the comprehensive plan or to satisfy a national interest. Specific land use plans are being done at municipal level for detailed development plans (mostly used in towns and villages) and area regulations in the comprehensive plan. The municipalities are responsible for the planning of land and water areas within their geographical boundaries. Outside of the villages and towns the land use planning is to a large part depending upon making decisions when a facility is being constructed. At this stage the areas of National Interest is an instrument that is being adopted. Whilst applying for a mine the land use aspects will be a part of the decision. In the concession and the environmental permit the land-use planning is actually accommodated to mining with given restrictions.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	For areas of national interest it is up to the responsible authority to review the areas. There is a large variation between the need for reviews among different kinds of NI:s The overall direction of the land use in a municipality is indicated in a comprehensive plan. The municipality must have a current comprehensive plan and a review is to be done at least every fourth year.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	In the land-use process outside of the towns and villages the land use that minerals belong is considered as one of the group of National Interests. These are not being used as a detailed land use map rather as an instrument when specific use of a particular land is being determined, say for an industrial facility, a mine or something else. One area can have several National Interests that will be weighted first when need for use is at hand.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed, in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	A complete protection or safeguarding of minerals is not possible in land use planning. In the comprehensive plan, the municipality must present the basic characteristics of its intended use of land and water areas; how the built environment is to be used, developed and preserved; what consideration is to be given to public interests; and what the intention is regarding how national interests and environmental quality standards are to be served. The plan must also indicate how the municipality intends to take into account national and regional goals, plans, and programmes of significance for sustainable development within the municipality. Assigning areas of National Interest, is done dynamically, no specific time frame given, allowing for fast changes at need, e.g., when a new mine is being established.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	Areas of particularly valuable mineral substances may be declared national interests by the Geological Survey of Sweden (SGU). The provisions on national interests are found in the Swedish Environmental Code. Chapter 3, Section 7, second paragraph of the Swedish Environmental Code states that areas containing deposits of valuable substances or materials that are of national interest shall be protected against measures that may be prejudicial to their extraction. Within such areas, municipalities and central government agencies may not plan for or authorise activities that might prevent or be prejudicial to the exploitation of mineral resources. In other words – the general idea behind the instrument Areas of national Interest is that it is a tool to be used to select the land use that gives the optimal sustainability, in terms of ecological, social and economical values, and as such is not really a safeguarding except for in a loose form, but rather an instrument that allows for dynamical and rational decisions regarding land use. True safeguarding of minerals exists when an exploitation concession has been granted. Then the holder of the concession has the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	The ambition in all land use is to facilitate coexisting of different interests as often as possible. In the mineral value chain this I most often accomplished in the pre-exploration and exploration stages. During the exploitation of a mineral finding co existing is often limited concerning the mining area. Specifically, outside of the town and villages different land uses can co-exist. Prospecting is often done where forestry or agriculture is pursued. Claims of areas of different national interests is so structured that land uses coexist and overlap each other. If multiple areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable (economically, ecologically and socially) management of land, water and the physical environment in general. The final weighting is made in each trial when applying for permits (e.g. exploitation concession).
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	During prospecting this is the case – prospecting is so constructed legally that other land use is assumed in parallell. No, not until an exploitation concession has been granted. A concession precludes land use that can influence the possibility of a mining operation negatively. In earlier stages there is no such preclusion.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	See 3.4 – 3.6
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes, all foreseeable land use needed for a mining operation, including mining infrastructures, must be considered in an application for an exploitation concession. The impact of the operations in the surroundings concerning other land use/conservation of public interest must be considered. In the process of issuing an exploitation concession, the County Administrative Board (CAB) assesses if mining is the most adequate land use in the area.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Part of data is INSPIRE compatible and all data is planned to be INSPIRE compatible by 2020 according to plan.
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public*	The CAB, the Mining Inspectorate and the Geological Survey of Sweden (among others) share GIS layers and permits/decisions. The agencies can be consulted during the process, particularly the Geological Survey has one division appointed for support towards the industry. All land use is available upon request in GIS format for the users (industry, other agencies, NGOs, public) as a consequence of Swedish law that lal information should be publicly available with restriction for certain proected areas (e.g., national defense purposes).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	administration), networks and sharing of expertise between authorities?	The Geological Survey of Sweden, SGU, is the expert agency for issues relating to bedrock, soil and groundwater in Sweden. A very important part of SGU's work is to survey and document the geology of Sweden – not least with a view to facilitating mineral exploration. SGU's information on bedrock geology, bedrock quality, Quaternary (superficial) deposits, geochemistry and geophysics provides a basis for exploration for metal ores, industrial minerals and dimension stone.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	The principle of public access to information is applicable for all government agencies. Exploration permits, exploitation concessions, areas claimed as mineral deposits of national interest and other geological information are digitally available, adapted to GIS and easily accessible to all planning authorities.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Sufficient expertise is available within the Mining Inspectorate and the Survey. The County Board has expertise and capacity but naturally there might be differences for County Boards that process an application with long time since precious application. Similar could be the case for the municipalities – we do not have statistics to underline these options though.. GIS information exist and is available see 3.12.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Half yes – for everything no. Different legislations (Minerals Act, Environmental Code, Planning- and Building Act etc.) are applicable and handled by different authorities. However, the Geological Survey has as a service to parties involved in mining activities including all geological data, taking care of large part of drilled cores in prospecting and making them publicly available, assisting with information and guidances in the application process – it does not give advice on all aspects but who to ask, supporting with official guidelines. The legislation as such does not allow for a full one-stop shop since several authorities are involved. It is however recognized that it is important for a place and a function where companies and others can seek advice upon mineral extraction with data, guidelines and some recommendations which authorities to approach.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	SGU may, after consultation with Boverket (the National Board of Housing, Building and Planning) and the county administrative board, decide that a certain deposit constitutes an area that is of national interest regarding valuable substances or materials. Thus far, SGU has decided that 141 deposits of valuable substances or materials are of national interest. Of these, 84 have been demarcated in detail and marked on maps, while the others have been positioned using a centre coordinate. The decisions are available according to the principle of public access to information. Evaluation has only been done for prospected and mined areas (by the industry and according to industrial codes). When applying for an exploitation concession the mineral resources must be estimated according to international reporting codes for classifying resources, the categories "indicated" and "measured" resources can be used in the estimation. The information is confidential outside the Chief Mining Inspector. The industry has up-to recently used the Fennoscandian Review Board (similarities to JORC) but has now adopted PERC code.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.? How are different policy priorities weighed against each other and discussed*	Areas claimed as areas of different national interest can overlap and are indicative for land-use planning. The final weighting is made in each trial when applying for permits. The county administrative boards are involved in the weighting in a trial for an exploitation concession. However, the Areas of national Interest (mineral resources one of these) should also be used in all planning processes not only for mining but as a safeguard that important deposits are not being used for other "deemed less important purposes".

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?	
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Geological information is needed and is reviewed by the Swedish geological survey before an area of mineral deposit of national interest can be pointed out.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes. Sweden have large areas with good geological potential for exploration of mineral deposits.
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	??No special regulations are applicable for EU critical raw materials.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	No, but in the assessment of pointing out a mineral deposit of national interest, there are some criteria that must be fulfilled. A mineral deposit is considered to be of national interest if it satisfies the following criteria: • the deposit is of great importance for the society´s need on a national level, or of particular regional importance, in terms of employment, economic development and resource supply in the long term. • the deposit has particularly valuable properties, as regards e.g. purity, composition, quality, appearance, technical features or volume • the area containing the deposit is well defined, examined and documented
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	An assessment of the socio-economic value of a <u>new</u> mining operation can be/is normally included/ in an application for exploitation concession.
	3.25 Are there and which are incentives to implement minerals into land use planning?	The main reason for appointing an area as NI concerning mineral deposits is to improve the mineral interests position in physical planning and permitting processes.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No.
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Areas of different national interests can coexist and overlap each other. If areas of national interests not can coexist, priority shall be given to the purpose or purposes that are most likely to promote sustainable management of land, water and the physical environment in general (Chapter 3 in the Environmental Code). The Areas of National Interest is an instrument used in the permitting process. The permitting is used to determine which land use should be given priority and involves both the concession as well as the environmental permit.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Community-economical effect, social and ecological sustainability. However, different stakeholder issues has been a growing aspect in terms of influence in the process (e.g., EIA process in the Environmental Permit).
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how	The municipal comprehensive plan for overall land use is open for public comments for two months. No special engagement is made for mining stakeholders in municipal land use planning. In the permitting process, stakeholders are though involved heavily and have influence. In prospecting, e.g., land owners has to be informed reindeer herders has to be consulted: Further, in the EIA process in the environmental permit all affected stakeholders have a possibility to influence the process and do so in many cases.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	procedures are set up and how are different actors involved)[2]	
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The public comments may influence the municipal comprehensive plan.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Most common conflicts are the water framework directive and Natura 2000 sites (water habitats). Conflicts might be mitigated by terms for the mining processes and adjustments of location for mining infrastructure. Other possible conflicts might be with nature protection areas and national parks. National parks override all other land use, and normally that´s the case for nature protection areas as well even exceptions are easier to accomplish for protection areas. Exploration are not allowed in natural parks. The CAB and the Land and Environmental Court are authorities who normally are involved in the conflict management. It is not rare (in case of appeal) that the government gets involved too.

Table4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	**No**	**Yes, in the case of test mining**	**Yes**	**Part of the permitting process**
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	Only in such a fashion that if known – the amount of respective elements are publicly made available through SGU data bases.	**No**	Yes, normally in Sweden. In the case of Mertainen the assessment was not needed because of the old origin of the exploitation concession (In the future PERC code will be used since the industry organisation, SVEMIN, has accepted PERC as the standard industrial code.)	Yes – necessary for economic sustainability of the company for remediation, but not according to national law.
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	When the land is needed for a specific purpose the land use will be decided. See earlier descriptions in Table upon system of areas of national Interest and Mining permitting.	Yes– exploration permits – exploration areas are not seen as being in conflict normally. Exceptions are areas within larger villages and towns for which city planning exist. In the prospecting is usually not permitted. All decisions by the mining inspectorate (deciding authority) are public as well as the area of the prospecting permit.	Yes. Exploitation concession is decided by the Mining Inspectorate and the process includes public consultations.The decisions are public. Even if the area will be granted as being an area of national interest for mineral deposit it means only that it is being part of the decisive process when a specific land use (mining or otherwise) is being determined. In case of mining this is taken in the next step in the environmental permitting phase.	**No**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	Primary land use is not defined in Swedish law.	Claims of areas of different national interests can coexist and overlap each other	The area is declared as a mineral deposit of national interests by the Geological Survey of Sweden. Reindeer husbandry, transports and nature preservation are other claimed interests in the affected area (not overlapping).	
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?			See 3.10	
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	Primary land use is not defined outside of towns and villages normally.		In approval of permit designated mining area as primary land use. Not the site for the mine, but nearby land and water areas were an still is Natura 2000-areas	
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]				
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	The municipal comprehensive plan is only indicative.		The mining site was subject of a detailed development plan for mining according to the planning and buildings act. It is not a compulsory step but facilitates the following project development.	
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?				
4.11 Which were the benefits and costs to the communities from the boosting of new activities?			Full-scale mining activity has not yet started. Mertainen can contribute to prolong the mining activity in Svappavaara.	

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**
5.1 Is there a formal decision-making / administrative process to assess the	5.1 See table 3 for elaborations on all aspects. Generally, all decisions are publicly available upon request. Public has to	SH1 – local community: Not very concious about the transparency issue. The general huntingground was lost for local community but we got a new area as a compensation. We

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	involved from prospecting through all permitting stages.	were satisfied. Not much negative aspects after project was approved. SH2: Valuable nature – compensational measures were taken for affected valuable nature – wood mixed with wet lands was affected with planned deposits at that site. There was also a potential conflict with reindeer herding, As a result the company had to find new area where similar values could be achieved.Another company, Boliden is quite advanced with compensatory meaasures forinfringements upon valuable nature. In Norrbotten county the area of the Aitik Mine run by Boliden is such an example._ SH3: Was informed about the plans ("mining") but my views were not taken into consideration. Wrote to the municipality that the waste rock deposit (gråbergupplaget) was not acceptable bu without reaction. An appeal was made to the Enviornmental Court . We wished the waste rock on another site and not in the ancient woods. Our recollection was that it was mostly important to hide the project from the major highway, E10.
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?		SH1: Not heavily involved. Mostly observed the process and satisfied with the results.. SH3 From detailed lu plan until verdict in environmental Court. Was of the opnion that our views were not taken seriously. Appeal was made (to environmental Court).
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?		SH1: Yes the project was well accepted. Very unfortunate that the project was laid to rest (LKAB – has chosen not to start mining yet) particularly since land has been set aside for the project that could have been used for other purposes. The mine was not a problem. The waste rock heap was the problem.
5.5 Which were the benefits and costs to the communities from the boosting of new activities?		SH1: Access to work – close to work nearby home in Svappavaara. Unrtunately too many people not from local community. However, many retired people and many of the employable work in the mine in Kiruna and Svappavaara (Svappavaara is the site for the local mining community). No advantages because the ancient forest is gone at costs of 1.2 billin crowns. The debate and communication was poor from the company.
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why		SH1: New hunting grounds SH2 Yes – compensation measures as a result of stakeholder interaction.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?		Gruvberget – another project within the area of the local community – there the company closed down a lake used for recreational fishing. A new lake was given as compensation for which the accessability however is not as good as the old lake – work is still ongoing.. SH2: Compensation measure – mitigation was done by protecting an area north of Mertainen with great woods.
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed		SH1: No opinion. SH2: Mining is always priority number 1. Reasons are income from taxes and of course jobs are important.
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]		SH1: An important aspect. The community is depending upon perormeance of the mine. SH2: Mining in Kiruna is always put before other uses/activities. Tourism in Kiruna has become strong. Kiiskamavaara – coboltproject – Nature Protected area – nature Reserve, was stopped due to (”valuable”) deposit. Switch of land was being made l Switch of land (with valuable and with infringements). Compensation measures are difficult.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 9 Case Description ITALY - Baiso

Case Study Identification

BAISO "Varicolori" clays	
Italy	
Emilia-Romagna Region	
Type of mineral resources?	clays
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	is about restoration and land use planning procedures for land use changing in relation to new uses
Is the case about open-pit or underground mining, both or not applicable?	open pit
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	local
Extents of the project (km2) or not applicable?	3 km2
Company or companies involved	private owner of closed quarries
Are the mineral resources private and/or public owned?	private

Case study description

Historically Baiso area was one of the most important exploitation site for the ceramic industry of Sassuolo. Since the last 20 years changes occurred in the formulation of the ceramic paste so this type of clay (Varicolori clays) are not more used in the ceramic process. This abandoned quarries, not yet recovered, are inserted in a particular landscape characterized by coloured gullies and by natural aspects of high value. Do this environmental heritage the area is part of MAB Unesco site, regional park and landscape regional heritage.

Do the particularity of the situation (abandoned quarries inserted in high value landscape contest) the land use plan and mining plan of the area have to be modified to create a "new land use" related to a "mineral and landscape route for the valorisation of baiso clays". Together with the planning instrument modification it will be necessary to change the ownership of area, from private to public utility.

In this activity are involved the Region, the Province of Reggio Emilia, the Regional Civil Protection Agency, the Baiso municipality, the University of Modena and Reggio Emilia, technical experts and stakeholders. The presence of all the competent planning authorities obviously simplify the activity and the development of this mineral route

The high value of natural and landscape heritage, together with the peculiarity of the geology, determine the involvement in the working group of all the maximum level of competences and knowledge at regional level.

Last, the creation of a mineral route can help to boost the tourism of the area, that actually is mainly concentred in the summer season.

Interaction of mineral resources legislative and administrative procedures with land use planning legislative and administrative procedures.

- Mineral plans are developed at province level (PIAE) as part of province spatial plan. On the basis of general approach described in the PIAE the municipality develop a local mining plan (PAE) that is part of spatial plan. All these plans have to be coherent with the regional spatial plan and rules in relation to mining

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- Horizontal and vertical process, the province spatial plan integrated all the aspect but the mining plan is a sectoral plan that have vertical integration
- the SEA is applied during the development of mining plan
- Mineral are not considered as relevant as other land uses. Normally mining plan located areas where are not foreseen other strategic land uses (houses, infrastructures etc.) . the dimension of areas planned is dependent on forecasting of aggregates demand.
- The mineral in Italy are subdivided in two main categories, one that is state-owned, so you can ask a concession for the exploitation, the other are private-owned, so you can ask a license for the exploitation

The permitting for exploration is related to state-owned mineral, in the other case areas for exploitation are individuated by the mining plan and the permitting procedure is one-stop-shop
the EIA is applied at project level to obtain the exploitation license
For the permitting procedure of private-owned mineral the authority involved is the municipality. For the state-owned is the Province

- The civil society is involved in the mining plan development, and all the documents concerning the permitting procedures are of public domain

Main conflicting land uses

- The man conflicting land uses relevant for the case that is about restoration are: mining area, nature 2000 areas, landscape protection area, geosite. It is a conflict between closed mining area private-owned and a future public use
- All the competent authorities are involved

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	What were the internal case factors that contributed its success (e.g. actions taken by the institutions or decisions made during the life-time/process of the case; policy related: legislation or policy strategy, organisational: new institution created or altered institutional process etc.) and describe WHY they are considered as success factors. decision making process in relation to mining and land use plan modification
6.2 Problems encountered	Describe some short-comings, problems overcome or not-overcome during the case's life-time (i.e. In after-thought how would you have addressed the problem in hindsight, ex-post optimisation) problem in relation to private ownership of closed mining area
6.3 framework conditions/contextual factors	Describe the external factors that facilitated the development of the case (aspects that influence the development of the case in a negative or positive way; e.g. a positive SLO setting, a legislative instrument, changing economic development/commodity price etc.) regional financing instrument for development of studies in relation of quarries restoration (50.000,00€ of regional contribution for the mineral route development)
6.4 Impacts achieved	State in how far the case managed to reach its goal and achieve its anticipated impact on its intended beneficiaries/stakeholders. Potentially describe on which parts it could still improve. We hope to achieve the final gol at the end of 2018

ANNEX 1. Survey

Table 310- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES . The table has been completed by the industry with the supervision of the authority, in this case the MinLand partner

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	This plan is legally binding
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Maximum ten years; this is the maximum time lapse to forecast social and economic needs;
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals	Yes, it's possible. In Emilia-Romagna Region a mining company can ask a municipal administration to make changes to the mining plan inserting a new

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	extraction area: it has to explain the motivation, to analyse the deposit and the environmental impact. This procedure takes normally 1 year. It's the preliminary part, before the exploitation plan. If the quarry will be inserted in the mining plan, the company can present a project for the extraction.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	the mining plan safeguard areas where it's possible to exploite minerals for the plan life. The Province is the institutional level who makes the decision about mining plan
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	see above
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	Yes, in relation to exploitation activities. During the evolution of the site is possible to have complementary activities, for example the extractive activity with a mineral crusher.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	Yes it does. The mining license have to assure the restoration of the site; at the end of the restoration the land uses can be changed in relation the new area asset
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Once area of exploitation are located on the plan is impossible to do other activities.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	During the permitting process is necessary include the description about all the infrastructures present and the new one eventually foreseen. It necessary to provide the total cost of the restoration.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	yes. Data non sensitive are available on regional/ province and municipality DB online
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources, in the process of land use planning, *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	LU authorities have all the competence and knowledge on mineral resources thank to the help of Universities, external expert etc
	3.12 Are there specific data sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	yes, depending on territorial level
	3.13 Is there adequate expertise involved in the land planning for minerals including data and	Yes. there are specific data base assisting the mining and land use planners from the region, the environmental authority and the province.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	The authorities has one-stop-shop that manages the documents and an office that organise the data's gis.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	no, the planning doesn't calculate the value of the minerals but only the quantitative necessary during a defined period; the exploitation project has to consider the market value and have to project the restoration of the quarry in order to have a positive and proportionate business plan no no
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	A new minerals plan have to weight and compare the extraction use against others and in particular against the actual one. It's necessary to analyse benefits and costs for the communities and environment evaluated when designating areas for minerals; this analyses it's called Strategic environment valuation. The weight is political, economical and social dependent
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	The geological cartography and DB
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	A deep geological investigation: Geological and seismic log
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	no
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	There isn't any assessment. Natural resources like underground water or woods or archaeological sites etc are considered most important than minerals resources. There are environment aim in the regional plan and program, that limit the future minerals plans No it isn't
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of	yes, during the environmental assessment

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	
	3.25 Are there and which are incentives to implement minerals into land use planning?	no
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	no
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	the environmental impact procedure
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	The factor is dependent on political, economical and social aspect
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Yes there is a participated process among population, administration (or authorities): there are two steps, the first is provincial and the second local it is consultation, information, partnership, community control.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The authority has to answer ad all the observation and it has to justify the choices
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Some environmental protection are impedimental for mining plan other protection are limitative: normally in the natural and heritage areas are avoided mining activities

The case is about re-utilization and table 4 and 5 are only considering this phase.

Table4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	n/a
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	n/a
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	yes. The process is of public domain
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	n/a

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	yes
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	part of the area of the future mining route was considered as exploitation area by the municipality mining plan. This will be changed or adapted to the new use
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	creation of a walking route for student and population, boosting of tourism economy
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	n/a
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	we're managing the modification of land use with private
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	tourism, culture

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Post closure management/ Rehabilitation
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	will be a local administrative process open to public domain
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	all the local community is involved in the process thanks to stakeholder meeting
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	yes, considered as good valorization of territory
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	tourism, culture
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	n/a
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?	n/a
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	n/a
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	low level

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 10 Case Description Portugal – LUP Practice

Case Study Identification

Portugal land use planning innovative methodology for mineral resources	
Portugal	
DGEG (Portuguese Mining Authority) LNEG (Portuguese Geological Survey)	
Type of mineral resources? (distinguish primary commodities and associated commodities ; e.g. primary: kaolin, sub-product: silica sand; primary: Cu & Zn, sub-product: Au, Ge). Are the minerals (elements) part of the EU CRM list of 2017?	All mineral resources
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Pre-exploration legislative land use planning procedures encompassing all the stages
Is the case about open-pit or underground mining, both or not applicable?	Both
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other? Please (a) describe and (b) explain.	Local, regional and national, but especially applied at local (municipal) level where the decision on land use planning is made.
Extents of the project (km2) or not applicable?	Not applicable- All Portugal mainland
Company or companies involved (identify) or Not Applicable?	Not applicable
Are the mineral resources private and/or public owned? (e.g. minerals are state-owned and a concession is given to companies under the conditions xxx, minerals are private-owned, …)	Private (aggregates, construction materials, common clays, ornamental stones etc.) and Public (all metal minerals; some industrial minerals like quartz, feldspar, and others)

Case study description

This case refers to the practice that is applied in Portugal by the mining authority (DGEG) when contributing to Land Use Planning. As it is described below, the Portuguese legislation in LUP considers that when the land shows capacity for the exploitation of geological resources it should be categorised accordingly. It also considers that the effective categorisation of land is made at municipal level through Municipal Land Use Plans. It is a process lead by the municipality, but including inputs from regional and national authorities, being DGEG one of them.

Safeguarding the access to mineral resources in LUP implies to consider all the respective value chain, from undiscovered/hypothetical mineral resources to extraction and exploitation, which include the following categories:

	Objective	**Actions**
	General assessment of national geological resources	Exploration surveys

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Knowledge & Minerals Safeguarding	Scientific and technological integrated characterisation of geological resources	R&D projects
Protection	Access to known resources	Delimitation of Reserve and Captive Areas.
	Geological and mining heritage sites	Classification and valuing proposals
Valuing	Resource use (profitability)	Exploitation Concessions (public domain resources) or Exploitation Licences and Captive Areas (private domain resources) Other outcomes not directly related to resource exploitation

Taking into account that the current legislative framework for LUP in Portugal does not consider all the mineral resources value chain and, particularly, is not explicit on what regards undiscovered/hypothetical mineral resources, DGEG considers that the LUP Spaces for the Exploitation of Geological Resources should be categorised according to the following key:

KNOWLEDGE AND SAFEGUARDING:

- **Potential Areas**: spaces with demonstrated interest and possibly classified as Reserve Area or placed in one of the valuing categories, according to new data and/or results gathered in updated studies. These spaces are compatible with other primary categorisations of land since they do not jeopardize the eventual exploitation of mineral resources.
- **Exploration Areas**: where surveys are undertaken to identify and characterise mineral resources until studies demonstrate their economic interest and feasibility. These spaces are compatible with other primary categorisations of land since they do not jeopardize the eventual exploitation of mineral resources.

PROTECTION

- **Reserve Areas:** where the resource is identified and can originate a consolidated activity when justified and/or opportunity criteria are fulfilled. Legally, a **Reserve Area** for exclusive exploitation can be delimited by the Government for private and public domain resources once particular impact is demonstrated on regional or national wealth. When private domain resources are concerned, the regulations also preview the definition of **Captive Areas** for which specific exploitation rules will be imposed.
- **Geological and Mining Heritage Areas**: where recognised geological and biological attributes, cultural and/or industrial archaeology assets need to be preserved. The conservation function used in this context does not have a strictly economic dimension: it aims at safeguarding the area for cultural, didactic, aesthetic, or environmental purposes.

VALUING

- **Consolidated Activity Areas**: where a significant exploitation activity already exists, which further development should be addressed according to environmental good standards, ensuring as well a responsible use of the resource. These areas are legally granted mining concessions (public domain resources) or exploitation licences (private domain resources). Private domain consolidated activity areas may be considered **Captive** if particular regional/national economic interest exists.
- **Complementary Exploitation Areas**: contiguous, or not, to an area of consolidated activity, overcoming difficulties posed by the exhaustion of available reserves. It is only applicable to private domain resources and the new exploitation area should be equal in size to the rehabilitated one, already exploited.
- **Areas Under Rehabilitation**: already exploited and where ongoing or planned landscape recovery and/or other remediation actions will subsequently allow other land uses.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

This methodology is proposed by DGEG during the elaboration/review of Municipal Land Use Plans with the contribution of the Portuguese Geological Survey (LNEG). Its application by the municipalities is voluntary.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Interaction of mineral resources legislative and administrative procedures with land use planning legislative and administrative procedures.

- LUP in Portugal is a top down approach: a National Program (National Program for the Land Use Policy) provides framework for Regional Programs and these provide framework for Municipal Plans. This means that Programs are strategic documents and Plans are land use implementation documents. It is at municipal level (the municipal plans) that the land use is defined according to the upper level strategic documents, being the municipal authorities responsible for its implementation and management.
- The process at local level (municipal) is a mix between horizontal and vertical integration. It integrates all the land use aspects at municipal level, but at the same time, these are subordinated to existing sectoral plans (e.g. land use plan at municipal level must integrate Natura2000 areas that were defined at national level). Portugal does not have a sectoral Plan for mineral resources.
- The recent legislation recommends that the reviewing of a municipal land use plan depends on The Report About the Land Use Status, which should be made every 4 years. If strong changes on the municipal environment, economic, social or cultural conditions are reported, then a reviewing process can start (needs national government authorization). In practice the reviewing processes could take up to 3 or more years, which gives for each municipal land use plan a longevity of 7 or more years.

The reviewing process includes the elaboration of the following main documents:

- Regulation (rules for the use of land)
- Land use planning map
- Constraints map
- Report (that presents the strategy and development model as well as the reasons that support that model taking into account the previously made studies on the environmental, social, economic and cultural conditions)
- Strategic Environmental Report (resulting from a Strategic Environmental Assessment, which is applied only to Plans and Programs, including the characterization and assessment of environmental, social, economic and cultural aspects)
- Execution Program
- Financial Plan

The leader of the reviewing process is the municipal authority with the support of the regional authority (CCDR) and a Commission that integrates representatives of the several public interests (e.g. the mining authority, the environmental authority, the infrastructures authority, etc.) and other stakeholders. The land use planning proposal depends on the approval by all entities of the commission in a conciliation procedure.

- The participation of the society is made in two steps:
  - During the reviewing process, stakeholders can ask to see any relevant document and can make questions and suggestions.

At the end of the reviewing process, after the conciliation procedure, the land use planning proposal is subjected to a public discussion. All the questions and suggestions must be answered, and after weighting them the municipal authority decides on the changes to be made. A report on this public consultation is included in the land use plan final version for approval by the national government.

- **Minerals Safeguarding on Land Use Planning**.

The existing legislation on land use planning (main legal document is the Decree Law no. 80/2015) classifies the land in two types: urban land and rustic (rural) land. The rural land is the one that has recognized capacity for the following activities which are compatible: agriculture, livestock and forestry use, for the conservation, valorisation and exploitation of natural, **geological and energetic resources**, as well as for the use as natural, cultural, touristic and recreation spaces or for the protection against natural risks. Therefore, the rural land is qualified into the following categories:

- Spaces for agriculture and forestry
- Spaces for the exploitation of energetic and geological resources
- Spaces for industrial activities directly related to the above uses

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- Natural spaces and spaces with high cultural or landscape value
- Spaces for infrastructures or other human use (like tourism) that do not imply the classification of the land as Urban Land

Normative legislation for land use planning is mandatory on what respects the identification of the several capacities (aptitude/vocation) of the land, including the capacity for the exploration of geological resources, in order to include those spaces in land use planning at municipal level.

Taking into account the current social and political awareness about the geological resources (usually against the extraction of mineral resources), the rural spaces for the exploitation of geological resources are usually considered in light of those that are already under exploitation or near starting extraction. In practice, the land use planning authority (i.e. the municipal authority) is only obliged to include those mineral resources with known economic value. Still in current practice and taking into account only what is written in the normative legislation, land use planning integrates:

- Mining concessions (respecting public owned minerals)
- Licensed areas (respecting areas with license for quarrying private owned minerals)
- Reserve and Captive Areas (areas designated by the government for the exploitation of minerals as primary use because of the public economic interest of the minerals therein and/or because of the need to apply rules for the extraction in order to make a rational exploitation).
- Areas temporary designated for minerals exploration (exploration prospects) by private companies

All these spaces are not included in land use planning as an option taken by the municipality, but rather the municipality is obliged to integrate them because they are administrative easements (like a military space, the defense area of a river or a lake, etc).

Municipalities **can decide on a voluntary basis to allow exploration and exploitation in rural areas not specifically classified as "Spaces for the exploitation of geological resources". On the other hand municipalities can decide not to allow this kind of activity, beyond what is already implemented by law (the aforementioned concessions, reserve areas, etc.**)

Concluding, unknown mineral resources and mineral resources of which the economic value is not yet known due to the lack of knowledge (therefore, that are not well spatially delimited) are not included in land use planning legislation, meaning that they are not safeguarded by the legislation.

There are two types of permitting according to the ownership of mineral resources:

- **Permitting for public owned mineral resources (MINES)**. The process has the following steps (each one through an administrative contract between the interested private party and the State (mining authority – Ministry of Economy)):
  - A voluntary one year preliminary land evaluation of the existing mineral resources.
  - Exploration permitting. Before issuing the permit, DGEG (mining authority) must carry out (mandatory) a consultation with the municipalities and other authorities (environment, land use planning, forestry, nature conservation, etc.), which inform about the existing constraints to eventual mining developments, in order to provide the applicant with all the available information. If issued, the permitting has a validity of 5 years maximum. Every year the private company must present a report on the carried activities and a plan for the work and investment that is going to be done, for DGEG approval.
  - Voluntary Experimental Exploitation permitting issued for a maximum period of 5 years
  - Exploitation permitting (Mining Concession). Only can be issued to whom discovered the resources during one of the previous stages. The permitting has a maximum validity of 90 years. Before issuing the mining concession, DGEG must carry out consultations with other authorities, similarly to those carried out for the exploration permitting. The mining concession only can be issued if there is compatibility between the mining activity with land use planning and with the conditions imposed during the Environmental Impact Assessment.

Each one of the above steps is subject to public consultation by announcing them through one national newspaper and one local newspaper. Stakeholders and public in general have access to the most relevant documentation and can make questions and suggestions or even can stop the procedure if they find irregularities.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

In practice, when asking for a mining concession, the applicant must deliver several documents, being the most relevant the Mining Plan, the Economic Feasibility Study and the Environmental, Landscape Recovery and Closure Plan. Because the information in these documents depends on the conditions imposed by the mandatory EIA, the technical documents will consider the measures imposed on the EIA decision.

○ **Permitting for private owned mineral resources (QUARRIES)**. Only can be asked by the owner of the land (or by who has a lease agreement with the owner). The process has the following steps:

a) Voluntary exploration permitting issued by the mining authority. Has a validity of one year with possibility to extend it for only one more year. The exploration licence only can be issued if there is compatibility between the mining activity with land use planning (through a formal consent from the land use authority). During this period the company cannot sell the products.

b) Exploitation permitting (License). Issued by the mining authority (most of the quarries) or by the municipality (artisanal quarries). It has no limit of validity. Only can be issued if there is compatibility between the mining activity with land use planning (through a formal consent from the land use authority) and, when applicable, with conditions imposed by EIA (which also evaluates if the required area is included in a land use planning space compatible with the exploitation of geological resources).

The permitting for private owned mineral resources does not have a direct formal mechanism for involvement of the civil society. However, the exploitation license for projects having an area above 25 ha (or when a group of quarries occupy an area bigger than 15 ha at a distance less than 1 km from villages) is dependent on EIA results, which involve the consultation of the civil society and interested parties.

Please make a description of the main conflicting land uses with minerals' life cycle's land use, existing conflicts and resolution measures, not forgetting:

- Main conflicting land uses: Natura2000 and other nature conservation areas (natural parks, National Ecological Network)
- Conflicts between mining/minerals and other policy domains: main conflicts arise from nature conservation and related existing policies that do not take into account mineral resources as being natural resources that are indispensable for the society, namely the National Strategy for the Conservation of Nature and Biodiversity and the National Strategy for the Sustainable Development
- During the permitting phase for exploration, the municipalities must inform exploration companies (through DGEG) about the existing LUP constraints, namely if the current municipal land use plan addresses spaces for the exploitation of geological resources. If exploration results are positive, but the LUP does not address this kind of spaces, companies already know that it will not be possible to open a mine, unless there is a review of the Municipal Land Use Plan.
- During the permitting for exploitation, it is mandatory that the required area is part of a Space for the Exploitation of Geological Resources in the Municipal Land Use Plan. If it is not the permitting will not be issued.
- The authorities involved during land use conflict for minerals are the Municipal Authority and the Mining Authority (DGEG), which communicate directly. Indirectly, nature conservation authorities are also involved during the LUP phase because they stress the primary use of land for nature conservation, not allowing extraction. Municipal authorities lead the LUP process; therefore they are judges and actors during conflict mitigation.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	In Portugal there has been a lot of work done for about 30 years on articulation and coordination between DGEG and other authorities (environment and land use) at all levels), to raise awareness to the importance of access to mineral resources and to the possibility of coexistence of land uses foreseen in planning instruments. This work has made it possible to avoid major difficulties coming from central and regional authorities.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

6.2 Problems encountered	In general, people do not accept mining activities because are not aware about the dependency that the modern societies have on the mineral resources. Adding to this lack of awareness, there is the NIMBY effect. Because the municipal political power has a 4 year mandate and does not want to contradict the popular will, there is a great aversion to include spaces for the exploitation of geological resources in municipal LUP.
6.3 framework conditions/contextual factors	Local, regional and central Authorities have been, and continue to work together to find consensus and usually they do achieve them. Legal framework has mechanisms that favour these procedures. For the State owned minerals (mines) the Government through DGEG has defined on the contracts signed between the State and the mining companies that they may deduct up top 25% of the total amount of royalties due to the State and apply that money on projects and actions for the beneficiation of local communities. These measures have had a positive impact on local community's welfare and on the image of the mining activities. These are compliant with SLO.
6.4 Impacts achieved	The first Municipal Land use Plans date of 1990, and since then a lot has been done. Changes on legislation, a lot of reflexive work among authorities (mining, environment and land use, and other stakeholders). The inclusion of spaces for the exploitation of geological resources in municipal land use plans is mandatory because most of the mineral resources with known economic value have already some kind of protection that is a LUP easement (mining concession, quarry license, reserve area, etc). For the undiscovered/hypothetical mineral resources, safeguarding is not yet improved or considered on LUP legislation. However, through the methodology applied by DGEG, most of the Municipal Land Use Plans safeguard these resources through the sub-category Potential Areas or because do they not prohibit extraction activities in the normative rules applied to the spaces addressed to other primary uses (eg. agriculture, forestry).

ANNEX 1. Survey

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	Answer
	3.1 Are land use plans legally binding or simply indicative?	Legally binding
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Minimum 3 and maximum 10 years. Each 4 years the municipality has to prepare a monitoring report and land use plans may be reviewed if there are enough reasons to justify it (big changes on the environmental, economic, social or cultural conditions).
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	No
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	Protection of exploitation permits and temporary (1-5 years) exploration permits are mandatory because these are public administrative easements. Usually, safeguarding is not addressed, unless the methodology described in this case (Table 2) is applied
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	No, there is no equivalence. According to LUP legislation it is mandatory to delimit spaces for the exploitation of geological resources. Therefore, what is protected in LUP are areas with permits and licenses issued, protected because they are public administrative easements (Exploitation permits: mining concessions and quarry licences).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		Exploration permits are also protected because they are also public easements, but in some cases they are not mapped due to their temporary (5 years maximum) situation and for being very big areas (500km^2). Unknown mineral resources or mineral resources whose value is not known or whose extents are not spatially delimited are not protected.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	Yes it does. Portuguese land use legislation considers the possibility of multiple uses in rural soil and foster a land use planning policy which clearly include geological resources in harmonization with other uses of rural soil, avoiding conflicts, and preventing uses that might compromise the current and future access to known mineral resources. However, 3 different situations should be considered: - Spaces primarily assigned to exploitation of geological resources (equivalent to spaces for protection of known mineral resources/administrative easements). It is fostered the compatibility with other uses that do not compromise the exploitation. - Spaces primarily assigned to agriculture, livestock or forestry: There is no incompatibility with the safeguard of mineral resources and their future exploitation, unless the normative rules at municipal level explicit that there is incompatibility with extraction of mineral resources - Rural spaces primarily assigned to environmental protection, nature conservation, recreation and tourism are sometimes made incompatible with mineral resources protection through normative rules at municipal level
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	No, unless the other land use jeopardizes de exploitation.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Municipal land use plans use rules and zoning for the protection of known mineral resources: - Rules are included in a main document called Regulation Document. It explains what are the permissions and the interdictions in the category of soil areas. It also contains the rules for Spaces for Exploitation of Geological Resources. - Zones / spaces are presented on two other main documents: the Planning Map and the Constraints Map.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes (buildings, tailings, road accesses, oil and gas supply facilities, plant), at extraction phase.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Minerals Information System is available at LNEG through (http://geoportal.lneg.pt/index.php?option=com_content&id=69&lg=en). It is not INSPIRE compliant. Spatial information on mining permits is available at www.dgeg.pt. It is inspire compliant Land use information at local level is available at municipalities web sites. It is not INSPIRE compliant
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-*	Land use authorities (municipalities) usually do not have expertise on mineral resources neither on how to integrate them in land use planning. However, the land use planning procedure is supported

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	disciplinary teams available, including geologists, technical support from other organisation departments/public administration), networks and sharing of expertise between authorities?	by a multidisciplinary Commission, which incorporates the mining authority.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	Only partially. There are formal governance mechanisms between the mining authority (DGEG) and the LUP authority aimed at the exchange of information during LUP processes. LUP legislations refers DGEG as one of the public entities that should participate and be part of decision making process of land use planning. There is an informal mechanism for exchange of information between the mining authority and the geological survey (LNEG) There is no formal governance / exchange of information mechanism between the geological survey and the mining authority.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Yes. There are GIS tools assisting the mining and land use planners. All data is in GIS system.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Yes, at DGEG.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	No No Yes. JORC. The information is confidential during the period of the contract.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	No
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Based upon geological data reports from mining companies and research work performed by the geological survey.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	No. No No.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	It is not mandatory, but the legislation on LUP is mostly directed to the mineral resources that have a known economic value and have permits/licenses issued. Therefore, is if it is mandatory. Prospective/hypothetical resources are not considered in LUP legislation because there are no approved tools to justify their inclusion on the Spaces for the Exploitation of Geological Resources.
	3.25 Are there and which are incentives to implement minerals into land use planning?	There are no direct incentives. However, for the case of public owned minerals, if a mine starts to operate, the mining company can apply up to 25% of the royalties value in the development of social, environmental and research programs in the region where it operates.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	No.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Sectoral Plans and Special Land Use Plans on Nature Conservation (Natura2000 Network and natural parks network) and Environment protection (National Ecological Network), and on Water Protection.
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Yes at all levels during the elaboration procedures and at the end of the procedure, when the Land Use Program or Plan is subjected to Public consultation and direct stakeholders consultation.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The results are analysed and is made a written report with the recommendations and alterations needed. Some are considered.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Natura 2000 and other environmental designations are part of specific sectoral plans. These areas prevail over all other land uses. However, they can admit other uses considered to be compatible with environmental protection and nature conservation. Usually, these areas are not compatible with extraction activities, as defined in the normative rules at municipal level land use planning. However, there are situations where the compatibility was predicted and others where the compatibility was appended. For the conflict management is usually involved CCDR (regional land use decision maker) or ICNF (sensitive areas), the municipality and DGEG.

Table4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	no	no	Yes if area >25 ha or production >200.000ton It is made according to EU legislation on EIA	No Usually included in the permitting phase
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	no	No	Yes Reporting codes are used	No
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land?	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2
4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Public consultation	Public consultation	Public consultation	
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	Not applicable	Not applicable	Not applicable	Not applicable
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	Not applicable	Not applicable	Not applicable	Not applicable
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	Not applicable	Not applicable	Not applicable	Not applicable
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	Not applicable	Not applicable	Not applicable	Not applicable
4.9 If it was necessary to change the type of land use to be according to mineral land	Not applicable	Not applicable	Not applicable	Not applicable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

use, was there the need for implementation of additional land use regulations? If Yes, please explain.				
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	Not applicable	Not applicable	Not applicable	Not applicable
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	Not applicable	Not applicable	Not applicable	Not applicable

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2	Yes The LUP methodology described on Table 2
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	At public consultation stage Yes the results are considered	At public consultation stage Yes the results are considered	At public consultation stage Yes the results are considered	At public consultation stage Yes the results are considered
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	Not applicable	Not applicable	Not applicable	Not applicable
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	Not applicable	Not applicable	Not applicable	Not applicable
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate?	Not applicable	Not applicable	Not applicable	Not applicable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

b. if not , please explain why				
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?	Not applicable	Not applicable	Not applicable	Not applicable
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	Policies on nature conservation are first priorities. No objective evaluation criteria are applied, but the decision making is strongly influenced by existing spatial data that could support land use zoning	Not applicable	Not applicable	Not applicable
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	There is a subjective evaluation based on economic indicators. Therefore, if there are mining operations in the municipality, the respective economic indicators stress the importance of safeguarding minerals in the Municipal LUP. If there are no mining operations, mineral resources are not well considered.	Not applicable	Not applicable	Not applicable

(Internal use - note 3: Answer 5.9- important to maintain during evaluation of the answers the knowledge of the person who answered, keep the answers disaggregated.)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 11 Case Description Greece – LUP procedures - aggregates

Mineral and land use planning procedures with emphasis on best practice example of aggregate resources' exploitation

Case Study Identification

Mineral and land use planning procedures with emphasis on best practice example of aggregate resources' exploitation (Case title)	
GREECE (Country)	
IGME GR (Responsible Partner)	
Type of mineral resources?	Primary: production of aggregates from primary sources.
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	About pre-exploration legislative land use planning procedures encompassing all stages
Is the case about open-pit or underground mining, both or not applicable?	Open-pit exploitation
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	a)Regional approach b)A top-down approach is applied: the national plan provides a framework which is then detailed in regional and local plans
Extents of the project (km2) or not applicable?	Not applicable
Company or companies involved	Not applicable
Are the mineral resources private and/or public owned?	The exploitation rights of aggregates belong to the land owner or to whom the latter has legally conceded the aforementioned rights, under the presumptions and the limitations of the relevant legislation in force. The exploitation rights exceed to all the by-products and extractive wastes derived from the extraction and processing of the primary products (Law 4512/2018 article 44).

Case study description

The production of primary aggregates in Greece is performed within legally bounded areas, the Quarrying Areas (QAs), determined at the regional administrative level, in accordance with Law 4512/2018 (articles 46, 47, 48). QAs constitute the basic institutional tool for the sustainable management of aggregates' production from primary sources in Greece.

Exploitation of aggregates outside the QAs is only permitted under specific circumstances such as: a) for the production of aggregates for specific uses (e.g. for anti-slippery road construction, production of cement), b) when the aggregates will be used exclusively for public infrastructure works of national

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

importance, c) when it is not possible to delineate a QA in areas with e.g. limited availability of space and/or the coexistence of touristic activities like in islands etc.
The QAs are determined with a decision issued by the competent Regional Governor, after consultation with an 8-members' Committee with representatives from different authorities, including a representative from the IGME GR (Law 4512/2018 article 47).
For the delineation of an area as QA, the following are considered (article 46 of Law 4512/2018):

1. Criteria related to quality characteristics of the rocks and adequacy of resources to cover local needs;
2. Spatial criteria, such as the National Spatial Strategy, the Special Spatial Plans and the Regional Spatial Plans, distance from the consumption centers etc.;
3. Environmental criteria;
4. Criteria related to sustainability and safety issues (e.g. the safety of the workers and the surrounding communities, the sustainable exploitation of the resources);
5. Criteria related to the protection of archaeological and cultural heritage.

The proposed plans for the delineation of a new QA, before their official approval, are subject to the procedure of "Environmental pre Assessment" so as to assess the likely significant effects to the environment. When part or total of the proposed QA is located within Natura 2000, they are obligatorily subjected to Strategic Environmental Assessment (SEA).
Once the delineation of an area as Aggregates' "Quarrying Area" has been legally defined, the extraction of aggregates from the licenced companies within the area, has priority, over all other activities, for the time span the licences are valid. In principle, the aggregates' exploitation rights from established QAs prevails the exploitation rights of any other mineral commodity, unless metallic mineral, industrial mineral or marble deposits are located in the area and which are considered important to the national economy. In the latter case, the exploitation rights of these commodities prevail (article 48, paragraph 5 of Law 4512/2018).
The QAs, after their delineation, do not modify their character and are not affected by subsequent acts related to urban, spatial or forestry provisions (article 48, paragraph 5 of Law 4512/2018).
<u>General framework applied for licensing and permitting of mining projects in Greece:</u>
Licensing / permitting of new mining projects and activities require almost always the contemporary (in parallel) approval of a Technical or Feasibility Study and the Environmental Terms Approval (AEPO). The Technical or Feasibility Study, submitted for evaluation by the interested party, is approved after the issuance of the Environmental Terms Approval. Hence, AEPO is a pre-requisite for the overall permitting of a mining project*.
** Depending on their impacts to the environment, projects /activities are classified in: 1) Sub-category A1 that concerns projects/activities which may cause very significant impacts on the environment; 2) Sub-category A2 that includes projects/activities that may cause significant impacts on the environment; 3) Category B concerns projects / activities with less significant environmental impacts.*
For example, the following activities are classified as <u>Category A1</u>:

- *Exploration drilling for the detection of: a) Solid energy minerals, b) Hydrocarbons, c) Geothermal fields of high enthalpy, d) Metallic minerals;*
- *Exploitation of a) Metallic minerals, b)) Solid energy minerals, c) Hydrocarbons, d) Geothermal fields of high enthalpy;*
- *Surface exploitation of industrial minerals, marbles and slates in a) areas ≥ 250acres and b) inside NATURA with areas ≥150acres;*
- *<u>Extraction of aggregates: a)within QAs without SEA, b) outside QAs with surface areas ≥250acres;</u>*
- *Facilities for the management of extractive waste which are run by "Single Operators" or facilities that fall in Category A.*

On the other hand, the e<u>xtraction of aggregates taking place: either a) within QAs with a SEA or b) outside QAs with surface areas < 250acres,</u> belong to Category A2.
The EIA is a prerequisite for the issuance of the Environmental Permit (i.e. AEPO) and the approval of the Technical Study. The latter constitutes the final stage for obtaining the exploitation permit. Also, previously

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

licensed projects/activities requesting a permit extension or a permit renewal, are obliged to submit a new E.I.A. Study.
For projects/activities that are classified in Category A (i.e. A1 or A2), an Environmental Impact Assessment study (EIA) is conducted and a Decision with the Approval of Environmental Terms (AEPO) is issued by the competent authority. The projects /activities of Category B, do not need an EIA Study.
In the case of aggregates' exploitation (that belong to either A1 or A2 category of activity) an EIA study is obligatory as a prerequisite for the Approval of Environmental Terms (AEPO).

Interaction of current mineral resources legislative and administrative procedures with land use planning legislative and administrative procedures

The current National Spatial Plan for the country was enforced in 2008 (Government Gazette Issue GG/128/A/03. 07.2008, "Approval of the general spatial planning and sustainable development framework "). It comprises a set of documents where:
a) The factors affecting the long-term spatial planning of the country are recorded and assessed;
b) The spatial impacts of international, European and national policies are assessed;
c) The basic priorities and strategic guidelines towards the integrated spatial development and the sustainable organization of the national territory are determined on a 15-years perspective.
In Greece, competences for Spatial Planning are shared between national and sub-national administrative level (sub-national is used here to denote all administrative structures below the national level). The National Plan provides a framework which is then detailed in regional and local plans. All Spatial Plans are subject to Strategic Environmental Assessment (SEA Directive 2001/42/EC, MD 107017/2006, GG 1225/B/2006).
The Law 2742/1999 established strategic directions and the framework for the spatial planning of the Country, including the tools for the regular update through evaluation of spatial plans, at all scales and levels. It introduced three levels as the main levels of Spatial Planning: the National, the Special (sectoral) and the Regional Spatial Plans.
The National Plan, which traces the basic guidelines for the spatial organization of the extractive activity, recognizes the usefulness and necessity of exploitation of mineral resources and designates the principles for the development, preservation and expansion of the extractive activities. It was followed by four Special (sectoral) Spatial Plans on important economic activities. Such plans, currently applicable, are the plans for the following sectors:
a) Industry (GG/151/AAP/13.04.2009);
b) Tourism (GG/1138/B/11.06.2009);
c) Renewable Energy Resources (GG/2464/B/03.12.2008);
d) Aquaculture (GG/2505/B/04.11.2011)
All the above Special Spatial Plans have direct or indirect impacts on the spatial development of the mining industry.
In the Industry Special Spatial Plan and the Strategic Study of its Environmental Impacts (J.M.D.11508/ FEK 151 ΑΑΠ/13.04.2009), mining and quarrying activities are addressed for each and every Regional Unit (i.e. administrative level subordinate to the Region) of the country and are examined in relation with forest areas and protected areas. The Industry Plan contains some provisions for the extractive sector: it points out the main mining industries of the country, provides for the location and establishment of industrial facilities that accompany the mining activities and secures the industry's access to the sea.
The Regional Plans were issued for all regions of Greece in the years 2003–2004. They are under revision since 2012.
The Regional Spatial Plans are drawn up for each and every region of the Country and comprise sets of documents in which: a) The position of the region at international and European scales and the role that this region can play at national level in comparison with other regions of the country as well as the trans-regional performance that the specific region has or can acquire, are noted and assessed; b) The factors affecting the long-term development and structure of the region's territory are recorded and assessed; c) The spatial impacts of international, European and national policies are assessed at regional level; d) The basic priorities and strategic choices towards the integrated spatial development and the sustainable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

organization of the regional territory are determined on a 15-years perspective. Minerals' extraction and quarrying are addressed in the specific Regional Spatial Plans.
The 12 Regional Plans endorsed in 2003, have not offered though proper solutions to the crucial issue of security in exploitation areas and in face of competitive land uses. The aim of the Regional Plans was to provide strategic guidelines for the spatial development for the country's regions i.e. define the basic choices that determine spatial structure, the system of production and thus the spatial development of productive activities. The references made to the extractive activity were rather limited. As a general rule, the Plans proposed the elaboration of additional, more specific, studies for the spatial organization of mines and quarries.
The Law 4269/2014 (which amended Law 2742/1999), tried to modernize the land planning approach of the country, to simplify the procedures which applied through various laws, taking into account modern trends and current needs. It introduced two levels of strategic spatial planning: The National level and the Regional level Spatial Plans. It also introduced the notion of the "National Planning Strategy" to be formed by the Government, setting the basic principles and axes, the medium and long term development goals of the country and the proposed measures and actions for the realization of the sought development. Thus, the "National Planning Strategy" takes into account the national development strategy of the country, the applicable medium term fiscal strategy for Greece, the national programme for public investments and, of course, the international, European and national environmental policies along with other plans affecting the structure and the development of the national area.
The Law 4447/2016 (which amended Law 4269/2014) retained the two levels of strategic spatial planning but replaced the "National level Spatial Plans" with the "Special (sectoral) Spatial Plans" (elaborated above).
As of the time of writing this report, a public procurement was announced (16.07.2018), regarding the elaboration of a "Special Spatial Plan for the Mineral Raw Materials", in accordance with the provisions of Law 4447/2016. The deadline for bidding is the 20.9.2018. The Special Spatial Plan for the Mineral Raw Materials should be finalized in 19 months.
It is emphasized that the elaboration of the «Special Spatial Plan for the Mineral Raw Materials", constituted a consistent request on behalf of the social partners and particularly of the extractive industry.
The aim of the "Special Spatial Plan for the Mineral Raw Materials" is the development of a policy for the spatial arrangement of the extractive sector, based on the sustainable development principles. It will encompass the main directions for the spatial planning of the extractive sector in accordance with the existing land use planning and it will be harmonized with the National Strategy for the strategic planning and development of the country's mineral wealth.
The expected benefits from the elaboration of the "Special Spatial Plan for the Mineral Raw Materials" pertain to:
- The generation of a framework to which, all the Spatial-Development frameworks of the regions and municipalities, regarding the development of exploitable Mineral Raw Materials (MRMs), will be compatible with;
- The facilitation of exploration licensing and exploitation permitting of MRMs through the creation of a framework that will clearly establish the areas of existing exploitable deposits on national level as well as the broader areas for MRMs prospecting, thus, reducing the time and the current bureaucratic permitting processes, especially in relation to important investment initiatives;
- Enforcement of the principles of legal certainty, a prerequisite to attract investments.
To elaborate the Strategic Environmental Assessment (SEA), a Strategic Study of Environmental Impacts will be carried out in which, the potential environmental impacts, from the implementation of the Special Spatial Plan for the Mineral Raw Materials, will be addressed, described and evaluated and any rational alternative possibilities proposed.
The Greek State's principal policy concerning mineral raw materials is declared with art. 106, paragraph 1, of the Greek Constitution of 2008: "Mineral raw materials are considered to be sources of national wealth and hence the State must, for the sake of the public interest, take measures for their utilization, promoting regional development and particularly for the enhancement of the economy in mountainous, insular and border areas".

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Based on the above, it is generally acknowledged that the State has the duty to “manage” mineral resources and their exploitation with main aim to protect by all means the public interest. Subsequently, mineral property and mining rights cannot “be sold” and cannot “be sold out” by the State, but only granted to third parties under the presumptions of the prevailing legislative framework.
The main Governmental body responsible for policy design in relation to minerals is the Ministry of Environment and Energy.
The General Secretariat for Energy and Climate Change of the Ministry of Environment and Energy (national administrative level), the 7 De-Centralised Administrations and the 13 Administrative Regions * (on the regional administrative level), are in charge of the implementation of the policy. The General Secretariat for Energy and Climate Change of the Ministry of Environment and Energy "Exercises market surveillance, establishes the legal framework, the technical and quality standards, validates and checks the inputs and outputs, as well as the implementation of regulations concerning production, installation, storage, transfer, delivery, supply, security of energy and mineral resources, products and services".
** Greece has two sub-national levels of government, in addition to the national government (Law 3852/2010): 13 Administrative Regions and 325 Municipalities. Furthermore 7 De-Centralised Administrations exist which act and are the De-Centralised part of the national government. The De-Centralized Administrations constitute the extensions of the Central government at regional level and each one supervises 1-3 Administrative Regions with major task to ensure the implementation of the governmental policies at regional level. Following the enforcement of Law 3852/2010 a significant number of competencies, regarding permitting of mining and quarrying activities, have been transferred from the Central State (Ministries) to the de-centralised level.*
The mining legislation (e.g. article 142 of Mining Code) includes provisions for the establishment of mining areas, but up to now in Greece, mining areas have been legally established only in relation to aggregates exploitation.
The basic mining legislation involves:
1. The “Mining Code” (MC) (Legislative Decree210/1973), as amended and valid.
2. The Mining and Quarrying Activities’ Regulation (KMLE) (Ministerial Decision 2223-FEK1227/14-6-2011) as amended and valid.
3. The Law 4014/2011 which constitutes the basic legislation for the environmental permitting of all types of projects and activities, as amended and valid.
4. The Law 4442/2016 as amended by Law 4512/2018. The latter amended the former in Articles 57-76, concerning the “Simplification of the framework regarding mining and quarrying activities”. More specifically, Articles 57-67 refer to the simplification of quarrying activities (i.e. industrial minerals, marbles and aggregates) and Articles 68-76 refer to the simplification of mining activities (i.e. metallic minerals or ores).
5. The Law 4512/2018 (articles 43-72 regarding “Exploration and Exploitation of Quarry Minerals and other Provisions).

Environmental permitting is the most time consuming and demanding procedure within the licensing / permitting process of the mining projects and activities in Greece. It is conducted in accordance with L.4014/2011 (FEK 209/A/21-9-2011) as amended and valid. During the environmental permitting of a mining project and especially during the public consultation stage, many competent authorities, (e.g. Mining Authorities, Department of Natural Environment, Forest Directorates, Archaeological Authorities, Water Management Departments, Regional and Municipal Councils) and other stakeholders provide their views, regarding the compatibility of the examined project with the prevailing, relevant legislation.

The aforementioned legislation is accompanied by a number of legislative documents (e.g. Joint Ministerial Decisions, Ministerial Decisions etc.) regulating specific issues of the Greek Mining Activity. Detailed reference to these documents exceeds the scope of the present report.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

Licensing / permitting of exploration or/and exploitation activities is linked to the legal classification of the resources under permitting, as regulated by the provisions of the Greek Mining Legislation. Specifically, based on the Mining Code, mineral resources are classified into two broad categories namely:
(a) “Metallic Minerals” or “Ores”, which, either surface or underground do not belong to the landowner of the area they occur, and
b) “Quarry Minerals” (i.e. aggregates, industrial minerals and marbles) that belong to the landowner of the area they occur.
Who issues which permit, depends on the mineral type (metallic or quarry minerals), the phase of the activity (exploration/exploitation), the type of the project/activity (A1, A2, or B), any land use peculiarities of the area of intervention (e.g. frontier area, protected area) and the status of the land ownership (private, municipal or public).

General aspects regarding the extractive activities in Greece

In principle, the extractive activities are not explicitly forbidden or allowed within the boundaries of protected areas, defined as such in article 3 of the Law 3937/2011. The spatial allocation of the extractive activities in these areas is eligible, under the provisions of the prevailing regulatory framework (article 49, paragraph 4 of Law 4512/2018).
Within the Environmental Permitting of a mining project in Greece, the potential conflicts are examined and measures proposed from the competent authorities, in order to prevent or mitigate potential adverse impacts. An “approval of Intervention” is required for exploration and exploitation activities which are operating within forests and forest areas. This approval is not required for simple research activities (e.g. economic geology, geophysical, etc.) that do not include drilling or excavations. The Approval of Intervention, whenever needed, is incorporated in the Environmental Terms Approval Decision (AEPO) (for project Categories A1 and A2).
When a mining project is considered to have significant adverse impacts on cultural heritage, public health, etc. it may not be permitted.
According to the prevailing legislation, mining and quarrying activities may be allowed within natural parks, provided that these activities, contribute in the economic development of local communities and they don’t cause degradation of the environment. Also, such activities are allowed in areas of wildlife refuges, provided that an EIA Study has been compiled and the corresponding Environmental Terms Approval Decision (AEPO) has been accordingly granted.
For mine developments, located within or close to a site of the NATURA 2000 network (i.e. Special Areas of Conservation, SAC, according to the NATURA Directive, the Habitats Directive, or Special Protection Area, SPA, according to the Birds Directive), an Appropriate Environmental Assessment has to be conducted with the EIA Study, so as to assess the potential impacts of the mining project to the integrity and conservation objectives of the NATURA site. The catalogue of the Greek SPAs was published as an Annex to the new harmonization of the Birds Directive. Moreover, 239 sites were characterized as SAC, with the Law 3937/2011. Specifications for "Special Ecological Assessment" for the environmental permitting of projects within the Natura 2000 network are prescribed in accordance with the respective E.U Directives.
It is emphasized that according to the data of the Greek Ministry of Environment & Energy, the total area coverage of the NATURA network sites in Greece (both SAC and SPA), account for 27,2% of the land area of the country. According to the same source, 30-35% of the current or potential future extractive activities in Greece (including areas with mining rights), are located within Natura 2000 sites.
In addition to the conflicts encountered during the Environmental Permitting of a project, even after the issuance of a permit, any opposing group of stakeholders can submit, to the Hellenic Council of State, a petition for annulment. Appeals to the Council of State by third parties (e.g. companies, Natural Persons, Organizations etc.), claiming that Ministerial Decisions, Presidential Decrees are against the Constitution or have had arbitrarily interpreted the Laws, are often exercised. The aim of all these appeals is the cancellation of a Ministerial decision or a Presidential Decree. Numerous of this kind of appeals are successful.

This project has received funding from the European Union’s Horizon 2020
research and innovation programme under Grant Agreement No 776679

Another potential conflict in the development of a mining project is related to the often expressed "lack of trust" of the local communities, ecological organizations and other stakeholders, regarding the actual compliance of the mining industry with prevailing environmental rules and regulations. The non-issuance of a "social license" is often the cause for significant delays in the development or even the annulment of new mining projects in Greece.

As set in the prevailing environmental legislation, during the environmental permitting of a mining project, and especially during the public consultation stage, many competent authorities, (e.g. Mining Authorities, Department of Natural Environment, Forest Directorates, Archaeological Authorities, Water Management Departments, Regional and Municipal Councils, Ministry of Culture and Sports, Ministry of National Defense, Ministry of Rural Development and Food, Ministry of Transport and Communications) and other stakeholders provide their views, regarding the compatibility of the examined project with the prevailing, relevant legislation.

In addition to the mining authorities, the consent of other co-authorities, related to the specific features of the natural and manmade environment and cultural heritage, is of prime importance. For example, in the case that an open–pit bauxite mine is designed to start operation in the Parnassus area close to Delphi (which is an important archaeological site), the competent archaeological authorities might be the most important authorities in permitting, due to the importance of cultural aspects to the Greek economy. The Ephorate of Underwater Antiquities articulates its opinion when the project and/or activity is in marine areas. The Ephorate of Palaeoanthropology-Speleology expresses its opinion when the project/or activity is near a cave. Forest authorities or natural environment authorities, are often the reason for encountered significant delays in permitting. The opinion of the Regional or Municipal council may also play a pivotal role in permitting.

According to Law 3028/2002 on "Protection of Antiquities and Cultural Heritage in general": i) the exploitation of quarries and mines, ii) carrying out mineral exploration and iii) delineating Quarrying Areas (for the production of aggregates) are prohibited without the prior approval of the Ministry of Culture. This approval is given in a timeframe of three months from the date of the submission of the application, which must be accompanied by all the necessary documents and diagrams that are foreseen in the relevant mining and quarrying legislation. The approval is not given if, due to i) the distance from the monument in question, ii) the visual contact with it, iii) the morphological relief and iv) the type of action requested, adverse effects may be caused to the monument or the archaeological site in question.

The aim of Law 3028/2002 is the protection of Antiquities and Cultural Heritage of the Country from the ancient times up to the present day. The Cultural Heritage of Greece consists of all the cultural goods/assets that are located both within the inland Greek territory and territorial waters as well as of those located in other sea zones in which Greece exercises a relevant jurisdiction in accordance with the International Law. The Cultural Heritage includes also the intangible cultural assets.

In the specific case of production of aggregates from primary sources, as elaborated in more detail in the case study description section of the present, all land use conflicts have been resolved and all necessary approvals by the competent authorities granted, before proceeding to the exploitation stage. During the process of delineation of an area as Aggregates' "Quarrying Area", by the appointed committee, all the alternative solutions are examined, including the quality of the rocks, environmental and spatial criteria, etc. and all the necessary approvals/consents, from the competent authorities, are granted.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	What were the internal case factors that contributed its success (e.g. actions taken by the institutions or decisions made during the life-time/process of the case; policy related: legislation or policy strategy, organisational: new institution created or altered institutional process etc.) and describe WHY they are considered as success factors. Policy related success factors: • The QAs constitute the basic institutional tool for the sustainable management of aggregates' production from primary sources in Greece;

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	• The QAs, do not modify their character and are not affected by subsequent acts related to urban, spatial or forestry provisions (article 48, paragraph 5 of Law 4512/2018); • According to the prevailing legislation, the licencing/permitting of aggregates' quarries, located within the legally established Quarrying Areas (QAs)", is facilitated and simplified as compared to the licensing of quarries that are located outside the Quarrying Areas; • All land use conflicts have been resolved and all necessary approvals by the competent authorities granted, before proceeding to the exploitation stage; • The extraction of aggregates from the licenced companies within the QA has priority, over all other activities, for the time span the licences are valid; • In principle, the aggregates' exploitation rights from established QAs prevails the exploitation rights of any other mineral commodity (unless metallic mineral, industrial mineral or marble deposits are located in the area and which are considered important to the national economy. In the latter case, according to article 48, paragraph 5 of Law 4512/2018, the exploitation rights of these commodities prevail over the aggregates' extraction).
6.2 Problems encountered	Describe some short-comings, problems overcome or not-overcome during the case's life-time (i.e. In after-thought how would you have addressed the problem in hindsight, ex-post optimisation) Not applicable
6.3 framework conditions/contextual factors	Describe the external factors that facilitated the development of the case (aspects that influence the development of the case in a negative or positive way; e.g. a positive SLO setting, a legislative instrument, changing economic development/commodity price etc.) Aspects influencing the development of the case in a positive way: As of the time of writing this report, a public procurement was announced (16.07.2018), regarding the elaboration of a "Special Spatial Plan for the Mineral Raw Materials" which constituted a consistent request on behalf of the social partners and particularly of the extractive industry. The aim of the "Special Spatial Plan for the Mineral Raw Materials" is the development of a policy for the spatial arrangement of the extractive sector, based on the sustainable development principles. It will encompass the main directions for the spatial planning of the extractive sector in accordance with the existing land use planning and it will be harmonized with the National Strategy for the strategic planning and development of the country's mineral wealth.
6.4 Impacts achieved	State in how far the case managed to reach its goal and achieve its anticipated impact on its intended beneficiaries/stakeholders. Potentially describe on which parts it could still improve. In spite of the enforcement of new legislation, that facilitates the permitting and licensing procedures, the procedure for the issuance of the Environmental Permit (i.e. AEPO) still remains the most time consuming and demanding procedure within the licensing / permitting process in Greece.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

ANNEX 1. Survey

Table3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Local land use plans are legally binding. Regional Spatial Plans give general directions which the lower level plans (i.e. local plans) should follow. The Local Spatial Plans, which usually cover the area of a Municipality, are harmonized with the general directions and strategic guidelines of the Regional and Special Spatial Plans (i.e. the Special Plan for Industry, Tourism etc.). In this sense the Regional Spatial Plans and the Special Spatial Plans are considered also binding (see also answer in question 3.4 second bullet).
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	They are revised every 5 years provided a justified need for this revision arises from the evaluation report compiled every 5 years as well. During this time however it is possible, by way of exception, to modify them, with a view to improving and updating them. The reasons for renewal may be: To cope with issues arising from the promotion or implementation of programs of international, European, cross-border, transnational, interregional or local character; to respond to exceptional needs arising from natural or technological disasters and hazards; to incorporate guidelines and proposals of lower or higher level Spatial Plans; to adapt to new spatial planning data and directions derived from the approval, revision or amendment of other Plans; to respond to exceptional and unforeseen needs and new data for projects of national or regional importance that were not included in the original design; to respond to exceptional urban planning needs arising from natural or technological disasters and risks; to meet additional needs in social equipment (source: provisions of Law 4447/2016). According to recently enforced Law (September 2018), the approval, revision or modification of the Special Spatial Plans shall be carried out at the latest within twenty four (24) months, a time limit which starts on the day following the signing of the relevant contract between the Ministry of the Environment and Energy and the contractor. It is, exceptionally, possible to extend the deadline of the twenty-four (24) months for another four (4) to ten (10) months, by decision of the Minister of the Environment and Energy on the recommendation of the Competent Authority. The approval, revision or modification of the Regional Spatial Plans shall take place no later than thirty (30) months, a time limit which starts on the day following the signing of the relevant contract between the Ministry of the Environment and Energy and the contractor. It is, exceptionally, possible to extend the deadline of thirty (30) months for another four (4) to ten (10) months, by decision of the Minister of the Environment and Energy on the recommendation of the Competent Authority (source: articles 3 & 4 of Presidential Decree 90/September 2018). See also relevant answer in question 3.3.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Yes. The Local Spatial Plans (which belong to the category of Regulatory Spatial Planning) determine, for every Municipality, the following categories of areas: a) residential, b) areas of productive and entrepreneurial activities, c) protected areas and d) land use control areas. Following the approval of the Local Spatial Plans, any residential, productive or other development is permitted only if it is compatible with the specified land uses and any other terms and limitations set by the Local Spatial Plans. The procedure for the drawing up of a Local Spatial Plan is initiated either by the relevant Municipality or by the Ministry of Environment and Energy (YPEN). Local Spatial Plans are subject to a Strategic Environmental Assessment. The approval of the Local Spatial Planning is done by a Presidential Decree issued at the proposal of the Minister of Environment and Energy. The relevant Administrative Region monitors and evaluates the implementation of Local Spatial Plans. The Local Spatial Plans are normally revised every 5 years unless a justified extraordinary need for modification arises. In the latter case revision may be carried earlier. According to recently enforced Law, the approval, revision or modification of the Local Spatial Plans shall take place at the latest within thirty six (36) months, a period commencing from the day following the signing of the relevant contract between the relevant Municipality or any other competent body and the contractor. It is, exceptionally, possible to prolong the period of thirty-six (36) months for additional four (4) to ten

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		(10) months by decision of the Minister Environment and Energy following a recommendation from the competent authority (source: article 5 of Presidential Decree 90/September 2018). The Specific Spatial Plans (which also belong to the category of Regulatory Spatial Planning), are at the same level of planning as Local Spatial Plans and may modify the arrangements of previously approved Local Spatial Plans and Residential Control Zones particularly regarding the allowed land uses. The procedure for drawing up the specific spatial plans is initiated by the Ministry of Environment and Energy, or from the relevant Municipality or the relevant Administrative Region, or from the project implementation organization. The specifications and any other issues relevant to the drafting of the specific spatial plans are determined by a decision issued by the Minister of Environment and Energy (source: Law 4447/2016). According to recently enforced Law, the approval of the specific spatial plans shall take place at the latest within twelve (12) months. The modification of the specific spatial plans is carried out with the issuance of a Presidential Decree, after a period of five years from the issuance of the Presidential Decree regarding their first approval (source: article 6 of Presidential Decree 90/2018). Land use planning considerations are integrated in the procedure of Environmental permitting of projects and activities.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed, in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	• The National Spatial Plan (2008) addresses the following guidelines, which are further elaborated in the "Special Spatial Plan for Industry": - Preservation of the mining activity at the preexisting mining areas and assurance of its extension to areas where new deposits or new minerals are detected, in compliance with the protection of the environment and the operational status of the adjacent activities. It concerns mainly mineral resources that cover domestic needs or targeting international markets; − Spatial planning for the aggregates' quarries is needed so that the needs of the other productive activities and infrastructure works are ensured at the lowest possible cost and minimum environmental impacts, the prospecting for aggregates to ensure the production of products related to the cultural heritage (traditional buildings), of materials with special properties, as well as of raw materials for the production of cement and lime; − Safeguarding of the areas of extractive activity from competing land uses on the basis of the adverse environmental impacts, the scarcity of the exploitable resources, especially in areas of the Natura 2000 network and coastal zones; − Ensuring the basic conditions for the operation of the mining activities and, in particular, the possibility of spatial location of plants for the primary processing of mineral raw materials etc. In the Industry Special Spatial Plan and the Strategic Study of its Environmental Impacts (J.M.D.11508/ FEK 151 ΑΑΠ/13.04.2009), mining and quarrying activities are addressed for each and every Regional Unit (i.e. Administrative level subordinate to the Region) of the country and are examined in relation with forest areas and protected areas. The Industry Plan contains some provisions for the extractive sector: it points out the main mining industries of the country, provides for the location and establishment of industrial facilities that accompany the mining activities and secures the industry's access to the sea. • The currently under reform Regional Spatial Plans make a detailed reference to mining issues (identify areas of interest, etc.) and even give specific policy directions for each Administrative Region and some specify them per Municipality. This is considered as a positive development towards the specification of the guidelines of the General Spatial Framework and the Special Spatial Plan for Industry in the Regional Spatial Plans (source: interview of spatial planning expert).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	According to the prevailing legislation, mining and quarrying activities may be allowed within natural parks, provided that these activities, contribute in the economic development of local communities and they don't cause degradation of the environment. Also, such activities are allowed in areas of wildlife refuges, provided that an EIA Study has been compiled and the corresponding Environmental Terms Approval Decision (AEPO) has been accordingly granted. In addition to the conflicts encountered during the Environmental Permitting of a project, even after the issuance of a permit, any opposing group of stakeholders can submit, to the Hellenic Council of State, a petition for annulment. Appeals to the Council of State by third parties (e.g. companies, Natural Persons, Organizations etc.), claiming that Ministerial Decisions, Presidential Decrees are against the Constitution or have had arbitrarily interpreted the Laws, are often exercised. The aim of all these appeals is the cancellation of a Ministerial decision or a Presidential Decree. Numerous of this kind of appeals are successful When a mining project is considered to have significant adverse impacts on cultural heritage, public health, etc. it may not be permitted. According to Law 3028/2002 on "Protection of Antiquities and Cultural Heritage in general": i) the exploitation of quarries and mines, ii) carrying out mineral exploration and iii) delineating Quarrying Areas (for the production of aggregates) <u>are prohibited without the prior approval of the Ministry of Culture.</u> The approval is not granted if adverse effects may be caused to the monument or the archaeological site in question due to i) the distance from the monument in question, ii) the visual contact with it, iii) the morphological relief and iv) the type of action requested. See answers in questions 3.18, 3.27 and 3.31
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	If a project is planned without prior detailed land and spatial planning provisions or if permitted contrary to the allowed land uses in the respective area or despite restrictions created from other laws, the project will not be allowed to go forward and the permits will entail considerable legal risk at the Conseil d' Etat (CdE – the Greek Supreme Administrative Court) after undergoing lengthy procedures
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	See answer in question 3.23
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes, during the Environmental permitting process.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]?	Partly. Work in progress. <u>Description of the applied general framework for INSPIRE compliant data in Greece (Law 3882/2010):</u> By 2020, it is the responsibility of all competent Ministries to digitize and record all the geospatial data of the country which affect the current

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	status of ownership, construction, exploitation and / or protection of real estate. These data are part of a central database of the Ministry of Environment and Energy. Since the publication of Law 4269/2014 as amended and valid, sectoral information systems are created, under the responsibility of the competent Ministers, to maintain all these data. The main categories of these data concern: spatial - urban planning features, areas of environmental, cultural, architectural and national protection and areas defined by other administrative acts relating to land, such as the expropriation of infrastructure projects, land reforms - distributions, boundaries. Available in the Ministry of Environment and Energy (YPEN): http://www.latomet.gr/ypan/StaticPage1.aspx?pagenb=16503 http://www.inspire.okxe.gr/index.php?option=com_content&view=frontpage&Itemid=1 http://www.ypeka.gr/Default.aspx?tabid=649&language=el-GR http://www.ypeka.gr/Default.aspx?tabid=696&language=el-GR In the following address the approved environmental permits are posted and are publicly available (in accordance with article 19 of Law 4014/2011): http://aepo.ypeka.gr Also in accordance with Joint Ministerial Decision 48963/2012 as amended and valid, the relevant department of the Ministry of Environment and Energy is obliged, every 6 years (starting from year 2017), to inform the European Commission about the number of projects granted environmental permits (or rejected), the distribution of the environmental impacts, based on the approved environmental permits (i.e. AEPO), the average duration for issuing an AEPO and the general estimations of the average cost for the elaboration of an environmental impact assessment study (i.e. EIA).
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	The integration of mineral resources in the process of land use planning requires the cooperation and sharing expertise of a multidisciplinary team of experts and the cooperation of Mining and Spatial Planning authorities with the geological data providers such as the Geological Survey.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	Yes, based on the institutional role and responsibilities of each separate authority (e.g. geological survey, mining authorities and land use planners). See also answer in question 3.10
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Yes
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	No. The national legislative and regulatory framework regarding the permitting of extractive activities despite recent developments towards its simplification, remains complicate, time consuming and bureaucratic, comprising “multiple stops” not necessarily running always in parallel.
The	3.15 Does the land use planning process designate areas for minerals	

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

	considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	3.17 No. The information on prospected deposits is available to the entity which funded the exploration survey.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	The land uses are determined according to their general and specific spatial function as follows (source: article 1 of Presidential Decree (P.D) 59/2018 "Categories and land use content"): I. GENERAL CATEGORIES OF USES II. SPECIAL CATEGORIES OF USES In the special categories of uses, certain activities, functions, facilities and infrastructures are classified according to their specific spatial function such as: Residence, social welfare, large sports facilities, industrial installations (of low, medium and high nuisance), solid waste treatment, storage and disposal site /solid toxic treatment and disposal site, **extractive activities (Mines - Quarries),** etc. According to article 14 of the P.D 59/2018, in high-productivity agricultural land other uses, apart from farming, are not allowed, unless it is specifically predicted otherwise, by a special provision of law and it is in accordance with the directions of spatial planning. The integration of the protection of biodiversity into all sectoral policies that may result in impacts on species and habitats, is an obligation of all competent Ministries. Priority is given, into integrating strict measures to protect biodiversity, into sectoral policies regarding housing, agriculture and fisheries, transport, industry, tourism and energy (source: article 15 of Law 3937/2011).
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Preliminary research involving geological mapping of the appropriate scale, sampling for the determination of the qualitative and quantitative characteristics of the prospected area. If the preliminary research indicates areas with mineral potential then a more detailed research programme may be carried out which may involve more detailed mapping, sampling, geophysical research, exploration drilling, research excavations. The compilation of a feasibility study is a prerequisite for a third party to obtain a "mining rights "over an area.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are	3.23 Yes. Some examples are given below:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	On the basis of the provisions of the prevailing legislation changes in land use in areas where legally operating quarries of aggregates, industrial minerals and marbles are located, do not prevent the continuation of the operation and the extension of the leases of these quarries (source: Law 4442/2016 & article 68, paragraph 19 of Law 4512/2018); In mine concessions, the mining activity is prioritized against other land uses; The extraction of aggregates from the licenced companies within the Quarrying Areas (QAs) has priority over all other activities, for the time span the licences are valid. As further elaborated in the case study description, in principle, the aggregates' exploitation rights in legally established QAs prevails the exploitation rights of any other mineral commodity (unless metallic mineral, industrial mineral or marble deposits are located in the area and which are considered important to the national economy. In the latter case, according to article 48, paragraph 5 of Law 4512/2018, the exploitation rights of these commodities prevail over the aggregates' extraction). The QAs, after their delineation, do not modify their character and are not affected by subsequent acts related to urban, spatial or forestry provisions (article 48, paragraph 5 of Law 4512/2018).
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	Not applicable yet.
	3.25 Are there and which are incentives to implement minerals into land use planning?	A public procurement was recently announced (16.07.2018), regarding the elaboration of a "Special Spatial Plan for the Mineral Raw Materials", in accordance with the provisions of Law 4447/2016. The Special Spatial Plan for the Mineral Raw Materials should be finalized in 19 months. The aim of the "Special Spatial Plan for the Mineral Raw Materials" is the development of a policy for the spatial arrangement of the extractive sector, based on the sustainable development principles. It will encompass the main directions for the spatial planning of the extractive sector in accordance with the existing land use planning and it will be harmonized with the National Strategy for the strategic planning and development of the country's mineral wealth. **The expected benefits from the elaboration of the "Special Spatial Plan for the Mineral Raw Materials" pertain to:** The generation of a framework to which, all the Spatial-Development frameworks of the regions and municipalities, regarding the development of exploitable Mineral Raw Materials (MRMs), will be compatible with; the facilitation of exploration licensing and exploitation permitting of MRMs through the creation of a framework that will clearly establish the areas of existing exploitable deposits on national level as well as the broader areas for MRMs prospecting, thus, reducing the time and the current bureaucratic permitting processes, especially in relation to important investment initiatives; Enforcement of the principles of legal certainty, a prerequisite to attract investments. **It is emphasized that the elaboration of the «Special Spatial Plan for the Mineral Raw Materials", constitutes a consistent request on behalf of the social partners and particularly of the extractive industry.**
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No. See also answer in question 3.25.
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	If a project is planned without prior detailed land and spatial planning provisions or if permitted contrary to the allowed land uses in the respective area or despite restrictions created from other laws, the project will not be allowed to go forward and the permits will entail considerable legal risk at the Greek Supreme Administrative Court after undergoing lengthy procedures.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	The guiding principle and purpose of the Spatial Planning is the strengthening of the economy, investment and employment, while protecting the environment and promoting social cohesion and justice. Land use designations are influenced by the development strategy and goals as well as the sectoral priorities and profile of each Administrative Region in compliance with the National Spatial Strategy.
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Through public consultations. The public consultation has been established by Law 4048/2012 (Government Gazette 34 / 23-02-12) and the procedure has been certified as the official procedure of the National Centre for Public Administration and Local Government (E.K.D.D.A.), following a relevant decision of the Board of Directors (no. 3727 / 24-10-2011 as amended and valid). The latter, defines the requirements and the rules for conducting consultations. Public consultations are intended to enable interested parties to express their views on specific issues and measures. With regard to the consultation process, any ministry or public body wishing to conduct a public consultation on draft laws, regulations and any other text or call for expressions of interest should send the request via an e-mail to mtkekdd.gr Additional consultation procedures applied with regards to Spatial Planning: The article 4 of Law 4447/2016 refers to the "establishment of the National Council for Spatial Planning at the Ministry of Environment and Energy, composed of nineteen (19) members". In the Council participate, among others, a representative from the Hellenic Federation of Enterprises and representatives from two NGOs. The Council constitutes a body of social dialogue and consultation on issues of particular importance concerning the pursuit of national spatial planning policy and sustainable development policy. Particularly, it is responsible for expressing an opinion on the National Spatial Strategy and the Special Spatial Planning Frameworks. The Council gives its opinion during the process of drawing up the Regional Spatial Plans, after a request on behalf of the Minister of Environment and Energy. The latter may ask the Council for advice or suggestions on other spatial and urban planning issues as well. The Council may give its opinion on important issues of a wider spatial policy, on an initiative of its President or at the request of at least ten of its members. For the exercise of its powers, the Council may request data and information from the competent bodies and public sector services. See also answer in question 3.30
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	Under the responsibility and supervision of the relevant municipality or the body that initiates the process of developing a local spatial plan, the active participation of all the actors and all citizens is pursued through the organisation of open meetings and release of information via published and electronic media, etc.The aforementioned participatory processes of the public as well as the programs and / or the views of the bodies and the acceptance (in whole or in part) or their justified rejection thereof must be explicitly mentioned in the opinion of the relevant Municipal Council, which gives directions for the drafting of the proposal for the spatial and urban planning within the framework of the Local Spatial Plan (source: article 5 of Presidential Decree 90/2018). The interested parties have the right to submit, in a formal way, objections. Acceptance or justified rejection of these objections are explicitly mentioned in the opinion of the relevant Municipal Council. See also answer in question 3.29.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity).*	In principle, the extractive activities are not explicitly forbidden or allowed within the boundaries of protected areas, defined as such in article 3 of the Law 3937/2011. The spatial allocation of the extractive activities in these areas is eligible, under the provisions of the prevailing regulatory framework (source: article 49, paragraph 4 of Law 4512/2018). For mine developments located within or close to a site included in the NATURA network (i.e. Special Areas of Conservation, SAC, according to the NATURA Directive,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	the Habitats Directive, or Special Protection Area, SPA, according to the Birds Directive) an Appropriate Environmental Assessment has to be conducted with the EIA Study, so as to assess the potential impacts of the mining project to the integrity and conservation objectives of the NATURA site. In the areas of Strict Nature Reserves, every activity is prohibited. In the Natural Parks with the exception of their parts which are characterized as Strict Nature Reserves and Nature Reserves, quarrying and mining activities may be permitted if these activities contribute significantly to the local economy and do not cause environmental degradation incompatible with the nature of these areas. As Natural parks are characterized terrestrial, aquatic or mixed areas of particular value and interest due to the quality and variety of their natural and cultural features, in particular biological, ecological, geological, geomorphological and aesthetic, while offering significant potential for the development of activities that are in harmony with the protection of nature and the landscape. In the Wildlife Refuges quarrying and mining activities are also permitted provided an Environmental Impact Study has been submitted and an Environmental Permit (i.e. AEPO) has been granted (source: article 5 of Law 3937/2011). The competent body for the protection of biodiversity and the implementation of relevant legislation is the Ministry of Environment and Energy (YPEN) (source: article 15 of Law 3937/2011). The "Nature 2000" Committee is the central scientific advisory body of the State for the coordination, monitoring and evaluation of policies and measures to protect Greek biodiversity. The unhindered functioning of the "Nature 2000" Committee is the responsibility and obligation of the respective Minister of the Environment and Energy (YPEN) (source: article 19 of Law 3937/2011). The "Entities for the Management of Protected Areas", established under the provisions of Law 4519/2018, are entitled to provide reasoned opinions in the process of environmental licensing of projects and activities falling within their protected areas of their responsibility or of projects and activities the impacts of which directly or indirectly affect the protected object. They also provide assistance of the competent administrative and judicial authorities in monitoring the implementation of the environmental legislation, the legislation regarding forestry, fisheries and hunting as well as the monitoring of the environmental and urban planning terms applicable to projects or activities carried out in their areas of responsibility. For the fulfillment of their work, the "Entities for the Management of Protected Areas" cooperate with the Ministry of Environment and Energy, the Committee "Nature 2000", the relevant services of the European Union and international organizations, the competent government agencies etc.

Table 411: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? At what stages and what is included?	The plans for the determination of the Quarrying Areas (case study) for which the appointed Committee has given a favourable opinion and before their final approval, undergo an Environmental Pre- Assessment procedure to ascertain whether significant environmental impacts are expected. On a positive outcome of the previous evaluation, the Strategic Environmental Assessment (SEA)* procedure is applied, in accordance with the Ministerial Decision 107017/2006. * "SEA is the environmental impact assessment process of a plan or program which includes the preparation of a	Yes	Yes	Included in the previous phase

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	strategic Environmental Impact Assessment study (EIA), the conduct of consultations, and the results of the deliberations in the decision-making process and the information on that decision" (source: article 2 of Ministerial Decision 107017/2006). The plans for the determination of the Quarrying Areas that are located, partially or as a whole, within the Natura 2000 Network, are subject to a mandatory SEA procedure (source: article 47, paragraph 5 of Law 4512/2018). The Environmental Pre- Assessment includes at least, a description of the current state of the environment, in particular the environmental characteristics of the area likely to be affected by the implementation of the plan or program, with particular emphasis on the importance and sensitivity of the area likely to be affected, because of: its specific natural characteristics or cultural heritage importance, intensive land use and exceeded environmental quality standards or limit values. It also includes the characteristics of the environmental impacts particularly with regard to: the probability, duration, frequency and reversibility of the impacts, the cumulative nature of the impacts, the cross-border nature of the impacts, the risks to human health or the environment (e.g. due to accidents), the geographical area and population likely to be affected, the impact on areas or landscapes which enjoy recognized protection at national, European or international level. The possible significance of these impacts are also assessed (source: article 11 of Ministerial Decision 107017/2006). The strategic environmental impact assessment study (EIA) includes among others: An analysis of the feasibility and objectives of the proposed plan or program, the international, EC or national environmental protection objectives with regard to the plan or program, the way in which these objectives and environmental considerations have been taken into account during its preparation, its relationship with other relevant plans and programs, the reasonable alternative solutions and the current state of the environment are described and the significant effects on the environment are identified, assessed and evaluated in areas such as: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage. It also includes: proposals / guidelines / measures to prevent and mitigate any significant adverse effects on the environment and proposed system for monitoring of the significant environmental impacts foreseen from the implementation of the plan or project (source: article 11 of Ministerial Decision 107017/2006).			
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for	No			

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

classifying mineral resources being used?				
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	4.3 Yes 4.4 In the process of the Strategic Environmental Assessment (SEA), consultations with the relevant public authorities and the concerned public are carried out. The consultation with the concerned public is carried out through announcements in at least two daily newspapers of regional and/or national scale. The public authorities have to respond in 45 days after the receipt of the relevant documents. The public concerned may submit a sufficiently justified opinion, within thirty (30) days from the publication of the announcement, in written and, where appropriate, electronically. The decisions on the final approval of the SEA are communicated through announcements in at least two daily newspapers of regional and/ or national scale (source: articles 5&7 of Ministerial Decision 107017/2006).			
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	Yes			
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	Work in progress. See answer in question 3.10.			
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	See answer in 4.8			

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	For the delineation of an area as Quarrying Area, the following are taken into account (article 46 of Law 4512/2018): 1. Criteria related to quality characteristics of the rocks and adequacy of resources to cover local needs; 2. Spatial criteria, such as the National Spatial Strategy, the Special Spatial Plans and the Regional Spatial Plans, distance from the consumption centers etc.; 3. Environmental criteria; 4. Criteria related to sustainability and safety issues such as: the safety of the workers and the surrounding communities, the sustainable exploitation of the resources; 5. Criteria related to the protection of archaeological and cultural heritage. The operators of aggregate quarries are obliged to pay annually a special fee (royalties), to the Municipality, in the area of which the quarries operate. This fee is set at eight percent (8%) at the selling price of unprocessed products or four per cent (4%) at the sale price of the processed products on the floor of the quarry (source: article 62 of Law 4512/2018). See also answer in 4.9 (second bullet).			
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If yes, please explain.	Not applicable in the specific case study: - Once the delineation of an area as Aggregates' "Quarrying Area" has been legally defined, the extraction of aggregates from the licenced companies within the area, has priority, over all other activities, for the time span the licences are valid. In principle, the aggregates' exploitation rights from established QAs prevails the exploitation rights of any other mineral commodity, unless metallic mineral, industrial mineral or marble deposits are located in the area and which are considered important to the national economy. In the latter case, the exploitation rights of these commodities prevail. The QAs, after their delineation, do not modify their character and are not affected by subsequent acts related to urban, spatial or forestry provisions (source: article 48, paragraph 5 of Law 4512/2018). - The Quarrying Areas are spatially delineated at a distance of at least 1000 (1000) meters from approved town plans and approved build up expansion areas or approved boundaries or settlements established before the year 1923. The threshold of one thousand meters does not apply to the construction of buildings intended for farming and aquaculture facilities, shelters of slaughter, agricultural warehouses, tanks and greenhouses, which are spatially placed at distances of more than five hundred meters from the external boundaries of the Quarrying Area (source: article 48 of Law 4512/2018).			
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing	Not applicable in the specific case study			

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

with landowners and the society in general?				
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	See answer in question 4.8			

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations. Only the phase of pre-exploration, planning is evaluated.

	Pre-Exploration/ Planning phase
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	5.1 Yes 5.2 See answer in question 4.4
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	5.3 During the process of the delineation of an area as Quarrying Area and before a formal decision for that matter is made.
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? What was well received?	See answer in 5.5
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	See answer in question 4.8
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?	
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but*	During the environmental permitting of a mining project or activity the socio-economic impacts, the impacts on the cultural and archaeological heritage, on protected areas, on forests/forestland, on surface and ground waters, on the quality of air etc., deriving from the implementation of the project are assessed and if applicable, additional compensatory measures, alternative solutions proposed or countervail measures are proposed (source Ministerial Decision 170225/2014 as amended and valid).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?[3]	

(Internal use - note 3: Answer 5.9- important to maintain during evaluation of the answers the knowledge of the person who answered, keep the answers disaggregated.)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 12 Case Description Austria - Policy

Case Study Identification

Österreichischer Rohstoffplan (*(AMRP)*	
Austria	
Montanuniversität Leoben (MUL)	
Type of mineral resources?	All: aggregates, industrial minerals, metals, energy mineral resources
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	A case of vertical and horizontal policy integration: Case is outlining the pre-exploration phase, illustrating the land-use planning system and how the Austrian *Rohstoffplan (AMRP)* is (partially, in a fragmented way) implemented in land-use planning legislation, instruments and policies. 2 sub Case studies concerning implementation in two federal states: Tyrol and Styria Styria: Regions investigated: Obersteiermark Ost (OSO), Südwest Steiermark (SWS), Oststeiermark (OST) Tyrol: several Regions investigated (regional level is divided in so called "Planungsverbände") *Osttirol et al.*
Is the case about open-pit or underground mining, both or not applicable?	applies to both
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	multi-scale a) Case illustrates the implementation of the national "*Rohstoffplan*"(Austrian Mineral Resource Plan, AMRP) into spatial planning.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Spatial Planning legislation is embedded on the provincial scale and is cascading down, via regions to the municipal (local) level and further to the site (i.e. mining site) b) Vertical implementation of a non-regulatory (soft) policy instrument: The challenge in Austria is the implementation of a national policy which the provinces do not need to implement (not mandatory) since it has the legal status of an "expert opinion" but is not a "National Mining Plan" which would result in mandatory technical planning (like in forestry); furthermore, the Austrian constitution determines "zoning" as the responsibility and duty of municipalities, hence municipalities are the main units were land-use planning and spatial planning is carried out; Multiscale and multi-tier: the general distribution of competence and power between the federal government and the provinces (federal states) results in the distribution of MINING as a federal government's competence, while SPATIAL PLANNING (Land-use planning) is a competence of the provinces. Thus, Austria, having nine provinces, runs 9 different legislations on spatial planning (as well as nature protection/conservation)
Extents of the project (km2) or not applicable?	Austria - 83,879 km^2
Company or companies involved	not applicable s.str.
Are the mineral resources private and/or public owned?	3 different types: 1) State owned mineral Resources (*Bundeseigene*): property rights of withdrawal and access belong to the federal state, state → rights of disposal,; land-rights and land ownership is not necessary to gain a mining permit, those ones are also not related to land-use/spatial planning procedures (aside from conservation) → MINROG permitting procedure/EIA procedure,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	mainly energy raw materials 2) Free-to-mine (*Bergfreie*): property right for withdrawal belongs to the person/organisation that gains the permit for withdrawal, rights of disposal, land-titles or land-ownership are not mandatory for mining activities (if permitted), is not directly linked to spatial-planning/land-use planning procedures → MINROG permitting procedure/EIA procedure, mainly metals and certain industrial minerals 3) Landowner - resources owned by owner of the plot (land-title) (*Grundeigene*): withdrawal right belongs to the person with the land-use title (owner of the plot), spatial-planning procedures/zoning are directly linked and conditioning if extraction/operations are possible, → Spatial Planning (+SEA) procedures/EIA procedures/permitting mainly aggregates and certain industrial minerals

Case study description

The Austrian case describes the *"Österreichischen Rohstoffplan"* (Austrian Mineral Resource Policy, AMRP), (1) its relation to land-use policies and legislation, and (2) its integration and inter-linkages with other policy tiers and legislative documents. The Austrian case describes how a national policy tool for safeguarding mineral deposits ("Österreichischen Rohstoffplan" AMRP) is implemented at the provincial and other levels of public administration. While mining/mineral resources are based on national scale (competence portfolio of the federal state), spatial planning/land use planning is part of the provinces' portfolio, which necessitates that the AMRP and safeguarding of deposits takes effect via spatial planning.

The classification of mineral resources in 3 types (State-owned, free-for-mining, landowner) conditions the involved planning and permitting procedures: State-owned and free-for-mining resources are permitted and managed on the national scale; they are not directly based on spatial planning procedures but are limited by certain land-use forms or designations, i.e. nature protection/conservation.
Extraction of Landowner Raw Materials are depending on spatial planning regulation and the necessary zoning type; thus they are included in the planning procedures and negotiations on provincial level.

For MINLAND two subcases, province Styria and province Tyrol illustrate the diversity of implementation pathways by looking into legal frameworks, land-use planning options and vertical policy integration.

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

A) Sub-case study selection and boundaries:
The case study describes interactions of mineral policies/legislation and land-use planning, focussing on the pre-exploration/land-use planning phase. Provinces Tyrol and Styria are selected as two sub-cases for detailed description of different policy options and implementation pathways on provincial and lower levels. The selection of sub-cases is based on the following considerations: a) TWO OPTIONS TO SOLVE THE PROBLEM providing more options for good practice implementation pathways of a national policy into a provincial context, b) diverse setting/heterogeneity: two distinct examples of how a national policy might be implemented, c) other than Styria, the province of Tyrol developed a mineral policy at the provincial level. Furthermore, both cases were subject to a detailed audit of the Austrian court of editors, which provides additional insight in public administration procedures and public management.

B) Levels/Scales and Principles of Austrian Land-use/Spatial Planning:
Austrian public administration and policy is divided into 4 main scales: national, provincial (federal states), regions and municipalities. The Austrian federal system and principle of subsidiarity embeds many different legal frameworks, policies, planning instruments and implementation responsibilities on provincial and municipal level.

Three main principles are conditioning the Austrian Spatial/Land-use planning system:
1) Hierarchy: Cascading down of policies, policies and plans on lower/down-streamed level (i.e municipal) must meet the goals and aims and embed in the policies of higher/up-streamed levels; lower levels must not contradict plans/policies on higher scale; higher scale plans and policies are the framework for down streamed conditions; they must be designed in a way that leaves sufficient freedom (principle of subsidiarity) for units on lower scale (i.e. municipalities) to perform their duties and fulfil their tasks;
2) Vertical Coordination: Coordination and tuning between different planning authorities on different scales/levels; consultation rights of down-streamed planning authorities and organisational units; provinces are obliged to provide administrative assistance (for units on lower levels), provincial supervisory regulations and rights for plans and plan-implementation measures on municipal level
3) Horizontal Coordination: obligation to coordinate horizontally – plans of neighbouring spatial units (municipalities, regions, provinces, etc.), information rights and consultation rights

National Scale (case specific!)
On the national scale a) constitutional laws, b) federal laws and c) federal policies are embedded. Ad a) Constitutional Law – Austrian Federal constitution is split up in many different acts, also ones considered as "ordinary legislation" (regular bills/acts). Its centrepiece is the Federal Constitutional Law (abbreviation B-VG), including most pivotal federal constitutional parts and frameworks.
NATIONAL LEVEL: LEGISLATION related to Mining and Mineral Resources:

1) Constitutional Law: 'Bergwesen' is addressed in Art. 10 (1) Z 10 B-VG, regulating that ‚Mining'/'Mountain Science' is a state/federal task and responsibility (national scale), considering the extraction of mineral raw materials in "the typical" way/fashion. The method and ways of extraction are pivotal, while the commodities that are mined (which minerals) is only of secondary importance (VFGH, MINROG comments, p8.).

2) B-VG Nachhaltigkeit (Constitutional Law Sustainability, Bundesverfassungsgesetz über die Nachhaltigkeit, den Tierschutz, den umfassenden Umweltschutz, die Sicherstellung der Wasser- und Lebensmittelversorgung und die Forschung)
Must be considered in all downstreamed policy and legal frameworks
§3 determines, that Austrian Republic (federal state, provinces, municipalities) are committed to domestic

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

food security (meat, plants) and sustainable extraction/production of natural raw materials, domestic sourcing to provide supply security

3) Minerals Raw Materials Act (Bundesgesetz über mineralische Rohstoffe (Mineralrohstoffgesetz - MinroG))

due to the Austrian Constitution mining and mineral raw materials are state duty and responsibility. The bill governs the a) exploration, b) extraction of mineral raw materials; c) Aufbereitung of that raw materials (if related to exploration and extraction), d) searching and exploring geological voids for storing liquid and gaseous hydrocarbons;

The bill distinguishes 3 different types of mineral raw materials:

i) *Bundeseigene* / state-owned: property rights of withdrawal and access belong to the federal state
ii) *Bergfreie* / free-for-mining: property right for withdrawal belongs to the person/organisation that gains the permit for withdrawal
iii) Landowner raw materials/*Grundeigene*: withdrawal right belongs to the person with the land-use title (who owns the land)

a) Public Interest:

public interest is addressed in MINROG, emphasizing public interest in the policy tiers of nature protection, spatial planning (land-use planning), tourism, environmental protection, water management, railways and road transport, national defence are to be considered (§25 (2) MINROG – Grubenmaße) public interest on different levels (also provincial level) i.e. public interest could be to secure a place, village/city or the train/street track from destroying by the extraction or to safeguard a mineral spring or a watershed can pose public interest (comment, MinROG, p46), that also includes the consideration of different interests, decisions and actions of other planning authorities – in such a way that different decisions to achieve goal attainment must be aligned (demand for horizontal and vertical collaboration, between different departments to establish an improved involvement of the provinces within the permitting process, they received (improved) rights to represent public interest that are facilitated on provincial level: i.e. nature protection, land-use etc. From that perspective it is possible, that national competencies and responsibilities (such as mining) might be of lower importance than public interest on provincial level, consequently the provincial rules and legislation would be superordinate compared to national interest (VwGH Slg 13.934 = RdU 1995/37), that also includes the

b) Mineable Resources/deposits (Abbauwürdig)

(§ 25 (4) MINROG): mineable (*abbauwürdig*) are deposits of sufficient quality, location, utilisation (*Verwertungsmöglichkeiten*); plus extraction can be performed under the condition of expected economic profitability, security and space efficient and careful handling with the surface Greening (*Ökologisierung*) of mining law, to include a careful land-use in assessing and evaluating the quality and minable (*Abbauwürdigkeit*) of mineral deposits

c) Spatial Planning in Minerals Raw Materials Act

i) Traffic and Transport: for the permitting of "grundeigene Rohstoffe" (property and withdrawal rights belong to the person with the land-use title) it is mandatory to provide traffic and transport concepts during the permitting stage, which have to meet the standards of the municipal zoning plans and meet the spatial planning regulations. The party who intends to obtain a permit must be addressed and discussed and 'traffic plans/concepts agreed' upon. (§ 80 (2), Abtransport mineralischer Rohstoffe, MinRoG, comments, p.3)

ii) Housing/: Extraction of "grundeigene Rohstoffe" a buffer zone (Schutzzone, Abbauverbotszone) of 300

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

m in which generally extraction is prohibited is foreseen. Only the local spatial plan (zoning, development strategy) can allow to go below the 300 m buffer zone (St.) (MinRog, comments, p3)

4) Environmental Impact Assessment – Bill (EIA) (UVP Gesetz) – not to be confused with the SEA (Strategic Environmental Impact assessment, SEA Directive 2001/42/EC) is the national implementation of the EU EIA Directive (85/337/EEC)

5) Constitutional Law BV-G Art. 118 Abs.3 Z 9

defines that local land-use planning/spatial planning is duty of the municipalities on local level, particularly issuing Zoning/Land-Use Plans and BuiLding Codes, it is permitted that they have to meet goals and aims of plans/programs of higher scale (provinces) in spatial planning (mining policies/acts not! Only spatial planning)

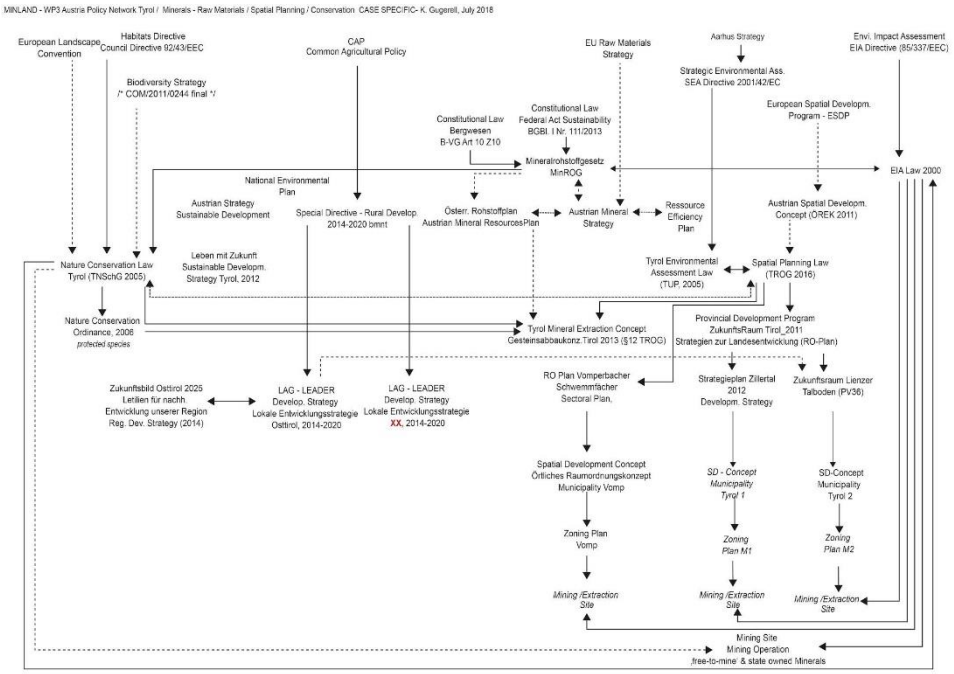


Figure 1: Policy Network Tyrol

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

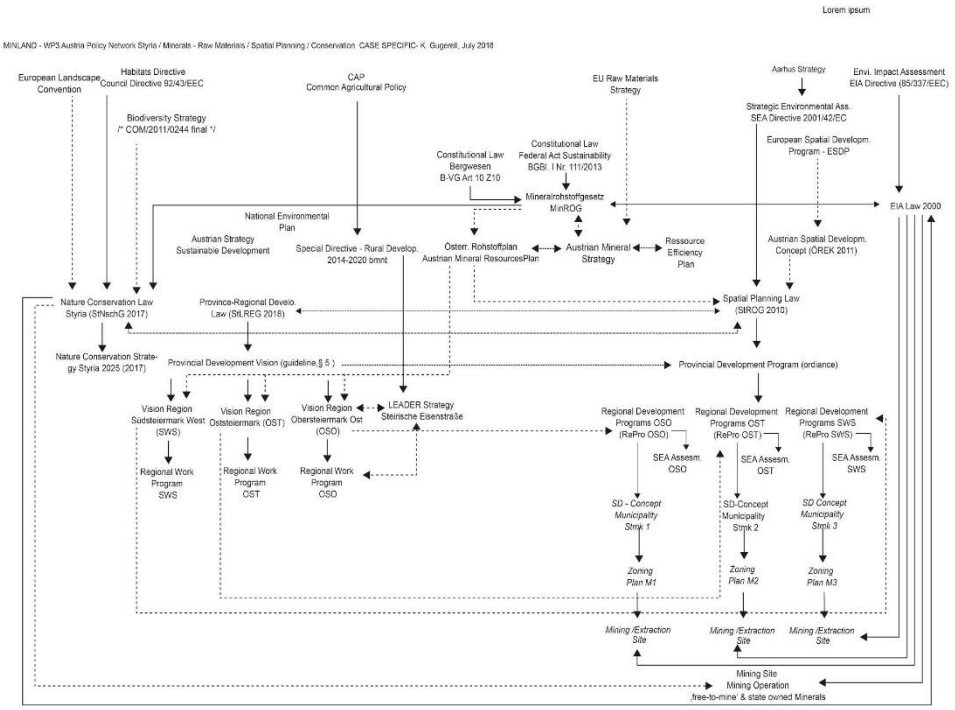


Figure 2: Policy Network, Case Study Styria

NATIONAL LEVEL: different POLICIES including Mining and Mineral Resources:

1) Austrian National Minerals Strategy (Österreichische Rohstoffstrategie)

2) Austrian Mineral Resource Policy (Österreichischer Rohstoffplan, *(AMRP)***):**

The AMRP is considered as a *„Masterplan für eine konfliktfreie Rohstoff -sicherung für die nächsten Generationen"* (ÖROK 2011) (literally: master plan for 'conflict-free' safeguarding of raw materials for the next generations").

The core goal is to assess and, determine, based on standardised methods, on a national level, raw-material deposits and to assess their conflict potentials with other land-use options and nature values (i.e. settlement development, watersheds, conservation, forestry, etc.). Hence, so called *Rohstoffeignungszonen* (mineral *potential areas) were intersected with other competing/conflicting zones or designated areas (especially building land, groundwater tables, conservation/nature protection, Natura 2000, areas protected based on water-shed protection/water legislation) to determine Rohstoffsicherungsflächen (literally: Raw Materials Safeguarding areas)*

a) Legal Status and position with the policy network

The National Court of Auditors considers the AMRP as documentation and evaluation of mineral deposits for the Austria territory (national scale), based on the type of minerals, quality and "thickness" of the particular deposit (RH 2017). Hence, the Austrian Mineral Resources Plan has the legal status of an 'Expert Report' and is considered a documentation of (minable) deposits but NOT a planning strategy or a master plan or planning tool! The Austrian Mineral Raw Materials Act does not include a "National Mining Plan" (*Nationaler Abbauplan*). Hence, a legal basis for "technical planning activities" on national level regarding minerals is/was not established and mandatory technical plans to be implemented on provincial and downstream levels are lacking a legal basis.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Hence, for landowner raw materials (see als § 81 MINROG) the implementation must be done via spatial/land-use planning on provincial level – however, since the Mineral Resources plan has the status of an expert report implementation and consideration is on voluntary basis on provincial level.

Personal Communication R.H. *(s.a., see correspondence M. Tost*): respondent mentioned that a national mining plan would not have been favourable, since it might limit and restrict mining and extraction activities to which those areas outlined in the national mining plan, and might be even exacerbating future activities.

b) Land-use Conflicts Mitigation:
the delineation of extractable mineral deposits and possible land-use conflicts were considered by including i.e. settlement areas, future development areas, current nature protection areas and nature protection sites (on different levels, national to provincial)

DEVELOPMENT OF THE CASE
c) History and Genesis of the Minerals Resources Plan
2001: Nov 21, Resolution of the National Council (E 106-NR/XXL GP) requesting the Minister of Economy and Labour to develop a national raw materials policy to record minable deposits

„Entschließung des Nationalrates E 106- NR/XXL GP vom 21. November 2001 wurde der Bundesminister für Wirtschaft und Arbeit aufgefordert, in angemessener Frist einen österreichischen Rohstoffplan zu erarbeiten, der die Lagerstätten der benötigten mineralischen Rohstoffe dokumentiert“

3) National Environmental Plan - Nationaler Umweltplan 1994/96 (NUP):
Guidance document, national environmental policy Part on Raw Materials is
a) Securing production should be mainly achieved from domestic resources, since they are considered “secure” regarding access and availability (Zugriffsmöglichkeiten)
Securing domestic raw and minerals raw material can be achieved by (3.1.4):
a) complete documentation of domestic resources
b) increasing and ramping up exploration, access, usage/exploitation of domestic deposits, under consideration of long-term feedstock supplies
c) Delineation of possible future areas with possible deposits *(“Hoffnungsgebiete”*) – to secure those from housing development and especially sprawl (-- link to spatial planning)
d) Optimization of domestic production, considering securing long-term demands from domestic deposits
e) replacing imported raw materials by other raw materials from domestic production
f) using by-products of single raw materials including exploitation of by-products during processing

Note Gugerell: inconsistent terminology facilitated; in the AMRP the term “Rohstoffsicherungsflächen” (Raw Materials Safeguarding areas) is used; NUP is addressing “Hoffnungsgebiete” (literally ‘Areas of Hope’) which is also used in the province of Styria.

PROVINCIAL LEVEL
The provincial level governs policy tiers of Nature Protection and Land-use Planning (Spatial Planning) in both sub-case studies.

PROVINCIAL SCALE LEGISLATION & POLICIES

1) Nature Protection Acts (Styria, Tyrol)

are outlining goals and aims of nature protection and conservation, delineating different protection/conservation categories/types and outlining different tools for nature protection and conservation. In Styria the nature protection bill is accompanied by a conservation strategy on policy

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

level. (see table)
a) Tyrol: Conservation taxes for the extraction of mineral resources
b) No Mining and mineral extraction in: Natura 2000 areas (§25), protected landscapes (§ 10), protected parts of landscapes (§13) and nature monuments (§27) - the surrounding areas might be exclusion zones (TROG) which prohibits mining activities.
c) Additional areas that are protected with special character in local, regional or trans-regional perspective: habitats with a high number of protected species due to nature protection directive 2006, zoological important habitats, areas that are perceived as "natural" and very characteristic by local population and is free of usage

2) Spatial Planning Law (Styria, Tyrol) ACT / POLICY

Spatial Planning acts are governing the spatial design and spatial development of the province. It differentiates between local (municipal, *örtliche*) and so-called *"über-örtliche" (regional, provincial)* policies, and planning instruments, such as zoning plans, building codes
- it also provides a framework for the setup of planning processes and sets the organisations, stakeholder and representatives that have to be involved (participation) in the scoping, design and implementation of plans/programs.

a) Priority Zones (*Vorrangzonen, Freihaltezonen*)

Priority zones can be delineated for different priority usages, such as land-scape, agriculture but also for mining, mandatory for down-streamed plans and programs! Can't be zoned for something else! (TROG § 7 (2) lit.b)

Styria: ROG (§ 13): Regional Development Programs (based on the Regional Development Law 2018, § 6) must outline the spatial-functional development of a region; achieving those objective can be supported by the designation of priority zones (Vorrangzonen) for functions/land-uses of regional/provincial/national importance (überörtlich)

"Vorrangzonen für überörtlich bedeutsame Freilandnutzungen (z. B. für Landwirtschaft, Ökologie, Rohstoffabbau, Schutz der Siedlungsentwicklung)," (§ 13, StROG)

Styria: 7 regions with their own Regional Plans (RegPro, § 13 StROG): the examined Regional Program "Obersteiermark Ost", "Oststeiermark" and "Südsteiermark West" are outlining priority zones for mineral extraction on regional scale. Outside those zones mineral extraction is not allowed (does not account for "*bundeseigene*" and "*bergfrei*" because they are regulated via MinROG). Additionally they are outlining landscape types, which are further setting the boundaries for mineral extraction. I.e.

→ Priority Zones secure mineral deposits of regional and transregional importance. This directive sets that:
a) Other zoning and land-use types are only to be outlined, if they are not hindering or prohibiting mineral extraction in the future, which also applies for the 300 m buffer zones around priority zones for raw materials/minerals
b) for the extraction of the deposits in that priority zones transport routes that are not crossing housing/settlement areas must be secured/safeguarded

b) Grünzonen: "Green Zones" are subtypes of the priority zone that are a) safeguarding landscapes and landscape quality, b) their ecological function and c) are supplying the population with functions like recreation; furthermore they are considered for risk management towards settlements and housing areas, § 5 (5) Z3 determines that "Greenz Zones" are so called "*Ruhezonen*" ("Resting Areas", literally Silence-areas)) such as determined in *MinRoG* - the extension of existing sites is possible; in the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

"Weiters sind in Grünzonen aus Sicht der Raumordnung Rohstoffgewinnungen aufgrund der Unvereinbarkeit mit den entsprechenden Raumordnungsgrundsätzen und –zielen unzulässig. Hier wird über den Begriff „Ruhegebiete" der konkrete Bezug zum Mineralrohstoffgesetz - MinroG (Bundesebene) hergestellt. Zur wirtschaftlichen Absicherung bestehender Abbaubetriebe sind Erweiterungen bestehender Abbaugebiete zulässig." (RegPro OST, p30)

Landscape Types (§ 3): Goals and Actions for Spatial Units

Mining is prohibited: (1) Bergland über der Waldgrenze und Kampfwaldzone (i.e. REGPro OSO, REGPRO OST)

Mining is allowed in priority zones; outside priority zones extensions of existing sites are allowed if they are "not impacting landscape in a negative way ("landschaftsverträglich') ": Grünlandgeprägtes Bergland, Außeralpine Wälder und Auwälder

However, the explanations of the particular directives explain that though allowed, mineral extraction should be avoided in several landscape types, due to the characteristic and small patterned elements of the landscape, which is not expected to fit with mineral extraction.

Additionally, mineral extraction and mining is considered as competing land-use to declining agriculture (REPRO OSO, p 39) that are driving and increasing the decline in agricultural land-use (which makes in turn priority zones for agriculture important)

LANDESENTWICKLUNGSPROGRAMM(Provincial Development Program, Styria), Spatial Development Programs (RO-Programme, directives!, must be implemented, Tyrol) or Spatial Development Plans (RO-Pläne, guidelines, voluntary).

They are designed either as integrative land-use programs or as sectorial ones, addressing particular topics, such as air quality or noise pollution (Styria) or glaciers or minerals (Tyrol).

b) SECTORAL PLANS: on provincial scale, are dealing with particular topics, such as the "Gesteinsabbaukonzept Tirol 2013", Tyrol, Spatial Development Plan (literally translated as "Concept for extracting rock" guideline, no directive) which provides guidelines for dealing with minerals, securing minerals and mitigating land-use conflicts and dealing with policy integration (see table),

3) REGIONAL DEVELOPMENT (Styria), Steiermärkisches Landes-und Regionalentwicklungsgesetz 2018 (Gesetz vom 14. November 2017, mit dem das Gesetz zur Landes- und Regionalentwicklung in der Steiermark (Steiermärkisches Landes- und Regionalentwicklungsgesetz 2018 – StLREG 2018) Regional Provincial and Regional Development Act governs and frames the development of the regions in Styria as attractive environments for education, work and liveability; support and strengthening of economic activities and compatibility of the regions, increasing the added value and supporting collaboration between municipalities

a) The goal is to support the initiative and self-organisation of regions/regional actors, coordinated action in the region, coordination between the province, regions and municipalities ,
b) organises "Regional-Development" stakeholder communities and allows the establishment of Regional-development cooperation, to act and operate like a private company (i.e. apply for funding, subsidies), sets the institutions for the different organisational units and how they are interacting auditing rights on provincial level

4) TIROLER UMWELTPRÜFUNGSGESETZ (*TUP, Umweltprüfung und die Öffentlichkeitsbeteiligung bei der Ausarbeitung bestimmter Pläne und Programme in Tirol (Tiroler Umweltprüfungsgesetz – TUP)LGBl. Nr. 34/2005)*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

TUP is the legal translation of the SEA-Directive on European Level to legal framework on provincial level DIRECTIVE 2001/42/EC OF

a) It governs the screening of plans and programs decided and implemented by public authority (i.e. land-use, transport, agriculture, energy), does not refer to policies, SEA is mandatory for programs/plans which "are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/ water management, telecommunications, tourism, town & country planning or land use and which set the framework for future development consent of projects listed in the EIA Directive.
OR have been determined to require an assessment under the Habitats Directive."

b) TUP governs SEA on provincial, regional and local level that widely concerns ALL Land-use planning activities (programs/plans)

Tyrol: Leben mit Zukunft, Nachhaltigkeitsstrategie Tirol 2012

Raw-materials and minerals are a side-topic, strategic document -

"Als Tourismusdestination ist Tirol vom Erhalt und von der Pflege seiner natürlichen Ressourcen abhängig. Aber auch externe Ressourcen sind für unser Land unentbehrlich, wie beispielsweise Nahrungsmittel, Energie oder Rohstoffe für unsere Bevölkerung und Industrie. So wird es wichtig sein, dass das Bundesland Tirol in vielen Bereichen das Gleichgewicht im Ökosystem wahrt und damit Versorgungssicherheit bis hin zu einer gewissen Autonomie erlangt – etwa bei Energie oder Nahrungsmitteln.
Effizienz und Reduktion von Ressourcenabbau und -verwendung werden die zentralen Herausforderungen sein, die auf Gesellschaft und Wirtschaft zukommen. Ebenso der sparsame Umgang mit Materialien (Ressourceneffizienz) sowie die verstärkte Rückgewinnung zur Schonung der natürlichen Ressourcen. Alle Stakeholder sind aufgerufen, sich innovativ und gemeinschaftlich an einem sinnvollen und Wert erhaltenden Ressourcenmanagement zu beteiligen."

"Ein verantwortungsvoller Umgang mit natürlichen Ressourcen betrifft nicht nur diejenigen Rohstoffe, die Tirol selbst bereitstellen kann. Es geht auch um jene, die importiert werden müssen, da deren Verbrauch Beeinträchtigungen anderswo auf der Welt nach sich ziehen kann". (p132)

" Zu a.) Das Recht auf Bedürfnisbefriedigung und dazugehörige Pflichten
Das Leitbild der Nachhaltigkeit ist nicht als Verzichtsideologie aufzufassen, erkennt es doch das Recht auf die Bedürfnisbefriedigung in der Gegenwart ausdrücklich an. Damit sind für die heutige Generation jedoch zwei Handlungsaufträge verbunden:
Zum einen müssen wir sicherstellen, dass heute bestehende Naturgüter ohne qualitative und quantitative Verschlechterung an die nächste Generation weitergegeben werden.
Zum anderen müssen wir mit der Substanz der Natur gut haushalten und verträglich umgehen, insbesondere wenn es sich um nicht regenerierbare Ressourcen handelt.
Zu den natürlichen Ressourcen zählen z. B. Luft, Trinkwasser, (Fließ-)Gewässer, Wald und Holz, mineralische Rohstoffe, Landflächen, fruchtbare Böden oder das Landschaftsbild. Tirols Natur- und Kulturlandschaft mit ihren vielfältigen Lebensräumen ist nicht nur die Grundlage für einen hohen Erholungswert, sondern auch für eine flächendeckende Landwirtschaft und den Tourismus.
Es müssen Lösungsansätze gefunden werden für aktuelle Herausforderungen wie den Erhalt der Artenvielfalt, die Schonung der Umwelt, die Steigerung der Ressourcen- und Energieeffizienz, die Vermeidung bzw. Verringerung von Emissionen und Abfällen sowie die Pflege von Kultur- und Landschaftsräumen." (p133)

REGIONAL SCALE

There is no legislation or legislative power on regional scale anchored.

1) REGIONAL DEVELOPMENT PROGRAMS / PLANS - / Regional Programs (RegPros, Styria)

Are in the tier of land-use planning, spatial planning. Regional development programs and plans to develop and govern the spatial structure

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Guidelines or Ordinances (beware of the wording! the terminology often indicates if its mandatory or voluntary→ see below) - they often co-exist!
Tyrol: 'programs' = ordinances (mandatory), while 'plans' are guidelines (voluntary) - both are possible, next to each other Regional development programs/plans can be integrative or sectoral (i.e. "Gesteinsabbaukonzept Vompener Schwemmkegel" = Regional development PLAN= guideline)
Styria: RegPros are ordinances, mandatory
a) Priority Zones *(Vorrangzonen; Freihaltezonen)*
Priority Zones can be delineated in Regional Development Programs (T-ROG) on regional scale
Styria: § 13 2f Maßnahmen zur Erreichung der Entwicklungsziele. Als Maßnahmen kommen insbesondere folgende Festlegungen in Betracht: f) Flächenausweisungen zur Errichtung überörtlicher Infrastruktur (z. B. Korridore zur Errichtung von Verkehrsinfrastrukturen, Ver- und Entsorgungseinrichtungen).
AS
Styria: 'Priority Zones' are delineated in the Regional Programs (REGPROs, Spatial Planning Law) → Priority Zones secure mineral deposits of regional and transregional importance. This directive sets that:
a) other zoning and land-use types are only be outlined, if they are not hindering or prohibiting mineral extraction in the future, which also applies for the 300 m buffer zones around priority zones for raw materials/minerals
b) for the extraction of the deposits in that priority zones transport routes that are not crossing housing/settlement areas must be secured/safeguarded

Styria: Interview M.W (july 2018).: indirect safeguarding of mineral deposits and access to mineral deposits via priority zoning as "agriculture" priority zone (agriculture on the surface does not impact the resource), or if zoned as forests (keeping it a forest-zoning, because a) forest law is very strict in AT, b) in case a permit for clearance is necessary anyway), or as "Green Zones" (but rather difficult, because often in development proximity → keep rather open for housing development): agriculture priority zone and forestry zoning do safeguard the mineral deposits WITHOUT indicating the deposit (which serves the ministry's aim to avoid speculation), → CONSEQUENTLY: the priority zones "mineral extraction/mining" outlined in the REPROs do not indicate the full spectrum/extent of safeguarded mineral deposits (that one is only illustrated in the "internal" GIS database), Safeguarded mineral deposits do not fully cover the outlined deposits in the *Rohstoffplan (AMRP)* (different interests, local/regional priorities, etc.)

Grünzonen: "Green Zones" are subtypes of the priority zone that are a) safeguarding landscapes and landscape quality, b) their ecological function and c) are supplying the population with functions like recreation; furthermore they are considered for risk management towards settlements and housing areas, § 5 (5) Z3 determines that "Greenz Zones" are so called "*Ruhezonen*" ("Resting Areas" literally "Silence-Areas") such as determined in *MinRoG* - the extension of existing sites is possible;

Landscape Types (§ 3): Goals and Actions for particular Spatial/Landscape Units
Mining is prohibited: (1) Bergland über der Waldgrenze und Kampfwaldzone (i.e. REGPro OSO, REGPRO OST)
Mining is allowed in priority zones; outside priority zones extensions of existing sites are allowed if they are "landschaftsverträglich": Grünlandgeprägtes Bergland, Außeralpine Wälder und Auwälder
However, the explanations of the particular directives explain that though allowed, mineral extraction should be avoided in several landscape types, due to the characteristic and small patterned elements of the landscape, which is not expected to fit with mineral extraction.
Additionally, mineral extraction and mining is considered as competing land-use to declining agriculture (REPRO OSO, p 39) that are driving and increasing the decline in agricultural land-use (which makes in turn priority zones for agriculture important)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

"Regionalprogramm Obersteiermark §5 (3):
(3) Rohstoffvorrangzonen dienen der Sicherung von regional und überregional bedeutenden Vorkommen mineralischer Rohstoffe. Im Rahmen der Zielsetzungen dieser Verordnung gelten für Rohstoffvorrangzonen folgende Festlegungen:
1. Andere Widmungs- und Nutzungsarten dürfen nur dann festgelegt werden, wenn sie den künftigen Abbau mineralischer Rohstoffe nicht erschweren oder verhindern. Das gilt auch für 300-Meter-Zonen um Rohstoffvorrangzonen.
2. Für einen Rohstoffabbau in den Rohstoffvorrangzonen sind geeignete – nach Möglichkeit wohngebietsfreie – Verkehrserschließungen sicherzustellen."

Erläuterungen Zu § 3 Abs. 5:
"Außeralpines Hügelland: Wegen seiner Kleinteiligkeit und des hohen Anteils an Flächen mit sichtexponierter Lage ist dieser Landschaftraum gegenüber Eingriffen sensibler als das grünlandgeprägte Bergland. Großvolumige Einbauten, großräumig lineare Infrastrukturen, Geländeveränderungen insbesondere zur Rohstoffgewinnung sind daher zu vermeiden." (p.26)
" Zu § 3 Abs. 6:
Außeralpine Wälder und Auwälder: Wälder erfüllen vielfältige Funktionen, sowohl in ökologischer und klimatologischer Hinsicht wie auch als attraktiver Freizeit- und Erholungsraum. Die Erhaltung und Entwicklung der Waldflächen ist daher von großer Bedeutung in der Raumentwicklung.
Rohstoffgewinnung ist aus landschaftlicher wie auch ökologischer Sicht in anderen Landschaftsräumen mit geringeren Eingriffen verbunden und daher mit Ausnahme der Erweiterung bestehender Abbaugebiete unzulässig."

"Aufgrund des verstärkten Wettbewerbs innerhalb der Landwirtschaft (ausgelöst durch erhöhte Spezialisierung, Industrialisierung und Globalisierung), sowie des Verdrängungsdrucks durch Baulandwidmungen, Infrastrukturausbau und Rohstoffgewinnung kommt es immer mehr zum Rückzug der Landwirtschaft." (REPRO OSO, p39)

2) REGIONAL DEVELOPMENT

Regional Development Programs (§ 8) and Regional work Programs (§9) in Styria. Regional Development Program sets the goals and aims for the region –the Regional Work Program is the translation into annual measure/action and implementation-oriented work-plans how to implement (and monitor) the strategy.
Monitoring: annual reports to provincial government

Interview Styria M.W. (July 2018): Mining and mineral extraction is a topic that is not working well for regional development purposes (not a sexy topic), topic is often disguised/sugar coated with terminology like "Werkstoffregion" ('Materials-Region), Styrian case of Erzberg is a singularity (quite a successful one) but it does not reflect on the average and majority of regions/locations with mining/mineral extraction activities

LOCAL LEVEL – MUNICIPALITIES

1) LOCAL (Municipality) DEVELOPMENT PLANS

are visioning programs that are outlining the development of a municipality for 10-15 years; LDPs are the framework document for any other spatial development and land-use/zoning decision on local level
Plans/Programs from neighbouring units and other planning authorities must be considered (plan-hierarchy, horizontal integration)
Local Development Plan, CAN also include sectorial concepts: i.e. energy, environmental protection, etc.

a) Legal Status: Tyrol- Ordinance, Styria: Guideline (which means the municipalities are committing themselves to the guideline)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

b) Generic and minimalistic concepts: inconclusive data and statistics, strategy lacks focus and is fragmented, no-moderate-fragmented goal development and measures
Highly specific plans:

2) ZONING PLANS/LAND-USE PLANS
Specification of the goals and aims detailed in the Development Plan
Parcel specific zoning and designation of the land-use, for the entire municipality
Period: 5-10 years
Land-use/Zoning Categories: Housing/Settlements, Traffic, Open Spaces (incl. agriculture), Priority Zones (Tyrol); the categories are specified and detailed in different types of zoning
§ 50a TROG: Zoning: Special zones for processing plants of mineral raw materials

Interview Styria: Comment M.W. -- municipalities are zoning too many "Sonderflächen", which would not be necessary from a planning perspective (too hasty), which might cause issues regarding the buffer zones (extraction sites are then possible to 100m proximity - buffer zones)

- correct zoning is necessary to run a mining operation for the type of *"grundeigene"* minerals/raw material

-- MINROG: settlement/housing: there must be a buffer zone of 300 meter to housing/settlement zoning areas (*Sonderzonenregelung*, down to 100 m)

3) BUILDING CODES
Not of further relevance for the case

Material and Data used for the case mapping

1. BMLFUW (2011): Leitfaden UVP für Bergbauvorhaben. Umweltverträglickeitserklärung Einzelfallprüfung. Aktualisierte Fassung 2011. Wien
2. **G**esteinsabbaukonzept Tirol 2013: Bestandsaufnahme und Ziele des Landes Tirol zur Versorgung mit mineralischen Gesteinsrohstoffen, Raumordnungsplan nach § 12 Tiroler Raumordnungsgesetz 2011
3. Hiess, Helmut; Pfefferkon, Wolfgang; Gruber, Markus; Doringer, Eva (2014): Leitbild der Großregion Obersteiermark Ost 2014+,
4. ÖAR Regionalberatung (oJ): Regionales Entwicklungsleitbild Oststeiermarkt 2014+.
5. ÖREK (2011): Der Österreichische Rohstoffplan. Beispiel für innovative Zusammenarbeit zwischen Bund und Ländern, https://www.oerok.gv.at/fileadmin/Bilder/2.Reiter-Raum_u._Region/1.OEREK/OEREK_2011/good_practice/Good_Practice_Rohstoffplan.pdf. Vienna.
6. RH - Österreichischer Rechnungshof (2017): Bericht des Rechnungshofes, Sicherung von Rohstofflagerstätten in den Ländern Niederösterreich, Oberösterreich und Tirol. Vienna. http://www.rechnungshof.gv.at/fileadmin/downloads/_jahre/2017/berichte/teilberichte/niederoesterreich/Niederoesterreich_2017_04/Niederoesterreich_2017_04_1.pdf
7. Regionalmanagement Südweststeiermark: Regionales Entwicklungsleitbild der Südweststeiermark - Endfassung.
8. Regionales Entwicklungsprogramm für die Region Obersteiermark Ost, LGBL. Nr. 80/2016, Amt der Steiermärkischen Landesregierung
9. Regionales Entwicklungsprogramm Planungsregion Obersteiermark LGBl Nr. 80/2016. Strategische Umweltprüfung (SUP) mit Umweltbericht 2016, Amt der Steiermärkischen Landesregierung
10. Regionales Entwicklungsprogramm für die Region Oststeiermark, LGBl. Nr. 86/2016, Amt der Steiermärkischen Landesregierung
11. Regionales Entwicklungsprogramm Planungsregion Oststeiermark LGBl Nr. 86/2016. Strategische Umweltprüfung (SUP) mit Umweltbericht 2016, Amt der Steiermärkischen Landesregierung
12. Regionales Entwicklungsprogramm für die Region Südweststeiermark, LGBl Nr. 88/2016. Amt der Steiermärkischen Landesregierung

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

13. Regionales Entwicklungsprogramm Planungsregion Südweststeiermark LGBl Nr. 88/2016. Strategische Umweltprüfung (SUP) mit Umweltbericht, 2016, Amt der Steiermärkischen Landesregierung
14. Steiermark Landesentwicklungsprogramm Verordnung und Erläuterung, LGBl Nr. 75/2009, Amt der Steiermärkischen Landesregierung
15. Steiermark Landesentwicklungsleitbild Steiermark 2013, Räumliche Strategie zur Landesentwicklung, Amt der Steiermärkischen Landesregierung,
16. Steiermärkischen Landes- und Regionalentwicklungsgesetz 2018 - StLREG 2018 Änderung des Steiermärkischen Raumordnungsgesetzes 2010, XVII GPStLT RV EZ 1912/1 AB EZ 1912/4)
17. Steiermärkisches Naturschutzgesetz 2017 - StNSchG 2017, Gesetz vom 16. Mai 2017 über den Schutz und die Pflege er Natur, Stammfassung LGBl Nr. 71/2017 (XVII GPStLT AA EZ 178/1 AB EZ 178/7) [CELEX Nr. 3199L0043, 32006L0105, 32009L0147, 32013L0017)
18. Steiermärkisches Raumordnungsgesetz 2010, Gesetz vom 23. März 2010 über die Raumordnung in der Steiermark (Steiermärkisches Raumordnungsgesetz 2010 - StROG), Stammfassung LGBl. Nr. 49/2010 (XV GPStLT IA EZ 99/1 AB EZ 99/5) [CELEX-Nr 31996L0082, 32001L0042, 3200L0049, 32003L004}
19. Tiroler Naturschutzgesetz 2005 - TNSchg 2005, LBgl. Nr 26/2005
20. Tiroler Raumordnungsgesetz 2016, LGBl 101/2016
21. Tiroler Umweltprüfungsgesetz - TUP - Gesetz vom 9. März 2005 über die Umweltprüfung und die Öffentlichkeitsbeteiligung bei der Ausarbeitung bestimmter Pläne und Programme in Tirol, LGBl, Nr. 35/2005
22. Raumordnungsplan Rohstoffgewinnung am Vomperbacher Schwemmfächer, Amt der Tiroler Landesregierung:
23. Rechnungshof Österreich (2017): Bericht des Rechnungshofes. Sicherung der Rohstofflagerstätten in den Ländern Niederösterreich, Oberösterreich und Tirol, Wien.

Interviews and Personal Communication

R. H., (Civil Servant, Ministry) March 2018, personal communication
M.W. (Civl Servant, Planning Department, Provincial Government Styria), 12. July 2018
P.F. (Civil Servant, GIS Department, Provincial Government Styria), 11. July 2018, personal communication
M.S. (Civil Servant, Spatial Planning Department, Tyrol Provincial Government, Member of the *Rohstoffbeirat*), 31. July 2018, interview
C. D. (Civil Servant, Spatial Planning Department, Tyrol Provincial Government, Member of the Rohstoffbeirat), 31. July 2018, interview
R.H. (Civil Servant, Ministry, Mining Department), 3. August 2018,

Minerals enter land-use in two ways:
a) *State-owned (Bundeseigene)* and free-for-mining (*'Bergfreie')* raw materials/minerals are entering direct from national scale (MINROG) into land-use, since the state issues the permits, independently from the regional and provincial spatial plans or spatial programs;
b) *Landowner Minerals* (*Grundeigene*) are entering via spatial planning legislation and policies into land-use; Land Use Planning legislation is embedded on provincial level (9 provinces) via "Spatial Planning Acts.a) Priority Zones on provincial or regional level, b) Exclusion zones, for particular landscape types (i.e. Styria) or delineated in Regional Plans or Sectoral Plans (i.e. Tyrol, Geisteinsabbaukonzept), c) Zoning of "Mining Areas" based on MInROG § 153 (TROG, Planzeichenverordnung), d) Priority areas on regional/provincial level must be visualised (*Ersichtlichmachung, Kenntlichmachung)*

Horizontal integration: tba (after interviews are finished)

Styria:
Interview with public servant M.W.:
a) Different departments from public administration are collaborating in informal, problem-based settings to discuss and evaluate land-use designation and how to solve land-use issues, negotiating different options
b) Coordination between neighbouring municipalities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

c) Coordination between different departments in provincial government/public administration to coordinate between different interests (i.e. wildlife ecology, agriculture, etc.)

Tyrol:
Interview with public servants M.S/C.D
a) Different departments from PA are collaborating on informal basis to discuss and evaluate different cases, especially regarding goals and interests
b) There is an informal link to the extracting industry, where the department is informing companies on the location of minable deposits; those informal information/talk is happening, when the provincial department recognizes that deposits that are extracted now, will not do it for the future. There is no general or public information available for extraction industry on the location/quality of deposits

Vertical integration:

Styria
Interview M.W:
- Discussions and debates with public servants from the responsible ministry/department on national scale to align mineral policy with spatial planning (priority zones) to a certain degree, not all areas that were designated in the "*Rohstoffplan*" were implemented in the spatial planning instruments on provincial and regional level
- Municipalities: are occasionally contacting the department on provincial scale to discuss zoning issues
- Public servant states, that in his opinion municipalities are sometimes overdoing it, regarding zoning "priority zones" on municipal level, which would not be necessary, because the regulations on higher scale would cover that issue anyway,

Tyrol:
- *Vertical integration is given due to supervisory legislation and regulation, provided by the Spatial Planning Law*
- *Integration of minerals policy and goals, outlined in the policy "Gesteinsabbaukonzept", happens on municipal level: since all municipal development plans (incl. zoning plans) must be approved and authorized by the provincial government, spatial planning department is proving the municipal development concepts and zoning plans for authorization ➡ that's the moment, when the provincial planning department is taking care that the 300 m buffer zones are met, plots are kept free from buildings, etc.*
- *Even though the spatial planning law outlines priority zones for mineral extraction and safeguarding mineral raw materials, this opportunity for zoning is not facilitated in spatial planning practise on regional or provincial level: hence, safeguarding areas is not implemented via priority zoning on regional level (i.e. regional programs like in Styria) but only on local level; however – since the "Gesteinsabbaukonzept" is a voluntary soft tool, the implementation is reliant on the willingness and the ability on the provincial level.*
- *The impression of the interviewee M.S is, that the municipalities are not contacting the provincial level – he is only aware of one case, where questions/tension arose, due to the property rights of a mineral resource – municipality as a cooperative held the land -title and the property rights of a mineral resource: the provincial level acted as mediator in a dispute settlement process to determine the royalties for mineral extraction*
-

From a national perspective, the feedback in the interviews was, that the focus of the Rohstoffplan is too technical and that the implementation lost momentum due to that fact; in the policy design and the design process technical questions and perspectives were in the driving seat and there was not sufficient

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

consideration and implementation of the political perspective – which exacerbated the implementation on provincial level and link -→ the interviewee mentioned that in the future, it might be important to put that issues more in the spotlight (interview R.H.)

SEA: Strategic Environmental Assessment (Austria: Strategische Umwelt Prüfung, abbreviation SUP)

SEA must be run for all the preparation, design and the change/re-design of plans and programs
In the two case- study provinces SEA is differently institutionalised:
Styria: SEA is an integrated part of the Spatial Planning Act (§ 5 StROG)
Tyrol: SEA is implemented into the legal system as distinct legal act called *"Tiroler Umweltprüfungsgesetz"* (TUP) which governs content and process of the SEA in the province of Tyrol

STYRIA: Spatial Planning Law (StROG)

StROG § 4 regulates SEAs (in Austria often only addressed as 'strategic environmental assessment' *Strategische Umweltprüfung/Umwelterklärung*), which must be run, for all plans, programs, development programs, zoning plans, if (§ 4 Abs.1)

a) they are the basis for a project, which must be audited by an EIA, or
b) which are significantly impacting a European Protected Area

For plans and project which must run an EIA an additional SEA is not mandatory, if there are no additional significant environmental impacts to be expected (§4(2)), or if impacts can be excluded or the character of the area will not be changed and no significant impacts are expected.

→evaluating if an "Environmental Audit" is necessary a screening must be performed ("*Umwelterheblichkeitsprüfung*), which examines if
a) the extent in which plans/projects are limiting the scope and extent and resource use of possible other projects/programs
b) the relevance of the plan/program regarding environmental consideration, especially regarding sustainable development
c) the probability, duration, frequency and reversibility of impacts and outcomes
d) cumulative impacts and their transnational impact, spatial extent and impacts, and the impacts regarding conservation of protected areas
e) risks for human health or environment
f) the importance and sensitivity of the affected areas
→ the results must be published with the plans and programs

Audits must be document in an Environmental Report (*Umweltbericht*), § 5 STROG
(1) short description of the content and most important goals of the program/plans and the relation to other relevant plans and programs,
(2) relevant aspects of the current environmental condition and theri expected impacts and development if the program/project would not be implemented
(3) current environmental characteristics, which will be likely impacted
(4) all relevant environmental problems, under particular consideration of problems of significant/special relevance, i.e. those of the areas regulated in 79/409/EWG und 92/43/EWG
(5) all environmental goals outlined in international or EU policy levels which are relevant for the program, and the way how they are considered in the planning/preparation of the plans/programs
(6) expected significant environmental impacts including the impacts on biodiversity, population, human (public) health, fauna and flora, soil, water, air, climate, tangible assets, cultural heritage including

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

important, valuable architecture and archaeological values, landscape and the interrelations between the above-mentioned factors/elements.
(7) scheduled measures and actions, to combat and prevent significant negative environmental impacts, to reduce and to offset environmental burden
(8) short description of the reasons for the audited (plan) alternative and how the environmental audit was performed, encountered problems faced in the data collection and analysis
(9.) measures for the monitoring
eine Beschreibung der geplanten Maßnahmen zur Überwachung;

Regional Development Programs (OSO, OST, SWS):
SEAs are performed for all examined cases
a) Mineral Extraction/Mining:
The reports show that mining and mineral extraction (next to industrial/commercial zones) priority zones is particularly payed attention, because environmental impact can't be ruled out. The reports are illustrating that land-use conflicts between agriculture-mineral extraction- water management (SWS, p 7; OSO p 9) are to be expected

OSO (p12) Mineral extraction is to be expected to have a
a) negative impact on: emissions (air, dust), land consumption, negative impact on *"belastetes gebiet IG-L"*
b) positive impact: landscape/subspace, ecological corridors,

SWS (p15) Mineral extraction is to be expected to have a
a) negative impact on: *"belastetes gebiet IG-L",* water management and water conservation, land consumption, emissions (air, dust)
b) positive impacts: landscape/subspace, ecological corridors,

In both cases the overall impact was audited as neutral.

Tyrol:
Province: Provincial Development Strategy: ZukunftsRaum Tirol 2011 - Strategien zur Landesentwicklung
Period: 10 years
based on the Goals and Aims outlined in Spatial Planning Law

Main Goals:
Settlement/residential development: settlement development with little space consumption, affordable housing, little infrastructure
Economy: production of high-quality goods and services illustrating the location, high-quality tourism
Mobility & Transport: ecological transport (less emissions, PT)
Social Infrastructure & Service Provision:
Technical Infrastructure
Safeguarding Liveability
Landscape and Recreation
Agriculture & Forestry
Conservation and Nature protection:
Regional Development & Regional Politics

Chapter Economy: addresses commercial and industrial locations, those with the best location factors are to be accelerated/intensified - in relation to the regional interests: important are good transport links, limited conflict-potential with neighbouring land-uses, access to the areas, availability of plots; business

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

location and business-development sectors/business with high added value providing significant number of jobs take precedence; environmental and spatial sustainability of the business is expected → in context to minerals, the only statement mentioned: in high density and diverse valleys (*Talräume*) the extraction of minerals is difficult to achieve → thus, high quality deposits, with limited conflict-potential must be safeguarded for the future *(that is the only statement regarding mineral resources in the strategy)*

"In den dicht besiedelten und vielfältig genutzten Talräumen ist eine Gewinnung von mineralischen Rohstoffen nur schwer realisierbar. Daher sind die hochwertigsten Vorkommen mit einem geringen Konfliktpotenzial für den zukünftigen Bedarf zu sichern." (p62) → the only comment on resources/minerals in the entire strategy

"§§ 1 und 2 Tiroler Raumordnungsgesetz festgelegten Zielen und Grundsätzen der überörtlichen Raumordnung enthält der Raumordnungsplan Grundprinzipien, Ziele, Strategien und Maßnahmen für eine geordnete Gesamtentwicklung des Landes."(p8)

"Wirtschaftsstandort (...) in der weiteren Forcierung von Bildung und Forschung und deren Zusammenarbeit mit der Wirtschaft,
- in der Erzeugung hochwertiger Güter und der Erbringung qualitätsvoller Dienstleistungen, welche die Stärken des Standortes Tirol abbilden
sowie
- im qualitätsorientierten Tourismus." (p.61)

Regional Scale: Planungsverbände:
Planungsverbände and spatial planning on the regional scale is not very active to not active at all; C.D identified two main reasons in the interview: a) there are not mandatory and clear tasks identified and legislated in the Tyrol Spatial Planning Law which would the regions force to act and get active, b) the pressure on municipal level (i.e. economical – so that municipalities can fulfil their tasks any longer) is still not high enough, that municipalities would start to cooperate on regional level.

Gesteinsabbaukonezpt Tirol 2013 Bestandsaufnahme und Ziele des Landes Tirol zur Versorgung mit mineralischen Gesteinsrohstoffen
(*details on content, see a bit further)*
currently it has the legal status of the a "*Raumordnungsplan*" (guideline, no ordinance) which turns it into a guideline. The concept states that it would be favourable to develop and issue a mandatory program on mineral extraction, even if it makes an SEA mandatory (Comment KG: reads as if would be favored not to have an SEA, why the stay with the "lighter" instrument of a plan and do not issue a program) (p6)

→ *more details see following sections*

Needs identified

Styria, Regional Level, REPROS OST, OSO, SWS 2016
Needs and requirements for mining are identified in the Regional Program (Spatial Planning, integrated concept)

a) Priority zones are safeguarding regional and transregional (*überregional*) mineral deposits, within the goals and aims of the directive (REPRO OST 2016) :
- other zones and land-uses are only allowed to be delineated, if they are not hindering future mineral extraction or make it more cumbersome or even impossible, this accounts also for the 300 m buffer

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

zones
- For extraction sites in the priority zones suitable, if possible without human settlements, transport routes and access must be secured

Regional Development Strategies/Concepts: mineral extraction and mining is not considered even though in their spatial planning counterparts provisions for priority zones and the needs for mineral extraction are implemented: -- Interview with M.W civil servant, planning department: *Mineral Extraction and raw materials are no "sexy" topics, neither in the political debate nor in the regional development, because they are linked to environmental issues etc. - sometimes the topic is packaged and disguised i.e. with other wording such as "Werkstoffregion", but in general its a topic that is rather avoided.* Erzberg is an exception, which is not reflecting on the rest of the regions/cases in Styria

Tyrol: Needs are clearly identified in the sectoral regional plan;
Needs regarding raw materials requirements, qualities and possible extraction – goals regarding sustainability are identified in the "Gesteinsabbaukonzept" (voluntary guideline)

(1) Measures and Procedures for Protection or Safeguarding Mineral Resources:

a) *Österreichischer Rohstoffplan (AMRP)*:
Austrian Mineral Resources Plan Outlines a zoning of minable deposits (quality) that are in non-conflicting areas (i.e. conflicting with settlement development, conservation, etc.)
From a legal perspective it is a documentation and evaluation of mineral deposits for the Austria territory (national scale), based on the type of minerals, quality and 'thickness' of the particular deposit.

b) Priority Zones for Mining
Priority Zones are elements of regional or provincial spatial (development) plans; their implementation is legally framed in Spatial Planning Laws (ie. Stmk ROG § 3 (6); TROG § 7 (2) lit b), which are providing the opportunity to zone and implement priority zones for mineral extraction within the issuing of Regional Development Programs (Styria § 13) or a Spatial Plan (Tyrol, § 7)

c) STYRIA: the data from the "*Rohstoffplan"(*AMRP*)* were implemented in the provincial GIS and were confronted with the provincial data on mining and minerals that were existing already earlier and a consolidation process was started: however, many zones were not delineated as priority zones for mining, because they are indirectly safeguarded via a) zoning as forests (since forests enjoy very high protection and you need permits if you want to clear areas from forests), b) priority zones for agriculture (those zones also remain free from buildings or similar and the agricultural use does not inhibit or hinder later mineral extraction, but it is protected since you can't use it for anything else), c) steer the zoning in a way, that areas remain free from buildings and keeping the buffer of 300 m (Interview M.W.)

(2) Procedures to identify relative priorities
Styria, Interview public servant M.W.
- Setting priorities and balancing different interests is considered as "planning competence" and Is carried out as part of the planning process and in negotiation and discussion with different departments and different units (i.e. municipalities)
- There are no formal institutions or official procedures in place
- Economic valuation and calculating economic value of different land-use options and alternatives is not facilitated (too many assumptions necessary, too costly, and to weak – if a replication study would be done it can be expected that different results will be produced) – and the interviewee did not consider an economic valuation helpful for the debate on setting priorities or balancing different interests

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Policies and Legal Documents

- No institutions and procedures to identify relative priorities, apart from the aims and goals that must be targeted and achieved with spatial planning (guidelines for acting)

TYROL

- Priorities regarding mineral extraction and safeguarding mineral deposits are outlined in the sectorial plan "Gesteinsabbaukonzept" – the guideline is used in different planning and negotiation processes to prioritize between different interests
- The actual "raw material need" is a crucial factor in the determination of public interest and weighing of different options against each other
- No formal institutions, tools or procedures in place that govern the identification of priorities

(3) Sectoral Plan for Mineral Resources

a) **Gesteinsabbaukonzept Tirol 2013 Bestandsaufnahme und Ziele des Landes Tirol zur Versorgung mit mineralischen Gesteinsrohstoffen**

Province Tyrol has issued a sectoral plan (not a program, hence it is a guideline not a directive) on the "Extraction of Stones" in 2013 (§ 12 TROG).

Policy provides an overview about existing mining sites, mined raw materials; overview about existing supply regions (10 areas delineated), reserves of raw materials (chapter 4); resource/raw material potentials in the 10 different supply regions, Supply with construction raw materials (chapter 5), Special Raw Materials (chapter 6), Goals (chapter 7),

Goals are:

- A comprehensible illustration of important regional, provincial interests for protection and conservation within the permitting procedures on MINROG level (in den MINROG Verfahren)
- Mandatory zoning of priority zones for mineral extraction in the spatial development programs
- A mapping and data collection of existing rock quarrying
- Focused and condensed official approval procedures/official licencing procedures
- Critical evaluation of mineral extraction with agricultural melioration procedures
- "Naturschutzabgabe" (for the extraction of minerals) should be used for conservation measures in the municipality-region of the extraction site
- Clearly defined responsibility of the "Bezirkshauptmannschaft" in all MINROG permitting process for "grundeigene" and "free-to-mine" raw materials, the categories "grundeigene" and "free-to-mine" should remain due to "the importance of the raw materials" (p 38).

Safeguarding the supply of raw materials and resources (7.4., p38): see description in the beginning of the document.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Permitting

"Free for mining" minerals e.g. extraction of iron ore, tungsten, magnesite, marble (including landowner minerals extracted not at the surface) and state-owned minerals (e.g. oil/gas/salt): Federal Minister of Science, Research and Economy (now *Sustainability and Tourism*) qua national mining authority (*Montanbehörde*); The District Administrative Authority (Bezirkshauptmannschaft) at first instance and(provincial governor for landowner minerals extracted at the surface (construction minerals).

Environmental Impact Assessment (see BMLFUW 2011)

Operation that IN GENERAL need EIA assessment:

a) First extraction of mineral resources - open pit mining, with at least 20 ha (loose rock, *Lockergestein*)

b) First extraction of mineral resources - open pit mining, with at least 10 ha (solid rock, *Festgestein*)

c) Underground mining with a surface operation plant of at least 10 ha (Annes 1Z 27a)

d) Extension of an open pit mine (*Lockergestein, Nass- oder Trockenbaggerung*, etc.) if the proposed extension is at least 20 ha

e) Extension of an open pit mine (*Festgestein*) if the proposed extension is min. 10 ha

f) Extension of a subsurface mine, if the proposed extension reaches the threshold

EIA necessary case-by-case assessment

1) Case by case assessment to assessment, if an extension or a new operation in an area worth of protection ('*schutzwürdig*en Gebiet')

a) Extensions of an open-pit mine (mineral resources, *Lockergestein*), if the permitted area and its extension (of the last 10 years) is at least 20 ha and the additional area (extension) is at least 5 ha

b) Extensions of an open pit mine (mineral resources, *FESTGESTEIN*) if the permitted area and its extensions is at least 13 ha and the extension (additional area) is at least 3 ha

c) Extensions of subsurface mines, if at the surface facilities and operation facilities are at least 10 ha and the extension is at least 5 ha

2) Construction in protected areas *(Neuerrichtung in schutzwürdigen Gebieten)*

a) Extraction of mineral resources (loose rock, *Lockergestein*) in surface mining/open pit mining in protected areas (category A: Vorhaben in einem besonderen Schutzgebiet/ projects in special protection areas; or projects in close proximity to settlement areas/Category E), and for projects with dredging procedures Category C (projects in watershed protection areas) of at least 10 ha

b) Extraction of solid rock, open pit mining in protected areas Category A or E of at least 5 ha

c) Subsurface mining in protected areas of category A and an area of at least 5 ha facilitated for surface and operation facilities

d) Extraction of mineral resources by dredging in rivers in protected areas of category A and an extraction volume of at least 400 000 m3 or more than 100 000 m^3/a, excluded river conservation measures

3) Changes in protected areas (*Änderungen in schutzwürdigen Gebieten*)

a) Extensions of loose rock in open pit mining (Lockergestein, dredging, dry dredging, *Festgestein im Kulissenbergbau mit Sturzschacht, Schlauchbandförderung oder einer in ihren Umweltauswirkungen gleichartigen Fördertechnik*), or dredging category C if the permitted area (last 10 years) and extensions are at least 10 ha and the extension/additional area is at least 2,5 ha

b) Extension of extraction sites in open pit mining (hard rock, *Festgestein*) in protected areas of Category A or C, if the permitted area and its extension (in the last 10 years) was at least 7,5 ha and the additional area/extension is at least 1,5 ha

c) Extension of a subsurface pit in protected areas of category A, if the permitted area and the area for surface operation facilities is at least 5 ha and the change is at least 2,5 ha

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

d) Extension of a project, dredging rivers in protected areas category A, if the extraction volume is at least 400 000 m³ or at least 100.000 m3 and the change is at least 200000 m3 or more than 50.0000 m3/a, excluded river conservation measures
For 2 and 3 EIA is carried out in a simplified procedure, if the case-by-case assessment results in the conclusion that the project does not significantly impact the protected area or protected good.
Cumulation with other projects
Projects which must run an EIA (in general) or case by by case, groups 1-3, which do not reach the threshold; but if those projects are but combined or cumulated with similar projects in spatial proximity and that are spatially linked, and those together reach the threshold; the proposed project must reach a capacity of at least 25 % of the threshold; for the assessment if cumulative impacts are present, all possible environmental impacts of a project must be considered (i.e. also traffic impacts) .

Similar projects are if 2 or more projects are of a similar type (g*leicher Vorhabenstyp)(BLFUW 2011 p 10)*: similar project types are outlined in annex 1, characterized by similar thresholds (type, area, etc.) and similar size/extent; the question if the threshold of 10 or 20 ha must be exceeded, remains unanswered by the *Umweltsenat*; it is recommended to proof if a cumulation is present, if the projects together exceed 10 ha
Category A:
EU bird sanctuary areas and Bird Protection Directive, 2009/147/EG
Natura 2000 areas, FFH Directive 92/43/EG
Protective Forests, §27 Forest Law
Protected Areas, protected by ordinance/decrees/directives on provincial scale (*Schutzgebiete nach den Natur- und Landschaftsschutzgesetzen)*
National Parks
UNESCO World Heritage sites, § 11 Abs 2 BgBl Nr. 60/1993
Category C
Water protection area and conservation areas, based on §§ 34, 35 and 37 WRG 1959

Category E
Settlement areas and its close proximity
Areas in proximity are considered as a 300 m buffer zone around the project, in which the following zoning types are present or zoned:
a) Building land for residential use (except commercial, operation area, industrial areas, lone farming estate, single buildings)
b) Areas for kindergarten, playgrounds, schools or similar functions, hospitals, sanatorium, retirement homes, cemeteries, churches or similar functions, parks, camping sites, allotment settlements

EIA Process

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

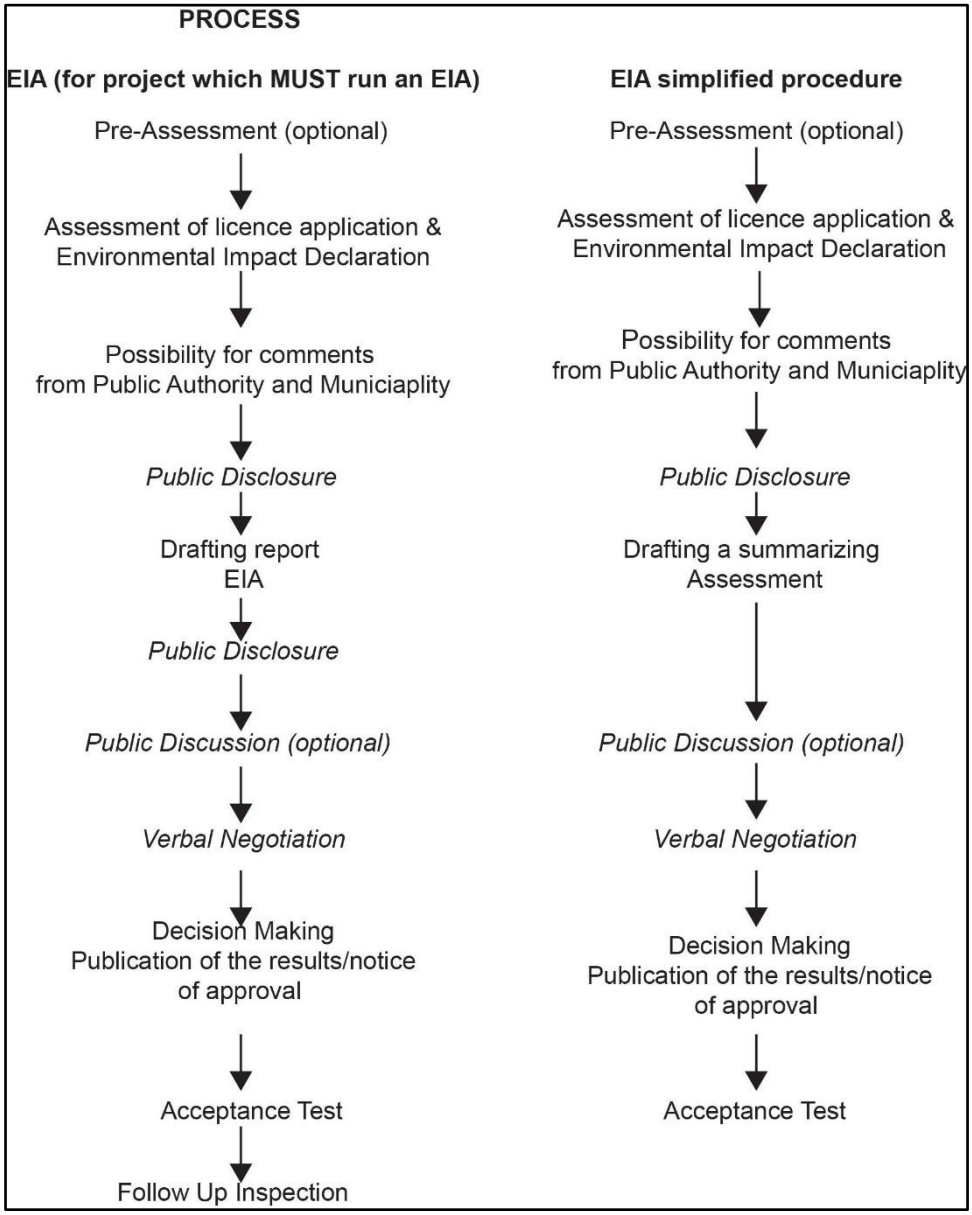


Figure 3: EIA Process, including public involvement (based on BMLFUW 2011)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Land use conflicts

STYRIA
Data SEAs are pointing out conflictual relations between the following land-use types (regional scale)
Agriculture- Minerals - Watersheds/water management
Agriculture is declining, the demand of space for mineral extraction is amplifying this development → priority zones for agriculture are necessary

Tyrol
Gesteinsabbaukonzept (provincial scale) :
Competing Land-use: landscape protection, conservation (mentioned in the concept)
Tourism-mineral extraction/ recreation-mineral extraction (mentioned in the interviews), tourism and recreation are considered as the main conflictual and competing land-uses with mineral extraction (next to conservation), since tourism is one of the core industries a high landscape value and pristine scenery is considered as high value and necessary basis for the tourism industry; conflict with recreation – since the settlement areas are limited due to geography mineral extraction gets quickly in the way with recreational interests of the population.

Watershed protection
Safeguarding supply/resources with/of hiqh quality drinking water has higher priority than the extraction of mineral resources (Tirol, Gesteinsabbaukonzept 2013)

"Der Schutz hochwertiger Trinkwasservorräte hat Vorrang gegenüber der Gewinnung von mineralischen Rohstoffen. Ausgenommen sind das Schongebiet Inntaldecke-Karwendel und das Gnadenwalter Plateau, da es sich hier rechtlich lediglich um die Normierung von Bewilligungstatbeständen und nicht um Verbote handelt. Fachlich ist die Sicherung von tiefer liegenden Bergwässern, eren Gefährdung duch eine allfälligen Gesteinsabbau durch ein zusätzliches wasserrechtliches Bewilligungsverfahren abgeklärt werden muss, zu beurteilen" (Tirol, Gesteinsabbaukonzept 2013)

Authorities involved:
Styria: Department of Spatial Planning Provincial Government, Municipalities

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	What were the internal case factors that contributed to its success (e.g. actions taken by the institutions or decisions made during the life-time/process of the case; policy related: legislation or policy strategy, organisational: new institution created or altered institutional process etc.) and describe WHY they are considered as success factors. **TOPIC STREAM SAFEGUARDING** **a) Willingness and commitment to implement (provincial government actions)** Though the national policy document *Rohstoffplan* is a guideline, without any legally binding effect, the provincial government and the linked departments in public administration showed willingness (to different degree) to engage with the *Rohstoffplan*. In Tyrol the provincial government authorized a provincial sectoral policy "*Gesteinsabbaukonzept*" which can be considered as soft tool without legally binding character. However, the *Gesteinsabbaukonzept* covers information on future demand for minerals resources in Tyrol and thus could support decision-making in favour of safeguarding. In Styria data from the *Rohstoffplan* were facilitated to determine areas for safeguarding on

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	regional scale, which are mandatory implemented as priority zones (REPROs, ordinances) ; further safeguarding is facilitated indirectly via outlining agricultural priority zones and forestry – both zoning/land-use types are safeguarding mineral deposits for the future **b) Planning and Policy Tools** Austria, due its composition of 9 federal state, shows a strong variety of different approaches, policies and tools facilitating and implementing raw materials policy with the aim to safeguard mineral deposits. Different provinces opted for different approaches and tools: (1) while Styria opted for safeguarding mineral deposits, using the format of the integrated tool "*Regionalprogramm*" (regional program, ordinance) legislated as ordinance; (2) Tyrol was opting for a sectoral, voluntary "Plan" which is used as a guideline. Reasons mentioned in Tyrol for opting for a voluntary plan instead of a mandatory sectoral program (ordinance) is to avoid an SEA (which they consider too costly and too much effort), mandatory implementation and binding character, and would not be needed in the day to day planning work (interviews); however, the *Gesteinsabbaukonzept* is a resolution of the provincial government; consequently shows a basic/general political opinion and commitment – however, to what extent this basic/general commitment is driving actual policy making and political decision making remains unclear and was not investigated in this case study ; The case study shows, that provinces are choosing for different policy and implementation tools that are fitting to their political conditions (see next chapters) and resources available (see Tyrol SEA), The case study shows that provinces are choosing different policy and implementation tools that are fitting to their political conditions (see next chapters) and resources available (see Tyrol SEA). These two policy tools indicate the following success factors that characterise them as a tool for facilitating and implementing the *Rohstoffplan* with the aim to safeguard mineral deposits (i.e. a success factor for implementing the AMRP): Styria: Policy tool - *Regionalprogramme* (Ordinance: regulatory, regional) • **Implementation of Priority zones:** Establishment of exclusive zones (depending on particular landscape types) and Priority Zones on the regional planning scale (linking regional development and spatial planning on regional level, 2 policy streams), data from the *Rohstoffplan* were used for the delineation of the zones, but were amended based on local/regional/provincial interests and needs • **Alternative and disguised safeguarding mechanisms**: Due to less favourable conditions (political commitment or interest) in mining **indirect methods for safeguarding of mineral deposit are applied:** access to mineral deposits can be safeguarded via the definition of priority zoning as 1) "agriculture" priority zone (agriculture on the surface does not impact the accessibility of the mineral resource), or 2) "forestry" priority zone (1. forest law is very strict I, and, thus zoning changes are rather rare; 2. a permit for clearance is necessary anyway), or as 3) "Green Zones" (more difficult to realise as mineral development areas, because often in development proximity for housing). Furthermore, agriculture priority zone and forestry zoning safeguard the mineral deposits without indicating the deposit which in turn serves the ministry's aim to avoid speculation. However, the priority zones "mineral extraction/mining" outlined in the Regionalprogramme do not indicate the full spectrum/extent of safeguarded mineral deposits. • Increased public transparency of zoning areas: Clear zoning and translation of areas in spatial units that are published and accessible for the public Tyrol – Gesteinsabbaukonzept (Sectoral Plan: voluntary, regional): • Soft policy instrument as implementation pathway in case of less or contradicting political interest: A non-regulatory or soft policy tool can be perceived as a

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

	compromise for dealing with a controversial topic or a topic with less political traction (i.e. mining and its safeguarding aspect in opposition to other land uses such as natural protection, agriculture) • Comprehensible illustration of important regional, provincial interests for nature conservation: The description and discussion of different land use areas and interests in the Sectoral Plan indicates that there is weighing of different land-use options is part of the land use planning decision making process. Since there are no formal institutions, tools or procedures in place that govern the identification of priorities, the *Gesteinsabbaukonzept* acts as non-mandatory guidance for different planning and negotiation processes to prioritize between different land use interests (including potential mining). • Sectoral plans as integrative policy outlook & planning tool: Intermediary sectoral plan, that outlines the need, demand and requirements for mineral extraction and its interlinks to other policy streams (i.e. tourism, conservation, agriculture). Furthermore, it can act as an intermediary tool that guarantees that minerals policy and goals are directly implemented at municipal level • Support for decision-making basis: The Sectoral Plan is used for expert opinions and administrative procedures, when the actual demand on minerals forms public interest. In this regard, the plan can be helpful in negotiation with different parties and stakeholder.
6.2 Problems encountered	Describe some short-comings, problems overcome or not-overcome during the case's life-time (i.e. In after-thought how would you have addressed the problem in hindsight, ex-post optimisation ***Rohstoffplan*** - **Technical planning approach and lack of political sensitivity in policy design (practise stream H)** Interview on national scale indicated, that a strong "technical planning" and engineering approach was facilitated during drafting and working on the *Rohstoffplan*. The interviewee responded that a lack of political sensitivity and too little consideration of the "political perspective" and political dimension resulted in limited policy performance. The strong technical focus resulted in a technically correct plan; it can be expected that implementation deficiencies are resulting from fragmented governance mechanisms, poor stakeholder participation apart from the "usual suspects" in the policy design of the *Rohstoffplan*) and underrated risk of political willingness and poor consideration and integration of their needs in the policy. - **Soft Instruments (practise stream H)** *Rohstoffplan* itself is also a soft policy instrument: the study of the policy documents and the interviewees provide a contradictory and fuzzy perspective: while in official documents and presentations the *Rohstoffplan* is often addressed as "master plan" for safeguarding mineral deposits and a strategic pathway forward, in the interviews the policy is either considered as "hints" or "indications" (Tyrol) for possible deposits which need another check on the provincial scale (resulting in higher costs), a tool with limited added value (Styria and Tyrol) – where both provinces indicating that they also had geological surveys and mapping prior to the issuing of the *Rohstoffplan*; even on the national scale the *Rohstoffplan* was presented in interview as data basis for further planning actions and policy making on the provincial scale. However, one might speculate that over time period the *Rohstoffplan*-narrative has changed and adapted to the actual way it is used and facilitated (also not losing face perhaps) - **Non-disclosure of *Rohstoffplan* *(practise stream H)* :** Non-disclosure of the policy document resulted in various difficulties: for once the public interest was not disclosed, hence legal actions and steps for provincial spatial planning resulting from disclosure were missing (see RH 2017); the major concern and reason for non-disclosure was possible land-speculation: however – also from national perspective,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	non-disclosure was discussed as a suboptimal solution, and that particular in land-use planning/spatial planning 'showing face' at a certain moment is inevitable; land-speculation was 2018 considered as non-major issue, because the willingness of companies tying up capital in land-use properties and land-titles (interview 3.8.2018) - **Monitoring (practise stream H)** At the moment no policy and implementation monitoring is taking place. Initially a policy monitoring (period every 5 years) was considered, but due to financial and personnel constraints the national scale is not monitoring policy implementation and policy success. The monitoring would have focused on the overall land-development and safeguarded areas (extent); monitoring of governance processes was not considered at all! - **Lack of data and information exchange (stream A)** Data and information exchange are in general very limited: Vertical and horizontal information exchange: there are neither formal nor informal working groups in place where public servants from different provincial governments and the ministry (due to share responsibilities) in place; interviewees mentioned that the "*Forum mineralische Rohstoffe*" is very active as lobbying group for the extractive industry; however, the case study indicates that there might be a lack/demand for exchange and experiential/social learning on the level of public administration/provinces. The strong deviation of legislation, policy tools, planning approaches and implementation actions (due to Austria's federal structure) has resulted in a broad range of different formats; from a perspective of policy learning a joint evaluation of success and failure (not in terms of punishment but for i.e. designing a new policy tool) might be beneficial especially for the national level! Lack of data exchange and forwarding of data results in an insufficient and fragmented data basis for coherent spatial monitoring. *Rohstoffplan* Implementation on provincial level: - **Soft Instruments (practise stream H)** Soft instruments, like the *Gesteinsabbaukonzept*, still provide a lot of freedom for the decision makers; it provides guidance and facilitates the terminology; however – no specific and - strategic securing of land on regional and provincial scale is not facilitated (also due to the guideline status of the *Gesteinsabbaukonzept*) since the main planning action is securing the buffer zones on local level and checking the zoning on municipal level; reasoning on provincial level that a mandatory program would result in a mandatory consideration appears quite interesting,
6.3 framework conditions/contextual factors	Describe the external factors that facilitated the development of the case (aspects that influence the development of the case in a negative or positive way; e.g. a positive SLO setting, a legislative instrument, changing economic development/commodity price etc.) **Contextual factors and diverse legislation require collaborative governance approaches (good practise stream H)** General issue in Austrian policy making and planning, due to the federal system policy making, legislation and implementation measures are different in the 9 federal states, given Austria's small territory with only 8 mio inhabitants; Hence, spatial planning/nature conservation etc legislations differs in the 9 provinces: the *Rohstoffplan* has a legal status of a guideline/expert opinion, turning the implementation into a strong "communication" matter which is further relying on the willingness of provinces to move in the intended direction and implement policies in coherent way. However, decentralised policy making offers the opportunity for tailor-made, area-based policies which provide a better fit to local circumstances, demands and interests. It appears, that in the particular Austrian case, and due to the division of competences between national (minerals/mining) and spatial planning (provinces) the governance system might be not fully operational: For policy making different responses might be discussed in the future:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	a) Active engagement and multi-level governance approaches including also representatives from lower organisational units should be involved in the design and drafting process; mineral and resource planning can be considered "wicked problems" and complex issue, which can hardly be "managed" with technical planning approaches (such as blueprint planning) b) 9 different provinces and legislations make integrative policy making and integration even more important, if there is the expectation that policies are also implemented and facilitated at a certain moment c) A Cross-scale working group might be beneficial that is meeting and working on a regular basis (not lobbying groups such as "Forum Rohstoffe") to establish a "learning space" for peer learning and policy feedback and to discuss alignments, interests etc.; it might be facilitated either by ÖROK (incl. representatives from the ministry) or by the ministry. One of the possible topics for this working group to discuss could be potential avenues for implementation of the *Rohstoffplan* (e.g. practical examples Tyrol, Styria, what forms of implementation: soft instrument vs regulatory instrument, possibility Spatial Planning Law: as an option for integrating / safeguarding Mineral Deposits). It is rather surprising that no incentives were considered as accompanying policy tool to trigger implementation efforts; Other factors that are impeding incentivation for vertical policy integration and implementation are the the strong technical/engineering perspective (geology, technical measures, etc.) in drafting the *Rohstoffplan*, as well as little considerations on policy design regarding implementation, incentivation, governance mechanisms, collaborations and exchange. ***Tyrol:*** *Planungsverbände* and spatial planning on the regional scale is not very active to not active at all. No mandatory and clear tasks identified and legislated in the Tyrol Spatial Planning Law which would the regions force to act and get active, b) the pressure on municipal level (i.e. economical – so that municipalities can fulfil their tasks any longer) is still not high enough, that municipalities would start to cooperate on regional level. **Benefits for local communities/municipalities (good practise stream G)** Interviews (esp. Tyrol) indicated that local communities and municipalities consider mineral extraction as little to non-beneficial. It was illustrated that due to the perceived limited added value gaining local commitment to extraction and mineral operation sites is difficult. Discussing the framework of a so called "*Social License to Operate*" might be already a topic to be considered and discussed more early, already within spatial planning and regional development processes; in Styria this might be the case in the regional development programs – an could maybe support a broader approach integrating mining/extraction into a broader regional development perspective. Consequently, communities are rather sceptical and hardly argue in favour for mineral extraction in "their" municipality. To support local extraction operations and to gain local commitment it is crucial getting local communities aboard. However, they seem hard to convinced if there aren't a) any substantial benefits for the municipality/local community and b) without awareness of possible benefits. **Different/Changing course of action from extraction industry can impact on the future revision safeguarding areas (stream H)**
6.4 Impacts achieved	State in how far the case managed to reach its goal and achieve its anticipated impact on its intended beneficiaries/stakeholders. Potentially describe on which parts it could still improve. ROHSTOFFPLAN:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	The implementation and impact of the *Rohstoffplan* might be considered as limited and fragmented, due to its soft-tool character. It can be said that the *Rohstoffplan* did raise awareness regarding mineral resources on administrative level and that in the cases investigated it was used (to different extent) in policy making. Though also the national level considers the *Rohstoffplan* a "limited" success and the implementation on provincial level as arbitrary and fragmented, the national level acknowledges a limited engagement on provincial level with the policy document. Feedback on the national level was, that the *Rohstoffplan* is considered as documentation of deposits, **serving as data basis for spatial planning on provincial level** (and down streamed planning actions); **Styria (stream H)** · Safeguarding and protection of mineral deposits is implemented in spatial planning in "Regional Development Programs" via zoning of different priority zones · **Regional development programs are delineating mineral extraction priority zones:** outside those zones mineral extraction (apart from existing ones and extending existing ones) is prohibited · **To avoid speculation (goal of the ministry) safeguarding of deposits was achieved indirectly** via a) keeping the zoning of forests (forestry is very strict, clearing is only possible after gaining a permit) b) zoning as priority zone agriculture (keeps free from building and construction and agricultural use does not inhibit later use and re-zoning for mineral extraction), c) keeping areas free from buildings etc. (i.e. buffer zones around mining sites) • **„undercover"/clandestine safeguarding /zoning of deposits as agricultural priority zones**, or keeping zoning as forestry: meeting the outlined goal avoiding land-speculation, also includes an indirect phasing of land-uses. Tyrol: • Sectoral Plan for Minerals and Mineral Extraction, safeguarding, also estimating the need/demand on raw materials • Implementation of a soft-tool: **leaves sufficient room for negotiation and discussion** – however, also remains **limited regarding strategic safeguarding of areas**

ANNEX 1. Survey

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	Answer
		b
	3.1 Are land use plans legally binding or simply indicative?	Both: depending on the province local development plans are binding instruments; on the provincial and regional scale there might be mandatory or voluntary plans/program (i.e. Tyrol: programs are directives, consequently mandatory, plans are non-mandatory) - they can also exist in parallel, ZONING/LAND-USE Plans on Local Level are always mandatory If Priority Zones on higher (regional/provincial) scales are delineated they must be considered on the municipal planning scale (i.e. in zoning plans)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Styria: § 22 StmkROG: Local Development Programs are for a period of 15 years § 31 (1): Municipal Development programs: 10 years Zoning Plan must be issued within 2 years after the 10 years planning period is exceeded, the period can be extended to max 20 years (3 §1b (2)) § 36 TROG Changes of Zoning Plans (1) Zoning must be changed if a) changes of the Local Development Program (Zoning is in the hierarchy below the LDP) b) to implement Spatial Development programs or other priority sptial programs or actions on provincial level or to avoid contradiction of plans, c) due to EU legislation (unionsrechtliche Verpflichtungen) or due to avoid contradiction of plans due to constitutional legislation (measures and actions on national level) (2) Zoning may be changed if a) if there is a need for a particular use, especially for housing or for economy, if they are not contradicting the LDP (also other regulation but they only touch "*Freizeitwohnen*" – housing for recreational purposes
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Styria Spatial Planning Act, § 39 Changes of a zoning plan (not within the regular revision) - Tyrol § 73 TROG Property owners are allowed to propose changes regarding zoning of their plots to the municipality: such proposals must include the intended zoning (based on the land-use/zoning categories outlined in the 'Planzeichenverordnung') and a reasoning why a different zoning is necessary the mayor has, if the two above mentioned conditions are fulfilled, within three months to discuss the proposal with the property owner (Planungsgespräch), it is allowed that another member of the municipal council, or a technical expert is facilitating that consultancy meeting, the meeting can be omitted if the municipal council is facilitating the case within the three months; an official note of the meeting and its outcomes must be provided to the property owner, à The mayor has to inform the property owner if within 6 months the procedures for changing the zoning plan (facilitating the changes of the property owner) has not started, à within 2 months after receiving that note, the property owner can demand, that the municipal council has to deal with the case; then the municipal council must either a) start the procedure for changing the zoning plan within 6 months, or b) decide that the zoning plan will not be changed; this decision including the reasoning must be forwarded to the property owner immediately, If in case of a) within the procedure the zoning changes once more, another 'Planungsgespräch' (consultancy with te property owner) must not be facilitated. *Time period: no information available*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	OPTIONAL & MANDATORY a) there is no enforcement power on national scale to force provinces to implement and safeguard, however: the constitutional Law on Sustainability determines (§ 3) that the Austrian Republic (federal state, provinces, municipalities) commit themselves to ensure sustainable extraction and production of natural raw materials, domestic sourcing and to provide supply security → constitutional laws are outlining public interest, consequently they are a guideline for all downstreamed legal documents, policy making etc. b) Provinces have voluntarily implemented safeguarding of mineral deposits in their legislation or policy making, Styria: Spatial Development Act provides the legal framework to outline priority zones (in the Regional Development Programs § 13), since they are directives they become mandatory § 3 Principles for Spatial Planning § 3 Abs 2 Z 6: Keeping areas free/clear, which have a particular suitability for particular uses, which should be kept free from other uses which could inhibit the first one (i.e. conflicting): f) with raw material deposits of "überörtlich" (everything else than municipal, literally "above-local") importance *StmKROG § 3 (2) Z6: Freihaltung von Gebieten mit der Eignung für eine Nutzung mit besonderen Standortansprüchen von anderen Nutzungen, die eine standortgerechte Verwendung behindern oder unmöglich machen, insbesondere (...) f) mit überörtlich bedeutsamen Rohstoffvorkommen.*
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	If priority zones for mineral extractions are designated, other land-uses that might hinder oder exacerbate mineral extraction in the future must be omitted Styria: priority zones do also restrict mineral extraction: extraction outside zoned priority zones are prohibited. ie. designation = explored deposit? explored deposits are not automatically safeguarded by land-use planning/zoning/spatial planning (also depending on the type of resource)
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	*Institutions: not to my current knowledge, Note KG*
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	Priority Zones: are prioritizes areas for the use of mineral extraction - until an actual extraction is taking place, other usages, such as agriculture or forestry are of course taking place and that do not exacerbate the future extraction *Interview M.W. MINROG: MinROG permitting procedures do consider other land-uses on a limited bases, which is set in MINROG (i.e. buffer zones, forestry - permits), however - the difficulty is that MINROG permitting procedures are "permitting procedures" and no "planning procedures" - hence they are not*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		integrating different interests and development perspectives, but are "permitting" ones. *Styria: Interview: M.W. noted in the interview that he does not know any MINROG permitting procedure that was rejected, in the end all projects are approved and granted; max that there will be some environmental regulations and actions. Interviewee Styria comments that the difficulty with MINROG permitting is, that there is no planning perspective included, hence it causes impacts that are not be taken care of*
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	National: *Rohstoffplan* (clandestine, not published and data not publicly available), zoning Provinces: Spatial Planning Law: Rule based Region: Regional Development Plans: Zoning (if implemented and used) Sectoral Plan (e.g. *Gesteinsabbaukonzept*) Zoning and Rules Municipal: Zoning (zoning plans/land-use plans)
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes for permitting
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Minerals (national scale): full INSPIRE compliance (Interview, 3.8.2018) Styria – Land-use planning: data are incrementally transferred, INSPIRE is step by step implemented in the public administration on provincial level, taken very seriously (*personal communication P.F, GIS department 30.6. 2018*) Tyrol: INSPIRE is a big topic on provincial scale , 31.7.2018
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	STYRIA Provincial level: Interdisciplinary coordination for specific questions on specific matters, Data were provided by a provincial expert opinion/mapping for the integration of minerals in land-use planning (prior to the *Rohstoffplan*), to provide sufficient data for land-use planning and zoning, Sharing of expertise between authorities: appears to be more informal (ie. M.W. not involved in the Rohstoffallianz) Municipal level: tba Tyrol: self-perception illustrates (interviews 31.7.2018) , that P.A considers themselves quite "able" with sufficient capacity to deal with raw materials policy and safeguarding raw materials On provincial scale there is interdisciplinary collaboration – incl. provincial geological survey that is involved in the prep work and delivery of base plans and base information for planning activities, Sharing knowledge and experience between authorities (horizontal and vertical) is very limited and informal if it happens. There are no formal platforms or working groups where information exchange and discussion is happening

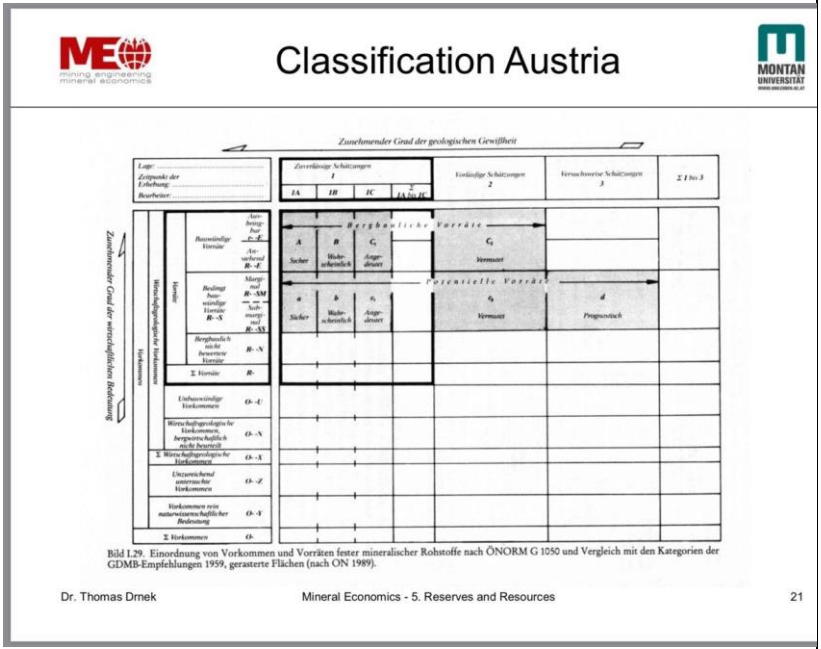
This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		Interview on the national scale indicated, that from the national perspective, public administration on provincial level is considered as limited able regarding safeguarding minerals and raw materials politics
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	no
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Adequate Experience: Styria: KG comment: Provincial Level Styria: based on the experience in the interview and HOW they are implementing minerals into land-use planning, I get the impression that there is adequate knowledge and skills (sufficient data, data usage, processing, knowledge,) *Interview M.W: his impression is, that on local/municipal level - some municipalities who have the "mineral-procedures" more often, indeed gain sufficient and proper expertise, other municipalities do not* Municipal Level: zoning provided and managed in GIS Interview on the national scale indicated, that from the national perspective, public administration on provincial level is considered as limited able regarding safeguarding minerals and raw materials politics GIS Processing and Tools Styria: spatial planning/zoning/mineral deposits(from *Rohstoffplan*) are fully implemented in GIS, GIS processing used to extract possible conflicting areas also on provincial level, zoning plans are fully implemented and available in GIS Tyrol: GIS tools in use, land-use/spatial planning GIS is regular tool! zoning plans are available on GIS too Minerals: MINROG permits are facilitated and managed via GIS applications, so is the *'Rohstoffplan'*, managed on national level
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	The one-stop-shop model for a mining project is mostly relevant for projects that have to go through an EIA procedure: The administrative authority is the environmental authority of the state government, which deals with all relevant specific laws relating to mining, environment, forestry, etc. Once the environmental permit is granted, the specific authorities have to oversee, control and check the development and fulfilment of the project. This means: "One-stop-shop" approach represents the EIA procedure *(Umweltverträglichkeitsprüfung nach dem UVP-G*). An EIA must be conducted when the surface area is greater than 10 ha for hard rock quarries and 20 hectares for sand and gravel pits. For an area of up to 10 ha, the authorities may refrain from undertaking an EIA procedure, provided the proposed activity does not conflict with environment protection.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		The central and provincial government is involved (matter of compency distribution due to the constitutional law. Thus, cooperation between central and provincial governments/auhorities is needed. For instance, extraction iron ore (free for mining mineral) mining (central government) and land use planning management (provincial government). An example: In 2017, a successful EIA was finished, "Modification Pelleting Plant: Extension of extraction and storage facilities; Co-use for steelworks slag " for the VA Erzberg GmbH, Erzberg 1, 8970 permit was issued in 2017 (cp: http://www.umwelt.steiermark.at/cms/dokumente/11140909_9176022/7941dcfc/ABT13-Pelletieranlage%20Erzberg%20%C3%84nderungen-Genehmigungsbescheid-2017-07-14_SIG.pdf ("Der VA Erzberg GmbH , Erzberg 1, 8970 Eisenerz, wird die behördliche Genehmigung für das Projekt „Änderung Pelletieranlage: Erweiterung der Förder-und Lagereinrichtungen; Mit-verwendung für Stahlwerkschlacke" erteilt.") The EIA process is formalized ie the government (cooperation between central and provincial governments) has issued a guideline on how to conduct "EIA procedures relevant for mining" ("Leitfaden UVP für Bergbauvorhaben"; cp. http://www.umweltbundesamt.at/fileadmin/site/umweltthemen/UVP_SUP_EMAS/uvp-leitfaeden/Bergbau_Leitfaden.pdf) in an efficient way, which was updated in 2011. This guideline also includes 'resolution mechanism' and is successfully applied in Austria. Timeframes for EIA procedures are defined in the EIA law, depending on the size of the project, which determines the type of procedure that must be adhered to. The authority must provide a schedule within which the procedure is to be concluded. Regarding regular EIA procedures, the authority has to come to a decision within nine months after an application has been submitted. Simplified procedures must be decided six months after the application at the latest. Although in theory an EIA procedure might last for one year, in practice, the average duration is about three years. The costs of EIA procedures, including project documents and re-designation is somewhat more than 100,000 Euros. Additional external expertise such as a one-day on-site inspection, costs 10,000 Euros, while legal fees can cost 100,000 Euros. The average cost of EIA procedures altogether is greater than 200,000 Euros and is never less than this amount.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	3.15. Value of the minerals Styria: since they were implementing the "*Rohstoffplan*" - the valuation of deposits (minable, reduced of conflictual areas and other value areas such as conservation and nature protection areas) Interview M.W: economic valuation of different land-use options is not facilitated, a) because too many assumptions, consequently if you calculate two time/replication study different results can be expected, b) does not help in the discussions for the decision making because in land-use planning different interests must be integrated, and Tyrol: valuation addressed in terms of balancing different interests and between competing land-uses, including public interest → *Gesteinsabbaukonzept* indicates that a valuation is taking place, since in 2 cases the designation/zoning / conservation statement was denied, due to the facilitation of other interests (see earlier in the report) Valuation if the deposit is "minable" is facilitated in the Rohstoffplan and later on on the provincial level, when outlining the Gesteinsabbaukonzept, Hard evaluation, based on economic models is not facilitated.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		3.16. Klassifikation von Vorkommen fester mineralischer Rohstoffe ÖNORM G 1050: 1989 04 01  Figure 4: Klassifikation von Vorkommen fester mineralischer Rohstoffe ÖNORM G 1050: 1989 04 01 3.17 International reporting codes for classifying mineral resources No, Austria has implemented a country specific code: Klassifikation von Vorkommen fester mineralischer Rohstoffe ÖNORM G 1050: 1989 04 01 (Classification of solid, mineral resource deposits) *Rohstoffplan*: the information of *AMRP* is not publicly available to avoid speculation, *Interview with M.W (July 2018) - it was even difficult for the provinces to get the data to implement and work with the prospected deposits for spatial planning purposes* Styria: Regional Development Plans, including the information and zoning of priority zones is publicly available and provided via internet Tyrol: Sectoral Plan "*Gesteinsabbaukonzept*" including different maps and zoning is publicly available, internet-download, web-based

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	*Styria: Interview M.W: weighing and evaluation of different land-uses is happening as part of the decision-making process;* *The interview in Styria indicates, that based on location and case by case decided within the planning/decision making process* *→ Grazer Becken: Gravel deposits → currently zoned as "Grünzone", which are considered as valuable development areas for the urban development and urban growth, there are also raw material deposits present; M.W. explains mineral extraction is certainly not intended there, the areas are now safeguarded as green areas for future urban development;* *→ clearly, different land-use options are weighed and against each other in the discursive negotiation process (no indicators, but the goals outlined in the spatial planning law that must be met)* Tyrol: *Gesteinsabbaukonzept* indicates that there is decision making and weighing of different land-use options; the Department of Spatial development spoke against extraction sites: in one case because it was conflicting with settlement development, and in 2 other cases the mineral deposits were considered of lower quality and the interest in extracting deposits was lower than the value of maintaining and conserving a particular landscape quality, recreational value. For backing up the decision making process an audit regarding needs for conservation/nature protection was performed (see Gesteinsabbaukonzept, p.9) *"Die Parteistellung des Landes im Genehmigungsverfahren nach dem MinroG ging im Jahre 2008 von der Abteilung Umweltschutz auf das Sachgebiet Raumordnung über. Seitdem hat sich die Landesraumordnung gegen drei Abbauvorhaben ausgesprochen. Die Begründung für die fachliche Ablehnung lag in einem Fall im Interessenskonflikt mit der Siedlungsentwicklung, in zwei Fällen in einem geringeren rohstoffwirtschaftlichen Interesse in Relation zu den Interessen der Erhaltung des Landschaftsbildes und der Erholungsfunktion. Fallweise wurde auch für die Interessensabwägung in naturschutzrechtlichen Genehmigungsverfahren eine Bedarfsprüfung durchgeführt." (Gesteinsabbaukonzept 2013, p. 6)* Tyrol: based on interviews 31.7.2018 Weighing and valuation is carried out in the planning process, considered as "planning competence" and is based on "longstanding experience" experiential learning and tacit knowledge of planners that are engaging with the topic and are involved in the planning process, ● Both planners interviewed in Tyrol experience a significant conflict between tourism and mineral extraction: since tourism is one of the core industries, tourism interests have a strong weight in policy making (next to the fact that mineral extraction is considered a rather unpopular topic in provincial politics) Tyrol: interview with M.S.: the interviewee illustrated, that there is only little value generated on municipal level (low numbers of jobs) compared to the impact (environment, pollution, noise, dust, etc.) → economic benefits or other benefits are considered to little to trigger more and stronger positive momentum on municipal level to support extraction activities or plans, M.S sees one opportunity to designate the
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Styria a) *Rohstoffplan* provided by the national level (but not all areas that were indicated were implemented), prior to *Rohstoffplan* the province commissioned a raw materials study as data basis for the resource planning activities (Interview M.W.) Rohstoffplan was designed in collaboration with the "Geologische Bundesanstalt" (Federal Geological Office) Tyrol:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		a) *Gesteinsabbaukonzept*, a) text let one assume that the *Rohstoffplan* was considered for the design of the *Gesteinsabbaukonzept* *" Österreichische Rohstoffplan wurde federführend vom Bundesministerium für Wirtschaft, Familie und Jugend, Sektion Energie und Bergbau in Zusammenarbeit mit der Geologischen Bundesanstalt ausgearbeitet. Dieser Plan wurde mit den fachlich berührten Landesdienststellen hinsichtlich der wesentlichen Nutzungskonkurrenzen überprüft. Seitens der Landesraumordnung wird insbesondere bei der Überarbeitung der Örtlichen Raumordnungskonzepte auf die Freihaltung der Bereiche mit Rohstoffpotenzialen geachtet." (Gesteinsabbaukonzept, p6)*
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Styria: no need addressed by the interviewed person Tyrol: no new or additional need addressed in the interview – interviewee responded, that the provinces were always conducting geological surveys, also prior to the *Rohstoffplan*; interviewee M.S was very sceptical regarding the *Rohstoffplan*, considering the content as "hints" (sic!) that need proof on the provincial level from their own surveys.
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	*No*
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	3.22 & 3.23 Assessment procedures Styria: Assessment and the valuation of different options is part of the decision-making process and "planning competency" (Interview M.W.) There are no formal institutions that are regulating this decision making process and valuation process; goals and aims to be achieved with spatial planning suggest that prioritization must be taken place, to achieve goals outlined in the legislation and various policies Tyrol: formal institutions for weighing different options against each other are not given in spatial planning policy and legislation, however: goals and aims to be achieved with spatial planning suggest that weighing /prioritization must be part of the planning and decision making process, to achieve the goals outlined in the legislation and different policies
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	*'Rohstoffplan'* AMRP facilitates a valuation of the deposits regarding its quality and quantity for extraction (is it minable) and deducts areas that are conflictual (i.e. settlement development) *Rohstoffplan* AMRP - itself does not facilitate a socio-economic evaluation if mining and mineral extraction is favourable from a community and socio-economic perspective on local level "Bergfreie" (free-to-mine) and "Bundeseigene" (state owned) Raw Materials/Minerals are not part of the land-use planning/spatial planning process; [KG1] No, there is no formal institution that is regulating a socio-economic evaluation, though it can be assumed that a weighing is taking place.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.25 Are there and which are incentives to implement minerals into land use planning?	Incentivation is not outlined in the examined policies and was not addressed by the interviewees in Styria Tyrol no incentivation National Scale: incentivation was not considered in the outline and drafting of the Rohstoffplan, interviewee was critical on that matter – also on the missing political perspective which hindered the implementation
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	Safeguarding of prospective resources is done, via zoning of priority zones
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Right to object Stages of appeal: Arbitration tribunals/legal standing *see WP2*
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	*can't be evaluated, yet (Note K.G.)*
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	a) Different actors have been involved in spatial planning/land- use planning, incl. regional development b) Provincial Regional Local → *also linked to SEA* c) Representation by official bodies or other associations in so called Spatial Planning Boards (Styria, Tyrol), similar representative involvement in the Regional Development (Styria) Information and Consultation: see below, spatial planning laws include the information of individuals and provide the option for statement and consultation procedures (objection procedures) Regional Development Programs Styria: broader participatory processes were conducted to develop the regional development programs (including separate participatory action for youth, i.e.) → involvement action remains on lower levels of participation and even indirect involvement by representation Data: STYRIA: A) Spatial Planning Law includes participatory elements in different procedures, but mainly on representative level (= citizens and "people" are indirectly represented by organisations, etc.): representative organisations (i.e.) . This representative board (Spatial Development Board, '*Raumordnungsbeirat*') must be consulted in case of a) Issuing or changes of directives based on that bill, which concerns regional and provincial spatial planning matters 2) Issuing and changes of local/municipal spatial development concepts/programs 3) issuing and changes of zoning maps (revisions) *4) (also, others but not relevant for that project)*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		The *Raumordnungsbeirat (Spatial Development Board)* includes a) a representative of the parties in the provincial government (not parliament!) b) one representative of the chamber of commerce, chamber of labour, chamber of agriculture c) association of municipalities; association of cities d) if regional development programs are under debate: the head of each regional development association based on *§ 16 Landes- und Regionalentwicklungsgesetz* Further members for consultation, but without voting right e) the environment *Ombudsmann* f) members of the Spatial Planning Department, Provincial Government Office *„(1) Die Landesregierung hat vor folgenden Entscheidungen eine Stellungnahme des Raumordnungsbeirates einzuholen: 1. Erlassung und Änderung von Verordnungen nach diesem Gesetz, die in den Wirkungsbereich der überörtlichen Raumordnung fallen, 2. Erlassung und Änderung von örtlichen Entwicklungskonzepten, 3. Erlassung und Änderung von Flächenwidmungsplänen (Revisionsplänen)*“ (StmkROG) b) Regional Development Act (2018): Regional Development and Spatial Development act are closely interlinked and interrelated (i.e. Spatial Development Programs (*StmkROG*) include the regional development goals from the RD-Strategy, so they directly link two different policy tiers): Formal institution includes that: a) Development of the Provincial Development Strategy must include the involvement of relevant actors of provincial and regional development; participatory elements are also foreseen for lower scales, ie. for the development of regional and “*klein-regionalen*” (parts of the region) development programs: *„3) Die Landesregierung hat die Landesentwicklungsstrategie unter zweckmäßiger Einbindung relevanter Akteure der Landes- und Regionalentwicklung zu erstellen.“ (Regionalentwicklungsgesetzt Steiermark 2018)* *„3) Die Erarbeitung der gemeinsamen Entwicklungsstrategie sowie der Ziele und Maßnahmen sollen unter breiter Einbindung relevanter kleinregionaler AkteurInnen erfolgen. Dadurch soll gewährleistet werden, dass die erarbeitete Strategie und die definierten Ziele die tatsächlichen Bedürfnisse der Kleinregion abbilden.“ (Stmk. Landesentwicklungsprogramm)* b) Municipal Level – Spatial Development Programs, Zoning Plans Spatial Development Programs, must be provided at least 8 weeks for public viewing and consultation; municipality must inform where the proposal can be viewed and that everybody can submit an objection within this time period, the announcement of a public meeting (§24 StmkROG) Representative organisations must be informed: Department of Spatial Planning, Provincial Government, neighbouring municipalities, chamber of commerce, chamber of Labour, chamber of agriculture, chamber for agricultural workers, other public bodies if they are concerned with the matter, if significant environmental impacts neighbouring countries must be informed and documents provided (§ 24 Abs. 3).

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

		§25 (5) regulates that all community members (members of the municipality) and concerned natural and organisational units must be informed in a public meeting, within 6 weeks; The Mayor must forward the proposal to the members of the municipal council for decision-making. All received (on time) objections must be forwarded to the municipal council, discussed and included in the evaluation and discussion around the decision making on spatial planning interests and, if possible, are to be considered! The decision on the development program, in another form/content than in the one that was proposed, is only valid if all parties concerned were consulted and heard (can be omitted if the amended plan do not have any effect on third parties) . After the decision making all parties that submitted objections must be informed (in written) if their objections were considered; in case of non-consideration a reasoning must be provided. Zoning Plans (§ 38, Procedure to issue or change Zoning Plans) Municipal Council must decide on the publication of the proposal, including a) the duration of at least 8 weeks, b) indication, where the proposal can be viewed, c) the note, that everybody can submit (written) objections within the time period to the municipal council, c) the day and place for the public meeting (public meeting is mandatory if a SEA must be performed, it's voluntary if a SEA is not mandatory, see § 38 Abs. 5) Representative involvement: Various representatives of different organisations must be informed of the proposal: a) Department of Spatial Planning, all property owners and people with land-titles, neighbouring municipalities, Chamber of Commerce, chamber of agriculture, chamber of Labour, chamber for agricultural workers (§38 Abs. 3); Mayor must forward the proposal of the zoning plan including all received objections to the municipal council; on time received objections must be discussed and must be evaluated regarding spatial planning goals and aims (§ 38 Abs. 6) and if possible considered; after the decision making all persons who submitted objections must be informed about the outcome and if the objection was not considered in the proposal a reasoning must be included TYROL: Tyrol Spatial Development Law (*TROG*) Representative Involvement The Spatial Planning Board includes, representatives a) The political representative of the provincial government who is responsible for spatial planning, another member of the provincial government, b) Member of the chamber of labourers, chamber of commerce, chamber of agriculture, chamber of architecture and engineers c) Member of the association of municipalities, city of Innsbruck, d) Representative of the university Innsbruck e) Representative of the labour union, representative of the industrial union, f) Environmental ombudsman g) Head of Spatial Planning Department (Provincial Government Office) Goal is to consult the Provincial Government in matters of Spatial Development Spatial Development Programs:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		Representative Involvement: must be submitted to the chamber of architects, chamber of labour, chamber of commerce, chamber of agriculture – must be informed to submit statements/comments; spatial development programs for the entire province must be submitted to the association of municipalities; spatial development programs for the parts of the province (regions) must be submitted to the "*Planungsverbände*" (equivalent to regional associations) (§ 9 TROG) If the program (for a region) involves plans involves priority zoning for mineral extraction (among others), the municipality must immediately provide the proposal for public viewing for at least 6 weeks; the participation and involvement must be facilitated under the participation of the public (!) due to the environmental audits based on § 6 SEA-bill (*Tiroler Umweltprüfungsgesetz, TUP*) Persons (main residence in the particular municipality) and organisations, planning bodies have the right to submit a statement and expert opinion (until one week after the official period of 6 weeks); the statements must be forwarded to the provincial government. *§ 7 Abs 2 (1) Die Landesregierung hat durch Verordnung Raumordnungsprogramme zu erlassen. In diesen sind unter Berücksichtigung der Ergebnisse der Bestandsaufnahmen jene Ziele, Grundsätze oder Maßnahmen festzulegen, die für eine geordnete und nachhaltige räumliche Entwicklung im Sinn der Ziele und Grundsätze der überörtlichen Raumordnung erforderlich sind.* *(2) An Maßnahmen kann in Raumordnungsprogrammen insbesondere festgelegt werden, dass (…)* *b) bestimmte Gebiete oder Grundflächen der Ansiedlung von Gewerbe- und Industriebetrieben oder der Gewinnung von Rohstoffen vorzubehalten sind,"* Local/Municipal Level § 64: Process to develop and amend Spatial Development Concepts and ZONING Plans The publication of the proposal must include the information, that everybody with main residence in the municipality, public bodies are allowed to submit a statement; (§ 64 Abs1) The process of issuing a Zoning Plan, property owners/land-title holders must be informed (written) (Abs 2); after the period the mayor must forward the proposal with the submitted statements to the municipal council as basis for their decision making (Abs 5) Tiroler Umweltprüfungsgesetz (TUP) / SEA Bill Tyrol § 6 regulates the participation of the "public" and public bodies concerned with "environment" (s.l.) → Proposal of the plan or program and the environmental report must be accessible for the public bodies (environment, documents must be provided to them) and the public (Abs 1) → documents must be accessible for the public and the public, as well as municipalities, public bodies have the right to submit a statement/consultancy within 6 weeks § 8 regulates, that the decision making regarding the plan or program, the environmental report and the submitted statements/consultancies are to be

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		considered in a comprehensible way; after the decision making and issuing of the plan/program the issuing body must release a statement, explaining how the the received statements were considered in the plan (Abs. 3) *"§ 8 Entscheidungsfindung* *Bei der Beschlussfassung über den Plan oder das Programm oder über die Regierungsvorlage sind der Umweltbericht und die im Konsultationsverfahren abgegebenen Stellungnahmen einschließlich der Ergebnisse allfälliger grenzüberschreitender Konsultationen nachvollziehbar zu berücksichtigen."* The TUP (§ 3 Abs 2) considers the public as: all natural person and legal entities (based on trade law), environmental *Ombudsamann*, NGOs (especially environmental NGOs) including associations and foundations, which main purpose is conservation and environmental protection as common goods
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	See answers and explanations in 3.29 Information and consultation procedures: statements must be included in the decision-making process and should be considered; there must be some information and reasoning provided if and how or why not statements were (not) considered in the plan making Styria: Regional Development Programs: broader participation processes were actors and stakeholder were involved in the design and planning process and directly influenced the outcome (KG: I do not have the data, how much of the participatory process was in the end (not) included in the plan)
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	MINROG: prohibits mineral extraction in Nature protection areas, national parks, nature parks, and 'Resting Areas' (*Ruhegebiete*), in general mining is prohibited in that designated areas Natura 2000, national parks and other protective designations are indirect safeguarding measures since it is not possible to extract them, though they are not minable and cannot be extracted at the moment, means they are safeguarded for later, it might be expected that if there is a serious demand, or there are emergence decrees i.e. in case of war - mining and extraction in that areas might be not fully unlikely (statement R.H; meeting February 2018) *Rohstoffplan*: in the preparation and design of the AMRP (*Rohstoffplan*) conservation areas as potentially conflictual areas were already deducted from determining minable areas CONSERVATION- NATURE PROTECTION Tyrol (see *Gesteinsabbaukonzept*, Tirol Nature Protection Act, Tiroler Nationalparkgesetz Hohe Tauern 1991, Tiroler Raumordnungsgesetz) : The sectoral program "*Gesteinsabbaukonzept Tirol 2013*" is explicitly dealing with nature protection and conservation issues Due to Tyrolean Nature Protection act it is prohibited to build/induce noise inducing plants/companies in "resting areas", which includes mineral extraction; similar wording is existing in the Tyrol National Park Act Hohe Tauern (1991). In the special protection areas any interference/impact/extraction in nature is prohibited:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		In designated nature protection areas based on the Tyrol Nature Protection Act (TNSchG 2005) mineral extraction is prohibited, referring to Nature 2000 areas (TNschG, $ 14), landscape conservation areas (§ 10 TNSschG 2005), protected landscape areas (§ 13 TNSchG), natural monument (§ 27 TNSchG). (see *Gesteinsabbaukonzept* Tirol 2013); surrounding areas/buffer zones of such protection areas can prohibit mineral extraction to avoid negative impact on the main areas. It is prohibited to extract geotopes or endanger their existence; geotopes are: natural caves and sinkholes, distinct rock formations - such as earth pyramides or distinct soil formations (*Tirol Gesteinsabbaukonzept 2013*) *"Es liegt in der Natur des Gesteinsabbaus, dass diese Naturgüter im Falles eines Gesteinsabbaues kaum oder nur sehr schwer erhalten werden können. Aufgrund ihrer langen Entstehungszeit oder besonderen Ausprägung ist nicht davon auszugehen, dass sie als Sekundärlebensraum neu geschaffen werden können. Berg- und Felsstürze, Rutsche im Lockergestein u.ä. kommen in einem Gebirgsland wie Tirol in vielen Ausprägungen häufig vor und werden an mehreren Standorten auch abgebaut. Trotzdem kann es in Einzelfällen sein, dass sie aufgrund ihrer naturkundlichen Bedeutung, ihrer Repräsentanz etc. außer Nutzung zu stellen sind." (Tiroler Gesteinsabbaukonzept 2013, p. 47)* Distinctive natural values might be endangered an significantly impacted by mineral extraction and the necessary infrastructure, transport, extraction and back filling (remediation) concerning wetlands (§ 3 (8), riparian forests (§ 3 Abs 6 TNschG 2005), water bodies (§ 3(7) TNSchG 2005), natural or close-to-nature ravine/lowland forests -- in such areas buffer zones again might be kept free from mineral extraction to avoid impact on the core zones. Conservation of certain distinct natural values of local, regional and transregional importance which demand particular sensitivity when it comes do mineral extraction: such as areas with "red-list-species", significant habitats, significant elements which are shaping and characterizing the landscape and areas which are important for the local communities and which are in the public perception intact, unaffected, and "free from usage" (see quotation) *"prägende Einheiten, die die Eigenart und Schönheit der Landschaft bestimmen - Refugialräumen, die im Bewußtsein der Bevölkerung weitgehend unberührt und frei von Nutzung gelten" (Gesteinsabbaukonzept Tirol 2013, p.48).* WATER Safeguarding supply/resources with/of hiqh quality drinking water has higher priority than the extraction of mineral resources (Tirol, Gesteinsabbaukonzept 2013) *"Der Schutz hochwertiger Trinkwasservorräte hat Vorrang gegenüber der Gewinnung von mineralischen Rohstoffen. Ausgenommen sind das Schongebiet Inntaldecke-Karwendel und das Gnadenwalder Plateau, da es sich hier rechtlich lediglich um die Normierung von Bewilligungstatbeständen und nicht um Verbote handelt. Fachlich ist die Sicherung von tiefer liegenden Bergwässern, deren Gefährdung durch eine allfälligen Gesteinsabbau durch ein zusätzliches wasserrechtliches Bewilligungsverfahren abgeklärt werden muss, zu beurteilen" (Tirol, Gesteinsabbaukonzept 2013)*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

MINROG permitting and MINROG itself does refer to watershed issues: i.e. that projects are not supposed to lower the water table, or that public interests such as watershed and water management should be considered (soft wording in the legislation *"ist bei der Verleihung Bedacht zu nehmen")* -- Interview with civil servant M.W: his perspective, is that projects receive a couple of environmental requirements/actions, but that would be it.

Tourism: for tourism a certain coexistence of usages appears to be considered possible, the *Gesteinsabbaukonzept* refers to the importance of an "intact" pristine landscape, stressing that the "natural resources are the most important capital for the future of the province" (see also sectorial concept for tourism); related to tourism (especially summer tourism) all landscape impacts (i.e. visibility, duration) and impacts on recreational value and tourist infrastructure should be avoided

Regions with intense summer tourism, such as *Ötztzal* and *Zillertal*, which run only small extraction sites to supply local demand - situation should remain that way,
-- in summer tourism regions particular sensitivity regarding landscape quality, vistas and little emissions, as well as adaptation of the operation times of the site (annually, daily), Compensation and swiftest remediation and rebuilding of infrastructure for recreation and tourism - that also concerns the property owners and land-title holders, who - paraphrasing - earn significant profits from the extraction of raw materials/minerals and other than the operator of the site runs only little risk (*Gesteinsabbaukonzept*, p.45)

STYRIA

*N*ature protection/conservation: the three examined REPROs are referring to different regulations regarding mineral extraction and nature protection:
a) it regulates that mineral extraction is only allowed within the priority zones
b) additionally, different landscape types are limiting the scope of possible action:
1) Bergland über der Waldgrenze und Kampfwaldzone
- Extraction of minerals and raw materials is prohibited (OST 2016, § 3)
2) *Grünlandgeprägtes Bergland, Außeralpine Wälder und Auwälder*
Woodlands are considered as important for ecological and climate functionality and are considered attractive recreational areas - conservation and development of woodlands is of great importance in spatial development - mineral extraction is easier in other "landscapes" with less landscape and ecological value in which mining needs less impacts - thus, aside from extensions of existing sites, mineral extraction is not allowed in the landscape type "*außeralpine Wälder und Auwäler*" (Repro OST, p27)

3) Bergbaulandschaften (Mining Landscapes, REPRO OSO 2016, p11)
Mining landscapes, such as *Erzberg*, are to be included in the economic, cultural and touristic development of region (p.11)

"6) Bergbaulandschaften
Die Bergbaulandschaft des steirischen Erzberges ist in die wirtschaftliche, kulturelle und touristische Entwicklung der Region einzubinden" (REPRO OSO § 3)

"Bergbaulandschaften: Es handelt sich dabei, aufgrund der erfolgten Reliefveränderungen um einen massiven Eingriff in das Landschaftsbild, er im Falle des Erzberges eine Alleinstellungsmerkmal bildet. Neben der Rohstofferzeugung werden aktuell bereits vielfältige andere Nutzungen am Erzberg umgesetzt. Die Erhaltung der Charakteristik des Erzberges sowie die bestmögliche Nutzung in

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

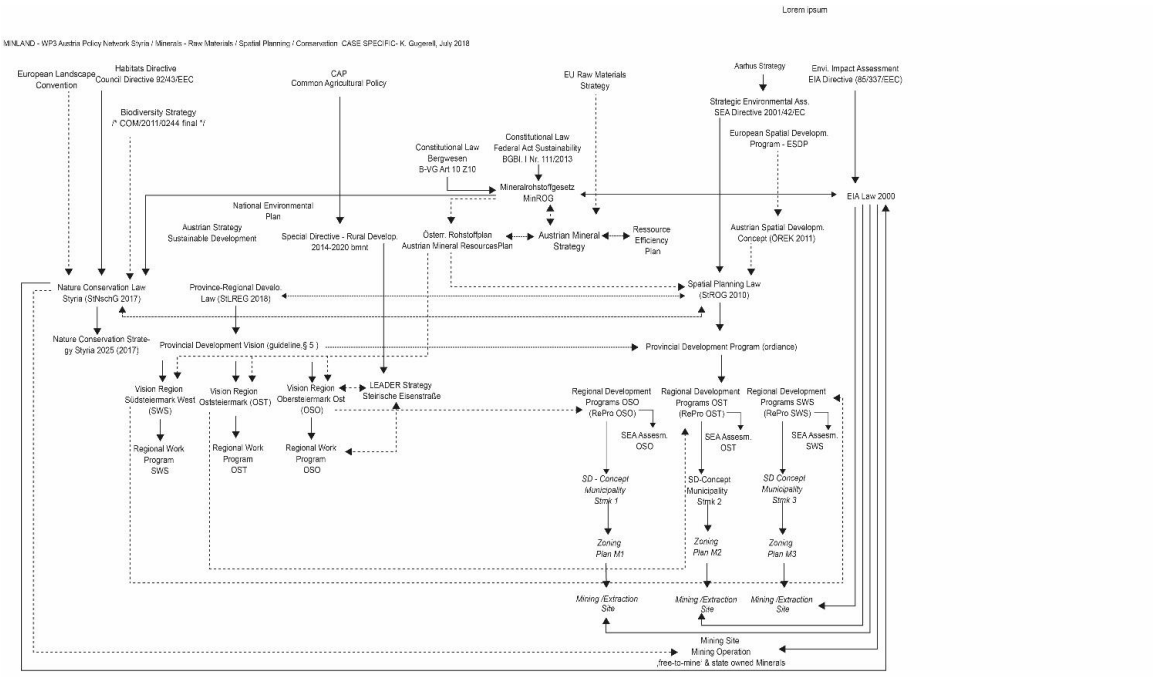
		wirtschaftlicher, kultureller und touristischer Hinsicht sind im Interesse der Region und des Landes. Unter Beachtung der rechtlichen Rahmenbedingungen für das Bergbaugebiet sind geeignete Festlegungen der örtlichen Raumplanung zur Umsetzung der genannten Ziele zulässig." (REPRO OSO 2016, p23) Green-Zones: are from a spatial planning perspective and non-compliance with other spatial planning goals and aims not suitable for mineral extraction, the term "*Ruhegebiet*" (Resting-Areas) link to MINROG - only the extension of existing sites is allowed *Nature Protection Act:* other than in Tyrol, Nature Protection Act in Styria does not directly refer to mineral extraction or raw materials

Table 4: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases…. Table 5 answers only to the phases of pre-exploration, planning phase as the case addresses this phase.

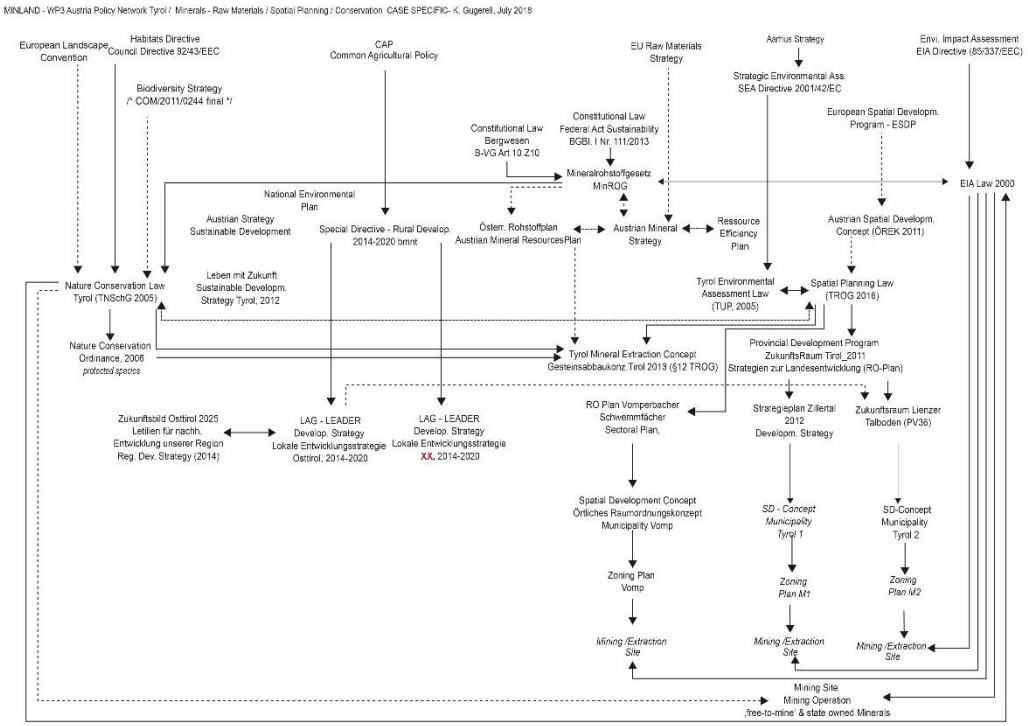
	Pre-Exploration/ Planning phase
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	YES, SEA are carried out i.e. with Regional Development Plans (REPRO, Styria, in Tyrol SEA is legislated in TUP = Tiroler Umweltprüfungsgesetz
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	**Styria: no** economic valuation in spatial planning tier No classification codes in spatial planning T**yrol:**
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	see Q 3.29
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	no
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	can't be answered
4.8 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	Interview M.W.: his perception is rather critical about local and community benefits

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	Free-to-mine and state-owned property run alongside Spatial Planning - they are not linked; hence, for those changes in zoning are not necessary for construction raw material
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 13 Case Description Portugal - Somincor Mine

Case Study Identification

Somincor Neves Corvo polymetalic underground mine	
Portugal	
DGEG and LNEG	
Type of mineral resources? Are the minerals (elements) part of the EU CRM list of 2017?	Primary commodities: Copper, Zinc, Lead Somincor is one of the biggest Copper producing mine in EU. No
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	The case is about exploitation and exploration in a sensitive area (Natura 2000: SCI PTCON0036 Guadiana and SPA PTZPE 0046 Castro Verde)
Is the case about open-pit or underground mining, both or not applicable?	Underground mining and surface plants. The area of the concession is 1.619 ha. Industrial area on surface has 840ha.
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other? Please (a) describe and (b) explain.	The scale is local.
Extents of the project (km^2) or not applicable?	29 km^2
Company or companies involved (identify) or Not Applicable?	Somincor belongs to the Lundin Mining Company.
Are the mineral resources private and/or public owned?	Minerals exploited are state-owned and a concession is given to the company under certain conditions, and royalties are paid.

Case study description

Somincor - Sociedade Mineira de Neves-Corvo, SA., was created in July 24th 1980, after the discovery, in 1977, of a massive sulfide deposit with significant amounts of basic metals, mainly copper and zinc. Somincor is part of LUNDIN group (http://www.lundinmining.com)

Somincor Neves Corvo Mine is located in the south of Portugal, in Baixo Alentejo region in the Iberian Pyrite Belt which is one of the largest Vulcano Massive Sulphides provinces in the world. With excellent infrastructures built (railway, motorway, energy, airports nearby and access to sea port), Neves-Corvo is 220 km from Lisboa and 102 km from Faro.

Somincor Neves-Corvo mine has 6 massive sulphide deposits: Corvo, Graça, Neves, Zambujal, Lombador and Semblana. Presently, the mine is more than 1.000m deep at Lombador deposit. The mine is estimated to operate until 2027 although there is the possibility of operating far beyond, depending on the results of studies for the expansion of the waste dam facilities and further exploration works. This mine is one of the EU largest underground copper mines and started its operation in 1988. Yearly outputs around 220K Tons of copper concentrate, 145K Tons of zinc concentrate and 10K Tons of lead concentrate, employing directly around 2000 workers.

The mine is located in Natura 2000 area within the Special Protected Areas (SPA) of Castro verde and the Site of Comunity Interest (SCI) Guadiana. There are a Protection Area for Wild Birds and several Habitats according to the Habitats Directive n.º 92/43/CEE (Habitat 92D0, Habitat 6310, Habitat 4030 (Anex B-I).

The mining project has been subjected to EIA and got approved with constraints due to the Nature Conservation Area. All the extensions/activities have been licensed.

Mining company has accomplished with all the obligations and has gone far beyond. The company has developed several programs and increased corporate social responsibility by developing actions to support local communities. Al this is being done on a voluntary basis by the company and also with some help from

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

the Government which allows that up to 25% of the value of the royalties that the company has to pay to the State may be allocated to develop actions in regions where the mine operates to improve life quality and local programs, to create transparency conditions for mining companies to operate with a social "license", to increase public awareness, acceptance and trust on the mining sector.
So the mining company develops several programs, in particular:

Social programs:

- **Protocol with "Association of Black Knights Village"**: Social project to support Hippotherapy and Therapeutic Riding lessons for children and youngsters with development disabilities from Almodôvar, Castro Verde municipalities and surrounding areas.
- **Lunchbox Project Smile in Motion**: Social design with the Alentejo Local Health Unit for delivering lunch boxes to needy students.
- **Protocol with Several Group of Schools:** Social project to support students of needy families with school supplies and food.
- **Protocol to be concluded with the Senior University in Castro Verde**: Social project, to support seniors in Castro Verde municipality.
- **Farmers agreement**: made agreements with local farmers so they can maintain the agricultural activity in about 50% of the company's land.

Environmental programs:

- **Biodiversity Promotion Protocol:** Environmental project in collaboration with the Government Body Institute for Nature Conservation and Forestry, in order to implement measures to protect the Saramugo - an endemic fish from the Guadiana basin - classified as "critically endangered" by the New Red Book of Vertebrates of Portugal.
- **Noise minimization Project:** Social and environmental design to reduce noise in the industrial area and nearby populations. In fulfilling its legal obligations, Somincor worked on its noise mapping, having noted the influence of the mining complex laboring noise in the nearby residential areas of the mining site.
- Projects with NGOs: for the protection of Nature and universities for the protection of endangered species (plants, lichens, fauna)

Research, technical innovation and technology programs:

- **Project on Concentrates Quality Improvement :** Research Project which aims to minimize penalizing minor elements in the concentrates. Somincor established a collaboration with the Laboratory of Kamloops Global ALS Canada, one of the most advanced laboratories in the world in this area which uses state of the art test equipment in mineralogical analysis. The study and analysis of concentrates aim to remove the penalizing elements and thus greatly increase its value.
- **Recovery Improvement Project:** Research Project on grinding optimization studies and regrinding's, also developing improvement on water quality studies. This project is a partnership with Grinding Solutions (England), Ian Warfc Research Institute of Australia, Imperial College of London, Technical University of Lisbon and the Faculty of Engineering of Porto University.

The mining company also takes innovative actions to disclose the work that has and is being done: prepared a field guide and a Film "The sound of earth-a mine of biodiversity" which is available in PT/EN http://biodiversidade-somincor.pt/web/index.php/pt/

Currently, the situation in terms of nature conservation is very good, and we can tell that the existence of the mine has brought a big advantage for the local communities and the biodiversity in the area.

For all these the good networking work with stakeholders has been very important and also the proximity to the communities.

Interaction of mineral resources legislative and administrative procedures interact with land use planning legislative and administrative procedures.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

- LUP in Portugal is a top down approach: a National Program (National Program for the Land Use Policy) provides framework for Regional Programs and these provide framework for Municipal Plans. This means that Programs are strategic documents and Plans are land use implementation documents. It is at municipal level (the municipal land use plans) that the land use is defined according to the upper level strategic documents, being the municipal authorities responsible for its implementation and management.
- The process at local level (municipal) is a mix between horizontal and vertical integration. It integrates all the land use aspects at municipal level, but at the same time, these are subordinated to existing sectoral plans (e.g. land use plan at municipal level must integrate Natura2000 areas that were defined at national level). Portugal does not have a sectoral Plan for mineral resources.
- The recent legislation recommends that the reviewing of a municipal land use plan depends on The Report About the Land Use Status, which should be made every 4 years. If strong changes on the municipal environment, economic, social or cultural conditions are reported, then a reviewing process can start (needs national government authorization). In practice the reviewing processes could take up to 3 or more years, which gives for each municipal land use plan a longevity of 7 or more years.

The reviewing process includes the elaboration of the following main documents:

- Regulation (rules for the use of land)
- Land use planning map
- Constraints map
- Report (that presents the strategy and development model as well as the reasons that support that model taking into account the previously made studies on the environmental, social, economic and cultural conditions)
- Strategic Environmental Report (resulting from a Strategic Environmental Assessment, which is applied only to Plans and Programs, including the characterization and assessment of environmental, social, economic and cultural aspects)
- Execution Program
- Financial Plan

The leader of the reviewing process is the municipal authority with the support of the regional authority (CCDR) and a Commission that integrates representatives of the several public interests (e.g. the mining authority, the environmental authority, the infrastructures authority, etc.) and other stakeholders. The land use planning proposal depends on the approval by all entities of the commission in a conciliation procedure.

- The participation of the society is made in two steps:
  - During the reviewing process, stakeholders can ask to see any relevant document and can make questions and suggestions.

At the end of the reviewing process, after the conciliation procedure, the land use planning proposal is subjected to a public discussion. All the questions and suggestions must be answered, and after weighting them the municipal authority decides on the changes to be made. A report on this public consultation is included in the land use plan final version for approval by the national government.

- **Minerals Safeguarding on Land Use Planning**.

The existing legislation on land use planning (main legal document is the Decree Law no. 80/2015) classifies the land in two types: urban land and rustic (rural) land. The rural land is the one that has recognized capacity for the following activities which are compatible: agriculture, livestock and forestry use, for the conservation, valorisation and exploitation of natural, **geological and energetic resources**, as well as for the use as natural , cultural, touristic and recreation spaces or for the protection of natural risks. Therefore, the rural land is qualified into the following categories:

- Spaces for agriculture and forestry
- Spaces for the exploitation of energetic and geological resources
- Spaces for industrial activities directly related to the above uses
- Natural spaces and spaces with high cultural or landscape value
- Spaces for infrastructures or other human use (like tourism) that do not imply the classification of the land as Urban Land

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

Normative legislation for land use planning is mandatory on what respects the identification of the several capacities (aptitude/vocation) of the land, including the capacity for the exploration of geological resources, in order to include those spaces in land use planning at municipal level.
Taking into account the current social and political awareness about the geological resources (usually against the extraction of mineral resources), the rural spaces for the exploitation of geological resources are usually considered in light of those that are already under exploitation or near starting extraction. In practice, the land use planning authority (i.e. the municipal authority) is only obliged to include those mineral resources which have permits and licenses issued. Still in current practice and taking into account only what is written in the normative legislation (see informal practice applied by the Portuguese mining authority in the other Portuguese case study in WP3), land use planning integrates:

- Mining concessions (respecting public owned minerals)
- Licensed areas (respecting areas with license for quarrying private owned minerals)
- Reserve and Captive Areas (areas designated by the government for the exploitation of minerals as primary use because of the public economic interest of the minerals therein and/or because of the need to apply rules for the extraction in order to make a rational exploitation).
- Areas temporary designated for minerals exploration (exploration prospects) by private companies

All these spaces are not included in land use planning as an option taken by the municipality, but rather the municipality is obliged to integrate them because they are administrative easements (like a military space, the defense area of a river or a lake, etc)-
Municipalities **can decide on a voluntary basis to allow exploration and exploitation in rural areas not specifically classified as "Spaces for the exploitation of geological resources". On the other hand municipalities can decide not to allow this kind of activity, beyond what is already implemented by law (the aforementioned concessions, reserve areas, etc.**)
Concluding, unknown mineral resources and mineral resources of which the economic value is not yet known due to the lack of knowledge (therefore, that are not well spatially delimited) are not included in land use planning, meaning that they are not safeguarded.

- There are two types of permitting according to the ownership of mineral resources:
  - **Permitting for public owned mineral resources (MINES)**. The process has the following steps (each one through an administrative contract between the interested private party and the State (mining authority DGEG/Ministry of Economy):
    - A voluntary one year preliminary land evaluation of the existing mineral resources.
    - Exploration permitting. Before issuing the permit, DGEG (mining authority) must carry out (mandatory) a consultation with the municipalities and other authorities (environment, land use planning, forestry, nature conservation, etc.), which inform about the existing constraints to eventual mining developments, in order to provide the applicant with all the available information. If issued, the permitting has a validity of 5 years maximum. Every year the private company must present a report on the carried activities and a plan for the work and investment that is going to be done, for DGEG approval.
    - Voluntary Experimental Exploitation permitting issued for a maximum period of 5 years.
    - Exploitation permitting (Mining Concession). Only can be issued to whom discovered the resources during one of the previous stages. The permitting has a maximum validity of 90 years. Before issuing the mining concession, DGEG must carry out consultations with other authorities, similarly to those carried out for the exploration permitting. The mining concession only can be issued if there is compatibility between the mining activity with land use planning and with the conditions imposed during the Environmental Impact Assessment.

Each one of the above steps is subject to public consultation (30 days) by announcing them through 2 national newspapers and on local newspapers. Stakeholders and public in general have access to the most relevant documentation and can make questions and suggestions or even can stop the procedure if they find irregularities.
In practice, when asking for a mining concession, the applicant must deliver several documents, being the most relevant the Mining Plan, the Economic Feasibility Study and the Environmental, Landscape Recovery

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

and Closure Plan. Because the information in these documents depends on the conditions imposed by the mandatory EIA, the technical documents will consider the measures imposed on the EIA decision.

- **Permitting for private owned mineral resources (QUARRIES)**. Only can be asked by the owner of the land (or by who has a lease agreement with the owner). The process has the following steps:

c) Voluntary exploration permitting issued by the mining authority. Has a validity of one year with possibility to extend it for only one more year. The exploration licence only can be issued if there is compatibility between the mining activity with land use planning (through a formal consent from the land use authority). During this period, company cannot sell products.

Exploitation permitting (License). Issued by the mining authority (most of the quarries) or by the municipality (artisanal quarries). It has no limit of validity. Only can be issued if there is compatibility between the mining activity with land use planning (through a formal consent from the land use authority) and, when applicable, with conditions imposed by EIA (which also evaluates if the required are is included in a land use planning space compatible with the exploitation of geological resources).

The permitting for private owned mineral resources does not have a direct formal mechanism for involvement of the civil society. However, the exploitation license for projects having an area above 25 ha (or when a group of quarries occupy an area bigger than 15 ha at a distance less than 1 km from villages) is dependent on EIA results, which involve the consultation of the civil society and interested parties.

The main conflicting land uses were:

- The existence of the mine since 1980, and operations started on 1988.
- After that, between 1997 and 2000, the Natura 2000 area was defined, including the Special Protected Area (SPA) of Castro Verde and the Site of Comunity Interest (SCI) of Guadiana. In the mine are concession there are a Protection Area for Wild Birds and several Habitats according to the Habitats Directive n.º 92/43/CEE (Habitat 92D0, Habitat 6310, Habitat 4030 (Anex B-I)
- Natura 2000 area overlaps the area of the mining concession equipments and plant (840 ha on the surface).
- There is also agricultural area in the mining concession.

The mining company always developed their work with respect for the legal procedures and in cooperation with mining authorities (DGEG) and land use authorities (CCDR, ICNF and municipalities).

The permit is for exploitation, and also for exploration in the surrounding areas.

The mine had an EIA.

There are no conflicts with communities, or with policy decision makers (mining, nature conservation and land use).

Nowadays the mine employs about 2000 workers most of them from the region and locals and civil society accepts the mine.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	1. Somincor vision and strategy include development of a high performance, motivated culture, achieving a safe, productive and healthy work environment, and to conduct their business activities ethically and transparently. Somincor belongs to Lundin Mining which is committed to giving back to the communities in which they operate by funding important social programs. 2. DGEG/Government policy on royalties: Since 2012 the Portuguese Government introduced a new royalties policy, which is supported by the National Strategy for Geological Resources - Mineral Resources (NSGR-MR) in the objective INCREASE SUSTAINABILITY ON ROYALTIES USE. Before 2012 the royalties paid by the mining companies were used to: a)Until 2007-finance budget of geological resources public entities. At the end of each year the remaining amount went to the Government budget; b) Between 2007-2012-Royalties were used to finance budget of geological resources public entities and to support the rehabilitation of abandoned mining sites.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	Since 2012: New royalties policy in which "*up to 25% of the value of the royalties due to the Government may be used directly on sustainable projects for the benefit of local communities. This value may be applied to local and regional programs, plans and projects proposed by the civil society*." The new royalties policy is achieved: ▪ By allocating part of the money coming from mining companies in regions where mining occurs to improve life quality and local programs. ▪ By creating transparency conditions for mining companies to operate with a social "license". ▪ By increasing public awareness, acceptance and trust on the mining sector. The Rules that need to be followed are: -Portuguese Mining Authority (DGEG) has to approve the projects, programs and actions that will be developed with the use of up to 25% of the royalties. -Portuguese Mining Authority (DGEG) will keep a data base on the information spent by the mining companies in each activity/region in order to monitor this good practice. So the mining company develops several programs, in particular (see detailed information on table 2 above): **Social programs; Environmental programs; Research, technical innovation and technology programs.** The mining company also takes innovative actions to disclose the work that has and is being done: prepared a field guide and a Film "The sound of earth-a mine of biodiversity" which is available in PT/EN http://biodiversidade-somincor.pt/web/index.php/pt/ **Now, the situation in terms of nature conservation is very good, and we can tell that the existence of the mine has brought a big advantage for the local communities and the biodiversity in the area.** For all these the good networking work with stakeholders has been very important and also the proximity to the communities.
6.2 Problems encountered	There were no problems encountered. The Mining company always used the best available techniques and best solutions to operate within a sensitive Natura 2000 area. All required a big effort and investment from the mining company and from the stakeholders to overcome the challenges.
6.3 framework conditions/contextual factors	Positive SLO setting, because the mine is integrated in a traditional mining region (Iberian Pyrite Belt) and positive CSR actions of the mining company always keeping close to the populations and Government decision makers at local, regional and national level.
6.4 Impacts achieved	Positive acceptance of the mine, creation of direct and indirect jobs, increase of the biodiversity in the Natura 2000 area, strong regional economic and social development in a low density population region.

Table 3

ANNEX 1. Survey

Table 12- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	Answer
	3.1 Are land use plans legally binding or simply indicative?	Legally binding.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	Duration can take up to 10 years. Each 4 years the municipality has to prepare a monitoring report and land use plans may be reviewed if there are enough reasons to justify it (big changes on the environmental, economic, social or cultural conditions). In practice, the reviewing process takes 2 to 3 3 years
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before	No

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	exploration/extraction or part of the permitting process?	
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	Protection of exploitation permits exploration and permits are mandatory. These are public administrative easements. Usually, safeguarding is not addressed (see WP3 case study on informal Portuguese Land Use practice)
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	No, there is no equivalence. According to LUP legislation it is mandatory to delimit spaces for the exploitation of geological resources. Therefore, what is protected in LUP are known mineral deposits (with known economic value). They correspond to areas where permits have been issued, which are public administrative easements (mining concessions and quarry licences). Exploration permits are also protected because they are also public easements, but in some cases they are not mapped due to their temporary character (5 years maximum) and for being very big areas (500km²). Unknown mineral resources or mineral resources whose value is not known or whose extents are not spatially delimited are not protected..
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	Yes it does. Portuguese land use legislation considers the possibility of multiple uses in rural soil and foster a land use planning policy which clearly include geological resources in harmonization with other uses of rural soil However, 3 different situations should be considered: - Spaces primarily assigned to exploitation of geological resources (equivalent to spaces for protection of known mineral resources/administrative easements). It is fostered the compatibility with other uses that do not compromise the exploitation. - Spaces primarily assigned to agriculture, livestock or forestry: There is no incompatibility with the safeguard of mineral resources and their future exploitation, unless the normative rules at municipal level explicit that there is incompatibility with extraction of mineral resources - Rural spaces primarily assigned to environmental protection, nature conservation, recreation and tourism often are made incompatible with mineral resources protection through normative rules at municipal level.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	No.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Municipal land use plans use rules and zoning for the protection of known mineral resources: - Rules are included in a main document called Regulation Document. It explains what are the permissions and the interdictions in the category of soil areas. It also contains the rules for Spaces for Exploitation of Geological Resources. - Land use constraints map: Permits and licenses are defined here - Land use map: Zones/spaces with categories of soil.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes (buildings, tailings, road accesses, oil and gas supply facilities, plant), at extraction phase.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]?	Minerals Information System is available at LNEG through (http://geoportal.lneg.pt/index.php?option=com_content&id=69&lg=en). It is not INSPIRE compliant.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Spatial information on mining permits is available at www.dgeg.pt. It is inspire compliant Land use information at local level is available at municipalities' web sites. It is not INSPIRE compliant
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	Land use authorities (municipalities) usually do not have expertise on mineral resources neither on how to integrate them in land use planning. However, the land use planning procedure is supported by a multidisciplinary Commission, which incorporates the mining authority.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	Only partially. There are formal governance mechanisms between the mining authority (DGEG) and the LUP authority aimed at the exchange of information during LUP processes. LUP legislations refers DGEG as one of the public entities that should participate and be part of decision making process of land use planning. There is an informal mechanism for exchange of information between the mining authority and the geological survey (LNEG) There is no formal governance / exchange of information mechanism between the geological survey and the mining authority.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	Yes. There are GIS tools assisting the mining and land use planners. All data is in GIS system.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Yes, at DGEG.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	No No Yes. JORC. The information is confidential during the period of the contract.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*	NO

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?	
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	Based upon geological data reports from mining companies and research work performed by the geological survey.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	No. No No.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	It is not mandatory, but the legislation on LUP is mostly directed to the mineral resources that have a known economic value and have permits/licenses issued. Therefore, is if it is mandatory. Prospective/hypothetical resources are not considered in LUP legislation because there are no approved tools to justify their inclusion on the Spaces for the Exploitation of Geological Resources.
	3.25 Are there and which are incentives to implement minerals into land use planning?	There are no direct incentives. However, for the case of public owned minerals, if a mine starts to operate, the mining company can apply up to 25% of the royalties value in the development of social, environmental and research programs in the region where it operates.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	No. See WP3 case Study on Portuguese informal land use practice
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	Sectoral Plans and Especial Land Use Plans on Nature Conservation (Natura2000 Network and natural parks network) and Environment protection (National Ecological Network), and on Water Protection.
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Yes at all levels during the elaboration procedures and at the end of the procedure, when the Land Use Program or Plan is subjected to Public consultation and direct stakeholders consultation.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence the decision or bind the decision)?*	The results are analysed and is made a written report with the recommendations and alterations needed. Some are considered.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Natura 2000 and other environmental designations are part of specific sectoral plans. These areas prevail over all other land uses. However, they can admit other uses considered to be compatible with environmental protection and nature conservation. Usually, these areas are not compatible with extraction activities, as defined in the normative rules at municipal level land use planning. However, there are situations where the compatibility was predicted and others where the compatibility was appended. For the conflict management is usually involved CCDR (regional land use decision maker) or ICNF (sensitive areas), the municipality and DGEG.

Table 413: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	Permitting phase for exploration and prospecting	Permitting phase for exploitation	Post closure management/ Rehabilitation
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	no	no	Yes if area >15 ha or production >200.000ton	Yes, but usually included in the permitting phase
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	no	No	Yes Reporting codes are used	No
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land?	Yes	no	yes	yes
4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Public consultation	Public consultation	Public consultation	
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	Yes Iberian Pyrite Belt Natura 2000 area	Yes Iberian Pyrite Belt Natura 2000 area	Yes Iberian Pyrite Belt Natura 2000 area	Yes Iberian Pyrite Belt Natura 2000 area
4.6 Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?	No	No	No	No
4.7 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	Not applicable to the project	Not applicable to the project	Not applicable to the project	Not applicable to the project
4.8 Which have been the positive aspects perceived relatively to the case	None	None	Several social, environmental and cultural programs	Not applicable to the project

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

by the community? what have been the concerns?[3]				
4.9 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use regulations? If Yes, please explain.	Not applicable to the project	Not applicable to the project	Not applicable to the project	Not applicable to the project
4.10 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	Not applicable to the project	Not applicable to the project	Not applicable to the project	Not applicable to the project
4.11 Which were the benefits and costs to the communities from the boosting of new activities?	None	None	BENEFITS (Are not directly related to the permitting phase, rather they result of the mining development through the years.) Somincor has a strong CSR – Corporate Responsibility Programme. It maintains a strong interaction with the local and regional communities through the implementation of several social and environmental responsibility programmes and actions.	

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	Not applicable to the project	Yes	Yes	Not applicable to the project
5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	Not applicable to the project	Public consultation	Public consultation	Not applicable to the project
5.4 Was the project well accepted by the local communities - Which have	Not applicable	Well accepted	Well accepted	Not applicable

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

been the concerns relatively to the case? what was well received?				
5.5 Which were the benefits and costs to the communities from the boosting of new activities?	Not applicable to the project	Not applicable to the project	Benefits. The same referred at 4.11	Not applicable to the project
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	Not applicable to the project	No	Yes, voluntary, the mining company may apply up to 25% of the royalties value in the development of social, environmental and research programs in the region where mine operates.	Not applicable to the project
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?	Not applicable to the project	Not applicable to the project	Yes, Voluntary. Referred on 4.11 and table 2.	Not applicable to the project
5.8 How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	During land use planning meetings at municipal scale	During land use planning meetings at municipal scale	During land use planning meetings at municipal scale	During land use planning meetings at municipal scale
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	Not applicable to the project	Not applicable to the project	Not applicable to the project	Not applicable to the project

(Internal use - note 3: Answer 5.9- important to maintain during evaluation of the answers the knowledge of the person who answered, keep the answers disaggregated.)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Annex 14 Case Description Hungary – Tokaj Area

Case Study Identification

Tokaj wine region - Historic Cultural Landscape (UNESCO World Heritage)	
Hungary	
Mining and Geological Survey of Hungary (MBFSZ)	
Type of mineral resources? (distinguish primary commodities and associated commodities ; e.g. primary: kaolin, sub-product: silica sand; primary: Cu & Zn, sub-product: Au, Ge). Are the minerals (elements) part of the EU CRM list of 2017?	Perlite (primary product) – Hungary was estimated to be the fifth-ranked producer of perlite in the world and to have accounted for about 2% of global production. Hungary has a large deposit of perlite rock of excellent quality, that is sold in a lot of European countries. The fields of application on perlite is continually expanding. In the countries where people think of environmental protection seriously, application of perlite products is broadening - instead of other artificial materials. The Perlit-92 Ltd. exports the 90% of the perlite milling products and deliver to 16 countries regularly. Our biggest markets on aboard are Germany, Austria and Poland. FIELDS OF RAW PERLITE APPLICATION: Construction industry (heat insulation, sound absorption, light weight constructions, fire defence, heat insulation of ovens, kettles, tanks and in the metallurgy, cryogenics (insulation against heat) Food industry (as filter material at production of beer, soft drinks, cooking oil) Pharmaceutical industry (filtration of antibiotics) Agriculture (melioration of soil, handling of liquid dung, pesticides – as a carrier) Environmental protection (collection of oil spills not he surface of water, filtration of water in pools) Perlite is part of the EU CRM list of 2017.
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	Exploitation, mineral safeguarding Perlite has been exploited since 1959 in the region.
Is the case about open-pit or underground mining, both or not applicable?	Perlite: quarry
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other? Please (a) describe and (b) explain. regional; based on the number of occurences (sites, areas, quarries:……..), the size of the area (….) and the importance of minerals (e.g. transport, related industry)	The case study area can be considered as regional. It has transboundary spects and EU level importance because Tokaj Wine Region buffer zone extends to Slovakia plus perlite quarries provide raw materials for export.
Extents of the project (km2) or not applicable?	Around 10 000 sqkm
Company or companies involved (identify) or Not Applicable?	Perlit-92 KFT (Ltd.)
Are the mineral resources private and/or public owned? (e.g. minerals are state-owned and a concession is given to companies under the conditions xxx, minerals are private-owned, …)	Mineral are state owned prior paying royalties by entrepreneurs to the state. Exploitation of Perlite is not subject to the concession.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Case study description

The Tokaj region has centuries-long wine producing and mining tradition. Since it has been declared a Word Heritage Site (in 2002) the mining activity (exploration and exploitation) is has been confined and the aim of this process is to hinder any kind of mining activity.

Tokaj Wine Region (TWR) is a historical wine region located in north-eastern Hungary and south-eastern Slovakia at the foothills of the Zemplén Mountains along the Bodrog river and at the confluence of the Bodrog and the Tisza Rivers. **Tokaj has been declared a World Heritage Site in 2002 under the name Tokaj Wine Region Historic Cultural Landscape.**

The World Heritage property and its buffer zone together cover the administrative area of 27 settlements (88,124 ha in total including 11,149 hectares of classified vineyards, of which an estimated 5,500 are currently planted).

The area demonstrates the long tradition between society and environment.

The unique combination of geologic, morphologic, environmental and climatic conditions are creating a special microclimate, the surrounding oak-woods have long been recognized as outstandingly favourable for **grape cultivation and specialized wine production.**

High geodiversity with pattern of wineyards, farms, villages, small towns, wine cellars carved by hand into mostly volcanic rocks are contributing to **the character of the landscape** and related to vine-growing and wine production. The socio-cultural, ethnic and religious diversity which reflected in historic settlements, other built structures, basic urban layouts and their interconnection, both with each other and with the landscape.

Mining and manufacturing a long period of volcanism and the subsequent hydrothermal activity produced a wide range of potential raw materials and mineral resources. The exploitation **has a long tradition**. At different levels of social and technical development, more and more raw materials were placed in the centre of interest starting from the early Palaeolithic.

Based on the World Heritage Act, the appointment of a management body by the Minister responsible for culture is under way**. The new management plan** and the management body will provide transparent governance arrangements with clear responsibilities, where the different interests can manifest themselves and where the institutional framework and methods for the cooperation of the different stakeholders are available.

The overall aim of the management is to maintain and enhance the environmental, social as well as economic conditions. The living cultural landscape must remain an asset for the benefit of the sustainable development of local communities.

Once the Management Plan is approved and finalised, the revision of the boundaries of the property and its buffer zone shall be considered, in order to enhance the integrity and the appropriate protection of the property. **Special attention should be paid to the impact of mines, quarries and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property.**

According to a recent **Government Decree** (485/2016. (XII. 28.)), **the Tokaj Wine Region should be safeguarded as a cultural heritage area**. This region is rich in minerals, so a **mining and raw material management strategy has to be prepared which will include the attempts to reduce the impact of quarrying as well as the degree of exploitation and to move quarrying** to other parts of the country if possible.

Make a brief description of how current mineral resources legislative and administrative procedures interact with land use planning legislative and administrative procedures. The need is to explore and understand <u>the relations between minerals and land use planning</u>

Reporting of results of geological exploration activities (with estimated resources) and resources of mines/quarries is mandatory by law. Data are recorded and kept in The Mining and Geological Survey of Hungary (MBFSZ)'s database (The National Registry on Mineral Raw Materials and Geothermal Resources). The MBFSZ delivers data periodically to the authorities based on legal background and authorities incorporate the data into The National Regional Development and Spatial Planning Information System

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

which is a web based IT system accessible via the Internet. National, regional and local land use planning authorities can join to the database through the application system. This central comprehensive database contains all land use plan(ing) related information based on the regular, government decree-regulated, obligatory data delivery from ministries, Hungarian Central Statistical Office, authorities, governments, municipalities etc

The planning system in general

Levels of government and their responsibilities

The national government has several responsibilities related to spatial planning. First, it prepares the national framework legislation that structures planning at the national and subnational level. Second, it enacts the National Spatial Plan, the two existing Spatial Plans for Special Regions and Cross-border Spatial Plans. Third, it uses financial instruments and allocates its budget to shape the spatial structure of the country. Fourth, it provides opinions on regional and local spatial plans and approves them with respect to their congruence with higher level spatial plans. This task is delegated to the State Chief Architects within the regional Government Offices, i.e. the deconcentrated parts of the national administration.

County governments are primarily responsible for the preparation and enactment of the Spatial Plans for Counties. They also provide opinions on the National Spatial Plan and the Spatial Plans for Special Regions that concern their territory. They are also the primary contact point for public engagement in the planning process. Furthermore, they have several special legal instruments at their disposal that they can use to shape the spatial structure in their territory.

Spatial and land-use plans

Hungary has a hierarchical planning system with three or four levels of spatial plans depending on the region. At the highest level, the National Spatial Plan contains a mix of general guidelines, strategic plans and small scale land-use plans at a scale of 1: 500 000. It is a legally binding document that is approved by a vote of parliament and is replaced every seven years.

Below the National Spatial Plan, two Spatial Plans for Special Regions exist. They cover the capital of Budapest and its surrounding urban agglomeration and the touristic area around Lake Balaton, respectively. Both plans are comprehensive plans that aim at fostering the economic potential of the region, while supporting sustainable development and the protection of nature and the cultural heritage. Just as national plans, they combine general guidelines and strategic plans with land-use plans at a scale of 1: 100 000 in the case of the Balaton plan and 1: 50 000 in the case of the Budapest plan. Both plans are approved by vote of the parliament, binding for lower level plans and renewed every ten years in the case of the Balaton plan and every seven years in case of the Budapest plan.

Every seven years, each county prepares a Spatial Plan for Counties. It provides the link between the National Spatial Plan and local plan by detailing the regulations provided in the national plan. Spatial Plans for Counties are particularly relevant for **development control**, as **they outline areas for future development and for nature and cultural heritage protection**. Furthermore, they determine the permitted uses of those areas that have been left unspecified by the national plan. Land-use plans within Spatial Plans for Counties are generally drawn at a scale of 1: 100 000.

At the local level, the Settlement Structural Plan is a comprehensive plan that combines zoning with strategic planning and is binding for land owners. It is complemented by local building regulations that provide more details on approved types of use and possible developments. It has a scale of 1: 10 000 in the largest municipalities and larger scales in smaller ones. As for most other plans in Hungary, it is renewed every seven years.

Spatial plans at all three levels of government are accompanied by Development Concepts. They define long-term objectives for territorial development at the respective geographical scale and focus in particular on social and economic objectives. Furthermore, they guide sectoral planning. Each Development Concept guides the preparation of Spatial Plans at the corresponding administrative level (within the limits provided by higher level Spatial Plans).

Co-ordination mechanisms

Vertical co-ordination between levels of government occurs through the Chief Architects in counties who serve as representatives of the national government. They provide assistance to municipalities in preparing their plans and ensure that they match national plans. They can also approve discrepancies between local

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

and national plans. Co-ordination at the horizontal level occurs primarily through the dissemination of the spatial plans at an early stage of the planning process to a list of authorities that is defined by decree. These authorities may comment on the plans and influence their contents.
An area can be designated as 'mineral resource area' in case that it has mineral resources recorded in the National Mineral Resource Inventory. These areas can be covered by mining plots (including active, suspended and closed) or can be free areas (exploration area). In case of change 90 days are provided to record it into the national land use database.
According to the Act No. XXVI. 2003 on National Land Use Plan, so called 'mineral resource areas' are included in the land use plans of counties and special regions. The mineral resource areas should be taken into account during developing land use plans; and can be used only in a way which does not make impossible their future extraction (top-down approach)

On local level the local governments can decide about a mineral development however it must be in accordance with regional and national plans, policies and strategies. On local level databases include more data (exploration, feasibility etc,.) for mineral deposits that can be considered in local land use plans.
The designation of areas for minerals (so called 'mineral resource areas') is equivalent to mineral protection, however there are higher priority land uses that can hinder the extraction. These are Natural Areas protected by a specific law (the Act on nature conservation No. LIII. of 1996) as national parks, landscape protection areas and nature conservation areas. In all other cases limitations are partially and final decision could be influenced by other decisions also (e.g. local priorities, public hearing, etc).

The Governmental Decree No. 314/2012 (XI.8.) on local spatial planning, integrated local spatial planning strategy, local land use planning tools and certain special local spatial planning legal instruments prescribes for local governments to prepare an Establishing Assessment before developing local land use plan or concept. This assessment includes information on mineral deposits and it is mandatory to send it to the Mining and Geological Survey of Hungary (MBFSZ) for review. The MBFSZ is authorized to cancel any kind of land use planning if it affects mineral resources. In this case the regional/local government may changes the plan or have an option to redeem mineral resources.

Despite of all of above mentioned facts the environmental and heritage protection aspects have had priority against mining activates in Hungary.
Permitting
In Hungary only state owned minerals exist. After paying mineral royalties will have the ownership for mining entrepreneurs.
Phases of explorations and exploitations all are taken into consideration seriously via the application of the Mining Act and the related Government Degree on the Implementation of the Mining Act.
The Mining Law defines areas 'open' or 'closed' for mining activity (from exploration to restoration).
OPEN AREAS (in case of aggregates and industrial materials)
Exploration
Whether an area is open only exploration licence is needed. Exploration is permitted through permits granted by the Mining Departments of Government Offices (a simple vertical permitting scheme).
Exploitation
Before starting mineral exploitation, the operator applies for the approval of the 'Technical Operational Plan' (TOP) to the Mining Departments of Government Offices. It gives permission or refuses the application and designates the mining plot. The TOP need to be revised annually and the operator should apply for modification if needed. This way the required rate of quantity decrease is regulated by the approval of Technical Operational Plans determining the quantity and time frame of extraction.
CLOSED AREAS (in case of energy minerals, geothermal energy and ores)
Exploration and exploitation
In Hungary in case of energy minerals and ores concession sites are designated and can be applied for. Permit can be obtained through the concession, which is contracted centrally. Based on legal background

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679

the MBFSZ (Mining and Geological Survey of Hungary) is responsible for preparation of the concession tenders and implementing of concession bids.
Exploration and exploitation obligations are part of the concession contracts, relating permissions are provided by the Mining Departments of Government Offices.

- *Existing types of permitting according to the minerals value chain stage (i.e. exploration, mining, processing, refining, rehabilitation)*
- *Description of national, regional, local procedures. Reporting requirements, scheduled evaluations*

Since April 2015 regional mining authorities and several other authorities have merged to form 'Mining Departments of Government Offices' and and now the permitting procedure is considered a “one-stop-shop”.
Before starting mineral exploration/exploitation, the operator applies for permission to the regional Mining Departments of Government Office. It gives permission or refuses the application based on the statements of co-authorities (environment, nature conservation, soil protection, and cultural heritage inspectorates), or asks for further statements.
If the exploration/ exploitation is conditional, the Government Office informs the operator. If the operator accepts the conditions, the 'Mining Departments of Government Office provide an exploration permission or permission designates the mining plot. The exploration/operation can be started only if the “Technical Operational Plan” (TOP) is approved by the Government Office. The operation can be suspended for a certain period based on the permission of the Government Office or closed down.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	• **Mining activity has had centuries-long tradition in the region therefore locals familiar with mining activities, it’s advantages, products and it’s role in the economy in their region.** • From **Company** side: Perlite quarries **provide job opportunities** **Corporate tax** adds to budget The company has been **developing** it’s activity continuously to match to the local and regional regulations, policies and *other non-mandatory needs as follows:* *Important developments in the last 5 years:* *- environment protection* *- mining machinery* *- development of the grinding and classifying works* *- modernization of transport* *It performs it’s work on the basis of the "Declaration on Quality Policy" of the ISO 9001 Quality Assurance System qualified by TÜV CERT. The validity of the certificate (is): 05.11.2013.* **Reliability** - Type of activity, management and employees have been well known by local people for decades **Transparency** - Active communication with local government and local people **Active participation** in local developments, sponsorship and personal attendance in different local/regional initiations • From the **Government** side: **Legislation** background of mineral resources **protection/safeguarding** **Involvement** of local community and stakeholders to land use planning decisions **is mandatory** • **These key factors provide an active and open communication environment to harmonize and coordinate different competing land use.**
6.2 Problems encountered	• **Mining sites**/prospective areas **are situated within or in buffer zone** of Tokaj Wine Region Historic Cultural Landscape (**UNESCO World Heritage**) • According to a **recent Government Decree** (485/2016. (XII. 28.)), the Tokaj wine region should be safeguarded as a cultural heritage area. This region is rich in minerals, so a mining and raw material management **strategy has to be prepared** which will include

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

	the attempts to **reduce the impact of quarrying** as well as the **degree of exploitation** and to move quarrying to other parts of the country if possible. • *Historical aspect*: During Soviet era industrialisation was forced, environmental, cultural, traditional aspects were often not respected (or even they were destroyed). During transition period (1990-1993) heavy industries collapsed, a large-scale privatisation programme started and investors started to build up export oriented, low energy intensity branches. Furthermore local people and governments had no rights to represent their opinions and interests. These factors are resulted a **significant awareness/fear of people about industrial activities.** • *Legislative aspects***:** Although strategic plans, legislative background provide a relatively strict framework for mining activities and safeguarding of mineral resources however missing national energy strategy and decision-making rights **of regional and local municipalities can confine or hinder mining activities and safeguarding of mineral resources.** • **Global environment and heritage protection tendencies are against industrial activities.**
6.3 framework conditions/contextual factors	Positive aspects: **Project of Volcanic Geoheritage and Geotourism Perspectives in Hungary** (2016) aims to integrate the long interaction between society and environment among others incorporate geological and mining heritage into the geoeducational and touristic potential. **World Heritage Act: Special attention should be paid to the impact of mines, quarries** and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property. (Aspects of this aim depends on the final decision) Negative aspects: **Recent Government Decree** (485/2016. (XII. 28.)): a mining and raw material management strategy has to be prepared which will include the attempts **to reduce the impact of quarrying** as well as the **degree of exploitation** and **to move quarrying** to other parts of the country if possible. **World Heritage Act: Special attention should be paid to the impact of mines, quarries** and other mineral exploitation industries. It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property. (Aspects of this aim depends on the final decision)
6.4 Impacts achieved	• Despite of more and more strict local regulations **mining activity is still living** in the region • **Legal background prevents area from sterilization**, mineral resources are safeguarded • Ongoing **Management plan** – possibility to incorporate sustainable mining activity : https://whc.unesco.org/en/list/1063 *Based on the World Heritage Act, the appointment of a management body by the Minister responsible for culture is under way.* ***The new management plan*** *and the management body* ***will provide transparent governance arrangements with clear responsibilities****, where the different interests can manifest themselves and where the institutional framework and methods for the cooperation of the different stakeholders are available. The overall aim of the management* ***is to maintain and enhance the environmental, social as well as economic conditions****. The living cultural landscape must remain an asset for the benefit of the sustainable development of local communities.* ***Once the Management Plan is approved and finalised, the revision of the boundaries of the property and its buffer zone shall be considered****, in order to enhance the integrity and the appropriate protection of the property****. Special attention should be paid to the***

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	impact of mines, quarries and other mineral exploitation industries. *It is important to carry out a comprehensive conditions review and impact assessment on the effect of mines on the Outstanding Universal Value of the property.* • **Dissemination and integration**: In protected areas (e.g. geoparks, UNESCO sites),the identification of the different aspects of geoheritage site values is part of a holistic concept of protection, education and sustainable development. **Project of Volcanic Geoheritage and Geotourism Perspectives in Hungary** (2016) aims to integrate the long interaction between society and environment and gives a peculiar connection among others between geological and mining heritage into the geoeducational and touristic potential of the area. https://www.youtube.com/watch?v=8kJup92vpT0 https://www.youtube.com/watch?v=4Jc2NY4mV2Q https://www.youtube.com/watch?v=eSLERkABp2U https://www.youtube.com/watch?v=K-IgDcGHqAw https://www.youtube.com/watch?v=UqWLEF9uEbk

ANNEX 1. Survey

Table 314- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	Land use plans are legally binding in Hungary. National and regional concept.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	According to the Act. No. 218/2009 Government Decree time frame of land use plans can be a) short (2 years), b) middle (7 years), c) long (14 years), d) extra long (20-25 years). Renewals and reviews are related to the end of these periods.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	Yes, it is possible. In case of change 90 days are provided to record it into the national land use database. Necessary steps – An area can be designated as 'mineral resource area' in case that it has mineral resources recorded in the National Mineral Resource Inventory. It means that the area was subject of reconnaissance or it has been explored and resources were calculated. These areas can be covered by mining plots (including active, suspended and closed) or can be free areas (exploration area). Therefore the 'mineral resource area' designation is independent of the permitting process in Hungary. Only one restriction exists – before starting mineral exploitation , the operator applies for the approval of the 'Technical Operational Plan' (TOP) to the Mining Departments of Government Offices. It gives permission only in that case if the area has been designated as 'mineral resource area'.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed , in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	According to the Act No. XXVI. 2003 on National Land Use Plan, (so called 'mineral resource areas') minerals designation are included in the land use plans of counties and special regions. The mineral resource areas should be taken into account during developing land use plans; and can be used only in a way which does not make impossible their future extraction (top-down approach) On local level the local governments can decide about a mineral development however it must be in accordance with regional and national plans, policies and strategies. On local level databases include more data (exploration, feasibility etc,.) for mineral deposits that can be considered in local land use plans.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding	The designation of areas for minerals (so called 'mineral resource areas') is equivalent to mineral protection, however there are higher priority

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	land uses that can hinder the extraction. These are Natural Areas protected by a specific law (the Act on nature conservation No. LIII. of 1996) as national parks, landscape protection areas and nature conservation areas. In all other cases limitations are partially and final decision could be influenced by other decisions also (e.g. local priorities, public hearing, etc).
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))*	There is not coexistent land use in case of mining activities in Hungary. Pre-exploration and exploration activities are independent of land use (except environmentally protected areas). It can be permitted with special limitations (e.g. seed-time and harvest in case of agricultural areas, reproduction or sitting period is case of protected species or environmental/climate specific periods as flooding, drought etc.). Mining activity can proceed on an officially designated mining plot. The currently active excavation area of the minig plot is designated as excluded area in the local land use inventory.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	Designation of land use for minerals cathegory does not preclude other land uses however they should be taken into account during developing land use plans; and can be used only in a way which does not make impossible their future extraction or it can be redeem them.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	The Act No. XXVI. 2003 on NATIONAL LAND USE PLAN aims to determine the land use planning conditions of each region of Hungary, the aligned spatial system of technical and infrastructural networks considering sustainable development and the protection of regional, landscape, natural, ecological and cultural values and resources. So called 'mineral resource areas' are included in the land use plans of counties and special regions. . These areas are recorded in the National Mineral Resource Inventory as mining plots or free (not stakeholder related) areas. The 'mineral resource areas' should be taken into account during developing land use plans; and can be used only in a way which does not make impossible their future extraction.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	Yes, it considers. The stakeholders are obligated to present a complete geological and technical plan including all infrastructure elements to the Mining Authority before any kind of mining activity (e.g. form exploration to recultivation). The Mining Authority forward it to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Both minerals and land use information systems are INSPIRE compliant. Publicly available **minerals data** are collected and managed by the State Geological, Geophysical and Mining Data Store operated by the Mining and Geological Survey of Hungary (MBFSZ). Considering accessibility, the majority of data managed by the Data Store are public. Exceptions are data classified as business secret as well as data is being used for preparation of a decision. A summary of this mineral resource inventory is available on the website of the MBFSZ. A public database including data on mining areas and exploration areas with valid permissions (name, status, type of mineral resource, owner) is also available on the webpage, as well as the maps (in pmf, pdf and kmz format). http://www.mbfsz.gov.hu/en/state-geological-geophysical-and-mining-data-store http://www.mbfsz.gov.hu/en/node/408 http://www.mbfsz.gov.hu/en/asvanyvagyon_nyilvantartas **Land use data** The TeIR (National Regional Development and Spatial Planning information system) is a web based IT system accessible via the Internet. National, regional and local organizations join the TeIR single database through the application system (user interface). The TeIR system has many applications that are not subject of registration while

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		others needed but free of charge as well. Non registration related applications can be found on TERPORT portal http://www.terport.hu/ as follows: national and regional thematic maps, reports, assessments, news, legislations, policies, methodology, glossary, EU documents, permits etc.
	3.11 Please outline the ability/capacity *(i.e. expertise)* of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks and sharing of expertise between authorities?	The Governmental Decree No. 314/2012 (XI.8.) on local spatial planning, integrated local spatial planning strategy, local land use planning tools and certain special local spatial planning legal instruments prescribes for local governments to prepare an Establishing Assessment before developing local land use plan or concept. This assessment includes information on mineral deposits and it is mandatory to send it to the Mining and Geological Survey of Hungary (MBFSZ) for review. The MBFSZ is authorized to cancel any kind of land use planning if it affects mineral resources. In this case the regional/local government may changes the plan or have an option to redeem mineral resources.
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	The Hungarian Office for Mining and Geology (MBFSZ) keeps the records of mineral resources and reserves of Hungary pursuant to provisions of the multiple amended Section 25. of Act No. XLVIII. of 1993. on mining as well as Government decree No. 203/1998. for its implementation . Balance-like registry of national mineral raw materials and geothermal resources is based on the obligatory data delivery from mining entrepreneurs as well as the resolutions issued by the Mining Departments of Government Offices. Land use planning authorities use The TeIR (National Regional Development and Spatial Planning information system)which is a web based IT system accessible via the Internet. National, regional and local organizations join the TeIR single database through the application system (user interface). This central comprehensive database (TeIR) contains all land use plan(ing) related information based on the regular, government decree-regulated, obligatory data delivery from ministries, Hungarian Central Statistical Office, authorities, governments, municipalities etc.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	The data is adapted to GIS, the TeIR (National Regional Development and Spatial Planning information system) provides files both in vector and in raster format if it is possible/available. Output formats can be: documents, reports, diagrams, maps. The Hungarian Office for Mining and Geology (MBFSZ) delivers data into the TeIR regularly as follows: data of exploration areas and mining plots, details of national mineral raw materials and geothermal resources.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	Since April 2015 regional mining authorities and several other authorities have merged to form 'Mining Departments of Government Offices' and now the permitting procedure is considered a “one-stop-shop”. Before starting mineral exploration/exploitation, the operator applies for permission to the regional Mining Departments of Government Office. It gives permission or refuses the application based on the statements of co-authorities (environment, nature conservation, soil protection, and cultural heritage inspectorates etc.), or asks for further statements. If the exploration/exploitation is conditional, the Government Office informs the operator. If the operator accepts the conditions, the Government Office designates the exploration area/mining plot. The operation can be started only if the Exploration Plan/ “Technical Operational Plan” (TOP) is approved by the Government Office. The operation can be suspended for a certain period based on the permission of the Government Office or closed down.

This project has received funding from the European Union’s Horizon 2020
research and innovation programme under Grant Agreement No 776679

The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? and which values are considered? 3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)* 3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	3.15 No, it does not. however the planned new Mining Law/Legislation may include it. 3.16 No, there are not different levels. however the planned new Mining Law/Legislation may include it. 3.17 No, they are not. however the planned new Mining Law/Legislation may include it.
	3.18 When planning, is land designation for minerals weighted and evaluated against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?* *How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	There is no specific prioritization system. If conditions are fulfilled mining activity can be permitted but if some limiting factors may influence the access to minerals probably the environmental aspects will have greater weight. Otherwise the so called limiting factors (Natura2000, incorporated areas, groundwater body, etc.) are taken into account in the 'Mining Departments of Government Office (regional/local level) based also on local decisions (municipality/ local government has opinion with public hearing).
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	The Mining and Geological Survey of Hungary (MBFSZ) keeps the records of mineral resources and reserves of Hungary pursuant to provisions of the multiple amended Section 25. of Act No. XLVIII. of 1993. on mining as well as Government decree No. 203/1998. for its implementation . The National Registry on Mineral Raw Materials and Geothermal Resources consists areas of mineral resources (including mining plots and explored areas not covered by mining plots). The MBFSZ delivers data (periodically plus in case of demand) to the authorities about these areas.
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	Yes, it is needed. Geological exploration and final exploration report with estimated mineral resources is necessary to determine an area prospective however it is not provide safeguarding automatically. Based on before mentioned results the area could be designated as 'mineral resources area' – it provides protection regarding to mineral resources.
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	No, it has not been consideret yet.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims 3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	3.22. N.A. / Specific methodology for weighting between different land use options is not known. however the planned new Mining Law/Legislation may include it. 3.23 No, there is not. however the planned new Mining Law/Legislation may include it.
	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest?	No, it is not however the planned new Mining Law/Legislation may include it.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	(i.e. prospective/hypothetical resources are excluded from safeguarding).	
	3.25 Are there and which are incentives to implement minerals into land use planning?	
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	No, they are not, however the planned new Mining Law/Legislation may include it.
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	Three laws form the main framework legislation that determines the Hungarian spatial planning system. -Act XXI 1996 on Regional Development and Spatial Planning outlines the roles of the different levels of government and their bodies for spatial development. - Act XXVI 2003 on the National Spatial Plan determines how the land-use planning system works and defines the main land-use categories that must be used in zoning plans at national and county level. - Act LXXVIII 1997 on the Development and Protection of the Built Environment contains the main elements of national building regulation. Conflict resolution mechanims can be - administrative decision - expert dialogue - court decision Legal control is implemented by local/regional Government Offices. Legal procedure can be initiated by Government Offices or even by residents. The Government Offices have rights to survey, audit, initiate an investigation, inflict a fine.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	According to the current situation environmental and heritage protection aspects have priority against mining activates in Hungary.
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	Local governments enact Settlement Structural Plans and related regulations that complement the plans. They are also the primary contact point for public engagement in the planning process. Co-ordination at the horizontal level occurs primarily through the dissemination of the spatial plans at an early stage of the planning process to a list of authorities that is defined by decree. These authorities may comment on the plans and influence their contents. Relatively few planning standards are fixed at national level.In land use planning even the smallest municipalities (local government) have wide discretionary powers. Their planning decisions may be annulled only in cases of breaking the law (central state act or a government statute). The planning process is initiated by a decision of the local elected Board of Representatives (Council). Legislation regulates the involvement of the local stakeholders: the plan should be made public. Before the adoption of the plan the Mayor of the municipality should summarise the “nswersto the expert and send it to the Regional Chief Architect who declares whether the plan is “adoptable” or not. Even if he/she has objections the local board of representatives may adopt the plan. The final legal control of the plan is performed by the County Administrative Office acting on behalf of the central state. At these offices everybody may contest the plan, but the plan – or a part of it – may be nullified only if it offends law. The final say in disputes between platforms of local and central state level democracies is that of the Constitutional Court.
	3.30 How are the results of the public participation considered in the final decision on land use planning	Planning decisions may be annulled only in cases of breaking the law (central state act or a government statute).

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No 776679

	(i.e. do they simply influence the decision or bind the decision)?	Before the adoption of the plan the Mayor of the municipality should summarise the "nswersto the expert and send it to the Regional Chief Architect who declares whether the plan is "adoptable" or not. Even if he/she has objections the local board of representatives may adopt the plan.
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	Several Act. and Government Decrees legislate the procedure of designation for protection areas, the types and rules of protected areas including national park, landscape conversation area, Natura 2000, etc.). Mining activity inside protected areas is not prohibited (except in case of highly protected areas) however, during the permitting procedure the relevant authorities should be involved as co-authority. Highly protected natural areas as national parks, landscape protection areas and nature conservation areas protected by a specific law (the Act on nature conservation No. LIII. of 1996) and it precludes permitting of any kind of new mining activity (still existing ones are not affected retroactively).

Table 415: Survey for case owner. This part is addressed to the company, in case of a permit application or concession; or to a local dev. authority, in case of regional planning cases….

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
4.1 Is the permitting process dependent on EIA? at what stages and what is included?	no	The mining activity started in 1959 in that time – during Soviet era industrialization of the country was forced – it was not necessary any kind of permitting processes the state decided about all type of investment.	Between 2001 and 2006 only a consent was necessary from environmental authority for exploitation. Since 2006 EIA is a requirement for exploitation.	The querry is not affected it for the time being however all post closure management/rehabilitation provides a comprehensive permitting process including EIA by the law.
4.2 Is there any assessment of the mineral resources value (economic interest)? Are international reporting codes for classifying mineral resources being used.	Any assessment of the mineral resources value is not part of the current Hungarian system however national Russian based classification system is in use can be converted into international ones			
4.3 Is there a formal decision-making / administrative process to assess the final use / designation of land? 4.4 How is transparency in the process implemented *? (i.e. how are decisions communicated publicly, do authorities have to respond to…)*	4.3 it was not necessary any kind of permitting in that time (see answer 4.1) 4.4 it was not necessary any kind of permitting in that time (see answer 4.1)		4.3 According to current system deignation of land use is regulated by law. Mining activity can proceed on an officially definded mining plot with a valid Technical Operation Plan (TOC). The area of minig plot and TOC are redorded in database of local government. The currently active excavation area of minig plot is designated as excluded area in the local land use inventory.	4.3 The Mining Authority forward rehabilitation plan to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities. During post closue and rehabilitation permitting phase the local government has the rights to suggest prefred future land use designation.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			The Mining Authority forward the Technical Operational Plan" (TOP/MÜT) to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities. 4.4 Transparency of the process is provided by the law which includes mandatory public information and, collect and take into consideration of comments. The planning process and final decision as well is initiated by the local elected Board of Representatives (Council). Legislation regulates the involvement of the local stakeholders: the plan should be made public.	Waste management 4.4 Transparency of the process is provided by the law which includes mandatory public information and, collect and take into consideration of comments.
4.5 Does the application/case refer to an area addressed for minerals as a primary priority? If Yes, what are the possible secondary/coexistent uses? If Not, what is the primary use?	There is not coexistent land use regarding to any kind of mining activity in Hungary. The area addressed as so called 'mineral resources area' which is the first requirement for establishing a mining plot. Within the existing mining plot the effectively active excavation area is addressed as excluded area.			
Regarding the case study data, are these INSPIRE compliant? If yes, which kind of data and are public available and where?			Majority of the case study data is INSPIRE compliant. Public available data is: *area of mining plot (name, status, type of mineral resource, owne) as well as the maps (in pmf, pdf and kmz format) furthermore resources, reserves and production data* in the National Registry on Mineral Raw Materials and Geothermal Resources plus on the webpage of MBFSZ http://www.mbfsz.gov.hu/en/node/408 http://www.mbfsz.gov.hu/en/asvanyvagyon_nyilvantartas	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

			The TeIR (National Regional Development and Spatial Planning information system) is a web based IT system accessible via the Internet. National, regional and local organizations join the TeIR single database through the application system (user interface). The TeIR system has many applications that are not subject of registration while others needed but free of charge as well. Non registration related applications can be found on TERPORT portal. https://www.teir.hu/ Integrated land use development strategy of Pálháza http://www.terport.hu/webfm_send/3735	
4.6 Before the case, was the land assigned to a different land use? If Yes, how and how long was the process to change the land use? A regular part of the application process or during the periodic land use review process or an exceptional modification process?	it was not necessary any kind of permitting in that time		Yes, it was designated as mining plot	not relevant regarding to the case
4.7 Which have been the positive aspects perceived relatively to the case by the community? what have been the concerns?[3]	not relevant regarding to the case	not relevant regarding to the case	The quarry provides long-term job opportunity to employees from 9 surrounding settlement Corporate tax gives 2% of local budget The Ltd is the sponsor of all local events in above mentioned 9 settlements Thers is not any conserns	not relevant regarding to the case
4.8 If it was necessary to change the type of land use to be according to mineral land use, was there the need for implementation of additional land use	not relevant regarding to the case	not relevant regarding to the case	No, it was not.	not relevant regarding to the case

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

regulations? If Yes, please explain.				
4.9 If it was necessary to change the type of land use to be according to minerals use, which were the actions adopted in dealing with landowners and the society in general?	No		No	not relevant regarding to the case
4.10 Which were the benefits and costs to the communities from the boosting of new activities?	not relevant regarding to the case	not relevant regarding to the case	Benefits see above (4.7) There were not any kind of costs – it was financed by the state in 1959	not relevant regarding to the case

Table 5: The case analysed by the point of view of the communities, stakeholders, addressed to associations

	Pre-Exploration/ Planning phase	**Permitting phase for exploration and prospecting**	**Permitting phase for exploitation**	**Post closure management/ Rehabilitation**
5.1 Is there a formal decision-making / administrative process to assess the final use / designation of land? 5.2 How is transparency in the process implemented ? *(i.e. how are decisions communicated publicly, do authorities have to respond to…)*	not relevant regarding to the case	not relevant regarding to the case	5.1 According to current system deignation of land use is regulated by law. Mining activity can proceed on an officially definded mining plot with a valid Technical Operation Plan (TOC). The area of minig plot and TOC are redorded in database of local government. The currently active excavation area of minig plot is designated as excluded area in the local land use inventory. The Mining Authority forward the Technical Operational Plan" (TOP/MÜT) to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities. 5.2 Transparency of the process is provided by the law which includes mandatory public information and, collect and take into consideration of comments. The planning process and final decision as well is initiated by the local elected Board of Representatives (Council). Legislation regulates the involvement of the local stakeholders: the plan should be made public.	5.1 The Mining Authority forward rehabilitation plan to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities. During post closue and rehabilitation permitting phase the local government has the rights to suggest prefred future land use designation. 5.2 Transparency of the process is provided by the law which includes mandatory public information and, collect and take into consideration of comments.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

5.3 At what stage(s) is the community/ interested/affected parties involved? How have you been involved, was the level of involvement considered appropriate? a. How were the results of the participation process considered in the decision making?	it was not necessary any kind of permitting in that time	it was not necessary any kind of permitting in that time	Perlit-92 Kft (Ltd) owns two quarries. The second one was opened in 2006. The community was informed and their comments were collected and recorded by local government in accordance with legal process. The quarry opening was accepted well by local community because the Ltd.'s interest to meet the need for the community.	not relevant regarding to the case
5.4 Was the project well accepted by the local communities - Which have been the concerns relatively to the case? what was well received?	it was not necessary any kind of permitting in that time	it was not necessary any kind of permitting in that time	Opening of a second quarry was accepted well by local community because the first quarry which has been working since 1959 is accepted. It's activity is related to the everyday life - we can say traditionally, used technologies are well known. It is a small community where people knows the management and employees furthermore the Ltd is one of the main employer in the area.	not relevant regarding to the case
5.5 Which were the benefits and costs to the communities from the boosting of new activities?			The new quarry provides further job opportunities Corporate tax increased the local budget The Ltd is the sponsor of all local events of settlements They support sport activities and opportunities as well	not relevant regarding to the case
5.6 Are there any mandatory/voluntary compensation measures foreseen in the framework legislation procedures? a. If yes, please explain Are these perceived as adequate? b. if not , please explain why	it was not necessary any kind of permitting in that time	it was not necessary any kind of permitting in that time	No, it was not necessary because the area is owned by the Ltd	not relevant regarding to the case
5.7 Were any mandatory and/or voluntary compensatory measures taken? a. If yes, please explain. b. Were these perceived as adequate by the company and by those compensated?	it was not necessary any kind of permitting in that time	it was not necessary any kind of permitting in that time	No (see above)	not relevant regarding to the case
5.8 How are different policy priorities weighed	it was not necessary any kind of	it was not necessary any kind of	In this case the primarily problem is related to	not relevant regarding to the case

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed	permitting in that time	permitting in that time	environment/nature protection tendencies/regulations and public administration issues. Mining area of one of the quarries was decreased by half in 2009 due to environment protection reasons and it hinders the exploitation of significant amount of Perlite. Expansion of mining area in case of another quarry has delayed for years due to administrative reasons (the potential area has numerous land owners and this fact decelerates the permitting process significantly. The Ltd executed an exploration programme and they identified a further Perlite resource area however the exploitation was not permitted due to environment protection reason.	
5.9 How important are mining/mineral issues as compared to other local policy *priorities (e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)?E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.?*[3]	it was not necessary any kind of permitting in that time	it was not necessary any kind of permitting in that time	Mining issues less important compared to environment/nature protection priorities. Exploitation activities with valid Technical Operation Plans is protected by law however getting a new permission has became more and more difficult.	not relevant regarding to the case

"Minerals management" areas are involved / taken into consideration on regional levels. Specific decisions are taken in Government Offices about the permission for exploration and exploitation of a mineral occurrence/deposit. Top down approach / bottom up approach.

The Mining Authority forward exloration plan to other co-authorities for make a statement. Final permission may provide if plan is approved by all co-authorities.

Attachements:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

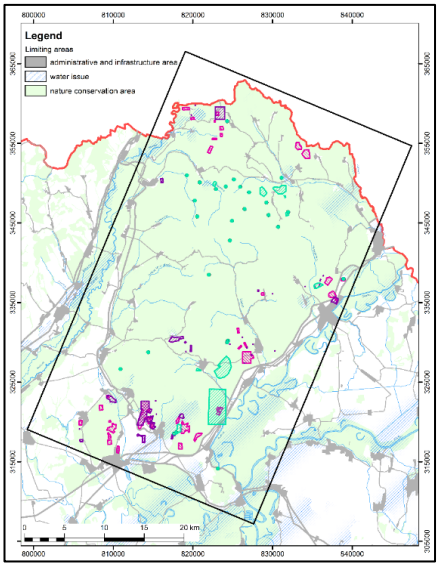


Figure 1. Limiting areas within case study area

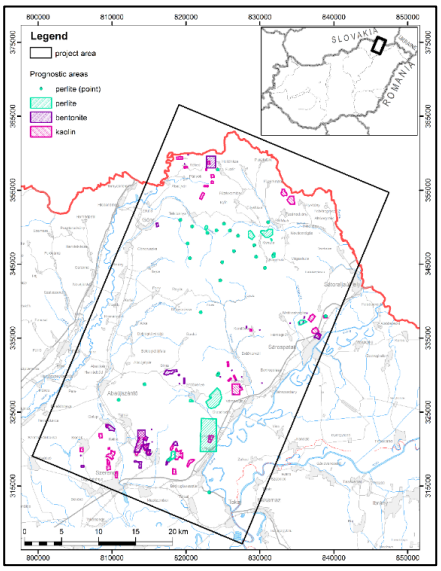


Figure 2. Prognostic areas and mining plots within case study area

Annex 15 Case Description Greece - Bauxite mines in Fokis

Case Study Identification

BAUXITE MINES IN FOKIS, REGION OF STEREA ELLADA	
GREECE	
NTUA	
Type of mineral resources? (distinguish primary commodities and associated commodities ; e.g. primary: kaolin, sub-product: silica sand; primary: Cu & Zn, sub-product: Au, Ge). Are the minerals (elements) part of the EU CRM list of 2017?	Bauxite deposits of European Importance
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	All
Is the case about open-pit or underground mining, both or not applicable?	Both
Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	The case is of national importance if not of international. Bauxite deposits are of European importance, owned by the state and are mined by private companies. The mine sites are located in close proximity to the archeological site of Delphi, of some national parks and other environmentally sensitive protected areas (SCI, SPA etc., as well as to the dam and the canal of Mornos that supplies the city of Athens with potable and irrigation water.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Extents of the project (km2) or not applicable?	Concessions for the exploitation of bauxite deposits cover more than half of the Fokis prefecture (see attached map). Exploitations are scattered over this area.
Company or companies involved (identify) or Not Applicable?	Three private companies are actually involved: IMERYS, ELMIN, DElPHI DISTOMON
Are the mineral resources private and/or public owned?	All metal ores are state owned in Greece, but their exploitation is conceded to private mining companies

Case study description

The case of bauxites' extraction in Fokis prefecture presents a different aspect of the relationship between the minerals industry and land use planning than that of the quarry zones. The designation of the latter is the only example of mineral exploitation zones in the country until now They regard a very common material that has to be extracted near urban or urbanised areas for the development of infrastructure works and other constuction works, including housing. Thus, land use implications relate to the above characteristics.

Bauxite extraction in Fokis takes place over a much extended area. The Bauxite ROM ore is transferred and feeds the alumina plant, the only plant of this kind in Greece and one of the major aluminium plants at European scale. The bauxite deposits are state owned but their exploitation is realised by three mining companies and is ruled by the Mineral Code (MC) dispositions. Despite the large rights conceded to mining companies by The MC open pit mining excavations have been prohibited recently because of restrictions imposed to numerous land uses (not only to mining) for the protection of the Delphi archeological site and landscape, for environmentally sensitive areas (national parks, Natura areas etc) and of the Mornos water resources that supply the capital.

The neighbouring of many competing land uses had significant impacts on land use planning policies in the Region of Continental Greece (Regional Spatial Plan under revision) and the terms and conditions for the licensing of the individual mines. In the new Regional plan, designation of mining zones is not envisaged, despite the importance of these Mineral Raw materials.

To summarise, the two Greek case studies present two totally different aspects of the relationship between minerals industry and land use planning that should be examined simultaneously, in order to fully elucidate the situation in Greece.

Table 3- Part of the SURVEY to the AUTHORITIES/ and industry or industry's representative relevant for the CASES – Case of Bauxide- Fokis

	Analytical Criteria	
	3.1 Are land use plans legally binding or simply indicative?	In the Greek spatial planning system national and regional plans are rather indicative. Nevertheless, land use plans applied at local level are legally binding. This category comprises plans that are approved by Presidential Decrees. But, it shall be noted that only a part of the Greek territory is covered by formal land use plans.
	3.2 Usually, land use plans are subject to periodic review processes. What is the duration between reviews? Which are the reasons for renewal?	The formal duration between reviews is 5 years for General Town Plans. But, in reality, this provision is rarely respected and time periods are much longer. Land use plans, namely Zones for Land Development Control enforced in the 70s and 80s are still in force with minor revisions. The main reason for renewal is the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

		prospect of new developments that are not provided by the current land use plans. Thus, the plans are revised in order to include the new land use.
	3.3 Is it possible to change the land use designation (e.g. from non-minerals to minerals designation) outside that periodicity? If YES, how long does it usually take? What are the necessary steps? Is this part of the process before exploration/extraction or part of the permitting process?	If a formal land use plan is in force the change is not possible earlier than 5 years from the date of his enforcement and it needs the consent of the Council of the State. In this case, the duration of the revision is long since it implies the procedure for revision of the plans. Normally, because of the lack of land use plans, the land use designation is part of the permitting process, namely of the approval of environmental conditions. The first step for this procedure is the submission of an application accompanied by an EIA study to the administrative services with the delegated powers to grant the permit. The duration of the EIA permit is about 4 years. The allocation of extraction rights is a different procedure, practically independent from land use designation. Its only concern for other land uses is the safety of residents and workers. Thus, it only provides for minima distances from settlements, infrastructure facilities etc.
	3.4 Is the protection or safeguarding of minerals mandatory, optional or not addressed, in the land use planning process? If it is optional, please describe what influences the decision and who makes the decisions	According to spatial planning methods and principles all available resources have to be considered during the elaboration of plans. Besides, the Greek National Policy for the Exploitation of Mineral Resources, announced in February 2012 with the aim to secure the sufficient and constant supply of MRM to the society and ensure their use for the longest possible time, should be taken into consideration by spatial planners. But the extent to which land use plans address the protection and safeguarding of minerals depends to the attitudes of public opinion, state agencies and politicians.
	3.5 Is the designation of areas for minerals equivalent to mineral protection or safeguarding areas *(i.e. where there is inhibition for land uses that can hinder the extraction of minerals)* - explain?	Normally, the designation of areas for minerals is equivalent to protection and safeguarding of minerals. But such areas are not provided yet by land use plans. The only cases in force are the Quarries' Zones for the extraction of aggregates but they are enforced by special procedures (not through the formal spatial planning system). The designation of areas for minerals can take place either through the spatial planning procedure or through the permitting process. In the first case, two types of areas are provided by the Law on Spatial Planning: areas for exclusive use (where other land uses are excluded) and areas of main use (where other activities can also develop). Since these possibilities have not yet any practical results, the designation of an area for minerals is possible only by granting the necessary permits. The permits define the terms and conditions under which the extraction can take place and the relation with other land uses.
	3.6 Does land use planning consider the possibility of coexistence of multiple land uses relatively to the different stages of the minerals value chain? *(Explain the stages that allow it. Explain which kind of coexisting activities can be performed and if they would be changing their status from complementary*	In principle, other activities can coexist with minerals'exploitation if they are related to the operation of mines and quarries. The possibility of coexistence with other activities mainly depends on the extraction method. Underground extraction does not disturb the operation of other activities in opposition with open pit excavations. In the last case, minima distances are provided from settlements and infrastructure facilities. The distances differ regarding the legal instrument that put them into force. The Regulation of Mining and Quarrying Works provides for minimum distances between open pit excavations or industrial units and the houses or public interest infrastructures and facilities. The legislation for towns and settlements prohibits the location of disturbing activities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	to conflicting during evolution of the site (pre-exploration, exploration, exploitation, rehabilitation))	(namely industrial and extractive) inside and around settlements at distances that vary between 250m and 1km depending on the population size of the town or settlement. All the above mentioned obligations must be respected from the beginning to the end of operation of the minerals area.
	3.7 Does land use for minerals preclude other land uses? If Yes please explain (e.g. a mining concession may preclude other uses, but an exploration permit area does not)	A mining concession does not preclude other land uses given that it concerns underground rights and because of his extent (50km^2). Exploration works have to respect distances from other land uses as mentioned above.
	3.8 Which kind of tools and at which level safeguarding of minerals in land use planning are performed? (Rules, zoning, both?)	Concern for the safeguarding of minerals is mainly expressed at national level: a) The General Framework for Spatial Planning and Sustainable Development or the National Spatial Plan is up to date the most important legal tool for the extractive industry. b) The Specific Spatial Plan for Industry contains also provisions supporting the extractive sector. The Regional Plans aim to provide strategic guidelines for the spatial development of productive activities but they have not offered adequate solutions for the safeguarding of minerals. The local plans that have the role for organizing land uses, in principle avoid addressing the issue of minerals'areas. This may be attributed to local resistance against extraction activities. Thus, safeguarding of minerals is effectuated through the sectoral legislation, namely the Mining Code and the legislation on marbles, industrial minerals and aggregates.
	3.9 Does the permitting process consider the mining infrastructures/"Annexes" (buildings, tailings, roads, etc.)? if yes at which stage of prospecting/extraction and through which means. If not, explain.	It depends on the petitioner of the permits if he includes mining infrastructures or not. It seems simpler to apply for the whole of the future works and facilities but sometimes it is risky to embrace installations of higher disturbance. Public resistance against them may block the whole development.
	3.10 Regarding the minerals information system and land use information system, is data INSPIRE compliant[1]? What type of information *(i.e. land use data and raw materials data*) is publicly available and where?	Until now there is no information system for land use information.
	3.11 Please outline the ability/capacity *(i.e. expertise*) of land planning authorities for integration of mineral resources in the process of land use planning *(i.e. inter-disciplinary teams available, including geologists, technical support from other organisation departments/public administration)*, networks	Spatial planners always work in inter-disciplinary teams. Especially, the involvement of geologists in General Town Plan (land use plans) is mandatory, but their role is centred in avoiding geological risks in settlement areas. In general, planners and planning authorities are not familiar with issues related to the spatial behaviour and needs of the extractive industry. Due to this cause, the Special Spatial Plan for Mineral Resources is under way.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	and sharing of expertise between authorities?	
	3.12 Are there specific data-sharing or governance mechanisms for exchange of information between geological surveys, mining authorities and land use planning authorities? Please specify.	Only through collaboration of different state agencies.
	3.13 Is there adequate expertise involved in the land planning for minerals including data and tools: Are there specific GIS tools assisting the mining and land use planners? Is data adapted to GIS?	All spatial plans use GIS tools. Data on minerals are provided by IGME and the departments that hold responsibilities for minerals in the Ministry for the Environment and Energy.
	3.14 Is there a one-stop-shop for permits? If No, which are the obstacles? How is the one-stop shop organised? What are reasons in favour/against one stop shops	There is not a one-stop-shop for permits, even if it is a permanent request of investors. The main reason for this lack is the complexity of legislation, the involvement of numerous licensing agencies and the complicated organisation of their competencies. The task of revising all of them is huge and entails political risks.
The Value	3.15 Does the land use planning process designate areas for minerals considering the value of the minerals? And which values are considered?	Until now the land use planning system does not designate areas for minerals extraction but their location is possible in areas with compatible land uses (forest areas, agricultural etc). If such areas would be designated, they had to conform to the Greek mining laws, which are based on a classification of the various mineral resources in distinct categories, according to their economic importance, applications and the technical characteristics of each group. The classification distinguishes metallic ores, industrial minerals, marbles and aggregates. Ore mining is of public interest and it may have priority over land property and other land uses. On the contrary, quarrying is merely considered as a common economic activity that has to take place under market conditions. Until now there is not detailed classification in spatial plans. Registration of mineral resources is indicative and qualitative.Only mining concessions and extractive areas in operation (mines, quarries, quarries' zones) are reported on the maps. Detailed
	3.16 Are there different levels of reflecting the knowledge of the minerals *(i.e., is an area prospective (might have valuable minerals), is the deposit delineated, is it prospected etc.)*	
	3.17 For prospected deposits are they determined according to the international reporting codes for classifying mineral resources? If Yes, please specify. Is the information on prospected deposits is publicly available and describe how it is used by different authorities	IGME
	3.18 When planning, is land designation for minerals weighted and evaluated	Spatial planning always weights and evaluates between different land uses. Specific evaluation criteria are not explicitly defined but are the same for all

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	against other land uses? How important are mining/mineral issues as compared to other local policy priorities *(e.g., GDP growth, environment, housing, social/cultural, landscape/nature protection)? E.g. how are benefits and costs to the communities and environment evaluated when designating areas for minerals but also with respect to the societies need in terms of raw materials, jobs, stronger economy, etc.? How are different policy priorities weighed against each other and discussed in decision making, which evaluation criteria are used in the decision making process and which kind of data and information are often needed?*	productive activities. Even if different economic and social indicators are used, the evaluation is mostly qualitative and depends on public opinions' motivations.
The importance	3.19 Which geological information is used by the authorities to decide whether an area has geological potential?	IGME
	3.20 Is there a need for new geological information in order to determine if an area/region is prospective, if there are unknown deposits?	IGME
	3.21 Is EU critical raw materials list being considered in land use planning and permitting decisions? If so how?	Normally, according to the National Policy for the Exploitation of Mineral Resources it has to be considered. But, the recent Regional Plans that are in process of endorsement prove that no specific considerations are available for critical raw meterials.
	3.22 Is there any assessment of the mineral resources so that it can be weighed against that of other natural resources? If Yes, please explain. Are there procedures identified to decide relative priorities of mineral resources compared to other policy aims	The mineral resources assessment is mandatory in spatial planning according to the National Policy for the Exploitation of Mineral Resources but there are not procedures identified to decide priorities between different land uses.
	3.23 Is there explicit weighting of mineral resources/objectives in terms of coordination, harmonization or priorization? please describe.	In principle, explicit weighting is not forwarded.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	3.24 For the protection or safeguarding of minerals, is it mandatory to have some kind of assessment of their importance or socio-economic value/interest? *(i.e. prospective/hypothetical resources are excluded from safeguarding).*	The importance of minerals is judged at national level and presented in sectoral legislation, which is based on a classification of the various mineral resources in distinct categories, according to their economic importance, applications and the technical characteristics of each group. The classification distinguishes metallic ores, industrial minerals, marbles and aggregates. Ore mining is of public interest and it may have priority over land property and other land uses. On the contrary, quarrying is merely considered as a common economic activity that has to take place under market conditions. Nevertheless, the formal classification and legislative management of the minerals does not imply safeguarding of the resources.
	3.25 Are there and which are incentives to implement minerals into land use planning?	Incentives to implement minerals into land use planning are not provided.
	3.26 Outside of exploration areas, are the prospective/hypothetical resources safeguarded? If Yes, how?	There is no legal protection regime for hypothetical resources. Other land uses can develop in places with mineral potential.
Community	3.27 Does the legal framework foresee land use conflict management procedures? If yes, describe	No. Conflicts are mainly regulated through safety distances between incompatible land uses.
	3.28 Which are the factors - from the most important to the least important - that influence land use designations?[3]	
	3.29 Has civil society including mining stakeholders been engaged in land use planning? If Yes, at what level (national, regional, local), at what stage of the process and is it mandatory? If No- why not? How are they involved in the planning process and in the decision making? (is it consultation, information, partnership, community control? – describe how procedures are set up and how are different actors involved)[2]	All levels spatial planning implies procedures of public consultation. The plans themselves are subjected to public consultation according to the article 6 of the L. 4048/2012 (G.G. 34A). State authorities and the public (mining stakeholders included) can express their opinions for the plans. Spatial plans are accompanied by Strategic Environmental Assessment Studies, for which public participation procedures are also mandatory according to the relative EC Directive.
	3.30 How are the results of the public participation considered in the final decision on land use planning *(i.e. do they simply influence*	All opinions expressed during the public consultation procedure have to be registered, evaluated and eventually integrated in the plans (if judged worthy for integration).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

	the decision or bind the decision)?	
	3.31 How are environmental designations *(e.g. Natura 2000 sites), water protection areas, etc. dealt with? E.g. do they override all other possible uses of land or admit the coexistence with safeguarding of minerals?) (i.e. admits the coexistence of extractive activity)*. Which conflicts are occurring and how are they managed/mitigated? Who is involved in the conflict management?	In principle, environmental designations do not exclude other land uses. Detailed studies have to identify areas where and to what intensity other land uses can develop.

Note 1:INSPIRE Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), entered into force on the 15th May 2007 and requires to be fully implemented by 2021.
Note 2: definition of consultation, information, partnership, community control**Level of Participation according to** (Arnstein 1969, Hamdi & Goerthert, 1997; Wates, 2000, Horelli 2002). **Consultation**. Authorities are in charge of the project, but they ask opinions about the presented. The role of the community is that of an interest group **Information**: Authorities are still in charge, but one-way flow of information exists either as in-forming or retrieving data from the public, for instance, through surveys. The community is treated in the abstract. **Partnership**. Shared working and decision making with the authorities (not necessarily politicians in formally regulated planning cultures). The role of the community is that of stakeholders who have a stake in the project. **Community control**. The community (users and residents) decides and the experts or practitioners are used as resources
(Internal use - note 3: Answer 3.28- important to maintain during evaluation of the answers the knowledge of the person who answered, keep the answers disaggregated.)

Annex 16 Case Study in the Netherlands

Deregulation of aggregate supplies in the Netherlands: rational or fashionable?	
Netherlands	
TNO Geological Survey of the Netherlands	
Type of mineral resources? (distinguish primary commodities and associated commodities ; e.g. primary: kaolin, sub-product: silica sand; primary: Cu & Zn, sub-product: Au, Ge). Are the minerals (elements) part of the EU CRM list of 2017?	Aggregates
Is the case about exploration/undiscovered resources, exploitation, rehabilitation or about pre-exploration legislative land use planning procedures encompassing all the stages?	No
Is the case about open-pit or underground mining, both or not applicable?	Yes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

Which is the scale that the case addresses: local, regional, national, transboundary, multi-scale or other?	National
Extents of the project (km2) or not applicable?	101.500 km²
Company or companies involved (identify) or Not Applicable?	Not applicable
Are the mineral resources private and/or public owned?	Private for superficial mining, mineral occurrences at depths > 100m are state-owned

Case study description

This case study describes a shift from national production regulation of construction aggregates towards a laissez-faire system, which occurred in the Netherlands in the early 2000s. The national government had planned the production of certain types of sand for 20 years, effectuated through regional permit quota, in order to keep production at the level of national demand. It was then decided leave the responsibility to keep up supplies to the private sector. The two consecutive approaches actually represent the far ends of the policy spectrum (economic liberalism – interventionism), which would normally have to be compared by studying two or more countries. The Dutch shift allows for a *ceteris-paribus* comparison, which has the additional advantage of being well-documented and clearly reflected in statistics

Land use planning in the Netherlands

Dutch land use plans planning is governed by the Spatial Planning Act (Wet Ruimtelijke Ordening), which is to be replaced by a new Environment and Planning Act (Omgevingswet) by 2021. This new act sets out to combine and simplify regulations for spatial / land use projects. Neither the old, nor the new regulation specifically addresses mining in the way Minland envisages. The Netherlands does have a mining act, which however only governs the exploration and use of the deep subsurface. It mainly concerns the extraction of hydrocarbons (primarily gas) and salt, as well as emerging and future subsurface use such geothermal energy production and storage of for example CO_2, which is not mining proper, and falls outside the scope of the Minland project.
Municipalities draft spatial plans for built-up areas, and provinces for open areas, where nature and agriculture are the most important land uses. The national government drafts structure visions, which are a broad-stroked frames of reference providing planning guidance to local and regional spatial planning authorities. For obvious reasons, provinces form the most important public stakeholder group when it comes to (superficial) mining activities. The State used to bring in the (national) interest of minerals supplies in the permit issuing process, but later reduced its involvement, which is now limited to issuing permits for state waters.

A brief history of minerals planning in the Netherlands

The Netherlands hasn't had underground mining since the closure of the coal mines in the southeastern province of Limburg in 1975. The only remaining mining since is the superficial production of aggregates (mostly dredged, occasionally quarried), clay (quarried, mostly very shallow), silica sand (quarried) and limestone (quarried). Superficial mining is not governed by the mining law, but the minerals extraction law (Ontgrondingenwet, which could also translate as 'excavation law').
By the mid-1970s, supplies of construction materials became a matter of national concern. The problem was taken up by the Minister of Transport, Public Works and Water Management. He installed a National Commission for the Co-ordination of Mineral Planning Policy, consisting of representatives of the permit-issuing authorities, being the provinces for land-based extraction and the State for state waters (e.g. the North Sea). In 1981, a set of provisional agreements was reached between the national government and provincial administrations on the extraction of aggregates and clay. A policy document issued in 1983 outlined problems and set objectives for the Dutch building

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

materials supplies over the long-term, preparing for national mineral policy plan, which stated that production of superficial mineral resources required planning and co-ordination, and that mineral planning should be integrated in other policy fields, especially spatial planning. The policy from then on, even though its wording and legal status changed in later issues, aimed at a sustainable exploitation of surface mineral resources to meet the demand for construction and building materials, at an economical use of materials, and maximum use of renewable, secondary and sea-won materials. The Mineral Extraction Law was changed accordingly: the 1994 amendment arranged for national co-ordination and for the embedding of mineral planning into spatial planning.

Production regulation...

One of the important policy instruments was production planning. To this end, three categories of commodities were distinguished. The production of nationally abundant materials, such as (fine) filling sand and clay, were not considered to require national planning and co-ordination. The involvement of the national government was limited to monitoring, aimed at an early identification of supply problems. The extraction of nationally scarce materials, was either to be reduced to a level of regional self-supply (gravel), to be phased out eventually (carbonates), or to be maintained at low levels (silica sand). Concrete and mortar sand is a regionally scarce commodity. In order to meet the national demand assignments, i.e. amounts of sands for which permits are to be granted, were negotiated between national and provincial governments. Up to 1998, the assignments for concrete and mortar sand added up to the approximate level of the national demand. For 1999–2008, the authorities agreed on an underproduction of about 20%, in order to stimulate the use of secondary alternatives (Anonymous 2001).

…and its abandonment

Because of budget cuts, the Ministry of Transport, Public Works and Water Management decided in 2002 to take on a lesser role in mineral planning. Regulatory policy elements, especially the production planning for concrete and mortar sand, were subsequently abandoned. Since then, superficial mining became simply one of many interests that were to be weighed in spatial planning. All environmental considerations kept being in effect, but the government abandoned production regulation.

Site level considerations

Individual superficial mining projects are currently evaluated in two ways. Mineral extraction and related planning and/or permitting policies are subjected to EU-defined environmental impact assessments. Less straightforwardly, the site selection process should be compliant with a policy favouring to combine extraction with other activities. The strategy has worked well for clay, which became coupled with nature development, and filling sand, of which significant amounts are obtained from navigation channel and seaway maintenance. Policy favouring sea-bed extraction in general has resulted in a gradual increase of the share of sea-won sand in the filling-sand provision from 1980 to date. In fact, hardly any land-won filling sand is currently used in the coastal provinces, releasing land use pressure in the densely populated Dutch lowlands.

Water engineering works are probably the best types of projects in the Netherlands for embedded aggregates extraction. The combination of sand and gravel extraction and widening of the Meuse river, with huge potential yields, has suffered from a difficult co-operation between river managers and the extractive industry in the planning stage. It is as yet unclear what the aggregate yields will amount to. Probably as a result of this, the embedding concept has become less popular, and have not been incorporated to the fullest extent in plans to widen the Rhine.

Public participation / engagement

Just as for any other significant landscape intervention, the Minerals extraction law requires the authorities to consult the general public as part of the permit-issuing process. The same applies to other permits that have to be obtained in preparation for or as part of the mining activities, such as for tree cutting, production of noise/vibration, etc. etc.. In each such case case appeals may be made, which have a great potential to slow or stall the permitting procedure. Most permit applications take 5 to 7 years, but in one notorious case it took 18 years before an application was …rejected.

Effects

In the abandoned system, (national) supply interests could supersede local / regional objections against superficial mining. Data showed that deregulation made the Netherlands less self-reliant when it comes to building materials,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776679

especially in the early stages of the new policy regime, when string increase in import volumes could be observed. Supplies were rebalanced, and the new situation seems to be that a better effort to integrate superficial mining in spatial plans pays off.

Table 6 : Identification and characterisation of case aspects relevant for peer learning and good practice learning

6.1 Key success factors	The Dutch case is not presented as a success story, but compare end members of possible policy and planning approaches that we expect govern the other cases.
6.2 Problems encountered	These questions are basically tailored to case studies focussing on single mining projects. The Dutch study doesn't concern the framework conditions to a case, it studies the framework as such.
6.3 framework conditions/contextual factors	
6.4 Impacts achieved	

This project has received funding from the European Union's Horizon 2020
research and innovation programme under Grant Agreement No 776679