MinLand: Mineral resources in sustainable land-use planning

A H2020 Project

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

Deliverable: D.5.2 Stakeholder involvement in applying a common framework on natural resources

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Terminology[1] (based on definitions in MinLand´s D3.1 and from other projects)

LAND MANAGEMENT[2]: Land management can be defined as the process of managing the use and development of land in a sustainable way. As land is used for a variety of purposes which interact and may compete with one another, all land uses should be planned and managed in an integrated manner. Land management is closely related to land-use planning.

LAND USE PLANNING (LUP): Land-use planning is the systematic assessment of land and water potential, alternatives for land use and economic and social conditions in order to select and adopt the best land-use options. Its purpose is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future.[3]

The land use planning is occurring at different administrative levels. Most commonly at regional and local level. Besides the scientific and policy dimension, it should be taken into account that making decisions about the "best" or "optimal" way of combining land uses raises fundamental and complex moral and ethical issues (see e.g. Beatley 1991, doi: 10.1016/0264-8377(91)90048-N).

MINERAL POTENTIAL AREA (MPA): In the context of this deliverable, we refer to mineral potential areas to any area on the surface delineated by the vertical projection of the geological body or its part or areas with known mineralization in the subsurface which could contain valuable minerals. The value of minerals could be expressed usually in economic matters as an amount of mineral resources (inferred, indicated, measured) or mineral reserves (probable, proved) according to codes from the CRIRSCO family (JORC, PERC, CIM, etc.) using the CRIRSCO International Reporting Template (CRIRSCO, 2013) or their equivalents according to other reporting standards (UNFC, national reporting standards, etc.). Such reports publish results of prospecting and exploration projects.

Areas with hypothetical mineral resources (areas where no deposits have been discovered yet but may be reasonably expected to exist in a known mining district (U.S. Bureau of Mines and U.S. Geological Survey, 1976) could be also considered mineral potential areas.

MINERALS SAFEGUARDING: The act, process or procedure of ensuring that places (areas) where mineral resources occur are not occupied by other uses that may prevent their future extraction. Therefore, it includes places (areas) that may be needed for mining/quarrying facilities and areas for prospecting and exploration (where geology indicates mineral potential).

MINERALS SAFEGUARDING AREA (MSA): MSAs are policy and legal instruments to safeguard areas with mineral potential (MPA) or known mineral deposits and avoid their unnecessary sterilisation by non-mineral developments.

MINERAL STERILISATION: The loss of access to mineral resources due to the use of land for the development of activities that prevent their exploration or exploitation. In other words, it is the term used when development or land-use changes take place which permanently prevent the implementation of exploration activities or extraction of minerals from the ground.

MINERAL DEPOSITS OF PUBLIC IMPORTANCE (MDOPI): From the MINATURA2020 project definition: A mineral deposit is of public importance where information demonstrates that it could provide sustainable economic, social or other benefits to the EU (or the member states or a specific region/municipality).

MULTI-FUNCTIONAL LANDSCAPES: Landscapes which serve different functions and combine a variety of qualities (i.e., different material, physical, biological and social processes in nature and society occur

[1] For more information and definitions see also: the spatial/regional planning (CEMAT Glossary, http://www.ectp-ceu.eu/images/stories/Glossary-CEMAT/Glossary-English.pdf), spatial data (INSPIRE glossary: http://inspire-regadmin.jrc.ec.europa.eu/glossary), mineral data (MINVENTORY glossary https://ec.europa.eu/jrc/en/scientific-tool/minventory)

[2] Adapted from the definition in European Conference of Ministers responsible for Spatial/Regional Planning (CEMAT), 2007

[3] http://www.fao.org/docrep/t0715e/t0715e02.htm#what%20is%20land%20use%20planning

simultaneously in any given landscape and interact accordingly); ecological, economic, cultural, historical, recreational, and aesthetic functions co-exist in a multi-functional landscape.

NON-MINERALS DEVELOPMENT: Development that is not associated with the winning (extraction) and working (processing) of minerals.

PROXIMAL STERILIZATION: The sterilisation of a mineral resource by the influence of a development adjacent to the resource. The potential for impacts on the development, through noise or dust, makes it impractical to work the mineral resource adjacent to the development.

SPATIAL PLANNING: Spatial planning refers to the methods used by the public sector to influence the distribution of people and activities in spaces at various scales as well as the location of the various infrastructures, recreation and nature areas. Spatial planning is considered a comprehensive term[4] which is not only about traditional regulatory and zoning practices of land use but means also understanding the dynamics of development, including where and when it occurs.

PUBLIC CONSULTATION: It involves actively seeking the opinions of interested and affected groups. It is a two-way flow of communication, which may occur at any stage of regulatory or policy development, from problem identification to evaluation of existing regulation, policy or decision. Public consultation is one of the forms of civic engagement in decision making within the public sector.

CIVIC ENGAGEMENT: The definition of civic engagement[5] could vary according to the context, from participation on election and decision-making or various forms of political initiatives to a very broad definition referring to any social activities as volunteering, donating money to the charity, etc. In this report it is mentioned in the sense of an active involvement of the public in decision making with respect to land use. The term civic engagement is in the text alternatively exchanged with the terms public engagement/public participation.

[4] More about the differences between spatial and land use planning can be found at: https://www.mfe.govt.nz/publications/rma/building-competitive-cities-technical-working-paper/page6.html#footnote-79

[5] the dispute about definitions of civic engagement is presented e.g. in an article of Ekman & Amnå (2012)

1 Introduction

The use of the land is an activity which overall objective is meeting the needs of society. The effect of globalization and economic development are dramatically changing the meaning and scope of society´s needs. In the history, the decision on the land use was made to meet primarily the needs of the local community. In the 21st century context, the term "society´s needs" is becoming a more global concept. Moreover, concerns about the future availability of natural resources, population growth or climate change and the stability of the naturel environment raising from global forecasts since last century (e.g. controversial *Limits to Growth* from 1972 and many others, Meadows et al. 1972, 2004) provided warnings about the urgency of the sustainability topic.

The allocation of land to different uses requires careful planning as land use practices need to fulfil at least a double function: on the one hand, there is a spectrum of practices providing critical natural resources and ecosystem services essential for modern society´s need; however, in the other hand, land use activities run the risk of degrading the global environment and endangering the stability of our natural environment. The challenge around land use planning is managing trade-offs between immediate human needs and maintaining the capacity of the biosphere to provide goods and services in the long term (Foley et al., 2005). Land use planning can be considered a 'wicked' problem, i.e. a complex, elusive problem involving multiple possible causes and internal dynamics that cannot be assumed to be linear and having negative consequences to society if not adequately handled, accelerated by a sustainability agenda on decision making (Peters, 2017; Rittel and Weber, 1973). Introducing the sustainability principle into land use decision-making can orientate such process but involves complex societal, ethical and political decision-making that requires informed discussions.

What distinguishes land-uses closely related to mineral resources to many other ones is that they are tied up to their geographical location. Naturally, the land use and decision making related to land use is a field where competing and/or conflicting interests, policy agendas, political agenda and actors' interests are emerging. Different stakeholder groups and individuals represent a broad variety of needs, values, agendas, interests, concerns and aspirations which are not always made entirely clear, cover different time horizons and changing over time. Thus, adequate engagement with different actors is necessary to reach legitimated, balanced decisions also considering a just distribution of costs, benefits and incentives (Sayer et al. 2013).

The position of mineral resources in this context has specific features. There exist several critical and conflicting factors which influence the decision-making. Similarly, as other natural resources such as water, land and soil, energy or forests, mineral resources represent natural values critical for a society development. At the same time, their natural accumulation is conditioned by unrepetitive geological processes at a certain place during the Earth´s history which makes every occurrence unique. On the other hand, their use, being conditioned by the above mentioned natural pre-disposition, is as any other economic activity, a matter of business and subject to its rules. Minerals are non-renewable resources that need to be extracted where they are found. The advantage is that, if extraction is properly done, the activity will have a temporal and intensive character, returning the land to another land use once extraction ceases and reclamation of the land is finished. However, extractive activities also run the big risk of leaving a polluted legacy if good practices are not followed, as several examples from the past attest.

Land use for mineral extraction compete with other land uses such as the urban development, infrastructure, watershed protection or tourism (see WP4) or infrastructure development which might have a high priority for local community and municipal/regional development. The designation of areas for mineral extraction need certain provisions and arrangements (e.g. buffer zones to residential areas)

that are crucial for the appropriation of different usages and functions and the spatial patterns that are emerging from this organisation. However, land-use planning activities can also result in the so called sterilisation of mineral deposits.

These issues and the assessment of whether mineral resources in general and which in particular (e.g. mineral deposits of public importance[6]) are from a societal point of view worthy of being safeguarded and how to balance it against other demands on land use, make the decision-making process complex. It requires an erudite analysis of all factors and possible benefits and risks in different time horizons as well as to hear the voice of all stakeholders. For this deliverable we have approached a sample of stakeholders to examine how they see the future development in this respect to discover possible hypothetical future scenarios and the main factors that might shape the future development of the minerals sector in Europe.

2 Objectives and methodology

2.1 Objectives

The **overall objective** of this task was to test the common framework for integrating mineral resources into land use planning developed in Task 5.1 against a heterogeneous group of stakeholders and inform the MINLAND project on how to adapt such framework accordingly.

Specific objectives were:

- To discuss hypothetical future scenarios on the future of mining in Europe and identify which are the main factors that drive such possible "futures" into one or another direction
- To identify which are the leading stakeholders needs and interests of highest importance in shaping potential future scenarios of mining in Europe
- To analyse safeguarding options for integrating mineral resources into LUP with highest acceptance and rejection by stakeholders as well as the arguments justifying their opinions

This task focused on promoting thinking about the future of mining in Europe as a way to better understand the current situation and what should be changed to encourage a wider public understanding on the need of mineral resources and the importance of safeguarding via LUP. Given the uncertainty involved in discussing potential future scenarios and the inherent complexity in land use planning practices (involving ethical and political decisions), the testing of the common framework required the involvement of an heterogeneous number of experts. It was also decided that the results of the Delphi Survey would be tested in a more homogeneous Focus Group. Details on both methods and the rationale for their selection are provided below.

2.2 Delphi Survey

A Delphi Survey can be understood as a structured communication technique that allows a group of individuals (e.g. 'panel of experts'), acting as a whole, to deal with complex problems (Toma & Picioreanu 2016). In other words, it is a way of obtaining opinions from individuals (e.g. experts on different topics) about issues where there is no or little definite evidence and where opinion is important with the aims of benefiting from the 'collective intelligence' of the surveyed group. Such type of survey provides an opportunity for experts to communicate their opinions and knowledge anonymously about a complex problem or a topic of interest, to see how their evaluation of the issue

[6] See previous H2020 project MINATURA2020 - https://minatura2020.eu/

aligns with others, and to change their opinion, if desired, after reviewing and reconsideration of the collective findings of the group's ideas (Kennedy 2004).

For this study the objective of the Delphi Survey was to collectively think and reflect about potential future developments of stakeholder needs and interests in minerals safeguarding in Europe and the drivers behind each potential future. For that we surveyed stakeholders´ expectations on future needs and interests, their possible development (realistic view, possible futures) as well as their desired future (vision) and how the different drivers behind each scenario could influence the future development of mineral resources in land use planning.

A Delphi survey was chosen as a suitable method to achieve the previously mentioned objectives because: (1) safeguarding of mineral resources via LUP is a complex issue involving many dimensions (ethical, political, economic, social, technological, etc.) where evidence and factors are non-definitive and country/region-specific and (2) it is deemed a popular and suitable forecasting tool (Landeta 2006) that allows forming collective views striving for consensus building.

Other reasons are its advantages: live discussions in person around complex issues involving uneven interests such as discussions around mineral resources and LUP may often be biased and unduly influenced by persons whose personalities, prestige or cultural-issues makes them speak 'louder than others' (MICA 2018). Thus, Delphi surveys guarantee anonymity (in relation to the other respondents) thus eliminating possible group members' tendency to impose their opinions on others and avoiding direct confrontation of experts with one another (no peer pressure). The idea is that, while reading statistical summaries and justification of responses, the respondents can learn from the views of others and reflect upon their own answers, changing their opinion or not.

Other key features of Delphi surveys are:

1. *Selection of a panel of experts* (panellists)
2. *Multiple iteration of the questionnaire*: The questionnaires are delivered repeatedly (subsequent rounds) with a view to assessing the degree of generated consensus and possible ranking of various items (highest acceptance or rejection).
3. *Controlled feedback & statistical summaries*: the answers to the questionnaire surveys are grouped, synthesized and provided in a standard format to all participants by the research study coordinators. The research coordinator should be impartial and provide feedback in a reliable and valid way, highlighting the degree of dissent and divergence among participants' views. Most feedback is provided numerical or statistical with some form of aggregated group response. The results of each round are presented in a statistical way, e.g. presenting averages which provide a broad orientation of opinions[7]. This information is the basis of the subsequent round of the inquiry and it is sent to the panel members, who are asked to review their estimates in the light of the group opinion (JRC 2007).

Preparation Phase

Survey design and pilot testing

[7] Should be noted that for this study the number of participating experts (between 20 and 30 in each round) represents a small sample so the calculation of averages should be used with care. The decision on the number of experts for the panel is normally empirical and may consist of a small number of participants as Delphi surveys are not intended to produce statistically significant results (JRC 2007).

The online survey was designed to have 3 rounds between October and December 2018. It was implemented via EUSurvey[8] (supported by the European Commission), an online platform that allows managing rounds of questions and compiling statistical answers online. The questionnaire was designed with a mix of pre-defined single- or multiple choice questions and complemented with open questions that allowed free answering in text, asking respondents to specify, justify or explain their answer. The first questionnaire consisted of 13 questions in 4 categories:

- **Future of mining in Europe** – possible drivers of future demand and supply of mineral resources including the recycling, substitution and circular economy targets;
- **Securing access to minerals** – data requirements about mineral resources, state initiatives in mineral sector, access to land and the concept of mineral safeguarding, competing land uses and possibilities of co-use, decision-making;
- **Public attitude towards exploration and mining** – environmental performance of mining and other factors which influence the public attitude towards the mineral sector;
- **Legal and policy development** – influence of global geopolitical situation on securing minerals supply, legal formats/institutions of safeguarding, future trends in mineral permitting procedures.

The participants were asked to project themselves into the world of 2030 and beyond and answer the questions in the questionnaire.

The questionnaire of round #1 (Q1) was tested by members of the MINLAND consortium and subsequently amended according to the feedback. The amendment of Q1 included the elimination of 1 question. The final Questionnaire of the 1st round consisted of 12 questions grouped in the 4 categories previously mentioned.

Design and recruitment of the Panel of Experts

A main condition for the composition of the expert panel was ensuring a heterogeneous and balanced group: the expert panel was expected to cover (i) different countries/regions of the European Union, (ii) different professional backgrounds, (iii) different societal interests and needs, (iv) command sufficient knowledge on LUP in relation to the minerals policy or industry sector (corporations, state/authorities, civil society organisations, academia, media, etc.). Further criteria for the selection of potential panellists were: (1) practical experience and knowledge related to land use planning or mineral resources in Europe and (2) commitment and availability to participate throughout the entire duration of the study (October - December 2018).

To reach the anticipated panel size of 20 to 30 experts, around 200 stakeholders from different European countries were approached and invited to participate. Possible experts were identified through (i) personal contacts, (ii) stakeholder network (WP7), and (iii) an open call for experts via Social Media (Linkedin, Twitter).

All experts wishing to be part of the Panel were asked to fill in a registration form in the EUSurvey platform which was created to monitor the interested stakeholders and to obtain contacts and

[8] https://ec.europa.eu/eusurvey/home/welcome

statistical information about the participants. Participants were asked to accept an informed consent disclosure.

The Panel of Experts fulfilled the previously mentioned criteria. For one, it achieved a geographical balance with representatives from 13 European countries: Austria, France, Greece, Ireland, Italy and Poland (1 representative each), Croatia, Slovakia, and the United Kingdom (2 representatives), Spain (3 representatives), Finland and Portugal (4 representatives) and seven experts from Sweden.

Participants´ self-declared areas of expertise (respondents could select more than one area) show heterogeneity and balance regarding their professional background: most of the participants presented themselves as being experts in mineral resources (19). followed by mining representatives (17). Environmental issues and land use planning were matched equally by 15 participants and ten people consider themselves experts in sustainable development. The public engagement was indicated as their area of expertise by 8 respondents (Figure 1).

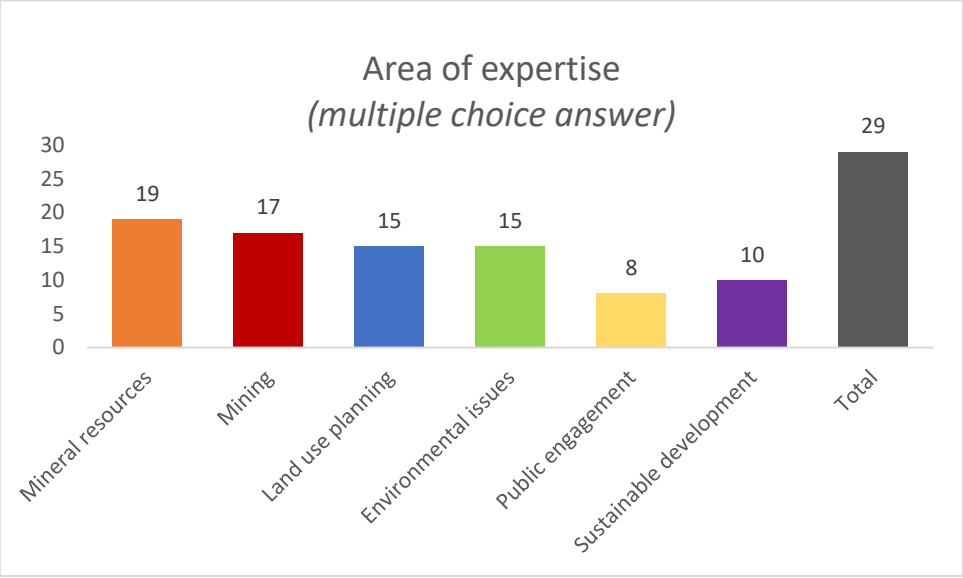

Figure 1: Participants structure according to area of expertise. Source: Delphi survey.

From the perspective of the type of organization represented (again multiple-choice answer was possible), most of the participants (16) are or have been working in public administration which includes mining, environmental, land use, local or other authorities. Eight experts selected mining and minerals-related industries experience, six people are working or have worked in research and 4 people are members of some association of experts or work as individual or independent experts. Three experts were from non-governmental sector (environmental or public engagement NGOs). Two people matched other type of industry (1 environmental issues and 1 mineral resources expert) and three respondents match other type of organization (specified as mineral development consultancy, trade association and one as being independent – no specific organization) (Figure 2).

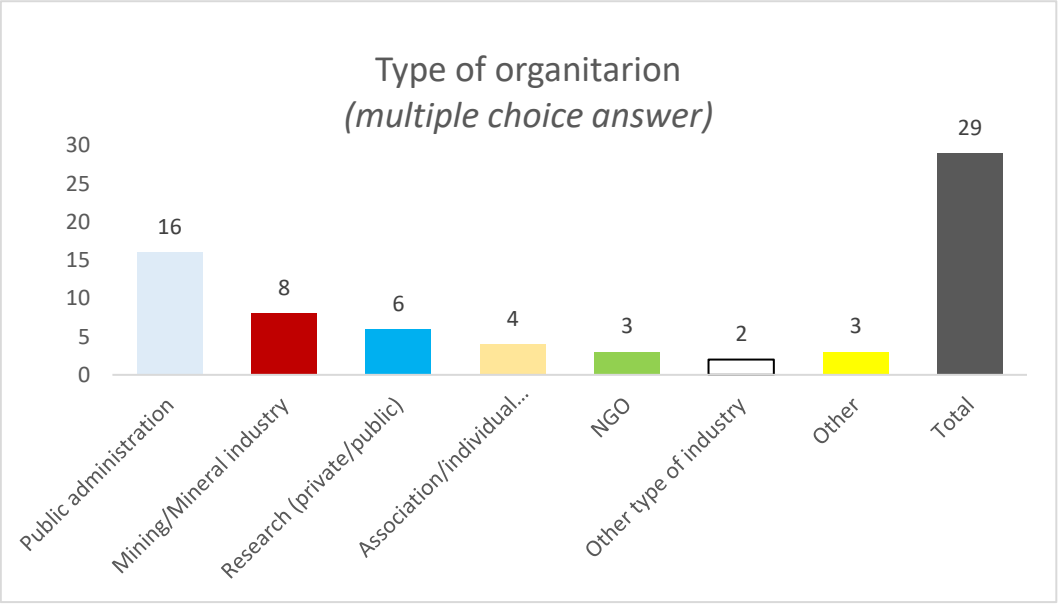

Figure 2: Participants structure according to the type of organization. Source: Delphi survey.

The average years of professional experience was 22.7 years ranging from two to 50 years. Of the 29 participants who completed the questionnaire, 25 had 10 or more years of experience (average 25.6 years).

Implementation phase

The revised Questionnaire 1 (see Annex for the complete Questionnaire 1) was sent to the registered participants of the Survey. In the first round, respondents were asked to express their opinion about the presented statements (about future developments in the above-mentioned topics) and provide relevant arguments to their responses. The 12 statements in the Questionnaire 1 were formulated based on current knowledge and trends in raw materials security of supply, recent findings from MinLand project and other research projects related to the Raw Materials Initiative objectives (COM 699 (2008)), and other literature review.

After Round 1 all answers were evaluated, both statistically (quantitative analysis) and qualitatively, summarizing arguments and comments left in free-text answers. Feedback of the first round was the input for the design and wording of the statements for Q2 (see Annex for the complete Questionnaire 2). Thus, participants had the opportunity to read, reflect and react to their colleagues' opinions and perceptions. A similar procedure was used between Q2 and Q3, with the only difference that the number of questions was reduced from 12 to 8 to support complex visioning and concluding on the effect of the last round. Further details on the description and evaluation of each Round are available in Table 2 (see Annex, 6.2.2. Description and evaluation of Rounds 1 to 3).

After completing Round 3, respondents were asked to express their overall opinion about the Survey in a short Quality Feedback questionnaire (see the Annex 6.2.3). Finally, the evaluation of Round 3 was done (Annex 6.2.4) and key findings were presented and discussed in the Focus Group session.

The response rate of Round 1 was 14 %: 36 experts registered on the EUSurvey platform of which 29 completed the questionnaire; between the 1st and the 3rd round of the survey drop outs were recorded. In Round 2, 22 answers were received and 20 in Round 3.

Results from the Delphi survey rounds are presented in Chapter 3. Direct (verbatim) quotations from participants are included using quotations marks and with the text in italics. No references is given as to the names of the participants who issued such opinion in order to ensure anonymity. Yet, a after each quotation is reference is provided as to the background and/or area of expertise of the participant.

2.3 Focus Group

A Focus Group (FG) is a form of qualitative research in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards planning, policies, technologies, 'futures', etc. Originally developed as an instrument of marketing research, the method is now used frequently in societal and policy-making research, and in participatory processes (MICA 2018, Acocella, 2012). Questions are asked in a moderated setting, where participants are invited to discuss the issues at stake. During this process, the researcher either takes notes or records the vital points emerging from the group discussion. The method is particularly popular in a participatory processes as it can be used as an occasion for participants to learn from one another as they exchange and build on one another's views, so that participants can experience the research as an enriching encounter (MICA 2018).

In addition to the Delphi Survey, which is characterised by anonymous surveying of opinion from a broader group of experts (around 30) and interaction between participants only through statistical feedback from previous rounds, we decided to complement it by a small and dynamic group discussion which would allow deeper analysis and immediate interactions and reflections on the topics. The aim was to come to conclusions at place which would help to formulation of the hypothetical future scenario and main drivers behind them.

Due to the geographical spread of the focus group participants, it was organised via a VOIP conference call (including video, if requested), on 16th January 2019 (2.5 hours). The invited participants consisted in selected MINLAND Consortium members, Advisory Board, some participants of the Delphi Survey and external experts: 14 experts attended (7 declined, 21 invitations, response rate of 66 %). The number of attendees is a bit larger than a normal focus groups (usually composed of 7 to 10 people, Ratnapalan and Hilliard 2002) but reasonable. Of the 14 participants, 4 were involved in the Delphi survey. The focus group helped test findings of the Delphi and worked as a complement.

The focus group meeting was recorded and a summary compiled. Consent was obtained from the participants at the beginning of the VOIP conference call. The list of participants and minutes from the session are available in the Annex. Direct (verbatim) quotations from participants are included using quotations marks and with the text in italics. No references is given as to the names of the participants who issued such opinion in order to ensure anonymity. No reference is given to their background/area of expertise to avoid any possible links to the actual persons (small group).

2.4 Report structure

This Deliverable consists of an introduction to the context and background of the topic which is subject to this report and four following chapters. Chapter 2 defines the overall objective and describes the methodology used, specifically the Delphi Survey and Focus Group methods and the way how they have been applied in Task 5.2 of the MinLand project. Chapter 3 presents the summarised findings combining answers from the Delphi Survey and the Focus Group session. Chapter 4 closes the deliverable with conclusions and Chapter 5 presents the references.

The Annex (Chapter 6) includes: (1) the minutes of the focus group, (2) the list of participants acting in the Panel of Experts, (3) a description and evaluation of Round 1 to 3 of the Delphi survey, and (4) the

complete Questionnaires that participants received in Rounds 1 to 3 and the assessment of Rounds 2 and 3 (including the questionnaire and a summary of the results of the previous round).

3 Exploring the potential future of mining, safeguarding and land use planning in Europe: results and discussion

The core objective of this deliverable is to explore future hypothetical scenarios, reflecting stakeholders´ needs, interests and expectations about the future development of mineral safeguarding and consideration of mineral resources in land use and strategic planning and sustainable development in Europe. In this chapter the summarised results and conclusions of the survey and focus group session are presented. They are summarised in the four subchapters (organised according to the Delphi Survey categories described previously in section 2.2) and relates to the expected future development in the next 10-15 years, resp. to the strategic year 2030.

3.1 Future of mining in Europe

A majority of respondents in the Delphi survey agreed that the future of mining in Europe will be influenced by market trends: an ongoing demand for primary raw materials (recycling cannot cover alone the increasing demand) and the existence of supply risks (no guarantee of imports) will frame the further promotion of incentives to attract investments to develop the European mining sector. The future maintenance of the EU or the exit of some Member States (example of 'Brexit') is perceived as an important driver on future raw material costs which may be increased due to the imposition of tariffs on Member States potentially leaving the Union.

Political decisions and policy targets, strategies and actions set by the EU and the Member States were also identified as very relevant as they advise and steer the future directions of the mineral sector. Especially, the pressure on increasing recycling rates, use of secondary resources, waste reduction and application of circular economy principles could have an impact on future trends. While 50 % of respondents in Round 2 strongly agree and 36.4 % partially agree that recycling "must" play a decisive role in securing minerals supply, in Round 3, 45 % of participants agreed that such factor is one of those that will mostly influence the development of the mining sector in Europe in the next 10-15 years. The discussion about competition or complementarity of supply options and the level of the demand for primary and secondary raw materials during the Delphi Survey shows that it was not marked as a most influencing issue by a big group of participants (the response rate was between 20-25% on related statements). However, it might be an important topic especially in the environment of non-mining/mineral resources-oriented communities, such as general public, public society, governments, etc.

Participants of the Focus Group emphasized the role of the EU and its further importance and role to shape future developments of the minerals sector. The Raw Materials Initiative and the Strategic Implementation Plan of the European Innovation Partnership on Raw Materials along with other relevant initiatives, like the Raw Materials Supply Group, ERECON[9], Ad hoc Criticality Group, etc. were mentioned as good examples of incentives by the EU for countries to invest in adapting and modernising their mineral policies. Moreover, the current EU and international efforts to move towards low-carbon economies to combat climate change and the latest EU strategy '*A clean planet*

[9] European Rare Earths Competency Network

for all' (COM(2018)773final) was envisaged as a window of opportunity to acknowledging the importance of raw materials as enabler of the transition towards renewable energies.

In Round 3, 35 % of participants highlighted that more domestic sourcing in Europe under sustainability principles could help reducing bad exploitation practices in developing countries and could contribute to other environmental targets such as reduction of CO_2 emissions (less materials will need to be imported from long distances and from countries featuring 'bad environmental practices') and thus selected it as being one of the most influencing factors shaping the development of the mining sector in Europe in the next 10-15 years. Moreover, it was picked up that the positive example and the ´exporting´ of such practices to mineral-rich developing countries are opportunities to promote sustainable practices on the global scale (imports vs. domestic production).

Also 35 % of respondents posited that in the next 10 to 15 years existing restrictions (environmental restrictions, competing land uses and local opposition, which might be partially caused by a lack of knowledge link between every day goods and raw materials) will remain important in Europe, hindering the growth of the sector. Some participants pointed at the existence of conflicting policies at work that make forecasts on the future development of the minerals sector uncertain. To illustrate: on the one hand there is a recognition of the need for primary resources and an ambition to develop the domestic supply, on the other hand respondents sense a growing opposition on the local level towards new projects and increasingly stricter environmental regulations. At the same time, the difficulty in imagining a common future scenario for the minerals sector was brought up arguing that European regions will follow very different paths as a result of different policies and different institutional frameworks (no uniform direction in policy).

During the focus group session the political dimension (political interest and goodwill) was also mentioned and it is perceived by some participants as strongly influential in some parts of Europe. This is linked to the perception of an increase in the protection of other (non-mineral development) land uses in a frame of different policy agendas. It was mentioned that imbalanced weighing and valuation of mining with other economic activities is taking place. Furthermore, participants mentioned that the effectiveness of safeguarding (of mineral deposits) will be much dependent upon the goodwill of politicians, which is at the same time, influenced by public opinions towards the sector.

Another issue stressed in the focus group was the one of time depth and possible contradictions and tensions between the need for long-term policy making and more short-term political agenda of government (short-term horizon of 4 years until next election). One response was that legal frameworks and acts are expected to resolve such issues: it was posited that opening a mine is dependent upon laws and less on politicians as the time span is defined by the law: "(…) *once a country decided its mineral policy, the law must be adapted accordingly, and changing the policy and legal system takes time. If the mining law is changed every 4 years, the system is a disaster*" (geologist). Another participant commented that: "*Many times, the law remains the same, but governments make often their own interpretations to fit their political goal*s" (geologist).

Yet, such arguments were questioned by the so-called 'elections fragmentation' phenomenon[10]. In fragmented political situations political parties find it difficult to form coalitions achieving a governing majority (the actual government) resulting in a weak position which might slow down, delay or hinder mineral development projects (not just metal mining ones). The Irish example was mentioned as an

[10] Note by the minute's author: it refers to electoral results where the major traditional parties fail to win most of the votes and votes are distributed among a larger number of smaller parties and independents. Examples are Podemos in Spain, the Five Star Movement in Italy, the Sweden Democrats, etc.

example of a country with 'elections fragmentation' where the political setting allowed the ban of fracking to become law with the promotion of 1 or 2 members of Parliament. In this respect the argument was that "*the legislative process can be quickly changed, it no longer takes years as in the past*" (geologist). Another argument was that laws affected by appeals make for fast change of law, though this is dependent upon the legal system - systems with framework law where case law[11] are tested in court and then a practice is set.

The future domestic supply of primary raw materials depends on the limited availability of raw materials resulting from the geological pre-disposition of the European continent, the amounts of investment in prospecting/exploration, the economic conditions, the public acceptance of the industry, among other issues. In Round 2 participants were asked whether they agreed with the statement that the European mineral deposits will be able in the future to become commercially viable and supply a larger share of the domestic supply. Opinions were divided on such statement: 45 % replied they agreed (4.5 % Strongly and 40.9 % Partially agree) and 45 % disagreed (31.8 % mostly and 13.4 % strongly disagree).

Even though less frequently mentioned two other drivers that were considered during the focus group session were the public acceptance of the sector and related conflicts, as well as the data quality (geology, land uses) and its access for land-use planning purposes.

Summary of main drivers

- The demand-supply situation on the market – the danger of supply risk because of unstable situations on the market, uncertainty of future importing situation (today´s exporters might become importers, trade wars, shortages, etc.); increasing demand due to economic and technological development; limitations of recycling and use of secondary raw materials (economic, technological, physical)
- Continuity of the EU vs exiting of Member States (E.g. 'Brexit' issue)
- Policy targets and role of the EU – Circular economy, Recycling and resource efficiency; Climate change and Paris Agreement (reduction of CO2, electro mobility, energy transition); Sustainable development goals; Raw Materials Initiative (Raw Materials Diplomacy, Critical Raw Materials, etc.)
- Availability of mineral resources from the European geology and question of access to them (environmental restrictions, competing land uses, local opposition)
- Political dimension
- General knowledge about the importance of minerals and public acceptance
- Data quality (geology, land uses)

3.2 Securing access to minerals

For setting the policies on securing the access to minerals it is crucial to have sufficient relevant information (quantitative) about mineral resources in the country. In other words, to know "where" to find "what". The data on mineral resources are usually obtained from mineral prospecting (research or commercial, larger scale, very low accuracy of information obtained) or from mineral exploration (state, private-sponsored or mixed, detail and accuracy depending on the stage, specific perspective

[11] Case law is a set of past rulings by tribunals that meet their respective jurisdictions' rules to be cited as precedent. E.g. the case law of the Court of Justice of the European Union (CJEU) is one of the most important sources of European Union law.

small-scale area). Depending on the legal and policy framework in each country this information might be collected, stored and potentially be made available to a certain extent to specific groups (e.g., government and authorities, universities and research, industry, broad public) [12].

In MINLAND´s D5.1 one of the general principles for LUP posited that the future safeguarding of access to minerals would be facilitated through a more transparent and informed land use decision-making about areas with mineral potential. Based on such statement, we asked participants (Round 2) to rank the importance of those aspects which could (positively) impact on improving land use decision-making. The majority of Delphi survey participants agreed that the following dimensions are extremely important for the future securing of access to minerals: policies and legislation dealing with mineral resources and LUP (72.7 %), mineral exploration activities (both private and state-sponsored) (59.1 %) and the existence of digital database (50 %). During Round 1, when asking participants how they think the availability of information on mineral deposits could be best achieved in the near future, 48 % replied that the states should collect into national databases such information from private explorers; however, 24 % responded that the states should also invest in prospection and exploration to obtain more information on its mineral wealth.

The existence of an organisation managing the whole data collection, processing and communication to competent authorities (40.9 %) was signalled as important in determining the future securing of access. As the situation is country-specific, the stakeholders in each country might have different needs and expectations for improvement of the issues they see as ineffective or insufficient. In the first place (voted by 40 % of survey respondents) it was marked that the availability of explanatory information to non-professionals requires improvement. Also 40 % said that mineral exploration activities are insufficient. Also, digital databases and state-initiated research have gaps for improvement in their country according to 30 % of participants. The detailed requirements are specified in the assessment of Round 3.

In Round 1 participants were asked to assess whether the concept of '*mineral safeguarding'* in the context of LUP in Europe is a good prevention to mineral sterilization[13]. Almost half respondents agreed it is the best way to secure the future access to minerals whereas almost one-third did not think that safeguarding will automatically secure the access. 10 % of respondents did not welcome the idea of mineral safeguarding as they think that it will endanger other land uses and that it "*should not be 'above' any other form of land use*" (nature conservation NGO representative). In Round 2, based on answers in Round 2, we asked participants to express their opinion on a series of statements related to understanding and application of the mineral safeguarding concept and implications to land use planning. 90 % of participants agreed that mineral safeguarding should go in one hand with education and communication about its impact and importance to the public and relevant authorities and 77 % replied that safeguarding should enable coexistence with other land uses (except those which would sterilize the deposit).

72 % agreed that mineral safeguarding could have several levels – from low to highest protection, e.g. "*To pass from a mineral prohibition policy to a mineral imposition policy is not the aim. The mineral safeguarding must be a very thought process that takes into account all incident aspects*. *Not all the mineral should be safeguarded and not all of them in the same way and intensity*" (regional mining

[12] Further details are available in reports/databases of the MINVENTORY and MINERALS4EU projects: https://ec.europa.eu/jrc/en/scientific-tool/minventory; http://www.minerals4eu.eu/

[13] The loss of access to mineral resources due to the use of land for the development of activities that prevent their exploration or exploitation. In other words, it is the term used when development or land-use changes take place which permanently prevent the implementation of exploration activities or extraction of minerals from the ground. Examples are the development of urban areas or transportation infrastructure (e.g. highways) over areas with mineral potential.

authority representative). Participants also highlighted the difficulty in establishing a universally applicable mineral safeguarding concept: "*Each deposit needs to be judged individually case by case, taking all the facts and all the local circumstances*" (environmental specialist)

On the issue of whether mineral safeguarding should prevent sterilization of mineral deposits by non-mineral development (i.e. urban sprawl - housing, bigger infrastructure), 68 % agreed and 31 % remain undecided (undecided mentioned it was due to *inter alia* a perception of ambiguous statements). In Round 2, 70 % of participants also agreed that, for the implementation of the mineral safeguarding agenda, the most important factors are (1.) political will and priority to support securing minerals supply at the national level and (2.) legislation and policy framework (mining and raw materials, environmental, land use planning).

Some participants highlighted that in their perspective general policy frameworks may not be adequate for the implementation of the concept of safeguarding, but rather emphasised a case-by-case approach and valuation of different land uses would be more suitable to facilitate mineral resources in land use planning (85 % of respondents, Round 3). Depending on the institutional framework and the degree of decentralisation either national (65 %) or regional (e.g. Spain as example of federal organised states) were deemed the appropriate authorities for the designation of safeguarded mineral deposits. When asked about which other stakeholders, 80 % agreed that local authorities should be involved, 70 % geological surveys and 60 % competent ministries, regional LUP authority, local people/NGOs.

The topic of ***co-use of land*** was put for discussion as it is often mentioned as a potential solution to competing land uses: the data show that there are considerable doubts, especially on the conceptualisation of the term ´co-use´, i.e. it is very location-specific and depends on many factors. The first one is the stage of the mineral activity, and the second one is the type of extraction (open-pit or quarry vs. underground mining), how the environmental and social impact of the technology used is, which other land uses are present, etc. Findings from the second round showed that 72.7 % of respondents agreed (31.8% strongly and 40.9% partially) that, in the near future, it will be easier to accommodate co-use of land for mineral exploration activities than for mineral extraction ones. The case of Andalucía in Spain was brought up where mineral exploration *"is compatible with the most of other land uses"* (regional mining authority representative).

When asked about future trends of co-use between quarrying and other land uses, opinions were divided, i.e. more than 40 % mostly disagree that mineral extraction activities in quarries will in the future be easier for the co-use of land. While for some the problem could be in practical feasibility of co-use during operation *"simultaneous operation of extractive activities (especially open-pit) cannot take place with any other land use"* (spatial planner), for others the reason could be the perception of visual impact associated with the type and scale of exploitation *"a large quarry of aggregates may concern more than a small or medium-sized underground metal mine"* (regional mining authority representative). Another participant highlighted the importance of considering in which stage of the life cycle (during exploitation phase) the project is in: *"there is a time factor here, co-use whilst the quarry is in operation or co-use when the operation has closed down. The closed down co-use of the land will increase as society and nature returns to the quarry area after closure. Co-use whilst in production is always difficult, safety, noise etc. is often a hindering practical factor to co-use"* (economic geologist).

A participant who agreed that quarrying will be easier to accommodating co-use of land underlined the issue of how people perceive the necessity of the mineral output produced at the extraction site: *"quarries will nearly always be easier to develop but not for the reasons outlined. People see an*

immediate use for quarry output - the construction sector. People don't see an immediate use for metals" (geologist).

From Round 1 and 2 it could be concluded that the possibilities for co-use resp. co-existence of minerals- related activities are dependent on specific conditions. For that a table with potential compatibility of different land uses in different stages of the mineral development was collected with examples for different land uses (see Annex, section 6.2.3, Round 3, Table 1 "Answers to potential compatibility of different land uses in different stages of the mineral development").

The ***decision-making procedure on competing land uses*** was also identified as a relevant driver of the future development of the minerals safeguarding in Europe. In Round 1 we asked participants which of a series of instruments they thought needed to be further developed in the mid-term horizon of 10-15 years to support a better and more informed decision-making on different competing land uses. 75 % and 62 % of respondents selected the two following instruments: "Smart policy and legislation and transparent processes" and "Evaluation tool (method or guideline) to compare the value of mineral resources against other land uses", followed by "Involvement of different types of stakeholders in decision-making" (55 %).

In Round 2, based on answers from Round 1, we asked participants whether they agreed with the following statement: "*better informed-decision making on competing land uses (e.g. whether mining is compatible with other land uses) and planning alternatives should be supported by clear policy and legislation and by the implementation of technical/scientific evaluation tools that transparently allow understanding the value of the competing land uses and why a decision was* made". Almost 95 % of respondents agree with the statement, and 4 % disagree with it. The potential usage of an 'evaluation' tool was praised because the incorporation of criteria of rationality and their reflection in regulations *"provide legal certainty and eliminate potential discretion and biased interpretations of the regulations*" (regional mining authority representative). Yet, some participants challenged the term "evaluation tool" - *"I think a transparent and inclusive methodology is needed, while the use of the word 'tool' for me sounds like a standardised and too simplistic approach*." (mining industry association representative). Some of the participants are concerned about the scalability and general usability: *"such tool, if created, would produce good results in one case but totally wrong results in another"* (environmental specialist). In Round 3, 85 % of participants agreed that instead of an 'evaluation tool', "a transparent and inclusive methodology is needed" as an alternative to a standardized and simplified tool; we could hypothesize that this reflect also differences between the jurisdictions.

During the focus group meeting much discussion revolved around the degree of influence of politicians during different decision-making procedures, e.g. during permitting procedures, arguing that in some jurisdictions political interests may be having too much influence, in detriment of technical (or knowledge-based) argumentations. It was acknowledged that this influence might work both ways, either in favour of the mining sector (case of Kiruna) but may also be against it (respondents referring to cases in Portugal, Greece, Romania, etc.). Cases in Finland & Sweden were also mentioned, illustrating the substantial impact of public opinion on the political agenda and politicians which might have the power to change (turnaround) decisions; the respondents stressed their concern that decisions might be made not on the base of technical foundations or made with insufficient knowledge.

Data from the answers reveals the concern of some participants that the high influence of political interests in decision-making may be facilitated by an insufficient degree of technical competence. In other words, some experts perceived that a weak public administration (e.g. insufficient resources, technical personnel, qualified technicians etc.) would allow stronger political impact. At the same time,

insufficient knowledge and competence among the public, decision-makers, professionals and courts (where decisions may be made) also allows room for change in decisions lacking sufficient technical grounds. One of the participants in the Focus Group commented: "*If countries don´t have geological and technical competence, decisions may go anywhere, which highlights the need to focus and promote the competence issue so that it gets into the systems. The objective of this is to promote a balanced assessment and prevent (technically) unfounded decisions from any decision-makers, mining-related or land-use planning-related*" (geologist). Also an illustrative case in Poland was mentioned where a survey (questionnaire) was made in a number of Polish municipalities to examine the educational background of people involved in the permitting process. Results found that most clerks/public servants are educated in environmental engineering, economic or agricultural-related, but only very few people with mining or geological background.

The example of Greece was also mentioned where land use planners have a difficult task in integrating and evaluating land uses. This means that, from the respondents´ perspective, it would be beneficial if capacity building processes in mining-, environmental- and land-use-related policy and planning aspects (for urban uses, etc.) were facilitated. In the perspective of planners in Greece, the issue of mining is a controversial one and planners avoid to deal with issues related to mining. Moreover, in the view of respondents, in Greece there are no concrete guidelines on mining issues for planners.

Summary of main drivers

- Data and information availability on mineral resources, preferably digital database
- Consensus on safeguarding approach, parity of assessment between mining and other land uses
- Land use competition, co-use options and approach in solving conflicts of interests
- Political will (EU, national, regional/local level)
- Political influence in decision making
- Competences (geological, environmental, etc.) of public servants involved in land use planning
- Activity and interests of different stakeholders
- Compatibility of mineral extraction with other land uses depends on each case (different land uses have different compatibility with minerals along their life cycle)
- More transparent and inclusive methodologies for making informed decisions on competing land uses

3.3 Public attitude towards exploration and mining

Acknowledging the fundamental importance of public attitudes towards the mining sector for any project, we surveyed the experts´ opinions on public acceptance of the sector to examine potential futures.

In Round 1 we asked experts to imagine that by 2030 new technological developments are making exploration and mining more environmentally friendly and thereby reducing the risk of pollution in operating mines. The majority of respondents (75 %) agreed (28 % strongly, 46 % partially) that new technological developments making operations environmentally-friendlier (e.g. more efficient, less dust, less noise, less impact in the landscape, etc.) and ensuring less environmental pollution risks could increase public acceptance of the minerals industry in Europe. Arguments in favour highlight that improving social acceptance may occur as a consequence of technological developments providing further assurances that accidents have a low risk of occurrence combined with better, more professional communication to the general public of such risks (improving industry reputation by counteracting legacy/memories of accidents). Also, it was acknowledged that there is a gender gap,

and that the mining industry might be better accepted by the public if also more women but also youth would enter the mining business and operations.

However, of all respondents to the previously mentioned question, 46 % only partially agree as they argue that good governance (not just improving environmental performance) is an essential factor, especially because of a widespread lack of political support to the European mining sector. That means that stakeholders need to be more involved, e.g. during reclamation stages, because "*As larger volumes are being mined due to generally lower concentrations this [new technology] is crucial for the mining sector*. *Reclamation should also be performed with other stakeholders in order to possibly leave a more useful plot of land after the mining has closed*" (environmental specialist). Others argue that 10 years from now is not enough time to change the negative perception the public generally has on the sector while others argue that good practices already exist but are not implemented in all mining sites and therefore are not widely recognised.

21 % of respondents do not agree with the statement (that new technologies making the sector more environmentally friendly will increase public acceptance in Europe by 2030). Main reasons include the fact that social acceptance is often lacking due to poor environmental management that have to be cleaned up financed by tax money, since the polluter/polluting company is not existing any longer. Those experiences are creating distrust towards the mining industry but also distrust regarding new technological developments by the sector, i.e. new technology developments will not increase public acceptance unless trust is regained by the industry.

> "*The problem here is that the public will most likely not trust the mining companies that have been responsible for so much pollution and environmental damage so far when they say their future mining will be clean and eco-friendly. They have claimed the same even for their dirty mining in the past and in the present time. Also, mining disasters have been happening rather too often (e.g. Ajka, Mt Polley, etc)*" (environmental specialist) [Note by authors: Mt. Polley´s accident took place in Canada, not in Europe]

Another reason mentioned is individual rejection based on individual perceptions and values of the local population towards possible impacts of the mining activity. These concerns can often not be resolved by technical innovation and improvement. Finally, another important reason mentioned is, that social acceptance is not just dependent upon good environmental practice or the perception of environmental impacts but depends on a better understanding of the role of minerals and mineral products in everyone's daily lives by the public and politicians.

In Round 1 we also asked how the minerals industry could best achieve a higher degree of social acceptance by 2030, i.e. which pre-requisites they believed necessary for achieving that. Over 60 % of participants ticked three issues: (1.) better and professional and transparent communication at all phases of project development targeting an adequate management of expectations and aspirations of the local communities, (2.) higher amount of publicly available information on provided benefits (payments to governments, number of direct and indirect jobs, benefits to local communities, etc.), costs and potential environmental risks, and (3.) General education of public (at schools, through media, in public debate, etc.).

Based on such answers, in Round 2 we asked participants if they agree with the following statement: "*If the minerals industry wants to significantly improve its reputation and public acceptance by 2030 it will have to invest not only in new environmentally friendlier, less risky technological developments but*

also in better, more professional communications with society and decision-makers to educate on the need for minerals, risks involved in operations and how they are managed, why mining accidents happened and what has changed since to minimize risks they happen again, support an effective clean-up of past polluted mining sites and engage in more meaningful dialogue with stakeholders, especially local ones". 91 % of respondents agreed.

Similarly, 86 % of participants agreed that if by 2030 a reasonable number of polluted mining sites in Europe were cleaned, innovative technology ensuring low environmental impacts and a very low risk of accidents became standard (e.g. due to regulations or incentives) and more public participation was ensured during key stages of project evaluation, the mining industry could regain its public trust and improve its public acceptance. Those that disagreed argued that there is no clear relationship between environmental standards and the public opinion, e.g. "*The environmental standards in the UK are exceptionally high and have been for decades including cleaning up historic pollution. That hasn't altered the public view because the public is fundamentally not interested in how Europe or the UK provides resources, but how they can stop anything harming what they value*" (mineral and land use planning expert).

During Round 2 it was concluded that the drivers of social acceptance vary greatly throughout Europe. Thus in Round 3 we asked participants to identify the aspects that needed improvement in their country of origin. "*Education on the importance of minerals for modern societies/current lifestyles via stronger campaigns (media, public debates, etc.)*" is seen as the weakest and most problematic issue which would wish to improve in their country by 80 % of respondents. Such topic was followed in importance by "*Education …via formal schooling system"* (65 %), "*Transparency on economic benefits"* (65%), "*transparency on* the *environmental risks"* (55 %) and "*Public participation during project evaluation stages"* (55 %).

In Round 2 we also asked participants to think about and rank those issues that will still be problematic for the mining industry in terms of achieving social acceptance by the year 2030. 63 % of respondents highlighted that the lack of political support will still be the main problem followed by the issue of education on the importance of minerals for modern societies/current lifestyles via formal schooling systems and via campaigns (media, etc.). During the Focus Group session the aspect of education was also highlighted. It was remarked that in the case of Spain education on the minerals sector, its dynamics and impacts is much needed as a path to break the circle of the NIMBY[14] phenomenon. Likewise, the role of the media and the education of journalists was mentioned as a challenge, especially because "*people only want to hear scandals and sad stories, not the good ones*" (geologist).

Finally, in Round 3 we summarised the principal drivers of social acceptance from results of previous rounds and asked participants for a final assessment of whether they agreed with a number of statements derived from previous rounds. As the Table 1 shows (results of Round 3), all statements seem to be to a certain extent (average of 84 % acceptance) acceptable by the majority of respondents, with the highest level of agreement expressed for the first statement: mining industry needs to continuously improve its environmental performance, followed by the issue of the need to improve aspects related to direct benefits received by locals out of mining activities.

[14] An acronym for the phrase "not in my backyard". Refers to the opposition by generally local residents to a proposed development in their local area.

Table 1: Answer to statements presented to experts in Round 3 (topic: 6. Environmental performance of mining and conditions of social acceptability).

Statement	Yes	No	Not decided	No answer
Mining industry needs to continuously improve its environmental performance	95%	0%		5%
The direct benefits (economic and social) are the way how to achieve better social acceptance	80%	0%	15%	5%
Cleaning up of old mining sites and damages caused by historical mining should be in a long-term perspective one of the high priority interests of both the state and mining companies	75%	15%	5%	5%
Importance of minerals for the society should become an integral part of education equally as importance to take care of our environment	85%	5%	5%	5%
Political support is a key and of the highest importance for the successful development of the mining industry	85%	15%	0%	0%

Source: assessment of results of Round 3 (see Annex)

Some interesting comments were:

- *"Cleaning up is part of recycling/reuse"* (geologist)

- *"The image of the mining industry as old and not modern has to be addressed (because it is not)".* (geologist)

- "*With respect to Statement 3 [Cleaning up of old mining sites and damages caused by historical mining should be in a long-term perspective…] - I don't think we can force the minerals industry to clean up sites that they were not responsible for damaging. I think national governments, with perhaps financial support from the EC, should be the party to undertake this work. If mineral companies wish to volunteer support (either expertise or finance) then that would be good too."* (geologist)

- "*I can agree that the importance of minerals for the society should be an integral part of education, however, I am strongly against putting it on the same level of importance with the education about the environment. Considering the huge ecological debt created in the past (to which mining activities contributed, too), I don't think we can afford to continue neglecting the environmental education any longer."* (environmental specialist)

- *"I would add the importance of a good communication strategy that should be considered as a part of the tasks that mining companies have to perform to develop of their mining projects. It is a matter of how the local population perceive the possible impacts or benefits, so this perception should correspond as far as possible with the real consequences of the mining project. From that point, a fair negotiation can be done to mitigate risks or impacts perceived by the local communities."* (geologist and master in environmental management)

During the Focus Group session the issue of "*whose voice is heard*" was brought up in the context of stakeholder consultations. It was highlighted that, in some cases, local populations (living close to the project/mine) are not the stakeholders leading the stakeholder engagement procedure, i.e. other non-local stakeholders may have a "louder voice" in comparison to local ones.

Summary of main drivers

- Environmental performance of the mining sector (mitigation of risks, technologies), including cleaning up of old sites
- Education on the importance of minerals for everyday life and for transition to renewable energies (schooling system and media campaigns) and communication strategies
- Political support
- Transparency of benefits (economic and social) provided to the (local) communities influenced by mining
- Transparency and communication
- Whose voice is heard, legitimacy

3.4 Legal and policy development

During the Delphi and the focus group session participants were invited to think about a possible future scenario of protectionist policies in the international market and how this may influence the practice of mineral safeguarding in Europe.

The situation was portrayed arguing that in the current global and European policy context (e.g. foreign and trade policy of the U.S.A., success of nationalistic movements in elections in Europe, economic and demographic growth of some developing countries, etc.) it is hard to predict how the geopolitical situation would influence the global trade for raw materials in the next decades. Assuming a future scenario with a widespread tendency towards protectionism and a breach of trade agreements, such scenario would mean that the supply of minerals would need to be secured dominantly from European domestic resources. Under such scenario the nationalism and protectionism would be one of the important drivers of increasing strategic importance of mineral resources and its safeguarding.

In Round 1 we asked participants if they believed such scenario could be a realistic one in the next 10 to 15 years. Half the respondents (50 %) agreed with the statement on the increasing importance of global/European protectionism as a driver for the strategic importance of minerals resources (only metals and industrial minerals, i.e. where Europe is import dependent) and their safeguarding in Europe. Main arguments backing up the answer include a continuity with the developments in the last 10 years which creates instability in trade relations between Europe and resource providing countries. One of the participants argued that "*nationalism is growing and with mineral resources locals and national have a sense of possession over those "properties". This is a phenomena that can be observed currently in-boundaries and even between EU countries*" (geologist) while another posited that "*since international competition for raw materials seems to increase, it is wise for Europe and individual countries to safeguard their own resources*" (spatial planner).

32 % of respondents argued against the statement. Main arguments include that the overall global trade has seen a trend more towards free trade than protectionism and that globalization forces (i.e. free trade) and multilateral/bilateral trade agreements will prevail over "discretization" forces. Others said trends of resources protectionism/nationalism is just temporary. Other participants remarked that, in such timeframe, Europe may increase its domestic resources supply (provided the right policy environment is given), but saying domestic resources will dominate the supply is not realistic.

In Round 2 participants were asked to imagine the scenario where several mineral-rich countries which supply Europe (U.S.A, China, Brazil, Russia) would restrict their exports and think about consequences for European countries, ranging from low impact to high negative impact like the break-up of the EU. The most catastrophic scenario (break-up of the EU) seems to be low probable for most of the participants (63.6 % low probability and 27.3 % very low or not probable); of highest probability would be more intensive raw materials diplomacy dialogues with other countries. 63 % of respondents qualified as "relatively probable" a massive investment in mineral exploration and mining in Europe under such scenario.

Participants were then invited to relate such scenarios to the issue of minerals safeguarding and asked if they believe the factor of supply risk should be considered in evaluation and decision-making if a specific deposit should or should not be safeguarded. 85 % of respondents agree that the evaluation and decision making on mineral safeguarding should consider the supply risk issue:

"*Yes, supply risk is definitely an input factor that has to be considered (along with all others) in evaluating the safeguarding of a deposit."* (geologist specialist in mineral resources)

"The whole effort to safeguard EU minerals seems to be related with these scenarios. Then, it is necessary not only to consider them in evaluation and decision-making, but also to disseminate the risk scenarios to the public." (spatial planner)

However, concerns about the application of the supply risk factor were highlighted from both points of view, those who agree and those who not or remain undecided. The complications are seen in the time-scale, weight of this factor, as well as in consideration of the type of the commodity:

"It should be considered but will be more or less significant depending on commodity. E.g. potentially very significant for REEs but not so for base metals." (environmental specialist at mining association)

"Needs of supply should be taken into account in mineral safeguarding policies. It could be a problem of scale: needs of supply can be considered at the national or European level, while LUP can be performed at the regional level." (geologist, master environmental management)

"The supply risk should be considered but it must not be exaggerated. It is very likely that some mining companies will try to exaggerate the "supply risk" and the importance of the minerals they are after in order to persuade the authorities to allow them exploration and mining of a deposit of their choice despite the needs and opinions of the affected people. (I have already witnessed such practices in ….) We must not forget that safeguarding is by many companies perceived as the first step to a "guaranteed mining" (which should not be the case, of course)." (environmental specialist)

Last but not least, participants were inquired through different rounds to give opinions on the different safeguarding options for the integration of mineral resources into LUP (as identified in the common framework: legal tool, policy tool, voluntary applied guidance - see D5.1).

In Round 1 participants were asked which of the safeguarding options has the largest potential in the future (10-15 years) to become implemented and effective in ensuring the safeguarding of mineral resources via land use planning. The **policy tool** ('soft safeguarding') was the answer preferred by half the respondents, e.g. because it is the most realistic as the mining sector needs support by policy. A 'soft safeguarding' option also appears preferable because the knowledge on mineral resources is very dynamic and changes in land use planning take place on a less frequent basis ("*only with the publication of a new/modified land use plan*") (spatial planner). Also, in the case of legal protection, if mineral resources are discovered in an area where the land use plan does not allow mining (e.g. because at the time of creating the plan no knowledge of mineral resources was available) it will be difficult (time-

consuming) to change such land use plan. One respondent argued: "*the policy tool seems more effective and easier to implement because can introduce the consideration of the mineral potential, already known or to be discovered in the future; it could be achieved by means of changes on the current land use planning rules rather than new normative*." A respondent from Greece argued: "*All the other tools [legal and voluntary] have been implemented more or less in Greece and have been proved ineffective"* (spatial planner). Another argument was the complexity of an integrated legal tool: *"I think it will be too difficult to integrate a legal tool in all Europe, mostly because of the complexity in land use planning and the variety in different countries/regions*" (geologist).

The **legal tool** ('hard safeguarding') was chosen by 39 % of respondents as the tool with the largest potential in the future (10-15 years) for the safeguarding of mineral resources in Europe via land use planning. Respondents in favour of the legal tool argued that law is very important in the context of appeals, e.g. "*In mining context, law is the only thing that matters when appeals are submitted*" (regional planner) and that there is a need to (counter) balance other land-uses that do have and apply legal safeguarding for their protection (e.g. Natura 2000 network for the legal protection of nature conservation sites). One of the respondents suggested that, based on the UK example, the preference for policy or legal depends on implementation. He mentioned: "*The UK has had safeguarding for over 50 years - it is weak where policy is weak and effective where policy is effective*." (mineral resources and planning expert).

One of the respondents argued that the MINLAND project should propose ways to transpose into national legislations technical and scientific conclusions of the finished MINATURA2020 project[15]: "*If the technical and scientific conclusions of the MINATURA project will not be transposed to national legislations, a lot of mineral deposits of public importance will be sterilized due to other pressing land uses, that will be prioritized. This transposition (proposals to do it) should me the main objective of the MINLAND project.*" (geologist)

Those against the usage of legal tools argued that such status could provoke rejection from the general public, i.e. "*A legal tool can potentially increase the hostility towards mining from the public*" (environmental management specialist), "*Giving a legal privilege to mining over other land uses can only bring more harm than good*" (environmental specialist) and "*In my opinion the creation of a legal tool to impose safeguard areas for mineral resources is dangerous. We can undervalue these areas because when we define them we have already taken into account some restrictions (environmental, urban pressure, etc.). Member states do not know well their mineral resources, they know their geological potential but are uninformed of the true economic value of the mineral resource*. *The value of commodities also has oscillations and the attraction for a certain area may vary over time. Defining strategies and long-term planning with well-defined research and exploration steps is the right way to protect and exploit mineral resources. In short, it is necessary to define strong policy decisions with respect to the safeguard and protection of mineral deposits*." (mining engineer)

Another respondent separated the preference of a policy or legal tool based on whether safeguarding is for "mineral potential" (prospecting/exploration stage) or for known minerals: "*In some cases it is necessary a legal tool. When you want to preserve a surface an area threatened by various uses likely to cause territorial protection, you need a legal figure. If you want to preserve for mining an area inside a protected area for other purpose, you need a legal tool. But in general, when you are talking about*

[15] minatura2020.eu

mineral potential a policy tool seems more adequate for safeguarding of minerals and to be taken into account in future land plans." (mining engineer)

For Round 2 we suggested experts that apparently that the right combination of policy and legal tools, each depending on political and legal context of each Member State, is the best option. Based on such assumption, we asked if they agreed that: "*Legal tools should be applied to cases where more geological knowledge exists on what needs to be safeguarded and should be applied with care to avoid undervaluing areas and avoid a process of area designation without public consultation. Policy tools such as strategic planning, requirements of applying social and environmental best practices and acknowledging the importance of mineral resources via land use planning should be applied by all Member States, especially for mineral potential areas where less geological knowledge is available of the mineral deposits*".

Almost two-thirds (59.1 %) of respondents strongly agreed that the right combination of policy and legal tools, respecting each Member State´s political and legal context, would be the best option.

However, several concerns and challenges were expressed by respondents from which 22.7 % partially agree and 18.2 % mostly disagreed. The solution should enable sufficient flexibility i.e. the danger might be that "*a mineral-potential area can be/need be locked from potentially conquering uses for a very long time, the "locking" will affect the interim period value of the land and of course the use of the land. i.e. a huge impact on the land owners' privilege to use the land."* (geologist) …the respondent adds that "*such impact needs legal justification…and compensation".* The other unwished initiative was mentioned by one of the participants: "*Forcing any legal or policy tools directly into legislation of EU member states without a public consensus on the level of that particular state, not taking into account the national specifics, could result into a decline in EU popularity in the member state but it can hardly solve the intended problem."* on the national level (environmental specialist).

The way is also seen in equal treating of mineral industry as other type of development e.g. other type of industry, tourism, etc. i.e. *"All human activities have special needs and spatial behaviours that have to be identified, reported and served in ways that will permit their development without undermining the operation of other land uses."* (spatial planner).

Finally in Round 3 we asked participants if they think that a common European approach (not in the form of Directive or universal tool but rather in some "common framework"/recommendations based on best practices and discussion with stakeholders) is useful and welcome to advance on the securing of access to minerals. 85 % of respondents think that a common European approach is necessary and welcome from which almost all (94.1 %) think the "*Member States should take its responsibility to accommodate such EU framework according to their national needs and conditions*". 90 % of all respondents would welcome the discussion about how to best secure the access to minerals in their country.

On the question, who then should be the initiator of such discussion, most of the respondents specified that the initiator should be from the part of national authorities – either through the central government (mentioned 2 times), or competent ministry (4 times) or different variants of combination of competent ministries with geological survey (4 times), national mining authorities (4 times) spatial/land use planning authorities (2 times). Even the role of universities was mentioned once. The different position on the initiator was expressed on the mining sector, while in one case the respondent is giving a role of initiator to the industry "*The mining industry sector (with commission of national authority, geological survey, companies, and all stakeholders)"* (geologist) the other expert give him

an advisory role "…*It should not be initiated by industry, but it is crucial that industry is invited/involved. An EU and global context are important to cover."* (mines association representative)

Summary of main drivers

- Geopolitical situation and protectionism important for supply risk perspectives
- Political will and priorities
- Combination of legal and policy tools seems the best solution
- Situation on the market (stability vs. crisis)
- Attention of media
- Activity and interests of different stakeholders
- EU common approach/framework welcome, role of national authorities in liaising with the EU

4 Conclusions

Imagining possible future scenarios and its effects and perspectives on mineral safeguarding via land use planning is a good exercise to understand the complexity of the current situation, and the main drivers shaping the possible "futures". Possible future scenarios of mining in Europe will be shaped mainly by the international market conditions, a growing minerals demand, policy targets and commitments by the EU and the Member States and country-internal variables such as political interests, social opposition, among others.

Geopolitical situation and its implications on international market makes the future development hardly predictable. Global protectionism scenarios which may severely impact on Europe´s supply security appear rather unlikely to all Delphi participants, and if heading into that direction, Europe will intensify raw material dialogues to ensure a competitive supply of minerals from outside Europe.

Necessary alternative or rather complement to uncertain importing possibilities is seen in increasing recycling rates and in domestic sourcing to secure sustainable supply of materials to European industry. All three options have its technological, economic, and other limitations i.e. imports are conditioned by global market situation, recycling potential is given by technological development, economic reliability and material properties (not all materials could be recycled) and domestic supply (based on geological situation) currently mitigates challenges like increasing environmental restrictions, competing land uses and local opposition which makes any possible mining more and more difficult.

For the domestic sourcing, especially the social and environmental aspects were pointed out. On one hand the domestic production decreases the import dependency which means less material transported on big distances (less CO^2 emissions) and potentially also less import from developing countries where exploitation standards are considerably lower than in Europe (pollution, bad working conditions). On the other hand, increased European mining would mean to dedicate certain land area to mineral development which in consequences means certain impact on life of the local communities and on other land uses in densely populated and intensively used land on the "old continent". However, to meet increasing needs of our society, such activity seems to be necessary.

In this context, the discussion about the access to land covering mineral resources is on site. Policies and legislation have a key role in regulating the concept of mineral safeguarding. Protection of mineral deposits or areas with mineral potential has different shape in European countries, therefore, the perception of the concept is diverse among the stakeholders. In addition, their visions about its future

(European) frame or improvements reflect their experiences, needs and interests. In the Log Frame approach (D5.1) the safeguarding options were presented. In this study we can conclude that for the majority of the Delphi participants a combination of smart policy and legislation which respect unique deposit specifications and local circumstances of each case is the best option as not all deposits in all cases should be safeguarded and protected with the same intensity. No automatic legal imposition to mining over other land uses would be accepted. Also, the need for treating the potential impact on value of land affected by mineral safeguarding was mentioned (e.g. compensation to landowners).

Therefore, a flexible and inclusive methodology based on equal treating of different land uses, knowledge-based valuation, involvement of all relevant stakeholders (including local communities) and informed decision-making rather than rigid and universal tool would be perceived positively by involved experts (e.g. MINATURA results were mentioned). More information about mineral potential areas gathered into a digital database, together with explanatory information to non-professionals (authorities, general public) resulted as demanded from the survey feedback. The common European approach respecting national sovereignty and country-specific conditions would be welcome as well as more initiative from the part of competent authorities in each state. Depending on institutional system (unitary or federal) the decision-making on mineral safeguarding should be on national or regional level according to involved stakeholders.

However, it should be clear that there is a risk that safeguarding of the deposit will not automatically secure the access. Other factors need to be taken into account and managed in parallel to ensure that the access to the mineral resources is also safeguarded, such as political goodwill which is related to social acceptance which, in turn, is influenced *inter alia* by communication and stakeholder engagement with (local) communities), education and transparency of the public and politicians on benefits (economic and social) and risks (environmental, health and safety) and environmental performance of mining companies (using of best available technologies – BAT). Cleaning up of old polluted sites and building a better picture about mining through media together with education on importance of minerals in our everyday life via formal schooling system would indeed help to improve the image of the sector among broad public.

Co-use of land was surveyed, and findings determined that, the assessment of whether it would be possible, is a very location-specific nature and depends on many factors, e.g. stage of the mineral activity (exploration, extraction), type of extraction technique, competing land uses, etc.). Yet, the idea has grown in acceptance and most of the Delphi participants (Round 1, 44 %) answered in favour of a trend in Europe towards more co-use of land.

For achieving a more efficient mineral safeguarding, more informed and transparent land use planning and permitting procedures are needed, e.g. via transparent methodologies. Linked to that, results show that more competency (highly skilled public servants, especially in geological topics) of the public servants seems a necessity as a key step towards reducing the number of technically unjustified decisions thereby also reducing the margin of political influences during permitting procedures.

Securing access to domestic mineral resources should become a part of long-term and strategic policies together with global and European incentives as low carbon economy and sustainable development as their targets could not be achieved among others without sustainable supply of minerals. Even though, such objective might be challenging in the context of short-term elections-to-elections agenda of the political parties and governments.

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6 Annex

6.1 Focus Group minutes

MINLAND – WP5 - Minutes of Focus Group Session on "*Future Stakeholder needs and interests in safeguarding mineral resources and balancing this against other demands on land-use planning*".

Online session, 16th Jan 2019, 14-16 pm. Session chaired by B. Hamadová (BH), chair assistant D. Murguia.

Summary of participants

Attended (14)

Gerry Stanley	GSI (geological survey)
Katharina Gugerell	MUL (university)
Lena Karka	Independent
Luis Martins	ASSIMAGRA (industry)
M.J. Figueira	DGEG (mining authority)
Markku Iljina	Geoconsulting (industry)
Nick Horsley	MPA (industry)
Agnes Raaness	NGU (geological survey)
Ronald Arvidsson	SGU (geological survey)
Nikos Arvanitidis	SGU (geological survey)
Virginia Rodriguez	IGME (geol. survey)
Vitor Correia	EFG (geologists' assoc.)
Zoltán Horváth	MFGI (university)
Anna Ostręga	AGH (university)

Invited (declined, 7)

P. Westman (WWF Sweden)

R. Wasserbacher (WKO Austria)

M. Wiland (Biuro Urbanistyczne Ecoland, Poland),

N. Luodes (GTK, Finland)

C. Marasmi (Emilia-Romagna Region, Italy)

R. Aaltonen (TEM, Finland)

A. Shtiza (IMA Europe)

Methodological Note / Disclosure

During the session the chair assistant took notes of the discussion and of all comments, reproducing as closely as possible in terms of exact words, the comments of all participants following their personal perspective. The session was also voice recorded and used afterwards to check upon doubts and verify the meaning of comments.

The minutes below reproduce the comments of participants but it is not a verbatim transcript; in the cases were exact words are reproduced, this is signalled as a quotation ("") and the exact words *in italics*. Quotations remain anonymous so after each quotation no indication is given as to who posed the comment. The order in which they are placed below does not follow the chronological order in which they were mentioned during the session. Finally, it should be noted that all information provided below are not 'facts' but the standpoint or viewpoints of the participants in the focus group session.

Minutes (summary)

Meeting was opened at 14:08. BH introduced the agenda and explained that this focus groups aims to help people learn more about group or community opinions and needs about future development in minerals safeguarding and its position in land use planning. The purpose of this focus group is to get as many different opinions as possible in order to create more robust visions of optional future scenarios in the next 10 to 15 years.

A roundtable introduction of participants was made introducing their names, country of origin, background and experience. BH introduced the Delphi survey methodology, main topics surveyed and key findings to provide background ideas for the discussion, which was opened at 14:44.

First topic – Main drivers & factors shaping the future development of access to minerals through land use planning (LUP) (next 10 to 15 years)

The question to motivate the discussion was: "*What are the main drivers or factor which you think will mostly influence the future development in the area of access to minerals trough land use planning*?" Examples include economic, political, social & demographic, technology, etc.

Economic factors were the first to be mentioned but not those seen as most important or around which most of the discussion revolved. It was first mentioned that global market trends are very important and they are decisive on how the mining sector will be impacted in the future. The issue of fluctuations and cycles which characterise the sector need to be resolved into the future, otherwise the sector cannot thrive ("*if we increase demands from legislation (hard regulations) it may be too much for the sector, we need to plan for the economic lows (downturns)*". Also important to think about future scenarios is to make a distinction between commodities internationally traded and those that are not (aggregates).

Political and legal factors were the ones most often mentioned and discussed regarding their key relevance for future developments of safeguarding via LUP. The case of the UK and the 'Brexit' was first introduced as a factor bringing much uncertainty into the future development of the minerals industry in the UK, e.g. due to trade policy uncertainties between the EU and the UK (whether the EU will impose tariffs to imports from the UK) or a potential worsening of the bricks shortage which would impact in housing costs[16]. The need for those and other raw materials (RM) was highlighted in the last

[16] According to a 2016 report by the National Association of Estate Agents (NAEA) Britain is facing a shortage of bricks which are needed to meet the growing demand of the UK housing market and the government plans to build 300,000

mineral policy document issued by the UK. The future of RM & LUP in the UK is related to new professionals in charge of those government areas and the housing plans which rely on the aggregates supply; primary materials will still remain important as the quality of recycled materials may not be sufficient and the location of secondary RM tends to be misplaced.

Future developments of the minerals sector will be shaped by the existing and new policies. Yet, it is very difficult to envisage a common future scenario for the minerals sector in Europe. Mineral and other policies are very different around Europe and this is expected to continue, no uniform direction in policy is expected and European regions will have different paths. According to one participant, this is compounded by the fact that the EU does not have competence or responsibility over minerals planning policies of the Member States, so the EU cannot lead a common minerals planning policy. Another participant asked whether a European mineral policy, including LUP issues, be an optional target for the future? He mentioned that: "*The EU has for example common policies for groundwater, mining wastes through respective directives, why not also for minerals? Even if seeming not possible at the moment it might be mentioned as a visionary target*".

As a follow-up a participant argued that the EU does have an important role in setting the agenda and empowering sectors like the minerals one via the EU legislation: the example of the batteries legislation was mentioned and it was suggested that the MINLAND project should use such opportunity to reinforce the connection between the current (and future) need for 'battery minerals' (cobalt, nickel, lithium, natural graphite and others), land use planning and the MDoPI concept. Environmental and circular economy policies were also mentioned to be likely important in shaping future developments.

Another window of opportunity to strengthen the message of the fundamental importance of minerals and the need of safeguarding is linked to the issue of climate change and the transition towards renewable energies. As highlighted in 2017 by the World Bank[17], climate change is driving an energy transition and this will likely increase the demand of a set of over 10 metals and minerals[18] as the world works towards commitments to keep the global average temperature rise at or below 2°C. The most significant example is electric storage batteries, where the rise in relevant metals (aluminium, cobalt, iron, lead, lithium, manganese, nickel) could be to more than 1000 %.

In line with the forecasts of the World Bank, in November 2018 the European Commission (DG ENV) presented its strategic long-term vision '*A clean planet for all*' calling for a European prosperous, modern, competitive and climate-neutral economy by 2050. The strategy (COM(2018)773final)[19] shows how Europe can lead the way to climate neutrality by investing into realistic technological solutions, empowering citizens, and aligning action in key areas such as industrial policy, finance or research. In the Communication it is highlighted that "*raw materials are indispensable enablers for carbon neutral solutions in all sectors of the economy*" and that "*Given the scale of fast growing material demand, primary raw materials will continue to provide a large part of the demand"* (p.12).

homes/year to improve the housing supply. According to such report 85 % of UK imported clay and cement come from the EU and the Brexit could mean an increase in housing costs due to higher import costs.

[17] World Bank. (2017). *The Growing Role of Minerals and Metals for a Low-Carbon Future*.

[18] These include aluminium, copper, lead, lithium, manganese, nickel, silver, steel, and zinc and rare earth minerals such as indium, molybdenum, and neodymium.

[19] https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_en.pdf

Hence, the policy also stresses the role of the European mineral sector for pursuing this energy transition.

In terms of recommendations to shape future developments and governments' directions, it was highlighted that the Raw Materials Initiative (RMI) was not a legal document, it did not force governments to draw mineral policies, but it was a good incentive to adopt more mineral-friendly related policies. After the RMI many governments adopted new policies related to mineral resources. Another participant added that the RMI was also important because "*as part of the RMI the Strategic Implementation Plan of the European Innovation Partnership on Raw Materials, along with other relevant initiatives, like the Raw Materials Supply Group, ERECON, Ad hoc Criticality Group, European Technology Platform for Sustainable Mineral Resources, various experts from all member states were engaged and involved to define common priorities, actions and projects. One of the major achievements is the list of Critical Raw Materials for the EU which was introduced in 2013, and since then has been updated a couple of times, namely in 2015 and 2017".*

One of the participants remarked that an EC Communication and the MINLAND project could incentivise EU governments to provide further incentives where government should work on mineral-related policies, especially now using the windows of opportunity of the (critical) minerals needed for the renewable energy transition.

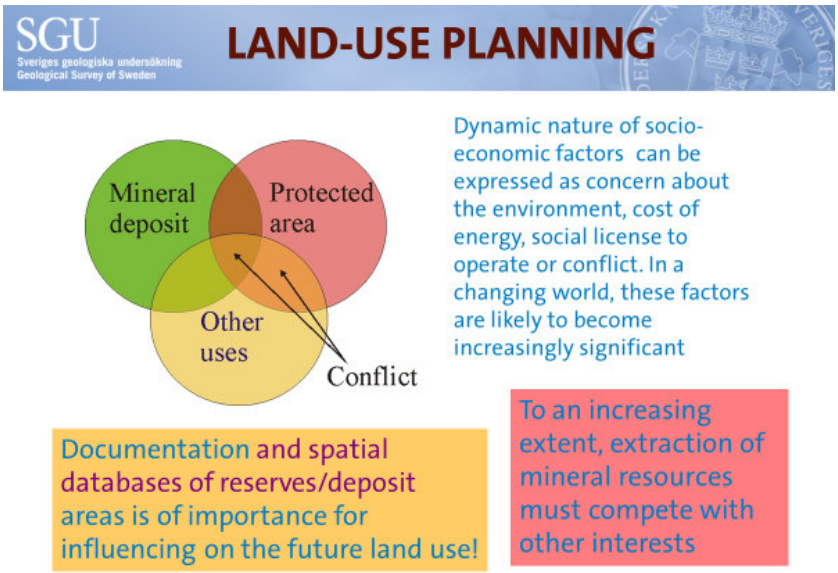
A logical connection was made to the natural factors, i.e. geology. It was mentioned that if Europe wants to play a key role in moving towards decarbonisation, the demand for minerals needed for this transition, could be supplied from mineral deposits located in Europe. The example of the revalorisation of lithium deposits was mentioned, i.e. specifically a lithium deposit in the CZ/German border became under consideration of production. On this issue it was commented that the German side is considered to have made more progress on exploring the deposit and that in Czech Republic less progress was done due to political problems (deposit became part of the political campaign). It was also commented that, when thinking about future developments of the sector, more important than knowing which mineral resources are available in Europe is to know what we want to find, i.e. "*we don´t know what we want in the future*". Another participant replied that "*it is not often about what want to find, but rather what we could find. Various geological settings across Europe favour the occurrence and location of specific mineral deposit types and related resource potential. Strategically exploration should target all potential European mineral belts. Of course depending on current and forecast needs and demand trends, exploration of requested mineral resources may be prioritised*".

Also, the political dimension (political agenda, decision making, political interest) was mentioned as a relevant factor for the future of minerals safeguarding and integration into LUP. It was mentioned that in Europe there is a trend of increasing protection of other (non-mineral development) land uses, there exist different policy agendas which may enter into conflict and mining is not often assessed in parity with other economic activities. Furthermore, participants mentioned that the effectiveness of safeguarding (of mineral deposits) is also dependent upon the goodwill of politicians. Another participant posited that such argument is to "*some extent true, even though sometimes lacking information and bad communication may also contribute to this attitude*". It was also highlighted that the way how governments and political representation works is changing; for instance, in Ireland it was mentioned that "*politicians follow those shouting loudest in the internet*". In connection with the political will, the modernisation of permitting was also highlighted: "*The network of Competent Persons with appropriate quality insurance and rising awareness will contribute to improve mineral safeguarding but political willingness and the modernization of permitting and authority works are also essential*."

Concerning regulations, it was commented that in Poland "*they are very general*" and that mineral deposits should be presented in planning documents. It should be clear in the geological map which mineral deposits are worth safeguarding which would ensure the proper valorisation of the deposit. Those most important should be selected and classified, e.g. the MINATURA2020 project 'MDoPI' (*Mineral Deposits of Public Importance*) concept is instrumental for the classification, selection and valorisation of those mineral deposits of highest importance. It was also mentioned that regulations (legislation) is now facing the challenge of the speed of information exchanges between stakeholders which may make it difficult for authorities to know who are the stakeholders involved in decisions around projects, i.e. there is a need of very clear and simple rules of who are stakeholders to be involved.

Social factors like public acceptance were not a major focus of discussion. Some participants mentioned that social conflicts are related to the non-inclusion of mineral resources in land use plans. The case of Ireland was brought up explaining that public opposition to projects is connected to the economic situation inversely: "*in good times there is more opposition, the contrary in downturns people want something*".

Finally another factor which received less attention in the focus group discussion was data quality and access to geological and LUP information. It was mentioned that, based on the Delphi study findings, the improvement of data quality and the access to information for both minerals and LUP datasets can be crucial. Interoperability between national and international systems are also very important. H2020 projects like Minerals4EU, ORAMA and GEOERA are work on these topics. To emphasize the importance of the spatial information on reserves/deposit areas the following slide was provided by N. Arvanitidis:



<u>Second topic</u> – Future stakeholders needs and interests

The lead question for this session was: *What are the needs and interests (current and future) of stakeholders (government and public administration, the public, industry, others such as independent experts, the media, etc.)? How it will influence the future development?*

Most of the discussion revolved around government and public administrations´ needs and interests. When thinking about potential future developments and in connection with the importance of

politicians' interest and goodwill, the electoral issue became of importance. First the conflicting issue of a need for long-term policies and its alleged incompatibility with the political agenda of the government (short-term horizon of 4 years until next election) was brought up. One response was that legal frameworks and acts are expected to resolve such issues: it was posited that opening a mine is dependent upon laws and not on politicians as the time span is defined by the law: "(…) *once a country decided its mineral policy, the law must be adapted accordingly, and changing the policy and legal system takes time. If the mining law is changed every 4 years, the system is a disaster*". Another participants commented that: "*Many times, the law remains the same, but governments make often their own interpretations to fit their political goal*s".

Yet, such argument was questioned by the issue of the 'elections fragmentation' phenomenon[20]. In such situations political parties find it difficult to form coalitions and the governing majority (the actual government) is in a weak position and many proposals to stop mineral development projects (not just metal mining ones) are implemented. The Irish example was mentioned as an example of a country with 'elections fragmentation' and an example where the ban of fracking became law by 1 or 2 members of Parliament, so the argument was that "*the legislative process can be quickly changed, it no longer takes years as in the past*". Another argument was that laws affected by appeals make for fast change of law.

It was posited that politicians and their interests (instead of technical aspects) may be having too much influence on decisions related to LUP and minerals safeguarding, e.g. on permitting procedures. First, the case of Poland was mentioned. A survey (questionnaire) was made in a number of Polish municipalities to examine the educational background of people involved in the permitting process. Results found that most clerks/public servants are educated in environmental engineering, economic or agricultural-related, but only very few people with mining or geological background. Thus, there is a widespread opinion that it is a political decision what to do with mineral deposits in the permitting decision, so big influence of politicians in the decision and very much connected with social licence issues.

The case of Portugal was also mentioned as one where the influence of the political parties are considered very high and the wish for more knowledge-based decisions. The Portuguese representative argued that "*there is a need to reduce inputs from the political side which would give companies signs to make the long-term investments necessary for metal projects*". The key message is to find a way to ascertain (make mining companies believe) that if they fulfil all requirements, they will open the mine, and this can be achieved, from an industry perspective, as long as political influence is small (or smaller than nowadays). In Greece, Romania & Scandinavia there exist also cases where the political influence was too high and prevailed over knowledge-based decisions.

In Hungary national land use plan needs to be applied on regional level. Regional Government Offices have departments for mining and environmental issues, but approval of permission for exploration and exploitation is based on national level legislation. It means that Environmental Act can be stronger in many cases but mining it means mineral safeguarding for a long time.

The cases of Finland & Sweden were also mentioned by one participant as countries were the public opinion can influence politicians and change (turnaround) decisions and there is a risk that decisions are made without sufficient technical foundations. This raises the question of which are the principles

[20] Note by the minute's author: it refers to electoral results where the major traditional parties fail to win most of the votes and votes are distributed among a larger number of smaller parties and independents. Examples are Podemos in Spain, the Five Star Movement in Italy, the Sweden Democrats, etc.

needed? Is there enough competence throughout the whole permitting process, in land use, in environmental assessment? If countries don´t have geological and technical competence, decisions may go anywhere, which highlights the need to focus and promote the competence issue so that it gets into the systems. The objective of this is to promote a balanced assessment and prevent (technically) unfounded decisions from any decision-makers, mining-related or land-use planning-related. Another participant argued that in Sweden "*the public opinion changes from region to region. There are for example historical mining regions like Bergslagen and Skelleftea where people in most cases accept mining activities*".

It was remarked that land use planners have a difficult task in integrating and evaluating land uses, so improving competence is needed, both in mining-related, environment-related and land-use-related aspects (for urban uses, etc.). For instance, in the perspective of planners in Greece, the issue of mining is a controversial one and planners avoid to deal with issues related to mining. Moreover, in Greece there are no concrete guidelines for mining issues for planners; usually further studies are requested to examine problems and propose solutions. National spatial plan for mineral resources: only 1 group answered the call to create the plan, other groups do not know enough.

Again, the aspect of political interest/goodwill and its relation with social acceptance was brought up as fundamental when thinking about stakeholders' needs and interests. A case in Portugal shows that if mining companies don´t have the political support, they will have problems even if complying with legal regulations. According to a participant, "*In Portugal a company presented a good EIA, received the mining concession and permits but due to social conflict and lack of political support, the mine could not go into production*".

Another aspect around public opinion is on whose voice is heard? It was highlighted that in some cases local populations (living close to the project/mine) are not the stakeholders leading the stakeholder engagement procedure, i.e. other non-local stakeholders may have a 'louder voice' in comparison to local ones. In consequence, one participant posited that there have to be clearer rules of whose voice is heard, but it is tricky as the "*environmental assessment legislation is very open. Clear rules for stakeholder engagement are needed"*.

As follow up of the competence issue of decision-makers, the aspect of education of the public and its impact on social acceptance of the industry was also brought up. In the case of Spain it was remarked that education on the minerals sector, its dynamics and impacts is much needed as a path to break the circle of the NIMBY phenomena. It was also highlighted that social acceptance will not be increased only through companies´ actions, but that education in high schools and universities about the sector and its importance for daily life are needed and this needs to be accompanied by political will. Here also the role of the media and the education of journalists was mentioned as a challenge, especially because "*people only want to hear scandals and sad stories, not the good ones*", so how to change this?

The example of how Portugal improved the assessment procedure was mentioned. In Portugal for each municipality there is a commission with a mixed group including the mining authority, and every 10 years the commission tries to have a consensual plan for the municipality. In the majority of cases a consensus is reached and is approved by the municipality board, it goes through a public audience (60 days) and after the process the definitive version is approved. So investors know what kind of projects can be implemented. But this does not mean no problems appear and if social licence is not granted by communities problems will still appear.

For the future, competition with other stakeholders and their future needs appears important. For instance, in Greece great competition with 2nd home development and tourism, and mining is seen as an obstacle for those development as it destroys landscapes and pollutes, so many people are against mining activities.

<u>Third topic</u> – Hypothetical (optional) future scenario (2030 and beyond)

This topic asked participants to discuss future scenario developments based on three possible scenarios, i.e. to reflect on the most likely one:

1. ***Inclusive***: Will be the policies more comprehensible and cooperation between stakeholders improved? Will the society and government better understand importance of raw materials for our everyday life?
2. ***Business-as-usual (BAU)***: Will the public and public institutions remain indifferent to the claims of the minerals sector and research and development? Will the stakeholders try just to „survive somehow"?
3. ***Divergent***: Will be the policy framework more complex and ´conflicting´? Will be the competition between different stakeholders' interests shaping the future development in more divergent ways?

Below we provide a summary of all opinions by participants.

Opinions were heterogeneous opting between Inclusive, BAU and an in-between between BAU & Divergent. Two participants opted for a mix of the 3 main scenarios: "*a mix of the 3 is probable, integrative policy and inclusion would push more towards Inclusive, but not necessarily means everybody will have a better understanding of RM´s importance in everyday life. Policy context will become more complex as more topics are getting in, at the national level minerals are embedded but what about the future link to EU legislation?*". Another opinion was: "*probably BAU won´t be the scenario as opinions change; there are several layers to consider: 1. Influence of Europe and global, 2. National, regional and local development, if things become too complex at a certain point they will break down (cf. statistics chaos theory, chaos rule), when chaos comes and this is due to increase systematic procedure on the very local scale, 3. Reactive forces from professionals and politicians in which direction it will go. Part will be inclusive, part will be BAU and there will be also some divergent. It is a matter of having a complex system to function well together for all land uses*".

One of the opinions highlighted the difficulty in thinking about a scenario for all Europe: "*I can only comment in Finland perspective; at the moment it is developing towards inclusive and BAU, but the development in Europe depends on the area where you are, scenarios/regions may develop in different paths*".

Another opinion was more of a general nature and posited the following: "*I would generally like to raise the following issues being taken into any future scenarios:*

1. *The raw materials community should raise and make clear to any kind of audience and authorisation level that minerals are needed for implementing the UN's SDGs and ending up to a green energy economy, a fossil-free industry and a low-carbon society.*
2. *Circular economy should be part of any industrial process, not necessarily only connected to recycling but mainly by being included in the loop of any mineral value chain. This goes also along with the zero-waste target.*

3. *The SLO needs to be kept behind us. The way things are developing require a new socio-economic approach. It is and has to be central that mining is needed for reaching the climate and other environmental goals making today major societal challenges. Otherwise any Li-battery manufacturing and electrification will not be possible*."

Below we provide the opinions classified as to the scenario participants believed to be the most likely one:

Inclusive

- Reality is between Inclusive and BAU but I would believe in the first one (Inclusive)
- Inclusive could be the most probable; in Poland much is being done to promote cooperation with local stakeholders and increase their awareness, so this will increase the educational level on importance of MR, the public acceptance of mineral resources and why this is important.

BAU

- Inclusive is the scenario that should be improved, that is desirable, but due to the reasons described the real one will be BAU.
- Lot of people trying to go towards inclusive while there are trends towards divergent, but most likely the BAU scenario in the case of Spain
- We should aim for inclusive, but there will be more conflicts and a BAU scenario.
- BAU is the most probable one; for stakeholders situation will be to just survive, but we have to make people understand there is a need for better management of mineral resources, the future will be more conflicting for Mediterranean countries like Greece, there will be a big problem for extraction in the next years if we don´t do something.

Between BAU & Divergent

- Policy framework will become more conflictive; I would like to say inclusive will happen but being realist the policy framework will become more complex and conflicting, next 15 years would go between divergent and BAU (sounds pessimistic), but unless you have a crisis or a shortage, things don´t change. Last year in the UK the only thing that hit the press was the shortage of CO2 to supply the vehicles and the shortage of chicken to supply KFC, but at the moment I am not optimistic.
- By having more people involved you´re more likely to have a divergent scenario, greater conflict will happen in the future. From an industry perspective they would like to have a BAU scenario, so BAU is more likely to be the scenario.

Meeting was closed and participants were thanked for the inputs. They were informed they will receive the minutes for reviewing and the inputs of the FG session will be used for the creation of MINLAND´s Deliverable 5.2.

6.2 Delphi Survey

6.2.1 Panel of experts participants

#	Name	Expertise	Affiliation or country
1	Peter Akerhammar	Mineral resources, mining	Geological Survey of Sweden, Sweden
2	Ramón Cabrera	Mineral resources, public engagement, LUP	Society for Research and Mining Exploitation of Castilla and Leon (SIEMCALSA), Spain
3	John Cowley	Mineral resources, mining, environmental issues, public engagement, LUP	Mineral & Resource Planning Associates Ltd, UK
4	Guillaume Bertrand	Mineral resources, mining	Geo-resources Department, BRGM, France
5	Alicia Flores Marín	LUP	S.G.O.T.y.S.U Junta de Andalucía, Spain
6	Nick Horsley	Mineral resources, mining, environmental issues, public engagement, LUP	Mineral Products Association, UK
7	Markku Iljina	Mineral resources, exploration	Finland
8	Helen (Lena) Karka	Mineral resources, mining, environmental issues, public engagement, LUP	Land use planning consultant, Greece
9	Kaj Lax	Mineral resources, mining, sustainable development	Geological Survey of Sweden, Sweden
10	Blaženka Lukšić	Environmental issues, LUP	Spatial planning expert, Advisor - Specialist, Croatia
11	João Meira	Mineral resources, mining, environmental issues, public engagement, LUP	Visa Consultores, SA; Portugal
12	Zoltan Németh	Mineral resources, mining	SGIDŠ, Slovakia
13	Stefan Sädbom	Mineral resources, mining, exploration, environmental issues	Bergskraft Bergslagen Economic Association, Sweden
14	Gerry Stanley	Mineral resources, mining, environmental issues	Ireland
15	Manuel Vázquez	Mineral resources, mining	Mining Administration Andalucía, Spain
16	Robert Wasserbacher	Mineral resources, mining, environmental issues, public engagement, LUP	Association for Building Materials and Ceramic Industries, Austria
17	Name not disclosed	Environmental issues	Senior consultant on environmental issues, associate professor, Sweden
18	Name not disclosed	Land use planning	Croatia
19	Name not disclosed	Mineral resources, mining, sustainable development	
20	Name not disclosed	Mineral resources, mining, public engagement, LUP	Industry association representative, Portugal
21	Name not disclosed	LUP	Land use planning specialist, Poland

#	Name	Expertise	Affiliation or country
22	Name not disclosed	Mining, environmental issues & LUP	Regional planning specialist, Finland
23	Name not disclosed	LUP	Planning manager, Finland
24	Name not disclosed	Mineral resources, mining & LUP	Mining authority, Portugal
25	Name not disclosed	Mineral resources, mining, environmental issues, sustainable development	Association of mines and minerals producers, Sweden
26	Name not disclosed	Mineral resources, mining, environmental issues, public engagement, LUP	County Administrative Board representative, Sweden
27	Name not disclosed	Environmental issues & public engagement	Slovakia
28	Name not disclosed	Forest and Mining Specialist	Sweden
29	Name not disclosed	Mining	Regional mining authority, Italy

6.2.2 Description and evaluation of Rounds 1 to 3

Table 2: Description and evaluation of Rounds 1 to 3.

Round 1 - Description	Round 1 - Evaluation
The first questionnaire consisted in 12 questions regarding the following issues: 1. Demand for primary raw materials; 2. Influence of recycling and substitution; 3. Information on mineral deposits; 4. Mineral safeguarding; 5. Constraints to mineral safeguarding and competition with other land uses; 6. Co-use of land vs. single use; 7. Better decision-making; 8. Environmental performance of mining and social acceptance; 9. Pre-requisites of social acceptability; 10. Protectionism policies; 11. Safeguarding options; and 12. Permitting procedures. Each question was usually introduced by a short statement describing the current situation, trends, or suggested ways forward based on literature review, previous research activities, EU policy targets or MinLand project – related activities. The questions were addressed to the future development in the next 10 to 15 year or alternatively to the strategic year 2030 and beyond and they were of two forms (DESIRABILITY – what kind of development the respondent would like to see or FEASIBILITY – what kind of development the respondent is expected to happen). The answers had two parts, the first was pre-defined answer options	The pre-defined answers were evaluated statistically in percentage of answers. In the argumentation part provided in free-text answers we could observe some repeating topics or messages in several answers (in different wordings specific to each respondent), so we tried to identify them and formulate into summarising text. Also, minority, marginal or unique opinions were considered complementing the dominant ones. When possible, the summary was supported by quotation text to demonstrate or specify the message behind. The aim of the summary of the assessment of each question was to provide an overview of spectrum of different opinions and points of view obtained from respondents. The assessment was therefore presenting results in qualitative data (percentage of responses in pre-defined answers) as well as qualitative information (summary of argumentation) together with selected quotation to mitigate the risk that some opinions were misinterpreted. At the same time, the pragmatic approach needed to be taken – i.e. the summary had to be clear, objective and concise to provide a relevant feedback to respondents in the next round.

(single or multiple choice, yes/no/no opinion, degree of agreement likert scale, selection of predefined statements/positions, or similar) and the second, the free text answers, where participants were asked to clarify, justify chosen option or provide other comments. The circulated version of the Questionnaire 1 is in the Annex.	
Round 2 - Description	**Round 2 - Evaluation**
The Questionnaire 2 consisted on: - text of the questions of the 1st Round - statistical evaluation of results - summary of assessment of arguments provided by participants in the 1st Round - new questions and statements for the Round 2 based on the feedback received in the 1st round The assessment of the first round served as a basis for formulation of the questions and statements of the Questionnaire 2. The same 12 issues– corresponding to questions 1-12 of the Questionnaire 1 were addressed in the 2nd Round. The questions had different forms and the way of answering depending on the needs resulting from the feedback received in the first round. In some cases, the statements reflecting variety of experts´ opinions were presented (Questions 1,2 and 3), and respondents were asked to express the degree of agreement or degree of importance (likert scale). In other words, they were faced to react and provide arguments to opinions of each other. In other cases, the provided statements were more concluding ones (Questions 7,8, and 11) or they aimed to specify the addressed issues (Questions 4, 5, 9), or presented implications (Question 6) and variety of scenarios (Questions 10) resulting from the first-round answers. Last question (12) and sub-question of the Q6 were exploring possible change of the opinion with respect to the first round after reading their colleagues´ opinion. The overall objective in the questions' formulation was to improve understanding of concepts, help with clarification of stakeholders' opinion, and facilitate and improve the argumentation and justification of positions. The forms of pre-defined answers were either likert scale (importance, agreement) ranking (degree of influence, importance) selection-answers or yes/no options. Each question has also possibility to justify, specify and comment in	The evaluation of the second round had a similar procedure and followed the same principles as the first-round evaluation. Again, statistical assessment of the pre-defined answers was provided together with an assessment of the free-text comments and argumentation. However, the summary was formulated with the aim to prepare the base for the last round of the questionnaire, therefore, it has been more concluding one. Specifically, the assessment of some of the questions which reflected closely related issues were provided in tandem (original 1 and 2; 4 and 5; 8 and 9; and 11 and 12) in order to facilitate to the respondents more complex and consistent overview.

the free-text answers which was widely used in all 3 rounds.	
Round 3 – Description	**Round 3 - Evaluation**
<u>The structure of the Q3</u> - statistical evaluation of the Round 2 and summary of respondents´ argumentation. - new questions and statements for the Round 3 As mentioned, the Questionnaire 3 was the last and the concluding one, therefore, some of the questions were merged resulting in final 8 (1. Demand for and supply of (primary vs. secondary) raw materials; 2. Information on mineral deposits; 3. Mineral safeguarding concept and constraints to its application; 4. Co-use of land with mineral exploration and extraction; 5. Better decision-making; 6. Environmental performance of mining and conditions of social acceptability; 7. Protectionism policies; 8. Legal and policy framework on mineral safeguarding and permitting procedures). In addition, at the beginning of each question a brief recapitulation of what was asked in the previous round was provided. The aim of these questions was to clarify resp. help to formulate the group opinion to the possible extent. Other important objective was to define the country-specific needs and conditions which might have influence of the respondents´ opinion (in different countries different issues might be more problematic than others). Finally, the overall objective of the Survey, i.e. exploring the possible future scenario and stakeholders´ needs, was reminded. In this sense, some of the questions used the same statements as in the previous round, however, the aim of the question was different – i.e. to specify the country-specific needs (Q2 and 6) or to specify the future development (Q1). Some of them were oriented to specifying the vision of future mineral safeguarding and the ways of its implementation (Q3, Q5, Q7) or some of the best practices like co-use of land (Q4 – possible options and conditions of co-use of land). The last question was addressed to desired and expected future steps in the area of the topics of the survey.	As the third round was the last one, the assessment could not be presented to participants as a part of the questionnaire for the next round. Therefore, we provide this assessment as the part of the annex of this deliverable. In accordance with previous rounds, also the evaluation of the third round had a similar procedure and followed the same principles, i.e. includes statistical assessment of the pre-defined answers together with an assessment of the free-text comments and argumentation. In comparison with the previous rounds, it included more direct quotation texts. The aim was to reflect the stakeholders' positions as much as possible. Also, one of the reasons is that at this stage of the Survey, less general and repeating messages appeared and, in opposite, more specific (or even country-specific) comments were addressed, which makes writing the summary as a "story-line" more complicated.

6.2.3 Quality check questionnaire results

The Quality check questionnaire was sent to all Delphi Survey participants after finishing the 3rd Round of the Delphi Survey. Questionnaire was anonymous and voluntary. Totally 13 people (from 29 survey participants) answer to the following questions:

In which Rounds you have participated?

		Answers	Ratio
Round 1		13	100%
Round 2		12	92.31%
Round 3		12	92.31%
No Answer		0	0%

Please, rank from 1 to 5 to what extent you were satisfied with the following aspects of the Delphi Survey (1 - very dissatisfied, 2 - dissatisfied, 3 - neutral, 4 - satisfied, 5 - very satisfied): Topic of the Survey Has been the topic attractive for you?					
	1	**2**	**3**	**4**	**5**
Topic of the Survey	***0.0%***	***0.0%***	***15.38%***	***7.69%***	***76.92%***
Relevancy of questions	***0.0%***	***0.0%***	***0.0%***	***23.08%***	***76.92%***
Clarity of questions and statements	***0.0%***	***0.0%***	***15.38%***	***53.85%***	***30.77%***
Reflection of your opinion in the assessment Are you satisfied how your positions from the questionnaire 1 and 2 have been considered in the summary of the previous round in the questionnaire 2 and 3, respectively?	***0.0%***	***0.0%***	***7.69%***	***53.85%***	***30.77%***
Balance of positions Do you think the assessment of the answers from the questionnaire 1 and 2 provided in the summary of the previous round in the questionnaire 2 and 3, respectively, have been balanced with respect to the different points of view?	***0.0%***	***7.69%***	***0.0%***	***53.85%***	***38.46%***
Form of the Survey and complexity Has been the form of the Survey acceptable for you in terms of complexity, readability of questions, answering options, length, etc.?	***0.0%***	***0.0%***	***15.38%***	***53.85%***	***30.77%***
Timing Has been the timing suitable for you in terms of deadlines, time schedule of the rounds, etc.?	***0.0%***	***15.38%***	***23.08%***	***38.46%***	***23.08%***

Please, rank from 1 to 5 to what extent you were satisfied with the following aspects of the Delphi Survey (1 - very dissatisfied, 2 - dissatisfied, 3 - neutral, 4 - satisfied, 5 - very satisfied): Topic of the Survey Has been the topic attractive for you?					
	1	**2**	**3**	**4**	**5**
Clarity of instructions and communication with the facilitator Have you had enough information about the Survey, has been all instructions clear enough, was the communication with facilitator of the Survey satisfactory?	***0.0%***	***0.0%***	***7.69%***	***46.15%***	***46.15%***

How would you rate the Survey generally? From 1 (min) to 10 (max) satisfaction

		Answers	**Ratio**
1/10		0	0%
2/10		0	0%
3/10		0	0%
4/10		0	0%
5/10		1	7.69%
6/10		0	0%
7/10		1	7.69%
8/10		7	53.85%
9/10		0	0%
10/10		4	30.77%
No Answer		0	0%

6.2.4 Questionnaires and assessment Rounds 1 to 3

MinLand E-Delphi Questionnaire 1

E-DELPHI SURVEY: FUTURE STAKEHOLDER NEEDS AND INTERESTS IN MINERAL SAFEGUARDING AND LAND USE

Please fill in the Questionnaire until the 9th November 2018.

Instructions

The objective of this survey is to collectively forecast future developments of stakeholder needs and interests in minerals safeguarding. We want to survey your expectations of how the future needs and interests may develop (realistic view, possible futures) as well as what you would like them to be (your desirable future, your vision). Original thought and insight is required to produce a vision that is more than a rehash of what is already known. We know about current needs, interests and challenges associated with minerals safeguarding, but we wish to know what you think how this may develop by 2030 and beyond. Please try to extend your thinking beyond today's conventional wisdom.

Project yourself into the world of 2030 and beyond and describe which minerals may still be needed by the European society and how they might be supplied, if society´s interest in mineral safeguarding has increased, which policy and legal instruments have become more effective for minerals safeguarding, how land use planning has managed to make minerals safeguarding compatible with other land uses (e. g., via co-use of land). You are not limited to predicting what will happen but also include what you think we should try to make happen. Use as many sentences as you need to describe each idea.

For your responses related to future likely developments, please try to not just extrapolate from current trends.

Attention! The statements offered to you in the questionnaire might be in some cases contradictory to each other. The aim is to promote reflection on issues from different perspectives.

Participant information

This information will serve only for your identification by the facilitator of the survey for survey-management purposes and will not be displayed to any third party.

Name:

Affiliation:

E-mail:

FUTURE OF MINING IN EUROPE

1. Demand for primary raw materials: : Technology development is rapidly changing production and consumption patterns. Alongside the conventional metals demanded nowadays (iron, bauxite, copper, etc.), new future materials (e.g., hybrid materials) and known materials will be used differently by the industry in new and emerging technologies. By 2030 the mining sector in Europe will achieve more strategic position in public sector due to up-scaling need for raw materials. Thus, all types of minerals (metallic, industrial minerals, construction materials) will be mined in Europe in higher amounts than today. Do you agree?

- Strongly agree
- Partially agree
- Mostly disagree
- Strongly disagree
- No opinion / other

Please justify your answer, describe why do you think so:

2. Influence of recycling and substitution: The initiatives towards Circular Economy and resource efficiency will stimulate a boom in use of secondary raw materials and innovations in substitution by more ecologically friendly materials. The future metals supply will see an increasing share of recycling, which will push the prices of primary raw materials down. By 2030 such situation will lead to reduced mining production, closure of mines, depression in technological development and overall recession of the European mining sector. Do you agree?

- Strongly agree
- Partially agree
- Mostly disagree
- Strongly disagree
- No opinion/ other

Please justify your answer, describe why do you think so:

SECURING FUTURE ACCESS TO MINERALS (=mineral safeguarding), LAND-USE COMPETITION BETWEEN MINERAL RESOURCES AND OTHERS (including co-use of land)

3. Information on mineral deposits: Independently from the (positive or negative) development of the mining sector in Europe, the primary raw materials will be always needed to certain extend. Therefore, the access to minerals must be secured for future generations. For this is needed an access to information on mineral deposits and their potential (intrinsic value of deposit - geological, economic, socioeconomic, etc.) what many stakeholders consider as essential but insufficient in existing platforms[1]. How do you think, the availability of information about mineral deposits could be best achieved in Europe in the perspective of 10-15 years? You can mark more than one answer. (DESIRABILITY QUESTION)

- The states should invest intensively to prospection and exploration projects from public sources to obtain more information about its mineral wealth
- The states should try to involve in several exploration projects by joint venture to have the direct access to information about mineral resources
- The states should create conditions to attract more private investors to stimulate mineral exploration in the country and collect such information into the national database
- Do not know
- Other

Please, specify

[1] (e.g. Minventory, Minerals4EU, etc.).

4. Mineral safeguarding concept: What is your overall perception of the mineral safeguarding concept in the context of land use planning in Europe in the perspective of 10-15 years as a prevention to mineral sterilization[2]? Please, mark the answer you feel is more closely expressing your position.

- The effective mineral safeguarding as a part of land use planning is the best way how to secure the future access to minerals
- The mineral safeguarding is important, but only as a complementary tool. Such instrument will not automatically secure the access to minerals
- The mineral safeguarding is not necessary, more important is to support the European mining/mineral industry by other instruments (specify which ones, in the comment)
- The mineral safeguarding is only other instrument which will contribute to already complex and bureaucratic system of land use planning and will complicate the decision-making
- The mineral safeguarding will endanger other land uses and public interests
- No opinion/Other

Please, comment your answer, if necessary

[2] The loss of access to mineral resources due to the use of land for the development of activities that prevent their exploration or exploitation. In other words, it is the term used when development or land-use changes take place which permanently prevent the implementation of exploration activities or extraction of minerals from the ground. Examples are the development of urban areas or transportation infrastructure (e.g. highways) over areas with mineral potential, or legal constraints such as the creation of protected areas (for nature conservation or groundwater protection) which may be hardly compatible with extractive activities.

5. Constraints to mineral safeguarding: Safeguarding of mineral potential areas is already existing in some countries but it is not yet an automatic issue in all parts of Europe. Which constraints to mineral safeguarding do you envisage will be strongly present by 2030 and will complicate implementation and effectiveness of this instrument? You can mark more than one answer. (FEASIBILITY QUESTION)

- ☐ Pressing land uses change drivers (urbanization/housing, transportation, infrastructure)
- ☐ Lack of political will, and consequently a lack of effective legal or policy mechanisms
- ☐ Lack of mechanisms for safeguarding areas with insufficient information about their potential such as prospecting and early exploration areas or areas hosting hypothetical but yet unknown mineral resources
- ☐ Higher priority given to other uses such as nature conservation, groundwater recharge protection areas, forestry, agriculture, etc.
- ☐ Others

Please, justify your answer, provide examples if needed

6. Co-use of land vs. single use: In reaction to the raising competition between different land uses could increase the need for special protected areas (nature protection, cultural heritage, minerals and other natural resources, recreation zones, etc.). Some of the recent research and policy activities[3] resulting from topics related to the COM (2008) 699 *The Raw Materials Initiative,* have brought recommendations calling for more cooperation and dialogue towards multi-use of land resp. “co-use” of land. In the next decade, do you see a trend towards more cases of co-uses of land where mineral exploration or extraction will be positive and other land uses are made compatible (solutions are found) with mineral development activities?

- ○ Yes
- ○ No
- ○ Do not know

Please provide your reasoning and a short description of examples of co-existence (or not) of mineral sector with other land uses

[3] see i.e. MinPol (2017), MINATURA 2020 project, European Commission (2011)

7. Better decision-making: In your opinion, which of the following instruments need to be further developed in the mid-term horizon of 10-15 years you think would help to support a better and informed decision-making on different competing land uses? You can mark more than one answer. (DESIRABILITY QUESTION)

- [ ] Smart policy and legislation and transparent processes
- [ ] Evaluation tool (method or guideline) to compare the value of mineral resources against other land uses
- [ ] Involvement of different types of stakeholders in decision-making
- [ ] Other
- [ ] Do not know

Please briefly detail which other and/or justify your answer

PUBLIC ATTITUDES TOWARDS EXPLORATION AND MINING

8. Environmental performance of mining and social acceptance: By 2030 new technological developments is making exploration and mining more environmentally friendly and thereby reducing the risk of pollution in operating mines. Do you agree that this trend will increase public acceptance of the minerals industry in Europe? (FEASIBILITY QUESTION)

- ( ) Strongly agree
- ( ) Partially agree
- ( ) Mostly disagree
- ( ) Strongly disagree
- ( ) No opinion/ other

Please justify your answer, describe why you think so:

9. Pre-requisites of social acceptability: Generally, in European conditions, the minerals industry has difficulties in achieve the social acceptance of its activities from the part of local communities or broader public. What is your vision of how the minerals industry could best achieve a higher degree of social acceptance by 2030, i.e. which pre-requisites do you think are necessary for that? You can mark more than one answer. (DESIRABILITY QUESTION)

- [ ] More visible social responsibility of mining companies and more benefits which would go directly to local communities (provide examples in comment)
- [ ] Higher amount of publicly available information on provided benefits (payments to governments, number of direct and indirect jobs, benefits to local communities, etc.), costs and potential environmental risks
- [ ] Early-stage and higher degree of stakeholder participation in decision-making (in decisions which may affect the local communities' life quality, e.g. a project engineering design)
- [ ] Better and professional and transparent communication at all phases of project development targeting an adequate management of expectations and aspirations of the local communities
- [ ] General education of public (at schools, trough media, in public debate, etc.)
- [ ] Others

Please briefly justify your answer and specify which answer do you think could have the highest influence on the success

LEGAL AND POLICY DEVELOPMENT

10. Protectionism policies: In the current global and European policy context (e.g. foreign and trade policy of the U.S.A., success of nationalistic movements in elections in Europe, economic and demographic growth of some developing countries, etc.) it is hard to predict how the geopolitical situation would influence the global trade for raw materials in the next decades. One of the INTRAW project scenarios (The World of Raw Materials future scenarios [4]) illustrates that by 2050 there will be a "widespread tendency towards protectionism and former trade agreements are breached". Such scenario would mean that supply of minerals would need to be secured dominantly from domestic resources. In this sense, the nationalism and protectionism would be one of the important drivers of increasing strategic importance of mineral resources and its safeguarding. Do you see this statement as a realistic one in the perspective of the next 10-15 years?

- Yes
- No
- Do not know

If yes or no, explain more your thoughts

[4] INTRAW project (2017)

11. Safeguarding options: Here we have identified three options/tools how the integration of safeguarding of mineral resources in land use planning could be applied by countries. Which one from proposed instruments do you believe have the largest potential in the future (10-15 years) to become implemented and effective in ensuring the safeguarding of mineral resources via land use planning?

- Legal tool: legal implementation of safeguarded areas in land use plans (legally-binding, e.g. minerals safeguarding areas) - hard safeguarding
- Policy tool: consideration of mineral resources in strategic planning and support of mineral resource exploration and extraction - soft safeguarding
- Voluntarily applied guidance: Consideration of mineral potential areas which are not legally protected in land use planning activities
- Other (e.g. fiscal, monetary, etc.)

Please justify your answer/comment

12. Permitting procedures: In addition to mineral safeguarding, another way how to facilitate the access to minerals directly is by effective permitting procedures for mineral exploration and exploitation. However, in many EU countries, the development of the mineral sector is affected by unpredictable and inefficient permitting which has a negative impact on investment security and legal certainty necessary for investors

[5] e.g. if mining will not be permitted or the time from commencement of exploration until start of extraction due to the permitting and too long land use process – in such cases investors leave and project may fail. The investment attractiveness could be partially influenced also by problems with having access to deposits and obtaining the permit because of conflicts of interest with other land uses. Imagine now, the permitting procedures in Europe by 2030. What do you see as the most probable scenario?

- Because of increasing requirements to safeguarding of other land uses the permitting procedures will become even more complex than today which will redirect investments to mineral sector to less developed countries
- The European strategies on raw materials will boost the legal reforms in most of the European countries which will improve the effectiveness of the permitting procedures
- Business as usual. The situation will remain more less the same as there will not be sufficient interest to change the system
- No opinion/ other

Please, explain why do you think so

[5] MINLEX: MinPol (2017)

References:

MinPol (2017). Legal framework for mineral extraction and permitting procedures for exploration and exploitation in the EU. Final report – Study (MINLEX). Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs.

MINATURA 2020 - project of the European Union's Horizon 2020 research and innovation programme under grant agreement nº 642139 – Final report

European Commission (2011). EC GUIDANCE ON: UNDERTAKING NON-ENERGY EXTRACTIVE ACTIVITIES IN ACCORDANCE WITH NATURA 2000 REQUIREMENTS. Luxembourg.

MINVENTORY database:
https://ec.europa.eu/jrc/en/scientific-tool/minventory

Minerals4EU:
http://www.minerals4eu.eu/

INTRAW project (2017) THE WORLD OF RAW MATERIALS 2050:
https://www.rdm.iao.fraunhofer.de/content/dam/iao/rdm/en/documents/The%20World%20of%20Raw%20Materials%202050%20final_web.pdf

THANK YOU FOR YOUR TIME!

MinLand E-Delphi Questionnaire 2

E-DELPHI SURVEY: FUTURE STAKEHOLDER NEEDS AND INTERESTS IN MINERAL SAFEGUARDING AND LAND USE

Round 2

Please fill in the Questionnaire until the 3rd of December 2018.

Instructions

First of all, thank you for your participation in the 1st Round. We have now collected and evaluated all answers which resulted in formulation of the questions for this 2nd Round.

Be prepared that this Questionnaire will be bit longer to read as it contains:
- text of the questions of the 1st Round
- statistical evaluation of results
- summary of arguments provided by participants
- new questions and statements for the Round 2

We hope that such structure offers relevant feedback and allows you to reflect and re-consider your positioning.

Have a nice reading and fruitful reflections!

Participant information

This information will serve only for your identification by the facilitator of the survey for survey-management purposes and will not be displayed to any third party.

Name:

Affiliation:

E-mail:

FUTURE OF MINING IN EUROPE

1. Demand for primary raw materials: Technology development is rapidly changing production and consumption patterns. Alongside the conventional metals demanded nowadays (iron, bauxite, copper, etc.), new future materials (e.g., hybrid materials) and known materials will be used differently by the industry in new and emerging technologies. By 2030 the mining sector in Europe will achieve more strategic position in public sector due to up-scaling need for raw materials. Thus, all types of minerals (metallic, industrial minerals, construction materials) will be mined in Europe in higher amounts than today. Do you agree?

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Strongly agree		9	31.03%
Partially agree		14	48.28%
Mostly disagree		5	17.24%
Strongly disagree		1	3.45%
No opinion / other		0	0%
No Answer		0	0%

Most of the participants (independently from the response) agree that raw materials will still be much needed in the future. **More than 78,4% of respondents believe in a positive future development of the mining sector in Europe** with an increase of the share of domestically extracted resources. The responses of strong agreement with the statement (31 %) were supported by expectations of increasing needs of the growing population together with technological development and problems with potential future imports security. E.g. " Today's mineral net-exporters will develop economically and will become net /zero- exporters or even fight for a "slice" to import. The amount of minerals available on the free market will decrease". Also, an opinion that the mining will increase only in Eastern Europe appeared. Moreover,

an environmental and social aspect of mining in Europe was highlighted (i.e. elimination of bad practices in 3rd countries, reduction of CO2 emission)

The rest of the respondents has expressed smaller (Partially agree 48,3%), or greater (Mostly disagree 17,3%, Strongly disagree 3,5%) concerns about factors which will influence the trends of the mining sector in Europe. Several comments mentioned issues related to public attitude towards mining and its consequences in decision making (policy priorities, permits, land use decision-making), low awareness about the importance of raw materials in our everyday life, a bad reputation of mining which leads to concerns related to environmental issues and local opposition. Other important factors might be a global market development Only a few respondents mentioned as a potential problem availability of all materials required by the industry in the European continent, and the stronger position of use of secondary raw materials. However, as mentioned above, most of the respondents remain positive.

QUESTIONS ROUND 2:

From the argumentation provided by participants we have summarized it to formulate the statements below.

Please, express to what extend do you agree with each statement and justify your opinion in comments:

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
Europe needs to secure mineral supply for domestic resources because there will be no guarantee of imports (trade wars, today´s producers might become importers, etc.)	○	○	○	○	○
Mineral exploitation in Europe following sustainability principles is the way how to eliminate bad exploitation practices in 3rd world countries and reduce CO2 emissions	○	○	○	○	○
Recycling and resource efficiency must play a decisive role in securing minerals supply	○	○	○	○	○
The mining sector will not be capable to increase because of environmental restriction, competing land uses and local opposition (there is lack of knowledge link between every day goods and raw materials)	○	○	○	○	○
European geology will not be able to provide „most types“ of raw materials in commercially viable amounts needed in the future	○	○	○	○	○

Your comments

2. Influence of recycling and substitution: The initiatives towards Circular Economy and resource efficiency will stimulate a boom in use of secondary raw materials and innovations in substitution by more ecologically friendly materials. The future metals supply will see an increasing share of recycling, which will push the prices of primary raw materials down. By 2030 such situation will lead to reduced mining production, closure of mines, depression in technological development and overall recession of the European mining sector. Do you agree?

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Strongly agree		1	3.45%
Partially agree		3	10.34%
Mostly disagree		12	41.38%
Strongly disagree		13	44.83%
No opinion/ other		0	0%
No Answer		0	0%

Almost all participants conclude that recycling and use of secondary raw materials are needed and will increase. **However, 85% is thinking that the recycling and secondary raw materials are not able to cover an increasing demand,** so it will not endanger the mining sector significantly. As the main reasons they provided that not all kind of materials could be recovered as its recycling is not technologically, economically or environmentally effective and viable; questionable they see also its quality properties and life cycle considerations (how long they will stay in use until they will become recovered): *"Even if the recycling rates are increasing the need for primary extraction is vital for the global increasing demand of minerals. However, there could be in some cases higher recycling rates for some minerals. It depends on the life cycle of each material, i.e. steel (i.e. iron and other metals) in buildings and infrastructure normally have a life cycle up to 50-100 years before it will be recycled. "*

Even for the people who partially agree with the statement (10,4%) the recycling is not a definitive solution for minerals supply (i.e. especially for most of the industrial minerals and construction minerals). The way how to secure future demand is seen in complementary use of primary and secondary raw materials. The argument accompanying the strong agreement (3,5%) see *"Recycling and substitution are the ways to go if we as mankind want to behave responsibly towards our environment."*

QUESTIONS ROUND 2:

Again, we have summarized the argumentation provided by participants to formulate the statements below.

Please, express to what extend do you agree with each statement and justify your opinion in comments:

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
It is absolutely necessary to increase recycling of all minerals/metals whenever possible	○	○	○	○	○
Sustainable use of resources is not “either or”, but “both”	○	○	○	○	○
The demand for primary raw materials will remain high as many raw materials cannot be recovered/reused and recycling and use of secondary raw materials are not capable to cover an increasing demand	○	○	○	○	○
The extraction of primary raw materials is not competitive, but it is working in support of the Circular Economy	○	○	○	○	○

Your comments

SECURING FUTURE ACCESS TO MINERALS (=mineral safeguarding), LAND-USE COMPETITION BETWEEN MINERAL RESOURCES AND OTHERS (including co-use of land)

3. Information on mineral deposits: Independently from the (positive or negative) development of the mining sector in Europe, the primary raw materials will be always needed to certain extend. Therefore, the access to minerals must be secured for future generations. For this is needed an access to information on mineral deposits and their potential (intrinsic value of deposit - geological, economic, socioeconomic, etc.) what many stakeholders consider as essential but insufficient in existing platforms[1]. How do you think, the availability of information about mineral deposits could be best achieved in Europe in the perspective of 10-15 years? You can mark more than one answer. (DESIRABILITY QUESTION)

[1] (e.g. Minventory, Minerals4EU, etc.).

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
The states should invest intensively to prospection and exploration projects from public sources to obtain more information about its mineral wealth		7	24.14%
The states should try to involve in several exploration projects by joint venture to have the direct access to information about mineral resources		3	10.34%
The states should create conditions to attract more private investors to stimulate mineral exploration in the country and collect such information into the national database		14	48.28%
Do not know		1	3.45%
Other		4	13.79%
No Answer		0	0%

In question 3, we were asking about the position of the state towards obtaining information about mineral deposits from the exploration. The role and position of the state in this area might be quite diverse in each country, so it should be acknowledged that answers might reflect the current national situation.

The 48,3% of respondents answered in favor **of better conditions for private investors.** However, reasoning and comments were quite diverse inside this group and pointed out several issues. Some of the respondents highlighted the importance of the state in collecting the information (e.g. work of Geological Surveys), in providing strong political support or creating economic incentives, simplifying the licensing process, etc. The gaps in the knowledge were confirmed by several respondents - *"data should be digital and the original data should be available - not just finished maps or products."* The respondents had quite opposite opinions with regards to the availability of information to the public: e.g. to *"support minerals exploration and development. This may include investing in regional data collection programmes which would be freely available to everybody including mineral companies and the public."* vs. *"You will have to be very persuasive to convince me of the merit of making this information publicly available. It will become a political stick to beat the sector."*

Also, some quite negative positions towards state involvement in exploration appeared *„Mineral exploration is extremely risky. The state should not be involved in mineral exploration or taking a share in mining ventures"*; or *„The historical record is stuffed full of non-commercial deposits identified by governments and commerce is well aware of deposits where many millions have been spent on exploration to no commercial success"*

The 24% would like to see more state-sponsored incentives in the sector as the state should recognize the value of minerals for the society and thus secure access to information on mineral deposits. Some of them have seen the possibility of better success in taking exploration towards mining in the case they are initiated by the state. Some of the respondents highlighted the importance of both *„the investment in geological knowledge should be done by all the stakeholders"* including the EU cooperation **The joint venture (10,3%)** is seen among others, as a possibility to cover the gaps where private investment is failing. **The 13,8% of respondents have marked option "other"** mentioning that e.g. state should provide support to scientific research projects recognizing the occurrence of minerals, and to collect such information including those from private investors. This group included answers related to

bad experience with practices of exploration and mining companies *„Geological exploration activities (both state- and private-funded) should only be allowed to take place where it makes sense… Geological exploration and mining of raw materials should only be allowed for those where substitution and recycling cannot be used"*

QUESTIONS ROUND 2:

The mineral exploration is only one step in the process how to get the information about mineral potential of the country. Another issue is, how the state will use such information in the decision-making.

According to feedback received from respondents, we have selected several aspects which an impact on the informed and transparent land use decision-making about areas with mineral potential. Please, rank their importance:

	Extremely important	Very important	Moderately important	Slightly important	Not important
Mineral exploration activities (both private and state-sponsored)	○	○	○	○	○
An organization managing the collection, processing, and communication to competent authorities	○	○	○	○	○
The existence of a digital database	○	○	○	○	○
Availability of explanatory information to non-professionals (LUP institutions, public, others?)	○	○	○	○	○
Policies and legislation dealing with mineral resources and land use planning	○	○	○	○	○
State-initiated research activities on mineral resources of the country	○	○	○	○	○

Your comments

4. Mineral safeguarding concept: What is your overall perception of the mineral safeguarding concept in the context of land use planning in Europe in the perspective of 10-15 years as a prevention to mineral sterilization[2]? Please, mark the answer you feel is more closely expressing your position.

[2] The loss of access to mineral resources due to the use of land for the development of activities that prevent their exploration or exploitation. In other words, it is the term used when development or land-use

changes take place which permanently prevent the implementation of exploration activities or extraction of minerals from the ground. Examples are the development of urban areas or transportation infrastructure (e.g. highways) over areas with mineral potential, or legal constraints such as the creation of protected areas (for nature conservation or groundwater protection) which may be hardly compatible with extractive activities.

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
The effective mineral safeguarding as a part of land use planning is the best way how to secure the future access to minerals		13	44.83%
The mineral safeguarding is important, but only as a complementary tool. Such instrument will not automatically secure the access to minerals		9	31.03%
The mineral safeguarding is not necessary, more important is to support the European mining/mineral industry by other instruments (specify which ones, in the comment)		2	6.9%
The mineral safeguarding is only other instrument which will contribute to already complex and bureaucratic system of land use planning and will complicate the decision-making		2	6.9%
The mineral safeguarding will endanger other land uses and public interests		3	10.34%
No opinion/Other		0	0%
No Answer		0	0%

The 76% of respondents believe that mineral safeguarding should be used as a tool for securing an access to minerals. The received comments were quite diverse. Here comes a summary of comments we received according to their response.

The mayor group of respondents **(44,8%) sees special planning considering minerals as a way how to secure sustainable development and access to minerals,** especially **for future generations**. According to respondents, the mineral safeguarding should be at the same level as other land uses *„as water, nature protection, forest, land use for industrial and housing purposes".* The reason for safeguarding is that deposits cannot be moved and therefore are not „so flexible as other land uses" and they are warning that mineral sterilization is already happening in many places. One suggestion was to make safeguarding variable „from total protection to low protection" which could be the solution when it may hinder other development.

Almost **one-third (31%) of respondents do not think that mineral safeguarding will automatically secure the access to minerals.** The thinks that the needs to be improved in the future are e.g. *„a better understanding and knowledge what the benefits and challenges if the mineral deposit are to be extracted is needed among authorities, stakeholders and decisions makers across all levels"*; other instruments like common (EU) guidelines; flexible protection *„safeguarding of the already known mineral potential is*

important, but it should be combined with the flexibility of the land use planning rules in order to allow the development of new discoveries"

The 10.3% of respondents do not welcome the idea of mineral safeguarding as they think that it "should not be "above" any other form of land use" or "It is necessary to keep in mind that mining is only one of the conflicting land use interests and that it is rarely the most important one" and the attitude "I am a miner, who is more" has to be changed. resp. minerals safeguarding should rather to be subordinated principles of protecting social and eco-functions in the environment.

The mineral safeguarding is not necessary, more important is to support the European mining /mineral industry by other instruments and opinion that mineral safeguarding is only other instrument which will contribute to already a complex and bureaucratic system of land use planning and will complicate the decision-making has both by 6.9%. Some of the opinions provide arguments i.e.: Protection of mineral deposits could be secured by other special planning tools, such as limitation of building zones – *„Such a policy would serve to protect many elements of the natural environment, including unexploited deposits of primary raw materials".* The respondents see the problem also with unknown deposits as there always may appear new discoveries or new materials might be demanded in the future. One of the concerns was afraid that there will be too much ´single use´ zones excluding any other. This relates to the need to identify the compatibility of different types of areas e.g. *„mining is temporary, and the land could serve for different purposes afterward".* Mineral safeguarding should be used only as a co-tool together with the education of the population.

QUESTIONS ROUND 2:

Below, we provide several statements related to understanding and application of the mineral safeguarding concept and implications to land use planning.

Please, express your opinion:

	Yes	No	Not decided
Mineral safeguarding should prevent sterilization of mineral deposits by non-mineral development (i.e. urban sprawl - housing, bigger infrastructure)	○	○	○
Mineral safeguarding should enable coexistence with other land uses except those which would sterilize the deposit	○	○	○
Mineral safeguarding could have several levels – from low to highest protection	○	○	○
Flexible land use planning rules could be the way how to enable the protection of new discoveries of mineral deposits.	○	○	○
Mineral safeguarding should go in one hand with education and communication about its impact and importance to the public and relevant authorities	○	○	○

Mineral safeguarding with respect to other land uses should be (1 – super-ordinated, 2 – equally treated, 3 – sub-ordinated)

Only values between 1 and 3 are allowed

Your comments

5. Constraints to mineral safeguarding: Safeguarding of mineral potential areas is already existing in some countries but it is not yet an automatic issue in all parts of Europe. Which constraints to mineral safeguarding do you envisage will be strongly present by 2030 and will complicate implementation and effectiveness of this instrument? You can mark more than one answer. (FEASIBILITY QUESTION)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Pressing land uses change drivers (urbanization/housing, transportation, infrastructure)		11	37.93%
Lack of political will, and consequently a lack of effective legal or policy mechanisms		16	55.17%
Lack of mechanisms for safeguarding areas with insufficient information about their potential such as prospecting and early exploration areas or areas hosting hypothetical but yet unknown mineral resources		11	37.93%
Higher priority given to other uses such as nature conservation, groundwater recharge protection areas, forestry, agriculture, etc.		24	82.76%
Others		2	6.9%
No Answer		0	0%

The question 5 was multiple-choice question, so the people could mark more answers. **Majority of respondents (82,8%) see the biggest constrain which is playing against the potential safeguarding is higher priority given to other land uses which was followed by lack of political will (55,2%)**. Several people even closely connect these two answers or even think that *"other points are consequences"* of the lack political will which is now more oriented to nature conservation and other land uses (tourism, agriculture, forestry, etc.). Some of the respondents complained about too restrictive and limiting environmental policies and legislation. **Pressing land use change drivers such as urbanization, and lack of safeguarding mechanism for prospecting areas and undiscovered deposits had equally 37,9%.** E.g in Spain they lack *"mechanism to change easily the land classification".*

The comments like *"We need a combination and conciliation of nature conservation and mining industry."* and the voice for a need to adapt EU policies on raw materials, Circular Economy, Critical Raw Materials, EC recommendations on Natura 2000 area, etc. at Member States level are *"showing the way for a new*

socio-economic development criteria". On the other hand, even in the countries having experience with mineral safeguarding (e.g. Greece), the access to deposits is complicated by because *"priority was always given in tourism and housing that are judged as incompatible with mineral industry. There is only one exception where these land uses coexist, i.e. in Yerakini, central Chalkidiki, Northern Greece."*

QUESTIONS ROUND 2:

Answers from Round 1 showed that many constraints which might have an impact on the implementation of mineral safeguarding.

Please rank the following factors according to those you consider having the highest influence on implementation of mineral safeguarding agenda ***(1 – the highest influence, 2 – considerable influence, 3 – moderate influence, 4 – Slight influence, 5 – No influence).***

	1	2	3	4	5
Level of general knowledge about the importance of raw materials in our everyday life	○	○	○	○	○
Political will and priority to support securing minerals supply at the national level	○	○	○	○	○
Legislation and policy framework (mining and raw materials, environmental, land use planning)	○	○	○	○	○
Level of knowledge about the occurrence of primary raw materials	○	○	○	○	○
Geopolitical situation and global market development (free trade vs. shortages or trade restrictions)	○	○	○	○	○
Communication and cooperation between stakeholder groups	○	○	○	○	○
Implementation of EU policies on raw materials	○	○	○	○	○

Your comments

6. Co-use of land vs. single use: In reaction to the raising competition between different land uses could increase the need for special protected areas (nature protection, cultural heritage, minerals and other natural resources, recreation zones, etc.). Some of the recent research and policy activities[3] resulting from topics related to the COM (2008) 699 The Raw Materials Initiative, have brought recommendations calling for more cooperation and dialogue towards multi-use of land resp. "co-use" of land. In the next decade, do you see a trend towards more cases of co-uses of land where mineral exploration or extraction will be positive and other land uses are made compatible (solutions are found) with mineral development activities?

[3] see i.e. MinPol (2017), MINATURA 2020 project, European Commission (2011)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Yes		13	44.83%
No		11	37.93%
Do not know		5	17.24%
No Answer		0	0%

Answers are divided with **44% in favor** of a future trend with more co-use of land in Europe and **38% against it.** Answers in favor highlight that co-use of land is already taking place in the case of quarries (touristic uses like bird watching, music performance) where also, from an ecological perspective, co-use of land is already taking place as quarries create new wetland and woodlands for species. Underground mining is also seen by some as an extraction method that could more easily co-exist with other land uses (if compared to open pit mining), especially in the case of new mines. In Poland it was reported that co-use of land by various forms of land development and underground mining techniques is a common norm rather than an exception; also in Poland co-use of land is becoming more common in open pit operations. A respondent mentioned: *"We are in contact with the Environmental Administration to adapt the rules of protection of Natural Protected Areas to a criterion compatible with mining. Not any kind of mining or anywhere, but some sustainable methods (underground mining, surface mining but with a fixed maximum of affected area at the same time, real benefits for local rural communities, etc.)".* However, a pre-condition for co-use of land is that waste management in mining sites is correctly applied.

Those experts against a likely future trend of more co-use of land in Europe argued that important obstacles are a lack of political will, weak government policies (weak means policies not effectively supporting domestic extraction but relying on imports) and NIMBY (not-in-my-backyard) attitudes of the public, i.e. negative attitudes of the public (public opposition). It was mentioned that in Greece often public opposition is common place in almost every attempt to mineral exploitation since several decades, with only a few examples of harmonious coexistence (magnesite in Gerakini area, Chalkidiki, industrial minerals in Milos island-Cyclades).

QUESTIONS ROUND 2:

Please, express your opinion on the statements and justify your opinion in comments:

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
In the near future, mineral exploration activities will be easier to accommodate co-use of land than mineral extraction activities (either quarries or mines).	○	○	○	○	○
Mineral extraction activities in quarries will in the future more easily be able to co-use land with other land uses because the environmental impacts they create (and	○	○	○	○	○

risks of accidents) are less pronounced in comparison to metal mining operations (open pit or underground).					
After reading the Summary of Answers to Round 1, in the next decade, do you still see a future trend towards more cases of co-uses of land in Europe where mineral exploration or extraction will be positive and other land uses are made compatible (solutions are found) with mineral development activities?"	○	○	○	○	○

Your comments

Have your changed your opinion in comparison to your answer in the 1st Round?

- ○ Yes
- ○ No
- ○ Do not know / I don´t remember my answer in the 1st Round

If you changed your opinion, why? Please provide details

7. Better decision-making: In your opinion, which of the following instruments need to be further developed in the mid-term horizon of 10-15 years you think would help to support a better and informed decision-making on different competing land uses? You can mark more than one answer. (DESIRABILITY QUESTION)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Smart policy and legislation and transparent processes		22	75.86%
Evaluation tool (method or guideline) to compare the value of mineral resources against other land uses		18	62.07%
Involvement of different types of stakeholders in decision-making		16	55.17%
Other		4	13.79%
Do not know		0	0%
No Answer		0	0%

Policy, legislation and transparent processes were chosen by the majority (75.8% of respondents) as the most important tools to achieve better, more informed decision-making on competing land uses. **The development of an evaluation tool** (scientific/technical method or guideline) to compare the value of mineral resources against other land uses was also **seen as necessary by 62% of respondents** as well as the **involvement of different stakeholders (55% believe it is desirable). A 13% added "other"** such as better communication to local communities (especially those more directly impacted by mining projects), more explanation and education on the need for mineral raw materials, involvement in decision-making of experts/specialists in mineral resources, sharing of best practices across Europe, among others.

One criticism of evaluation tools argues that *"I doubt it is possible to find a universally applicable tool to compare the value of mineral resources against other land uses. I'm afraid such a tool might be biased towards the mining, especially if the other land uses are not clearly specified. This needs to be judged strictly on an individual basis, case by case, with all the stakeholders involved and no one's opinion ignored"*

QUESTIONS ROUND 2:

Please, express your opinion on the statements and justify your opinion in comments:

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
Based on answers to the 1st Round we could conclude that better informed-decision making on competing land uses (e.g. whether mining is compatible with other land uses) and planning alternatives should be supported by clear policy and legislation and by the implementation of technical/scientific evaluation tools that transparently allow understanding the value of the competing land uses and why a decision was made.	○	○	○	○	○
Likewise, the design and implementation of policy and legislation, as well of any evaluation tool for comparing the value of the competing land uses should be done with the participation (consultation) of a wide range of stakeholders, representing all sectors/interests of society.	○	○	○	○	○

Your comments

PUBLIC ATTITUDES TOWARDS EXPLORATION AND MINING

8. Environmental performance of mining and social acceptance: By 2030 new technological developments is making exploration and mining more environmentally friendly and thereby reducing the risk of pollution in operating mines. Do you agree that this trend will increase public acceptance of the minerals industry in Europe? (FEASIBILITY QUESTION)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Strongly agree		8	27.59%
Partially agree		14	48.28%
Mostly disagree		5	17.24%
Strongly disagree		1	3.45%
No opinion/ other		1	3.45%
No Answer		0	0%

The majority of respondents **(75.8%) agree that new technological developments making operations friendlier with the environment** (e.g. more efficient, less dust, less noise, less impact in the landscape, etc.) and ensuring less environmental pollution risks will increase public acceptance of the minerals industry in Europe. Arguments in favor highlight that improving social acceptance may occur as a consequence of technological developments providing further assurances that catastrophes have a very low risk of happening combined with better, more professional communication to the general public of such risks (improving industry reputation by counteracting legacy/memories of accidents). The mining industry would also be more accepted by the public if more women and youth entered as mining labor force.

However, of all respondents to this question, **48% only partially agree** as they argue that good governance (not just improving environmental performance) is an essential factor, especially because of a widespread lack of political support to the European mining sector. That means that stakeholders need to be more involved, e.g. during reclamation stages, because *"Reclamation should also be performed with other stakeholders in order to possibly leave as a more useful plot of land after the mining has closed"*. Others argue that 10 years from now is not enough time to change the negative perception the public generally has on the sector while others argue that good practices already exist but are not implemented in all mining sites and therefore they are not widely recognized. Others argue that it would be necessary to make adequate information to the public about technical issues and maybe it would not be enough because it is not the only aspect that is considered in public opinion.

21% of respondents do not agree with the statement. Main reasons include the fact that social acceptance is often lacking due to poor environmental legacies which need to be cleaned up, which is a problem in many cases as the natural/legal persons that create such legacy do not exist anymore, do not take responsibility and cleaning-up requires public money. Also, polluted legacies create distrust in the industry which also creates distrust in new technological developments by the sector, i.e. new technology

developments will not increase public acceptance unless trust is regained by the industry. One of the answers claimed:

"The problem here is that the public will most likely not trust the mining companies that have been responsible for so much pollution and environmental damage so far when they say their future mining will be clean and eco-friendly. They have claimed the same even for their dirty mining in the past and in the present time. Also, mining disasters have been happening rather too often (e.g. Ajka, Mt Polley, etc)"

Another reason is that social rejection depends on the individual perception that the local population has about the possible impacts related with the mining activity, and thus, even if technology can improve the situation, some people will still try to prevent any development (not just minerals) near them. Finally, another important reason is that public acceptance is not just dependent on the perception of environmental impacts but depends on a better understanding of the use of, and need for minerals in our everyday products, not just by society, but also by politicians.

QUESTIONS ROUND 2:

Please, express your opinion on the statements and justify your opinion in comments:

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
If the minerals industry wants to significantly improve its reputation and public acceptance by 2030 it will have to invest not only in new environmentally friendlier, less risky technological developments but also in better, more professional communications with society and decision-makers to educate on the need for minerals, risks involved in operations and how they are managed, why mining accidents happened and what has changed since to minimize risks they happen again, support an effective clean-up of past polluted mining sites and engage in more meaningful dialogue with stakeholders, especially local ones.	○	○	○	○	○
If by 2030 a reasonable number of polluted mining sites in Europe were cleaned, innovative technology ensuring low environmental impacts and a very low risk of accidents became standard (e.g. due to regulations or incentives) and more public participation was ensured during key stages of project evaluation, do you agree the mining industry could regain its public trust and improve its public acceptance?	○	○	○	○	○

Your comments

9. Pre-requisites of social acceptability: Generally, in European conditions, the minerals industry has difficulties in achieve the social acceptance of its activities from the part of local communities or broader public. What is your vision of how the minerals industry could best achieve a higher degree of social acceptance by 2030, i.e. which pre-requisites do you think are necessary for that? You can mark more than one answer. (DESIRABILITY QUESTION)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
More visible social responsibility of mining companies and more benefits which would go directly to local communities (provide examples in comment)		17	58.62%
Higher amount of publicly available information on provided benefits (payments to governments, number of direct and indirect jobs, benefits to local communities, etc.), costs and potential environmental risks		17	58.62%
Early-stage and higher degree of stakeholder participation in decision-making (in decisions which may affect the local communities' life quality, e.g. a project engineering design)		14	48.28%
Better and professional and transparent communication at all phases of project development targeting an adequate management of expectations and aspirations of the local communities		19	65.52%
General education of public (at schools, through media, in public debate, etc.)		17	58.62%
Others		3	10.34%
No Answer		1	3.45%

The majority of respondents agree that all the listed pre-requisites are important to improve the mining sector´s social acceptance by 2030. **Better and professional communications at all phases of project development** targeting an adequate management of expectations and aspirations of the local communities was the most frequently chosen answer (19 times) followed by **general education** (17 times), higher amount of publicly available information on benefits, costs and environmental risks and more visible social responsibility of mining companies.

The professional communication providing adequate information about projects, impacts, risks and management strategies implemented is key to the management of expectations and aspirations. Likewise, education on the importance of minerals for modern society, i.e. the links between current lifestyles and the need for minerals, is suggested by some respondents to be necessary already from school days. One respondent argued: *"Generally, there will be a greater acceptance from the public for a*

quarry as they can see the direct use of the product from a quarry - in their house, in public buildings (hospitals, schools etc.) as opposed to a metal mine where is difficult for them to see the use of the nickel produced from a mine next-door.". Transparency also was generally chosen as a key point that requires further improvement: *"Mining companies have to improve their transparency and better explain for the public why the modern society need minerals".*

Education and public reporting should focus on direct and indirect economic benefits and how economic contributions to the state are distributed (nationally, regionally, locally) and used to pay for services populations receive. One respondent argued: *"In many countries local community gets good amount clean cash, but public discussion and media avoid on reporting it "*. Yet, others argue that education about the minerals industry should not just focus on economic benefits but also on environmental risks, especially around past mining disasters and how the industry evaluates and is tackling such issues: *"it is necessary that the mining companies stop fooling local people. Mining companies should not stress just benefits but they should also publicly and openly speak about the risks of their mining project".* In this sense, a pre-requisite would be to further work on the examples of mining companies that have caused environmental disasters and have not assumed that responsibility has made mining seen as something dangerous: e.g. case of Boliden (south of Spain).

Stakeholder involvement was also generally agreed to be necessary, but one respondent argued that a high degree of social involvement can to a certain degree be looked upon as "green washing".
Additional pre-requisites mentioned by respondents include widespread political support, good and strong governance, transparent dialogue and the need to clean-up legacy sites, e.g. via technological development (*"Get a use for tailings material and landscape large tips. Turn them into amenity areas"*).

QUESTIONS ROUND 2:

Answers from Round 1 showed that many pre-requisites are necessary for the industry to achieve a higher degree of social acceptance by 2030.

Please rank the following pre-requisites according to **those you consider most important** (1st most important, 2nd most important, 3rd most important, 4th most important).

Please select only the four you consider to be the most important!

	Most important	2nd most important	3rd most important	4th most important
More political support to the European mining sector	○	○	○	○
More education on the importance of minerals for modern societies/current lifestyles via stronger campaigns (media, public debates, etc.)	○	○	○	○
More education on the importance of minerals for modern societies/current lifestyles via formal schooling systems	○	○	○	○

More transparency (public information) of mining companies social actions (e.g. corporate social responsibility actions)	○	○	○	○
More transparency (public information) on economic benefits generated by mining and how those benefits reach local communities (e.g. how they are distributed by the state and/or mining companies)	○	○	○	○
More transparency on the environmental risks posed by a mining project and management strategies applied (e.g. mitigation strategies)	○	○	○	○
More public participation of a wide array of stakeholders (representing different sectors /interests) during project evaluation stages (especially from the beginning of new projects, for modifications of existing ones or closure planning)	○	○	○	○
Better and more professional communications by the mining company	○	○	○	○
Better and more professional communications by the government	○	○	○	○
More investments (public or private) in cleaning up polluted mining sites	○	○	○	○
Others (please specify in the comments)	○	○	○	○

Your comments

Which of the following pre-requisites do you think **will not be improved** and will still be an unsolved issue for the mining industry by 2030? In other words, which issues will still be problematic for the mining industry in terms of achieving social acceptance by the year 2030?

- ☐ Widespread political support to the European mining sector
- ☐ Education on the importance of minerals for modern societies/current lifestyles via stronger campaigns (media, public debates, etc.)
- ☐ Education on the importance of minerals for modern societies/current lifestyles via formal schooling systems
- ☐ Transparency (public information) of mining companies social actions (e.g. corporate social responsibility actions)
- ☐ Transparency (public information) on economic benefits generated by mining and how those benefits reach local communities (e.g. how they are distributed by the state and/or mining companies)
- ☐ Transparency on the environmental risks posed by a mining project and management strategies applied (e. g. mitigation strategies)
- ☐ Public participation of a wide array of stakeholders (representing different sectors/interests) during project evaluation stages (especially from the beginning of new projects, for modifications of existing ones or closure planning)

- [ ] Professional communications by the mining company
- [ ] Professional communications by the government
- [ ] Cleaning up of polluted mining sites in Europe
- [ ] Others (please specify in the comment)

Your comments

LEGAL AND POLICY DEVELOPMENT

10. Protectionism policies: In the current global and European policy context (e.g. foreign and trade policy of the U.S.A., success of nationalistic movements in elections in Europe, economic and demographic growth of some developing countries, etc.) it is hard to predict how the geopolitical situation would influence the global trade for raw materials in the next decades. One of the INTRAW project scenarios (The World of Raw Materials future scenarios [4]) illustrates that by 2050 there will be a "widespread tendency towards protectionism and former trade agreements are breached". Such scenario would mean that supply of minerals would need to be secured dominantly from domestic resources. In this sense, the nationalism and protectionism would be one of the important drivers of increasing strategic importance of mineral resources and its safeguarding. Do you see this statement as a realistic one in the perspective of the next 10-15 years?

[4] INTRAW project (2017)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Yes		14	48.28%
No		10	34.48%
Do not know		5	17.24%
No Answer		0	0%

Almost half of the respondents **(48%) agreed with the statement on the increasing importance of global/European protectionism** as a driver for the strategic importance of minerals resources (only metals and industrial minerals, i.e. where Europe is import dependent) and their safeguarding in Europe. Main arguments backing up the answer include a continuity with the developments in the last 10 years which creates instability in trade relations between Europe and resource providing countries. This supports the need to increase the safeguarding of domestic mineral resources in the case of the need for a higher degree of self-sufficiency from primary mineral raw materials.

34% of respondents argued against the statement. Main arguments include that the overall global trade has seen a trend more towards free trade than protectionism and that globalization forces (i.e. free trade) and multilateral/bilateral trade agreements will prevail over "discretization" forces. Others said

trends of resources protectionism/nationalism is just temporary. Also, one respondent argued: *"That scenario [protectionism] is unable to support the current living standard, and people's need will overcome nationalized mineral policy"*. Other arguments are that the timeframe given (10 to 15 years) is too short for Europe to increase supply itself from domestic resources, that Europe can increase domestic supply, but domestic resources dominating is not realistic.

QUESTIONS ROUND 2:

Imagine the scenario where several mineral rich countries which supply Europe (USA, China, Brazil, Russia) would restrict their exports.

What consequences do you think it could have to European countries? Match the answers you associate with such scenario and rank its probability
(1- not probable/very low probability, 2 - low probability, 3- relatively probable, 4 - high probability, 5-highest probability/almost sure)

	1	2	3	4	5
Intensive raw materials diplomacy dialogues with other countries	○	○	○	○	○
Collapse of European industry	○	○	○	○	○
Massive investment in mineral exploration and mining in Europe	○	○	○	○	○
Economic crisis	○	○	○	○	○
Re-structure of European industry	○	○	○	○	○
"trade war" as a response to such countries	○	○	○	○	○
Break-up of the EU	○	○	○	○	○
Extremism and nationalism moods	○	○	○	○	○
Lengthy and complicated dialogues to find a solution inside EU	○	○	○	○	○
Other (Specify in comment)	○	○	○	○	○

Your comments

11. Safeguarding options: Here we have identified three options/tools how the integration of safeguarding of mineral resources in land use planning could be applied by countries. Which one from proposed instruments do you believe have the largest potential in the future (10-15 years) to become implemented and effective in ensuring the safeguarding of mineral resources via land use planning?

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Legal tool: legal implementation of safeguarded areas in land use plans (legally-binding, e.g. minerals safeguarding areas) - hard safeguarding		11	37.93%
Policy tool: consideration of mineral resources in strategic planning and support of mineral resource exploration and extraction - soft safeguarding		15	51.72%
Voluntarily applied guidance: Consideration of mineral potential areas which are not legally protected in land use planning activities		2	6.9%
Other (e.g. fiscal, monetary, etc.)		0	0%
No Answer		1	3.45%

The policy tool ('soft safeguarding') was the answer preferred by half the respondents (51%), e.g. because it is the most realistic as the mining sector needs support by policy. A 'soft safeguarding' option also appears preferable because the knowledge on mineral resources is very dynamic and changes in land use planning take place on a less frequent basis (*"only with the publication of a new/modified land use plan"*). Also, in the case of legal protection, if mineral resources are discovered in an area where the land use plan does not allow mining (e.g. because at the time of creating the plan no knowledge of resources was available) it will be difficult (time-consuming) to change such land use plan. One respondent argued: *"the policy tool seems more effective and easier to implement because can introduce the consideration of the mineral potential, already known or to be discovered in the future; it could be achieved by means of changes on the current land use planning rules rather than new normative."*. A respondent from Greece argued: *"All the other tools [legal and voluntary] have been implemented more or less in Greece and have been proved ineffective".* Another argument was the complexity of an integrated legal tool: *"I think it will be too difficult to integrate a legal tool in all Europe, mostly because of the complexity in land use planning and the variety in different countries/regions".*

The legal tool ('hard safeguarding') was chosen by 37% of respondents as the tool with the largest potential in the future (10-15 years) for the safeguarding of mineral resources in Europe via land use planning. Respondents in favor of the legal tool argued that law is very important in the context of appeals and that there is a need to (counter) balance other land-uses that do have and apply legal safeguarding for their protection (e.g. Natura 2000 network for the legal protection of nature conservation sites).

One of the respondents suggested that, based on the UK example, policy and legal tools should be combined. He argued: "In fact, I think the legal and policy tools can and should be combined. The UK has had safeguarding for over 50 years - it is weak where policy is weak and effective where policy is effective.". Another respondent separated the preference of a policy or legal tool: "In some cases it is necessary a legal tool. When you want to preserve a surface an area threatened by various uses likely to cause territorial protection, you need a legal figure. If you want to preserve for mining an area inside a protected area for other purpose, you need a legal tool. But in general, when you are talking about mineral potential a policy tool seems more adequate for safeguarding of minerals and to be taken into account in future land plans".

One of the respondents argued that the MINLAND project should propose ways to transpose into national

legislations technical and scientific conclusions of the finished MINATURA2020 project[1]: “If the technical and scientific conclusions of the MINATURA project will not be transposed to national legislations, a lot of mineral deposits of public importance will be sterilized due to other pressing land uses, that will be prioritized. This transposition (proposals to do it) should me the main objective of the MINLAND project.”

Those against the usage of legal tools argued that such status could provoke rejection from the general public, i.e. “A legal tool can potentially increase the hostility towards mining from the public”, “Giving a legal privilege to mining over other land uses can only bring more harm than good” and “In my opinion the creation of a legal tool to impose safeguard areas for mineral resources is dangerous. We can undervalue these areas because when we define them we have already taken into account some restrictions (environmental, urban pressure, etc.). Member states do not know well their mineral resources, they know their geological potential but are uninformed of the true economic value of the mineral resource.”

[1] minatura2020.eu

QUESTIONS ROUND 2:

It appears that the right combination of policy and legal tools, each depending on political and legal context of each Member State, is the best option. Legal tools should be applied to cases where more geological knowledge exists on what needs to be safeguarded and should be applied with care to avoid undervaluing areas and avoid a process of area designation without public consultation. Policy tools such as strategic planning, requirements of applying social and environmental best practices and acknowledging the importance of mineral resources via land use planning should be applied by all Member States, especially for mineral potential areas where less geological knowledge is available of the mineral deposits. Do you agree?

- Strongly agree
- Partially agree
- Mostly disagree
- Strongly disagree
- No opinion

Your comments

In which cases do you think legal tools are the best option?

In which cases do you think policy is the best option?

12. Permitting procedures: In addition to mineral safeguarding, another way how to facilitate the access to minerals directly is by effective permitting procedures for mineral exploration and exploitation. However, in many EU countries, the development of the mineral sector is affected by unpredictable and inefficient permitting which has a negative impact on investment security and legal certainty necessary for

investors[5] e.g. if mining will not be permitted or the time from commencement of exploration until start of extraction due to the permitting and too long land use process – in such cases investors leave and project may fail. The investment attractiveness could be partially influenced also by problems with having access to deposits and obtaining the permit because of conflicts of interest with other land uses. Imagine now, the permitting procedures in Europe by 2030. What do you see as the most probable scenario?

[5] MINLEX: MinPol (2017)

SUMMARY OF ANSWERS TO ROUND 1

		Answers	Ratio
Because of increasing requirements to safeguarding of other land uses the permitting procedures **will become even more complex than today** which will redirect investments to mineral sector to less developed countries		6	20.69%
The European strategies on raw materials will boost the legal reforms in most of the European countries which will improve the effectiveness of the permitting procedures		9	31.03%
Business as usual. The situation will remain more less the same as there will not be sufficient interest to change the system		11	37.93%
No opinion/ other		3	10.34%
No Answer		0	0%

The majority of respondents (58%) are pessimistic with regards to an improvement of the permitting situation in Europe by 2030.

Almost 38% of respondents believe that by 2030 mining permitting procedures in Europe will remain in a similar situation to nowadays ("business as usual"), i.e. unpredictable and ineffective to ensure potential investors legal certainty and security in the face of new potential investments. The main reason behind it is that there seems to be an inertia in the existing conditions that will determine this scenario. In the words of a respondent: *"changes need to be implemented more or less immediately, and I do not see that happening".* Moreover, it was argued that several countries have revised a decade or so their internal permitting procedures and in most cases, the procedure has not improved and even went worst. In this sense, various respondents agreed that unless a severe supply disruption takes place, current trends will not change: *"As long as there are no obvious supply disruptions there is probably no real incentive to change the current situation"*, "*In the UK in particular, nothing happens unless there is a crisis"* or *"in Europe the system will only have effective changes when mineral resources indispensable for important industries begin to lack or social pressure increased when costs of materials essential to the current quality of life by increasing"*.

Of all respondents, **20% believe that the situation by 2030 will be even worse**, i.e. more complex permitting procedures (from the perspective of mining investors) than today, driving mining investments to territories other than European. Main drivers behind it include a continuation in the current trend of land uses restrictive of mining in Europe (preference to other land uses and not to mining/quarrying) which in

turn make a continuation in the existent trend of more complex and time-consuming procedures in permitting in several European countries. Moreover, a respondent argued that solving legislation problems with more legislation is not the way to go: "In Europe *if we have a problem we produce more legislation and policies, this must increase the complexity of the authorizations to operate.".* Another opinion related to the issue of public opinion and acceptance, i.e. if social acceptance does not increase, permitting complications will remain. In this sense, one of the respondents was quite pessimistic on current trends of mining companies towards changing their behaviour with a view to gaining public´s trust: *"Mining companies will continue their today's practice of promising mining benefits (bribes) to affected citizens and their political representatives and the local people will continue to distrust them".*

31% of respondents are optimistic and believe that the European strategies on raw materials will boost necessary legal reforms to improve permitting procedures. A combination of business as usual and improved performance due to EU strategies (Raw Materials Initiative, Juncker Plan, etc.) appears as the most realistic scenario, i.e. small changes gradually taking place due to pushing EU Policies, Strategies and Directives. One respondent argued: *"the small changes in the environmental regulations in each new instrument that is modified or in the urban regulations, will help streamline procedures and provide legal security to investments in mining".* An example of improvements in the permitting procedures of the country due to EU implementation is Greece: *"All the progress in the Greek permitting process and the relevant legislation* was *due to European strategies and directives. Then, it is possible that the EU intervention will improve the effectiveness of the permitting procedures."*Yet doubt remains as to whether all EU Member States will adequately follow and implement EU strategies (an example of Finland is given as an 'obedient' country just like Greece).

QUESTIONS ROUND 2:

If during Round 1 you replied **in a pessimistic way** (answer #1 more complex scenario or #3 business as usual), after reading the optimistic answers of 31% of respondents (faith in European strategies to improve permitting procedures), have you changed your opinion? Do you see potential in EU´s Policies, Strategies and Directives (and other legislation that requires transposition) to improve mining permitting procedures? If you see potential, will it materialize?

- Yes
- No

If yes, please elaborate/justify your answer:

If you replied **in an optimistic way** (answer #2, European strategies will be effective in improving permitting procedures), after reading the summarised arguments of pessimistic respondents, have you changed your opinion? Do you agree that, in the absence of severe supply disruptions, permitting procedures will not substantially improve?

- Yes
- No

If yes, please elaborate/justify your answer:

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Minerals4EU:
http://www.minerals4eu.eu/

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THANK YOU FOR YOUR TIME!

MinLand E-Delphi Questionnaire 3

E-DELPHI SURVEY: FUTURE STAKEHOLDER NEEDS AND INTERESTS IN MINERAL SAFEGUARDING AND LAND USE

Round 3

Please, fill in the Questionnaire best before 20th of December 2018.

Instructions

Thank you very much for staying with us. After the evaluation of the Round 2 we are presenting you the 3rd and the last one of the MinLand Delphi Survey Questionnaires. For this reason we would like to remind you the overall objective of this surveying: *"mapping of **stakeholders' needs and interests** in safeguarding mineral resources and balancing this against other demands on land-use planning"* which should lead to the formulation of *„a hypothetical future scenario"*

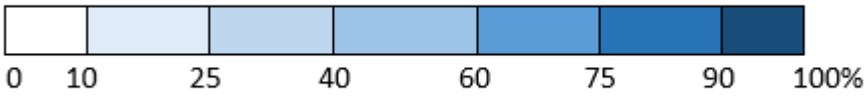
Your opinion and position as a representative of stakeholders concerned by the topic are of utmost importance to meet this objective. We would like to encourage you once more to read the questions and let you think about possible development in the next 10-15 years expressing your needs, interests and expectations.

As this questionnaire should be the concluding one, we decided to merge some of the questions to help you to perceive the topics in a more consistent way.

In this questionnaire you can expect:

- statistical evaluation of the Round 2 and summary of respondents´ argumentation.
- new questions and statements for the Round 3

For a better visualization of statistical results we have used the color scale below:



We wish you a nice reading and fruitful reflections!

Participant information

This information will serve only for your identification by the facilitator of the survey for survey-management purposes and will not be displayed to any third party.

Name:

E-mail:

FUTURE OF MINING IN EUROPE

1. Demand for and supply of (primary vs. secondary) raw materials:

Under the section „Future of mining in Europe," we have initially provided two contradictory statements. The first one was focused on how the demand for primary raw materials driven by technology development will influence the need for supply from domestic resources. The second one, on the contrary, presented the scenario in which the increase in the use of secondary raw material would be the reason of depression of the mining sector in Europe. Summarizing your reactions, we have presented in the Round 2 the statements below which you could oppose or agree. Here comes the summary of answers we have received:

Summary of answers to QUESTIONS 1 and 2 of the ROUND 2

1. Demand for vs. supply of primary raw materials	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
Europe needs to secure mineral supply for domestic resources because there will be no guarantee of imports (trade wars, today´s producers might become importers, etc.)	59.1%	31.8%	4.5%	0.0%	4.5%
Mineral exploitation in Europe following sustainability principles is the way how to eliminate bad exploitation practices in 3rd world countries and reduce CO2 emissions	50.0%	18.2%	22.7%	9.1%	0.0%
Recycling and resource efficiency must play a decisive role in securing minerals supply	50.0%	36.4%	13.6%	0.0%	0.0%
The mining sector will not be capable to increase because of environmental restriction, competing land uses and local opposition (there is lack of knowledge link between every day goods and raw materials)	22.7%	59.1%	13.6%	4.5%	0.0%
European geology will not be able to provide „most types" of raw materials in commercially viable amounts needed in the future	4.5%	40.9%	31.8%	13.4%	9.1%
2. Influence of recycling and substitution					
It is absolutely necessary to increase recycling of all minerals/metals whenever possible	54.5%	31.8%	9.1%	4.5%	0.0%
Sustainable use of resources is not "either or", but "both"	63.6%	27.3%	0.0%	0.0%	9.1%
The demand for primary raw materials will remain high as many raw materials cannot be recovered/reused and recycling and use of secondary raw materials are not capable to cover an increasing demand	77.3%	18.2%	4.5%	0.0%	0.0%
The extraction of primary raw materials is not competitive, but it is working in support of the Circular Economy	27.3%	22.7%	18.2%	18.2%	13.6%

There is a general agreement on the statement related to the **need for securing mineral supply from domestic resources** (59.1% Strongly agree, 31.8% Partially agree) which should work in support to the European industry even some of the participants acknowledged there exist limitations to become self-sufficient and part of the supply will always have to be imported. These **limitations could be explained by the statement about environmental restriction,** competing **land uses, local opposition which could be consequences of lack of knowledge, education and proper communication**: *"Local people do not want to hear about the global benefits of mining, but rather the local socio-economic benefits in a short time and the potential environmental damage that could condition the possible future local development."* even there is some positive thinking *"the European mining will be able to increase, but it requires a lot of appropriate work - explaining situation to citizens, educating them, to guarantee environmentally safe and friendly mining, etc."* **The question of European mineral potential had not clear agreement** (4.5% Strongly agree, 40.9% Partially agree) neither disagreement (31.8% Mostly disagree, 13.4% Strongly disagree). The reason seems to be the question of knowledge *"Certain parts of Europe have a huge geological potential of finding new metal deposits. But to find them you will have to prospect and explore for them that also requires a lot of capital"* or *"We simply don't know. We haven't looked for most of the raw materials that we need and until we look, we won't know what minerals we*

have." and also depends on the type of materials *"For most metals, domestic supply does* nor *have the potential to provide more than a minor share of the total demand."*

Sustainability principles in mining which are being introduced in Europe **are perceived as a good way how to improve environmental standards** (50% Strongly agree, 18,2% Partially agree). The real impact on the practices in the ´3rd world countries´ is, however, according to some arguments is not so obvious. Some of the respondents are quite skeptic *"I'm afraid it is naive to think that more mining in Europe will solve the problems of bad mining practices in 3rd world countries - much more likely it will just create another kind of problems in the 3rd world (e.g. higher numbers of economic migrants coming to Europe)"*. A possible role of Europe is rather seen in ´exporting´ such practices and principles i.e. *"lead by example",* especially if there is a market incentive for sustainably produced metals."

The **role of recycling in minerals supply** was discussed very intensively. On the statement if ***"It is absolutely necessary to increase recycling of all minerals/metals whenever possible***" 54.5% Strongly agree and 31.8% partially agree which is also supported by the statement "*Recycling and resource efficiency must play a decisive role in securing minerals supply"* with similar degree of agreement (50% Strongly agree, 36.4% Partially agree). The need for more recycling looks clear as *"it's not possible to imagine a mineral policy that doesn't prioritize recycling and resource efficiency. The society demands it."* and *"At least limited access to some minerals speaks for the need to develop recycling and an effective mineral resource management system…"* On the other hand, the gaps in secondary raw materials market and limitations of recycling (physical and technological) as represented by an opinion of respondents (77.3% strongly agree, 18.2% partially agree) will not replace or decrease the demand for primary raw materials. Which was supported by many arguments: *"many mineral products cannot be recycled back into their primary nature"*; *"all demand is increasing and with raw materials tied up in stocks we will need primary production well into the future"* and others like an example of uneconomic and ineffective glass recycling. The argument: *"For some minerals, if it is undertaken as part of primary production, then it can be commercially viable"* supports the idea of complementarity of use of primary and secondary raw materials where the general agreement (strong and partial) was together more than 90%. It was acknowledged that research and development could improve and change the share of use of recycling in the future.

QUESTIONS ROUND 3:

Obviously, the demand for raw materials could be covered by supply from different sources where primary production from domestic resources together with importing from global markets and use of secondary raw materials are the ways how to "meet our critical needs for growth and jobs in Europe" (The Raw Materials Initiative - COM 2008/699 of the European Commission). The development of European mining industry and its share in raw materials supply will depend on different factors and drivers.

Please, choose the statements which you think best reflects the positions which will mostly influence the development of the mining sector in Europe in the next 10-15 years.

at most 4 choice(s)

- ☐ Europe needs to secure mineral supply for domestic resources because there will be no guarantee of imports (trade wars, today´s producers might become importers, etc.)
- ☐ Mineral exploitation in Europe following sustainability principles is the way how to eliminate bad exploitation practices in 3rd world countries and reduce CO2 emissions
- ☐ Recycling and resource efficiency must play a decisive role in securing minerals supply

- ☐ The mining sector will not be capable to increase because of environmental restriction, competing land uses and local opposition (there is lack of knowledge link between every day goods and raw materials)
- ☐ European geology will not be able to provide „most types“ of raw materials in commercially viable amounts needed in the future
- ☐ It is absolutely necessary to increase recycling of all minerals/metals whenever possible
- ☐ Sustainable use of resources is not “either or”, but “both”
- ☐ The demand for primary raw materials will remain high as many raw materials cannot be recovered/reused and recycling and use of secondary raw materials are not capable to cover an increasing demand
- ☐ The extraction of primary raw materials is not competitive, but it is working in support of the Circular Economy

Additional comments or other important messages you think are usually overviewed

SECURING FUTURE ACCESS TO MINERALS (=mineral safeguarding), LAND-USE COMPETITION BETWEEN MINERAL RESOURCES AND OTHERS (including co-use of land)

2. Information on mineral deposits:

In this question we were asking about the position of the state towards obtaining information about mineral deposits form the exploration. The role and position of the state in this area might be quite diverse in each country. In the Round 2 we have asked about how the state will use the obtained information about mineral potential of the country in the decision-making. We have presented several aspects, which might have an impact on the informed and transparent land use decision-making about areas with mineral potential. The feedback is summarized below:

Summary of answers to ROUND 2

According to feedback received from respondents, we have selected several aspects which an impact on the informed and transparent land use decision-making about areas with mineral potential. Please, rank their importance:						
	Extremely important	Very important	Moderately important	Slightly important	Not important	No Answer
Mineral exploration activities (both private and state-sponsored)	59.1%	27.3%	13.6%	0.0%	0.0%	0.0%
An organization managing the collection, processing, and communication to competent authorities	31.8%	40.9%	22.7%	0.0%	4.5%	0.0%
The existence of a digital database	50.0%	40.9%	9.1%	0.0%	0.0%	0.0%
Availability of explanatory information to non-professionals (LUP institutions, public, others?)	31.8%	31.8%	31.8%	4.5%	0.0%	0.0%
Policies and legislation dealing with mineral resources and land use planning	72.7%	18.2%	9.1%	0.0%	0.0%	0.0%
State-initiated research activities on mineral resources of the country	22.7%	31.8%	36.4%	4.5%	0.0%	4.5%

It appears that all aspects seem to be important to certain extent to almost all participants. **The highest ranking has been in the Policies and legislation dealing with mineral resources and land use planning** 90.9% (Extremely 72.7% and Very 18.2% important), **together with Existence of a digital database** (Extremely 50% and Very 40.9% important), **followed by mineral exploration activities** 86.4%. Even it is understand that the *"the most incisive aspect in making transparent and informed land use decisions should be the information"* at the same time the respondent continues *"…today the process is governed by political criteria (which are not based on a socioeconomic and technical study of the needs) of priorities in land uses …"* thus, *"transparent and ´easy-to-use´ policies and legislation of great importance."* The adjustment of policies and legislation could also help to treat *"all the conflicting land use interests … fairly and equally"*

The other three aspects: **An organization responsible for data management and communication; Availability of explanatory information to non-professionals; and State-initiated research activities on mineral resources** have resulted more balanced between being considered Extremely, Very or Moderately important (between 20-40% per option). Some of the respondents see the initiative of a state positively from the perspective of public opinion which *"would be more positive if a state organisation was involved in some way in exploration, data collection and processing of raw materials because there is little trust on mining companies practices."* in other words: *"if state something initiates - it is a matter of political will/consensus among politicians, so the support of citizens will be much more positive, and realization & results much more contributing.to society, industry - s.l. to public benefit."* On the other hand, several respondents are convinced that the mayor investment in exploration should be a private one.

The need for *"better ´translating´ our geological information to the general public and other institutions"* looks relatively important as well. However, as pointed out by one of the respondents, the question is *"…w ho will do this. Will it be seen as impartial?".*

QUESTIONS ROUND 3:

Which of the mentioned aspects you think is ineffective or insufficient, thus, it should be improved in your country:

- ☐ Mineral exploration activities (intensity of prospecting and exploration projects)
- ☐ An organization managing the collection, processing and communication to competent authorities (in some countries geological surveys are responsible for this)
- ☐ Existence of digital database
- ☐ Availability of explanatory information to non-professionals (LUP institutions, public, others)
- ☐ State-initiated research activities on mineral resources of the country (e.g. assessment of existing information on mineral deposits and mineral potential areas, early stage prospecting – geophysical /geochemical research on perspective areas, etc.)

What else you would recommend to your government/competent authorities to improve with respect to the knowledge on mineral potential in your country (please, specify the country in the comment):

3. Mineral safeguarding concept and constraints to its applications:

The concept of mineral safeguarding could be perceived by stakeholders in a diverse way as there is not one general approach how it should look like. Even some European countries use some kind of safeguarding, the variability of understanding is relatively wide. In Round 2 we have presented several statements which could help us to clarify, what is your perception of this concept. Secondly, the factors which could have an influence on the implementation of the mineral safeguarding principle were surveyed. Here we present a summary of feedback received on these two questions:

Summary of answers to QUESTIONS 4 and 5 of the ROUND 2

Please, express your opinion:			
	Yes	No	Not decided
Mineral safeguarding should prevent sterilization of mineral deposits by non-mineral development (i.e. urban sprawl - housing, bigger infrastructure)	**68.2%**	**0.0%**	**31.8%**
Mineral safeguarding should enable coexistence with other land uses except those which would sterilize the deposit	**77.3%**	**0.0%**	**22.7%**
Mineral safeguarding could have several levels – from low to highest protection	**72.7%**	**9.1%**	**18.2%**
Flexible land use planning rules could be the way how to enable the protection of new discoveries of mineral deposits.	**63.6%**	**0.0%**	**36.4%**
Mineral safeguarding should go in one hand with education and communication about its impact and importance to the public and relevant authorities	**90.9%**	**0.0%**	**9.1%**
	1	2	3
Mineral safeguarding with respect to other land uses should be **(1 – super-ordinated, 2 – equally treated, 3 – sub-ordinated)**	**22.7%**	**63.6%**	**4.5%**

With exception of the issue of different levels of mineral safeguarding, there were, in general, **no strict rejection of the statements**, **but a relatively considerable number of respondents remain not decided.** Especially **problematic is seen the mineral safeguarding universally applicable to any mineral deposit**. *"To pass from a mineral prohibition policy to a mineral imposition policy is not the aim…. Not all the minerals should be safeguarded and not all of them in the same way and intensity."* on the contrary, *"Each deposit needs to be judged individually case by case, taking all the facts and all the local circumstances"* Also the idea of *"flexible land use planning"* was not totally clear to some participants, moreover it could *"be contributing for mining, but also destructive for mining…"* For more than 72% of respondents, the approach with **different levels of safeguarding could be the solution.** Valuation of the land with respect to the occurrence of mineral resources should be, according to majority of respondents (63.6%), based on ´equal treatment´ – e.g. *"…the same as the environmental value, the agricultural value, the urban value, etc,"* moreover some options were proposed with respect to the valuation of land uses: *"Ideally co-existence but if opposing land use there should be ways of weighing them."* and *"Equally treated in respect to other geographically fixed interests and ordinated in relation to ´moveable´ interests."* The clearest agreement is observed on **the importance of education and communication which should go in one hand with mineral safeguarding** (90.9%)

Please rank the following factors according to those you consider having the highest influence on implementation of mineral safeguarding agenda **(1 – the highest influence, 2 – considerable influence, 3 – moderate influence, 4 – Slight influence, 5 – No influence)**					
	1	2	3	4	5
Level of general knowledge about the importance of raw materials in our everyday life	**40.9%**	**27.3%**	**22.7%**	**9.1%**	**0.0%**
Political will and priority to support securing minerals supply at the national level	**72.7%**	**13.6%**	**13.6%**	**0.0%**	**0.0%**
Legislation and policy framework (mining and raw materials, environmental, land use planning)	**72.7%**	**22.7%**	**4.5%**	**0.0%**	**0.0%**
Level of knowledge about the occurrence of primary raw materials	**27.3%**	**40.9%**	**31.8%**	**0.0%**	**0.0%**
Geopolitical situation and global market development (free trade vs. shortages or trade restrictions)	**9.1%**	**22.7%**	**50.0%**	**18.2%**	**0.0%**
Communication and cooperation between stakeholder groups	**22.7%**	**27.3%**	**40.9%**	**9.1%**	**0.0%**
Implementation of EU policies on raw materials	**36.4%**	**22.7%**	**27.3%**	**13.6%**	**0.0%**

The highest influence ranking has obtained the Legislation and policy framework (72.7% highest influence, 22.7% considerable influence) **accompanied by the political will and priority** (72.7% highest influence, 13.6% considerable influence) as the *"Policy and decisions on safeguarding are what make it effective or not"* Also, **existence and implementation of EU policies** was highlighted by some of the respondents, but with ranking from the highest (36.4%), by considerable (22.7%), moderate (27.3%) and even slight influence (13.6%). At the same time it was highlighted that not only raw material policies, but also *"other EU and even UN policies (e.g. climate change, water supply, etc.)"*…together with public opinion should not be overlooked. **Global market development and geopolitical situation do not seem to be of a very high influence** especially, *"in the long term- markets are cyclical."* but sometimes could play an important role as *"The political will and priority may be a consequence of the geopolitical situation, and the legislation and Policy Framework can be largely influenced by the political will and priority."*

The link between some of the statements is outlined in the comment *"the general knowledge of the importance of raw materials in our daily lives by people is fundamental for a political decision."*

QUESTIONS ROUND 3:

It looks that the policy and legislative framework based on case-by-case approach and valuation of different land uses would be acceptable way how to treat mineral resources in land use planning. Do you agree?

- ○ Yes
- ○ No
- ○ Not decided (explain)

Your comments:

Which authority do you think should have the lead in decision-making i.e. if a specific area should be designated as mineral safeguarded or not?

Please, first choose an administrative level:

- National
- Regional
- Local

Which national authority?

- competent ministry (of environment/industry and trade/development and their equivalents)
- national mining authority
- geological survey
- other

Which regional authority?

- regional LUP authority
- regional mining authority
- regional government
- other

Which local authority?

- local LUP authority
- local authority (city/local government/mayor)
- local people in referendum
- other

Please, specify your answer:

Which other stakeholders should be involved in decision-making?

- competent ministry (of environment/development/industry and trade and their equivalents)
- national mining authority
- geological survey
- regional LUP authority
- regional government
- regional mining authority
- local authority (of jurisdictions concerned)
- local LUP (could be the same as above)
- local people (public)
- civil society (e.g. environmental NGOs)
- other

Please, specify your answer:

4. Co-use of land with mineral exploration and extraction:

Again, there are doubts about how the concept of ´co-use´ should be interpreted. It depends on many factors. The first one is the stage of the mineral activity. If it relates to mineral exploration, extraction stage or restoration. The other issue is the type of extraction (open-pit or quarry vs. underground mining), how is the environmental and social impact of the technology used, which other land uses are present, etc. In the Round 2, we were asking about future trend in co-use comparing exploration vs. extraction and quarries vs. metal mining (open pit or underground) as well as the overall trend towards co-use of land with such activities. Below you can see the summary of results for these questions in Round 2:

Summary of answers to ROUND 2

Please, express your opinion on the statements and justify your opinion in comments:					
	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
In the near future, mineral exploration activities will be easier to accommodate co-use of land than mineral extraction activities (either quarries or mines).	**31.8%**	**40.9%**	**18.2%**	**4.5%**	**4.5%**
Mineral extraction activities in quarries will in the future more easily be able to co-use land with other land uses because the environmental impacts they create (and risks of accidents) are less pronounced in comparison to metal mining operations (open pit or underground).	**18.2%**	**36.4%**	**40.9%**	**4.5%**	**0.0%**
After reading the Summary of Answers to Round 1, in the next decade, do you still see a future trend towards more cases of co-uses of land in Europe where mineral exploration or extraction will be positive and other land uses are made compatible (solutions are found) with mineral development activities?"	**22.7%**	**45.5%**	**22.7%**	**4.5%**	**4.5%**

We have also asked, if you have changed your opinion:

Have you changed your opinion in comparison to your answer in the 1st Round?	
Yes	**4.5%**
No	**81.8%**
Do not know / I don´t remember my answer in the 1st Round	**13.6%**
No Answer	**0.0%**

72.7% generally agree (31.8% strongly and 40.9% partially) that **in the near future, for the mineral exploration activities will be easier to accommodate co-use of land than mineral extraction activities.** E.g. in Andalucía, in Spain the mineral exploration *"is compatible with most of another land uses"*. The other vote for ´co-use´ at exploration stage add an argument that *"The environmental impacts*

*on exploration are minimal, at least in early stages of exploration."*With the second statement, more than 40% mostly disagree. The **problem could be in practical feasibility of co-use during operation** *"simultaneous operation of extractive activities (especially open-pit) cannot take place with any other land use"* and *"Co-use whilst in production is always difficult, safety, noise etc is often a hindering practical factor to co-use."*For others, the reason could be the perception of visual impact *"a large quarry of aggregates may concern more than a small or medium-sized underground metal mine"*. Opposite opinion is explained by the comment *"quarries will nearly always be easier to develop but not for the reasons outlines. People see an immediate use for quarry output - the construction sector. People don't see an immediate use for metals"*and they see the problem with specific wastes produced by metal mining operations *"that can hinder the accommodation of co-use land in a higher extent than quarries."*

Better conditions for alternative use of land are seen after the closure. As pointed out by some of the respondents, in this case, the trend is seen positively. The perception of mining as *"an activity that use the land in an specific and limited time, with environmental respect, with a land restoration that allow another planified land use."*could contribute to better social acceptance. What should be also taken into account, according to one respondent is *"Indirect (latent) effects (including socio-cultural context) on local societies should also be taken into consideration, especially in cases of strong incompatibility (e.g with tourism)."*

The overall trends towards more practices of ´co-use ´ is seen by 22.7% of respondent very positively: *"The co-use of land is possible in some cases and they will be increased next years (touristic, scientific, cultural, educational, etc) we've got many examples of them (e.g. cultural Parque Minero, Rio Tinto; educational (student visits programme by Cobre las Cruces, and scientific – projects INTMET and INFACT)"*However, **the mayor group of participants (45.5%) agree partially but still relatively positive** e.g. *"Land use have always been and will be battle field of contradictory interests. It is just that the mineral sector must enhance their capability to defend their interests with increasing public awareness on the role of raw materials in people's life."*. Also opposite position (22.7% mostly and 4.5% strongly disagree) must be taken into account *"The miners are usually inclined to consider their mining interest the most important one and believe that co-use means allowing any other activities only if the other activities don't hinder their mining in any way - that is NOT a fair co-use in my opinion and won't be accepted by the other parties."*

Most of the participants did not changed their opinion on trends in co-use in comparison with the previous round.

QUESTIONS ROUND 3:

As concluded from the feedback we received, the possibilities for co-use resp. co-existence of minerals-related activities are dependent on specific conditions. Now we provide you with some examples of alternative land uses, functions or area designation.

Please, reflect, to which stage of mineral development (exploration, extraction, restoration or post-mining) do you consider them compatible (does not mean acceptable) and potentially comment under what conditions they might be compatible:

	Stage of mineral development (all, exploration, extraction (underground or open pit), post-mining, no-one)	**Potential conditions of compatibility**
urban development (including buffer zone)		
infrastructure development		
non-mineral industry		
cultural heritage site (including buffer zone)		
underground water resources (including buffer zone)		
special nature protection area (including Natura 2000 and its buffer zone)		
forest (including buffer zone)		
agriculture		
open field (not forest nor agriculture)		
tourism (including buffer zone)		
use for the cultural purposes		
use for educational purposes		
use for scientific purposes		
water area (surface)		
other		

Your comments

5. Better decision-making:

In this section we have asked you how do you imagine better decision making in land use planning with respect to the mineral resources. From the responses of the first round concluding statements below were presented in the second questionnaire. Here you can see the summary of feedback received:

Summary of answers to ROUND 2

Please, express your opinion on the statements and justify your opinion in comments:					
	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
Based on answers to the 1st Round we could conclude that better informed-decision making on competing land uses (e.g. whether mining is compatible with other land uses) and planning alternatives should be supported by clear policy and legislation and by the implementation of technical/scientific evaluation tools that transparently allow understanding the value of the competing land uses and why a decision was made.	**72.7%**	**22.7%**	**4.5%**	**0.0%**	**0.0%**
Likewise, the design and implementation of policy and legislation, as well of any evaluation tool for comparing the value of the competing land uses should be done with the participation (consultation) of a wide range of stakeholders, representing all sectors/interests of society.	**54.5%**	**36.4%**	**4.5%**	**4.5%**	**0.0%**

Strong agreement (72.7%) has been observed with the first statement and 22.7% partially agree with the sentence. **The legal and policy support seems to be of a high importance**, especially, because *"The incorporation of criteria of rationality and their reflection in a regulation provide legal certainty and eliminate potential discretionaries and biased interpretations"* on the other hand, *"legal and economic solutions that artificially make many mining projects inefficient economically should not be introduced or maintained"* (e.g. creation of huge reserves of land for residential development in Poland).

The challenge is seen in using the term ´evaluation tool´ - *"I think a transparent and inclusive methodology is needed, while the use of the word ´tool´ for me sounds like a standardized and too simplistic approach."* Some of the participants are afraid that *"such tool, if created, would produce good results in one case but totally wrong results in another".* Similarly, as in question 3 of this questionnaire, **th ey would rather vote for case by case approach.**

The second statement reflecting **the need for a wide stakeholders' involvement in decision-making** with a relatively strong agreement (54.5%), however, disposed more towards partial agreement (36.4%) in comparison to the first statement. While for some of the respondent *"The participation of a wide range*

of stakeholders remains crucial" others are more skeptic *"A collection of stakeholders will never agree as to what is the primary objective"*. To mitigate them, as pointed out, the transparency is needed, otherwise *" any choice/judgment will always be questioned by those less favored by the decision"*

For one respondent, the statements above *"include decisive factors for increasing mining industries' public acceptance in front of competing activities".*

QUESTIONS ROUND 3:

It seems that most of the participants generally agree with the statements. The problematic issue is seen in the ´evaluation tool´. One of the respondents commented that *"a transparent and inclusive methodology is needed"* as an alternative to standardized and simplified ´tool´ Do you agree?

- Yes
- No
- Not decided

If YES, at which level should be the methodology elaborated?

- EU
- National
- Regional

If NO, on which basis the decision should be based to achieve sufficient level of transparency and acceptance from part of public? (how the competent authorities should decide – e.g. stakeholders' consultation, policy review, others?)

If NOT DECIDED, explain why?:

Any additional comments:

PUBLIC ATTITUDES TOWARDS EXPLORATION AND MINING

6. Environmental performance of mining and conditions of social acceptability:

First, the question on environmental performance was oriented to activities and incentives that could help the mining industry to a better social acceptance. Secondly, we have asked you to express your opinion on the conditions of social acceptability and their potential development in the future. We provide you the summary of your reactions below:

Summary of QUESTIONS 8 and 9 of ROUND 2

Please, express your opinion on the statements and justify your opinion in comments:					
	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
If the minerals industry wants to significantly improve its reputation and public acceptance by 2030 it will have to invest not only in new environmentally friendlier, less risky technological developments but also in better, more professional communications with society and decision-makers to educate on the need for minerals, risks involved in operations and how they are managed, why mining accidents happened and what has changed since to minimize risks they happen again, support an effective clean-up of past polluted mining sites and engage in more meaningful dialogue with stakeholders, especially local ones.	**54.5%**	**36.4%**	**4.5%**	**4.5%**	**0.0%**
If by 2030 a reasonable number of polluted mining sites in Europe were cleaned, innovative technology ensuring low environmental impacts and a very low risk of accidents became standard (e.g. due to regulations or incentives) and more public participation was ensured during key stages of project evaluation, do you agree the mining industry could regain its public trust and improve its public acceptance?	**40.9%**	**45.4%**	**9.1%**	**4.5%**	**0.0%**

The answers on both statements are relatively balanced between strong and partial agreement (54.5 %: 36.4% in the first case and 40.9 %: 45.4% in the second statement). **The first statement is focused more on the condition of success of mining companies based on investment in specific activities to achieve the better public acceptance** while the second one is more speaking about future standards in the mining sector not solely dependent on an initiative of mining company (also authorities support is supposed through regulations and incentives).

It was acknowledged by one of the respondents that *"We need to change our attitude in the mining industry, with best practices and protect the environment, and transmit confidence to the public and communicate with them"* and another one confirms that mining companies have *"a huge responsibility of making the image of the industry better"*. On the other hand, there is an argument that *"investments are already* at *a high level and communication is not the least common denominator in failed projects".* The experience from Greece reports that public acceptance there, in addition to environmentally friendlier performance and on a more professional communication with society, depends also on *"direct economic profits to local societies"*. Moreover, it was reflected that is not only about *"more professional communications*" but also about the reliability of what is communicated i.e. *"speaking the truth"* which could not be always the same.

Other factors were presented in comments that influence social acceptance is the awareness among public and decision-makers. One of the problems could be *"the public is fundamentally not interested in how Europe or the UK provides resources, but how they can stop anything harming what they value.*". Some of the respondents believe the "*Public perception will be improved with political will."* or that the activities mentioned in the statements should be *"supplemented, at least in the transitional period, with economic tools.".* **Responsibility is also expected from political and governmental bodies** which is seen in a *"clean/transparent and orderly implementation/execution and control …. to obtain a ´clean mine´".*

The cleaning up of old mining site could help to build the confidence in mining even in the case the

damage was not caused by a current mining operator (e.g. by a previous one) *"otherwise the people won't trust them"* according to one of the respondents. On the other hand, for example, in the UK and Sweden, the historic pollution caused by mining has been cleaned to mayor extent and the effect on public acceptance does not seem to be significantly improved. The issue of pollution should be discussed in a context that *"mining is not the only or even the worst polluter. Pollution caused by others should also be made visible, for comparison."*

Regarding the involvement of a public: One of the respondents see the risk if they are involved in project evaluation and *"perhaps they can be involved in determining if a project goes ahead or not"*

Please rank the following pre-requisites according to those you consider most important **(1st most important, 2nd most important, 3rd most important, 4th most important). Please select only the four you consider to be the most important!**					**Which issues will still be problematic for the mining industry in terms of achieving social acceptance by the year 2030?**
	1st most important	2nd most important	3rd most important	4th most important	
More political support to the European mining sector	27.3%	27.3%	13.6%	4.5%	63.6%
More education on the importance of minerals for modern societies/current lifestyles via stronger campaigns (media, public debates, etc.)	31.8%	9.1%	13.6%	13.6%	31.8%
More education on the importance of minerals for modern societies/current lifestyles via formal schooling systems	31.8%	9.1%	18.2%	4.5%	45.5%
More transparency (public information) of mining companies' social actions (e.g. corporate social responsibility actions)	9.1%	9.1%	13.6%	4.5%	0.0%
More transparency (public information) on economic benefits generated by mining and how those benefits reach local communities (e.g. how they are distributed by the state and/or mining companies)	31.8%	13.6%	4.5%	13.6%	13.6%
More transparency on the environmental risks posed by a mining project and management strategies applied (e.g. mitigation strategies)	18.2%	13.6%	13.6%	13.6%	13.6%
More public participation of a wide array of stakeholders (representing different sectors/interests) during project evaluation stages (especially from the beginning of new projects, for modifications of existing ones or closure planning)	18.2%	13.6%	13.6%	22.7%	22.7%
Better and more professional communications by the mining company	22.7%	0.0%	0.0%	18.2%	0.0%
Better and more professional communications by the government	13.6%	4.5%	0.0%	4.5%	31.8%
More investments (public or private) in cleaning up polluted mining sites	9.1%	18.2%	9.1%	9.1%	31.8%
Others (please specify in the comments)	4.5%	0.0%	0.0%	0.0%	4.5%

As resulted also from previous feedback, **the policy support to the mining sector seems to be one of the most important issues**, but at the same time where the most of the respondents (63.6%) remain skeptic about the future positive development: *"I don't trust if politicians understand the importance of this issue and if they are ready to support it"*. The problem could be that *"our politicians still will lack the knowledge about the mineral sector, spite the goals in Agenda 2030 that for sure will require more metals and minerals for green energy etc"*. The strong need for *"leadership from Europe, as well as national and*

local governments stating why we need a strong minerals sector and why it is a priority for government." was expressed by one of the respondents. Even more votes for the highest importance (31.8%) had **the education aspects, both via media and via formal schooling system**. Similarly, this aspect is not believed (31.8% via media and public discourse and 45.5% via schooling system) to be improved significantly. At least by 2030, as it looks to be relatively short period and it would have better effect in a long-term perspective.

From the site of mining companies, the more transparency on economic benefits to local communities (31.8%) and **better communication** (22.7%) **is demanded**. However, the perspective of the improvement is much more positive comparing with the government: *"The mining companies will improve as their activity might depend on it, while public authorities may not."*

According to our respondents, **for the local communities' (are the most affected) are first of all important immediate and direct benefits** – **economic** (experience from Greece – where quarries developed in market conditions offering direct economic benefits has better acceptance of local societies) **but also social**. e.g. *"The biggest multinational mining companies have a lot of social actions measures. You could learn from those".* **The reason for local opposition might be as well the fear of the environmental effects of mining** *"People are not really interested in anything unless it directly affects (harms or improves) their immediate environment"* and only education is not the solution: *"You can't force people to 'understand' the importance of minerals."* The proposed solution is rather to *"respecting the local people and taking the responsibility for damages caused by the mining sector in the past and present should be the key tools to decrease the distrust of the general public."*

Thus, **cleaning up of mining sites could improve the image**, however, as concluded by several respondents: *"I'm afraid there are so many polluted mining sites in Europe that to clean them all up can easily take longer than a decade"* as it is *"not a one-time operation … (in some cases even never-ending)".* With respect to the financing of cleaning up, however, one of the respondent commented that *"It will be public money that will have to do this as to expect the current owner/ occupier of the land to do so, is unreasonable, especially if the mining took place prior to about 1960 when environmental issues were of little concern."*

QUESTIONS ROUND 3:

As concluded by one of the participants, the *"situation is probably very different across Europe"*. So, priorities and problems might differ country by country.

Therefore, we are interested, **which of the aspects you feel needs to be improved specifically in YOUR COUNTRY:**

- ☐ Widespread political support to the European mining sector
- ☐ Education on the importance of minerals for modern societies/current lifestyles via stronger campaigns (media, public debates, etc.)
- ☐ Education on the importance of minerals for modern societies/current lifestyles via formal schooling systems
- ☐ Transparency (public information) of mining companies social actions (e.g. corporate social responsibility actions)
- ☐ Transparency (public information) on economic benefits generated by mining and how those benefits reach local communities (e.g. how they are distributed by the state and/or mining companies)
- ☐

Transparency on the environmental risks posed by a mining project and management strategies applied (e. g. mitigation strategies)

- [ ] Public participation of a wide array of stakeholders (representing different sectors/interests) during project evaluation stages (especially from the beginning of new projects, for modifications of existing ones or closure planning)
- [ ] Professional communications by the mining company
- [ ] Professional communications by the government
- [ ] Cleaning up of polluted mining sites in Europe
- [ ] Others (please specify in the comment)

Country

- ( ) Afghanistan
- ( ) Albania
- ( ) Algeria
- ( ) Andorra
- ( ) Angola
- ( ) Antigua and Barbuda
- ( ) Argentina
- ( ) Armenia
- ( ) Australia
- ( ) Austria
- ( ) Azerbaijan
- ( ) Bahamas
- ( ) Bahrain
- ( ) Bangladesh
- ( ) Barbados
- ( ) Belarus
- ( ) Belgium
- ( ) Belize
- ( ) Benin
- ( ) Bhutan
- ( ) Bolivia
- ( ) Bosnia and Herzegovina
- ( ) Botswana
- ( ) Brazil
- ( ) Brunei Darussalam
- ( ) Bulgaria
- ( ) Burkina Faso
- ( ) Burundi
- ( ) Côte D'Ivoire
- ( ) Cabo Verde
- ( ) Cambodia
- ( ) Cameroon
- ( ) Canada
- ( ) Central African Republic
- ( ) Chad
- ( )

Chile
- China
- Colombia
- Comoros
- Congo
- Costa Rica
- Croatia
- Cuba
- Cyprus
- Czech Republic
- Democratic Republic of the Congo
- Denmark
- Djibouti
- Dominica
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Equatorial Guinea
- Eritrea
- Estonia
- Ethiopia
- Fiji
- Finland
- France
- Gabon
- Gambia
- Georgia
- Germany
- Ghana
- Greece
- Grenada
- Guatemala
- Guinea
- Guinea Bissau
- Guyana
- Haiti
- Honduras
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Israel

- Italy
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Lebanon
- Lesotho
- Liberia
- Libya
- Liechtenstein
- Lithuania
- Luxembourg
- Madagascar
- Malawi
- Malaysia
- Maldives
- Mali
- Malta
- Marshall Islands
- Mauritania
- Mauritius
- Mexico
- Micronesia
- Monaco
- Mongolia
- Montenegro
- Morocco
- Mozambique
- Myanmar
- Namibia
- Nauru
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Niger
- Nigeria
- North Korea
- Norway
- Oman

- Pakistan
- Palau
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Qatar
- Republic of Moldova
- Romania
- Russian Federation
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- San Marino
- Sao Tome and Principe
- Saudi Arabia
- Senegal
- Serbia
- Seychelles
- Sierra Leone
- Singapore
- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syrian Arab Republic
- Tajikistan
- Tanzania
- Thailand
- The former Yugoslav Republic of Macedonia
- Timor-Leste

- Togo
- Tonga
- Trinidad and Tobago
- Tunisia
- Turkey
- Turkmenistan
- Tuvalu
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States of America
- Uruguay
- Uzbekistan
- Vanuatu
- Venezuela
- Viet Nam
- Yemen
- Zambia
- Zimbabwe

Your comments

From the EU perspective, based on your feedback, we can conclude these statements. Please, choose if you agree or not:

	Yes	No	Not decided
Mining industry needs to continuously improve its environmental performance			
The direct benefits (economic and social) are the way how to achieve better social acceptance			
Cleaning up of old mining sites and damages caused by historical mining should be in a long-term perspective one of the high priority interests of both the state and mining companies			
Importance of minerals for the society should become an integral part of education equally as importance to take care of our environment			
Political support is a key and of the highest importance for the successful development of the mining industry			

Your comments

7. Protectionism policies:

The question about possible shortages in the market was the most hypothetical in the questionnaire. Nevertheless, it relates to the security of supply and to the first section of this questionnaire about the Future of mining in Europe. We have asked you about the consequences which could follow the potential extensive shortages of minerals supply in the global market:

Summary of answers to ROUND 2

Imagine the scenario where several mineral rich countries which supply Europe (USA, China, Brazil, Russia) would restrict their exports. What consequences do you think it could have to European countries? Match the answers you associate with such scenario and rank its probability **(1- not probable/very low probability, 2 - low probability, 3- relatively probable, 4 - high probability, 5-highest probability/almost sure):**					
	1	2	3	4	5
Intensive raw materials diplomacy dialogues with other countries	0.0%	4.5%	9.1%	36.4%	50.0%
Collapse of European industry	13.6%	40.9%	13.6%	27.3%	4.5%
Massive investment in mineral exploration and mining in Europe	4.5%	9.1%	63.6%	18.2%	4.5%
Economic crisis	0.0%	22.7%	31.8%	27.3%	18.2%
Re-structure of European industry	0.0%	13.6%	31.8%	40.9%	13.6%
"trade war" as a response to such countries	0.0%	27.3%	40.9%	31.8%	0.0%
Break-up of the EU	27.3%	63.6%	9.1%	0.0%	0.0%
Extremism and nationalism moods	9.1%	22.7%	22.7%	40.9%	4.5%
Lengthy and complicated dialogues to find a solution inside EU	0.0%	9.1%	36.4%	45.4%	9.1%
Other (Specify in comment)	0.0%	0.0%	4.5%	9.1%	4.5%

The most catastrophic scenario such as a **break-up of the EU seems to be low probably for most of the participants** (63.6% low probability and 27.3% very low or not probable and only 9.1% relatively probable). **Similarly, the collapse of European industry** (40.9% low probability and 13.6% very low or not probable). However, in this case, 13.6% of participants see this scenario relatively and even 27.3% as highly probable and 4.5% as almost sure: *"The marker of the mineral industry shows a high dependence of the EU industry on some critical and subcritical mineral raw materials. The potential restriction of exports of raw materials from third countries would be a real catastrophe and I really cannot imagine it and its consequences*."

Other respondents see it less dramatic. **As a most probable reaction from all seems to be the raw material diplomacy with other countries** (36.4% high and 50% the highest probability): *"Don't Panic" - there are plenty of other options - Canada, Australia, Israel, India willing to jump in.*" Likewise, the intensive investment in mineral exploration and mining is for 63.6% of respondents relatively probable and for 18.2% highly probable: *"…the European economy, countries would have to … rely on their own resources and of those of third countries. Such a situation would strengthen the European links and boost investments in exploration and exploitation of EU mineral resources."*

The other scenarios as **an economic crisis, "trade war" and re-structure of European industry varies from relatively probable to high probability.** The related comments see the future in reshaping of industry via *"non-dramatic crisis"*; *"investing in better and longer use of existing amount of raw*

materials and development of new technologies" or *"Massive investments in recycle/reuse technologies research projects and Massive investments into research and development of alternative materials and industrial technologies".* **Raising of nationalism and extremism in society is seen for 40.9% of respondents highly probable,** 22.7% relatively and equally 22.7% not very likely probable. **Together 81.8% of respondents think that lengthy and complicated dialogues to find a solution inside EU are highly (45.4%) and relatively (36.4%) probable.**

stated by one of the respondents, **the implementation of the EC´s Raw Materials Initiative is *"the best way how to avoid this type of events"***

QUESTIONS ROUND 3:

If we now relate these scenarios to the issue of minerals safeguarding, do you think that, the factor of supply risk should be considered in evaluation and decision-making if a specific deposit should be or should not to be safeguarded?

- Yes
- No
- Not decided

Your comments:

Do you think that minerals safeguarding is the way how to decrease the dependency of minerals supply from global markets, and therefore it is lowering the supply risk in the case of potential shortages?

- Yes
- No
- Not decided

Your comments:

8. Legal and policy framework on mineral safeguarding and permitting procedures:

In the Round 1 and 2 we were interested in your opinion on what kind of tool (legal, policy, voluntary guidance) would be the best option for application on mineral safeguarding resp. in which cases would you prefer one or other option. Lastly, we have asked about the perspectives of mineral permitting procedures. In the summary below you can read the reactions on this last two questions of the Round 2?

Summary of answers to QUESTIONS 11 and 12 of ROUND 1

	Strongly agree	Partially agree	Mostly disagree	Strongly disagree	No opinion
It appears that **the right combination of policy and legal tools, each depending on political and legal context of each Member State, is the best option.** Legal tools should be applied to cases where more geological knowledge exists on what needs to be safeguarded and should be applied with care to avoid undervaluing areas and avoid a process of area designation without public consultation. Policy tools such as strategic planning, requirements of applying social and environmental best practices and acknowledging the importance of mineral resources via land use planning should be applied by all Member States, especially for mineral potential areas where less geological knowledge is available of the mineral deposits. Do you agree?	**59.1%**	**22.7%**	**18.2%**	**0.0%**	**0.0%**

Almost two-thirds (59.1%) **of respondents strongly agree that the right combination of policy and legal tools, respecting each Member State´s political and legal context would be the best option** which is supported by comments for example: *"from our experience taking mineral potential and mining into consideration in land use planning / strategic planning is essential."* or *"Yes, I strongly agree because a legal tool should be based on factual technical information that, for a significant part of it, will be geological."* Moreover, a suggestion to supplement legal and policy tool by economic tools was provided by one of the respondents.

However, **several concerns and challenges have been expressed** by respondents from which 22.7% partially agree and 18.2% mostly disagree. **The solution should enable sufficient flexibility** i.e. the danger might be that *"a mineral-potential area can be/need be locked from potentially conquering uses for a very long time, the "locking" will affect the interim period value of the land and of course the use of the land. i.e. a huge impact on the landowners' privilege to use the land."* …the respondent adds that *"such an impact needs legal justification…and compensation".* The other unwished initiative was mentioned by one of the participants is *"Forcing any legal or policy tools directly into the legislation of EU member states without a public consensus"* on the national level.

The way is also seen in equal treating of mineral industry as another type of development e.g. other types of industry, tourism, etc. i.e. "*All human activities have special needs and spatial behaviors that have to be identified, reported and served in ways that will permit their development without undermining the operation of other land uses."*

On the question: In which cases do you think **legal tools** are the best option? The suggestions were the following:

- Areas with known reserves and/or identified/measured resources – well-known deposits
- existing mines
- areas with "repeating" exploration activities
- important (for national society) metals and materials/ strategic resources/ critical/subcritical minerals
- areas without any conflict in co-use with other land use or most compatibility conditions
- areas with strong competition of land use which would hinder the future exploitation of important mineral resources (opposite to the previous one)

For two of the respondents, the legal tool is not considered as a good option at all. (especially without acceptance from affected communities)

On the question: In which cases do you think the **policy** is the best option? The suggestions were the following:

- in most/all cases
- resources requiring further exploration
- with unknown mineral potential/ poorly documented mineral deposits
- at the stage of strategic planning or at the moment where decision has to be made with respect to the other values/land uses

Some comments pointed out that the policy is only the first step and problems at the exploitation stage have to be addressed – for these cases, *"the generalized policy can't be the best option"*

The question about your opinion on future development of permitting procedures has resulted followingly:

	Yes	No	No answer
If during Round 1 you replied in a **pessimistic way** (answer #1 more complex scenario or #3 business as usual), after reading the optimistic answers of 31% of respondents (faith in European strategies to improve permitting procedures), have you changed your opinion? Do you see potential in EU´s Policies, Strategies and Directives (and other legislation that requires transposition) to improve mining permitting	**4.5%**	**77.2%**	**18.2%**
If you replied in an **optimistic way** (answer #2, European strategies will be effective in improving permitting procedures), after reading the summarised arguments of pessimistic respondents, have you changed your opinion? Do you agree that, in the absence of severe supply disruptions, permitting procedures will not substantially improve?	**9.1%**	**38.4%**	**54.5%**

Majority of respondents remain pessimistic about potential improvement of permitting procedures in the near future. Some of the respondents even believe, that *"the bureaucracy burden will increase by 2030"* or other opinion says *"Nothing changes unless there is a crisis and this depends wholly upon media interest."* Other opinion opposes that *"If the permitting legislation is complicated, in many cases it is so because when there was a simpler legislation, mining companies were abusing it to ignore the affected people and local communities…"* i.e. the legislation was amended to require public consent in comparison to the situation before when mining companies *"completely ignoring the citizens, their needs and concerns".*

On the other hand, according to one of the respondents **the tendency for improvement (in effectiveness) is already present** as *"The Administration knows that the processing time of the permits is a very important aspect for a mining investment and is working to do it better"* however, problem could be if administration have *"sufficient resources to be more efficient".*

Some respondents are more optimistic in in this respect and suppose that *"Severe supply disruptions will initiate further activities of the ERECON, MINATURA and MINLAND... type."* the experience from Spain reports the *"European strategies had an effect and will improve in some extent the effectiveness of the permitting procedures"* and at the same time the respondent states that if it would depend only on national authorities, *"business will remains as usual or worse"*. Other comments see more potential in at EU policy/directive level, lower in case of strategies.

QUESTIONS ROUND 3:

Ideally, the mineral safeguarding and mineral permitting procedures may work as complementary tools. The first one tends to provide an access to land where mineral resources are present (or avoid the sterilization of the minerals) to make them available in the case they are demanded and the second one (permitting procedures) enable the mineral development which allows minerals to become raw materials which are thanks to that entering the value chain to become products used by people in their everyday life.

The variety in application of these two tools in Europe is relatively wide. Actions of the European Commission related to the second pillar of the Raw Materials Initiatives (secure and improve mineral supply from domestic resources) through projects like MINATURA 2020, MinLand (and many others) try to understand the complexity of the topic and to find possibilities for improvement.

After being involved in this Survey and becoming more familiar with the topic, do you think the common European approach (not in the form of Directive or universal tool but rather in some "common framework" /recommendations based on best practices and discussion with stakeholders) is useful and welcome?

- Yes
- No
- Not decided

If YES, do you think the Member States should take its responsibility to accommodate such EU framework according to their national needs and conditions?

- Yes
- No
- Not decided

If NO/NOT DECIDED, why do you think so?

Would you welcome discussion about how to best secure the access to minerals in your country?

- Yes
- No
- Not decided

If YES, who do you think should be initiator of such discussion?

If NO/NOT DECIDED, why do you think so?

Any additional comments

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THANK YOU FOR YOUR TIME and WISH YOU A MERRY CHRISTMAS!