

HEALTH CLIMATE CHANGE **COMMUNITY** INDUSTRY
BIODIVERSITY MINE **MINERALS** EU PRODUCTS
SOCIAL MEMBER STATES **SUSTAINABILITY**
COMPETITIVENESS **ENERGY** EXPLORATION
RESOURCES **BEFORE** WEALTH METALS
POLICY **IT'S** SAFETY
WATER **YOURS,** LEGISLATION
MINE IT. ECONOMY MINE CLOSURE EUROPE
ENERGY **ENVIRONMENT** ETS INDUSTRIAL
ACCEPTANCE RENAISSANCE RAW
EMPLOYEMENT INVESTMENTS
LAND ACCESS VALUE-CHAIN
STAKEHOLDER

Euromines Annual Report

2014

FOREWORD

We live with history, we learn from it and are part of it at the same time. Europe is a beautiful tapestry woven from different traditions, history, climate and geography. A place where somehow over 500 million people live in treasured peace and enjoy standards of living and human rights that are yet reach so many others.

For Europe to flourish, for Europe to remain a vibrant source of ideas, creativity and above all decent simple truths, we must strive not only to protect what we have but to build more. Europe deserves a future where opportunity not fear, drives us and without our industry that is not possible.

We lead the world in so many ways. We research, invent, develop and teach to the benefit of our industry worldwide. Our advances in innovation, in stewardship and in building a responsible, productive and safer society are essential.

So it is with our industry. Europe is the mother of so many technological developments, of so many advances and nurtures them so well.

We use a slide in our presentations at Euromines with three words written prominently: **Resources..Demand..Standards**. Written in any order those words state both Euromines mission and our collective responsibility to achieve progress. Without better standards the whole planet will suffer, without resources we cannot live as we are, let alone progress and without the demand not only to consume but to improve, we will stay still.

By working to the highest standards, by innovating, by accounting and reporting to ever more stringent degrees Europe leads the way not only to compete against others but to build a better world for us all.

Our industry must therefore communicate what it achieves and how it enriches our society far better than it has. Our governments must help us by working harder on legal



and regulatory frameworks that protect us all but also encourage investment.

Euromines strives very hard to inform and advance knowledge and debate on our industry to show its true role in Europe's future. Many Europeans seem afraid of industry but unaware of what it brings to them. Almost every advance we make is still somehow connected to mining. History has taught us that.

*Mark Rachovides
President of Euromines*

A handwritten signature in black ink, appearing to read 'M. Rachovides', written in a cursive style.

This is who we represent

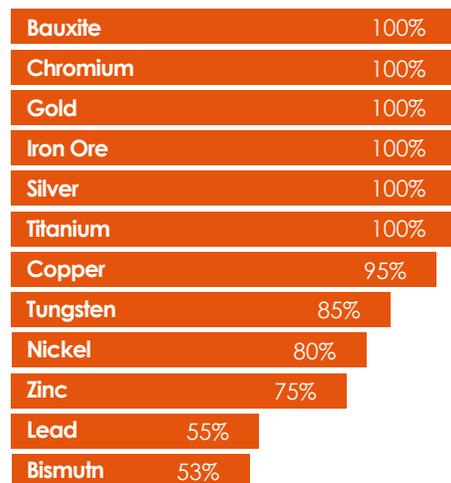
Euromines in brief

Euromines is the recognized representative of the European metals and minerals mining industry. Its members' main objective is to promote the industry and maintain their relations with European institutions at all levels. Euromines provides services to its members with regard to EU policy and forms a network for cooperation and the exchange of information throughout the sector within Europe. The association also supports contacts with the mining community throughout the world.

Euromines members are large and small companies who with their subsidiaries in Europe and in other parts of the world provide jobs to more than 350,000 people. Their activities and operations produce more than 42 different metals and minerals.

For some metals and minerals, Europe is the world's leading producer.

Euromines Representativity in Metals Mining in % of EU production



The association is based in Brussels and holds membership meetings twice a year. Its committees and working groups meet regularly throughout the year. Euromines also follows trade and investment issues for the mining industry both inside and outside of Europe.

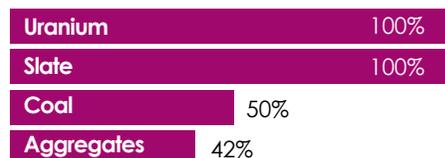
Vision for European mining companies

A viable and responsible minerals and metals industry which provides the essential economic, social and environmental assets for society's sustainable development.

Euromines Members' Mission

- ◀ To promote sustainable and prosperous mining in Europe through operational excellence;
- ◀ Serve as a network for cooperation and for the exchange of information throughout the sector within Europe;
- ◀ Foster contacts with the mining community throughout Europe and the world and wherever appropriate to achieve our shared objectives.

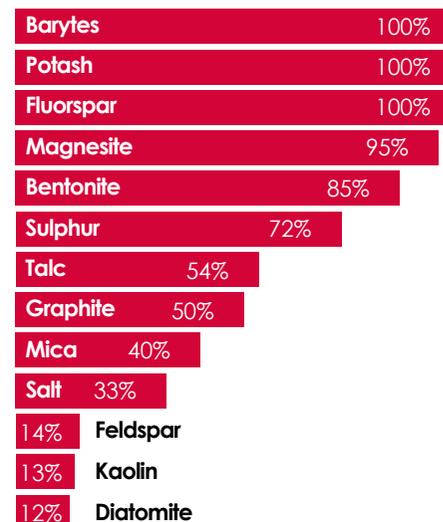
Euromines Representativity in other Minerals in % of EU production



Euromines Steering Committee

- ◀ **Mark Rachovides**, President, Eldorado Gold Corporation
- ◀ **Jan Moström**, Vice President, Boliden
- ◀ **Thorsten Diercks**, Vice President, Vereinigung Rohstoffe und Bergbau
- ◀ **Göran Bäckblom**, Member, LKAB
- ◀ **Ingmar Haga**, Member, Agnico-Eagle
- ◀ **Henryk Karas**, Member, KGHM Polska Miedz
- ◀ **Roman Stiffner**, Member, Austrian Mining and Steel Association, Austrian Non-Ferrous Metals Association
- ◀ **Vicente Gutierrez Peinador**, Member, Iberpotash, S.A.

Euromines Representativity in Industrial Minerals in % of EU production



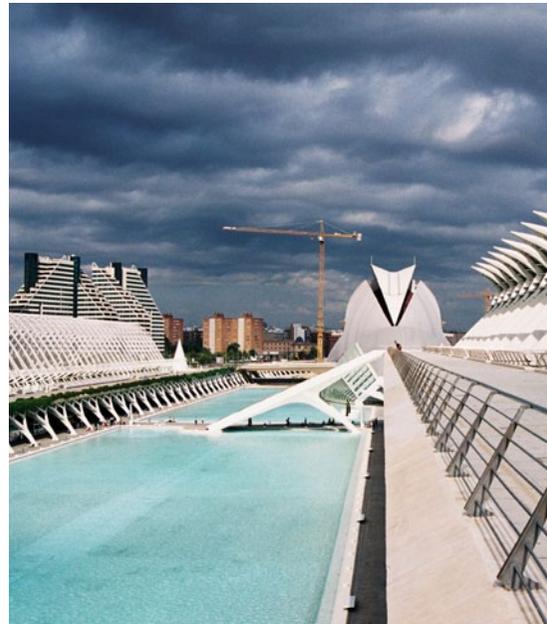
HEALTH CLIMATE CHANGE
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BEFORE IT'S YOURS WE MINE IT

COMPETITIVENESS ENERGY
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 SAFETY POLICY LEGISLATION
 WATER MINE CLOSURE EUROPE
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 RENAISSANCE RAW ENERGY
 ENVIRONMENT ACCEPTANCE
 INVESTMENTS EMPLOYMENT
 VALUE-CHAIN LAND ACCESS
 STAKEHOLDER

Raw materials are essential for the sustainable functioning of all societies and will always be needed. Europe is rich in natural resources and the extraction and supply of minerals continue to play a crucial role in the European economy and society as it has done for thousands of years. To a large extent, demand for the wide range of minerals produced in the EU is strongly influenced by the business cycle of downstream sectors, such as the construction and steel-making sectors. In this respect, the industry differs from many others.

Increase in population and living standards will continue to drive growing demand for raw materials globally. Due to these developments resource efficiency measures such as optimizing reuse and recycling as well as extension of lifespan of products are not expected to close the material deficit by 2050.

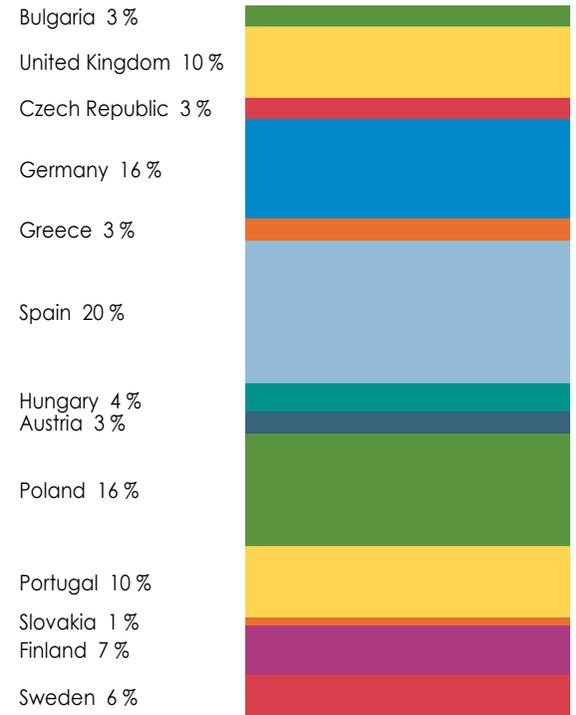


1.1. Sustainable Supply for EU Market

Any raw-material that cannot be grown, originates from the mining industry. Euromines members invest heavily in Europe, reducing their customers' dependence on foreign imports and thereby helping to secure a sustainable supply of the raw-materials they need.

Europe 2020 articulates an aim to return to Europe's leading role in industrial production. Raw materials are essential to that and more, to Europe's very survival as one of the world's leading economies.

Number of enterprises in the extractive industry (selected countries)



Our citizens' prosperity, our ability to invest, our very future as expressed most profoundly by the terrible difficulties faced by ordinary people in several Member States today, depends on the success of our economic recovery. And without mining that is not possible.

Mining makes it possible to meet the EU's minimum demand for metals & minerals to upgrade and maintain ageing infrastructure, ensures that urbanisation is resource-efficient, deploy new sustainable technologies and connect with growth markets outside of the EU through export.

Euromines members welcome the acknowledgement of

the importance of raw materials by the Council of the European Union that considers secure, sustainable and affordable access to natural resources and raw materials (both inside and outside the EU territory) as crucial for ensuring the competitiveness of European industry as well as for innovation and employment. This can be a virtuous circle, as raw-materials enable innovation and innovation supports competitiveness through better, more efficient, access to raw materials.

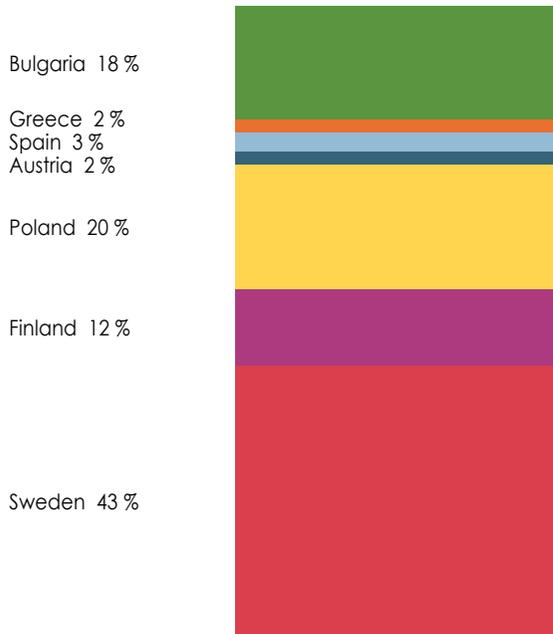
The Council of the European Union calls on the Commission to include access to natural resources and raw materials in the roadmap for taking work forward on the basis of the Communication for a European

Industrial Renaissance, as well as on Member States to take determined action to ensure such access.

Fostering EU competitiveness is one of the priorities of the Commission and EU Member States. The mining industry recognizes the importance of industrial competitiveness and insists that this should remain a major objective of the EU, as acknowledged in the Europe 2020 strategy. This goes hand in hand with the new remit of the new Commissioner for Internal Market, Industry, Entrepreneurship and SMEs, Ms. Elżbieta Bieńkowska, with the aim of raising the profile and importance of industry in the economy, from less than 16% today towards an aspirational 20% of EU GDP by 2020.

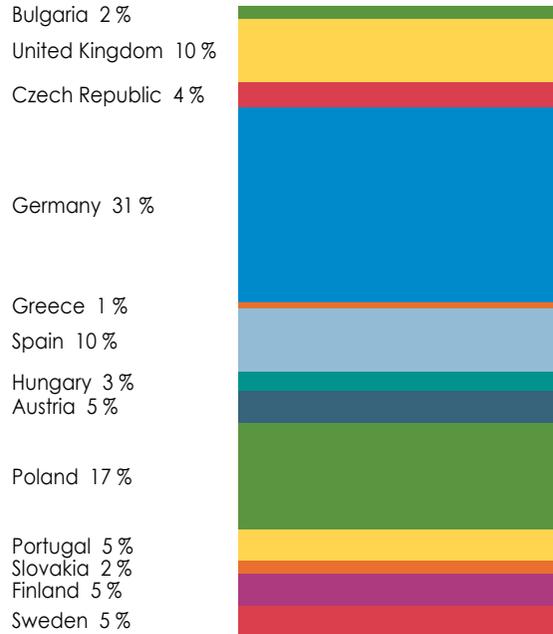
Metal Ore Extraction 2013

(selected countries)



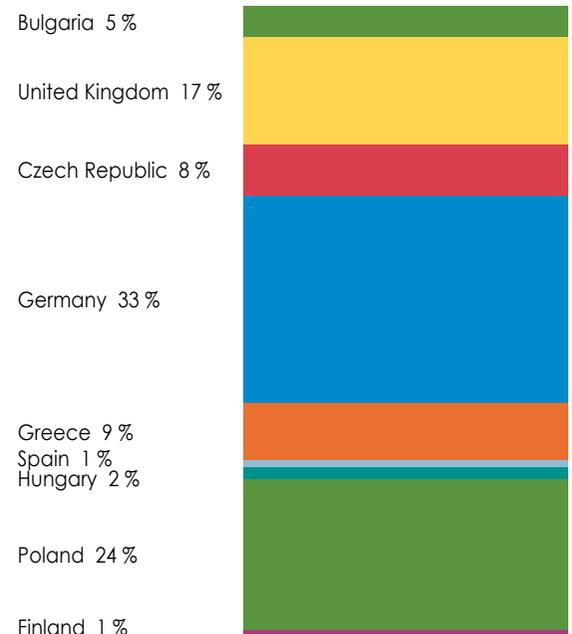
Non-metallic minerals 2013

(selected countries)



Fossil energy carriers 2013

(selected countries)



Chapter 1

Study on the Competitiveness

In 2014 the European Commission (DG Internal Market, Industry, Entrepreneurship and SMEs) funded a report called "Study on the Competitiveness of the EU Primary and Secondary Mineral Raw Materials Sectors" which was officially published in April 2015. The study provides up-to-date overview of the competitiveness of the European primary and secondary Mineral Raw Materials Sectors (MRMS). It focuses mainly on the non-energy extractive industries (NEEI) and the related recycling industries (RI).

The intention is to assist the European Commission, as well as Member States, industry and other stakeholders, in developing, implementing and assessing the policies

and actions supporting the goals of EU Industrial policy. This will increase industry's contribution to GDP to 20 % as well as the goals of EU Raw Materials Strategy, and the European Innovation Partnership on Raw Materials.

The economic and market data appear to show the EU28 as having a declining importance in the global market since 2003, as evidenced by its declining share of the world production (Figure 1), whilst the trade data indicate large trade deficits for ores. However, this largely reflects very large increases in non-EU production rather than any decline in the output of the EU mining industry, which is also expanding.

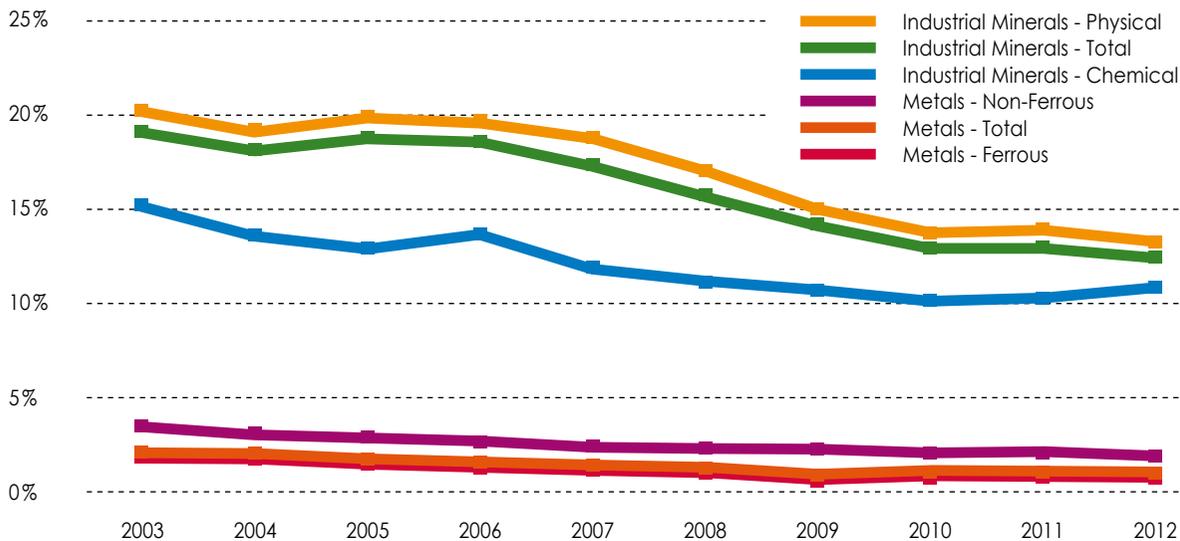
A schematic summary of the assessment of competitiveness of the NEEI is shown in Figure 2. The

figure is based on a qualitative interpretation of the data identified and derived, at least in part, from the consensus of views and evidence obtained in the Study on the Competitiveness of the EU Primary and Secondary Mineral Raw Materials Sectors.

Four main initiatives for NEEI are recommended for consideration by policy makers to improve the competitiveness of the EU28 MRMS:

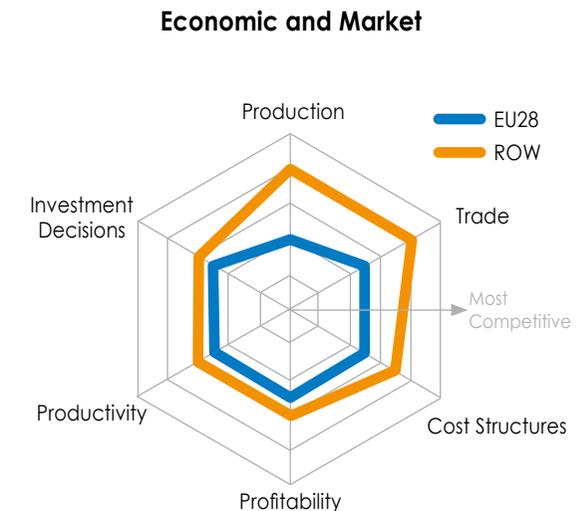
- ◀ Improve knowledge of mineral endowment
- ◀ Address costs of energy
- ◀ Focus research & innovation on more efficient extraction methods
- ◀ Simplify the regulatory framework

Figure 1:
EU28 Share of Global Output by Sub-Group



Source: British Geological Survey (BGS) World Mineral Statistics database

Figure 2:
Summary of the Assessment of Competitiveness of the EU28 NEEI



The EU should no longer sacrifice economic or strategic interests for the sake of "free trade", particularly in the area of raw materials. Creating a more solid and predictable network of raw-materials supply is needed for manufacturing industries to produce their tradable goods and services. Providing better conditions for mining in Europe can decrease dependence on imported raw materials and therefore make the EU a stronger, more reliable trading partner. Free and fair trade should be promoted and all legislative proposals properly assessed for undesirable impacts on raw material supply, recognising that geological and social conditions in each Member State require specific adaptation in order to improve access to raw materials for all.

1.2. New European Industrial Policy

The current Industrial Policy of the EU calls for a focus on access to capital, skills, raw-materials and innovation. In particular, the importance of ensuring affordability and availability of raw-material supplies to European businesses has been recognised as necessary for remaining globally competitive.

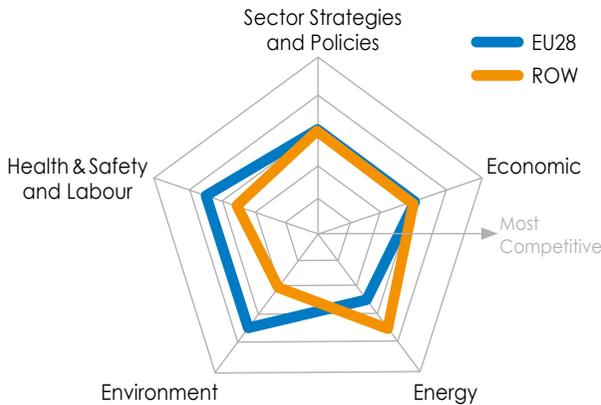
The mining industry has a lot to offer to the industrial renaissance of Europe. The EU extractive industry is a vital subsector of the EU. It provides raw materials and products that are indispensable to a vast array of uses, including construction, metallurgy, defence, human nutrition, pharmaceuticals, fertilisers, animal feed, environmental protection and restoration and a wealth of other industrial applications.

The Juncker Plan, which was published end of 2014 addresses issues of investment in the industrial renaissance of Europe. Compared to the 2007 peak, investments have dropped by around € 430 billion. Five Member States (France, the United Kingdom, Greece, Italy and Spain) account for around 75% of the drop, owing to the size of their economy or the sheer magnitude of the investment drop, or both.

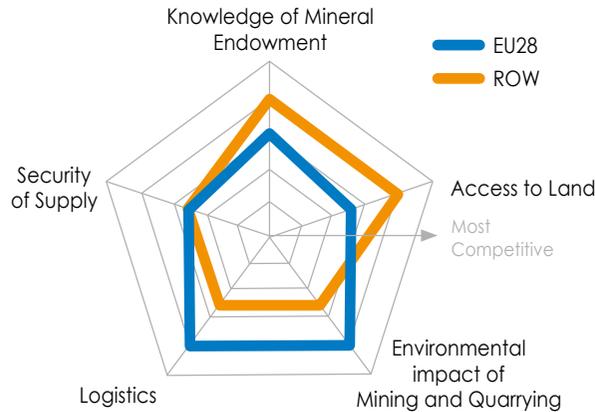
The Investment Plan for Europe has three objectives:

- ◀ to provide additional fuel to the EU's recovery and reverse the drop in investment;
- ◀ to take a decisive step towards meeting the long-term needs of our economy by boosting competitiveness in strategic areas; and
- ◀ to strengthen the European dimension of our knowledge, human capital and physical infrastructure, and the interconnections that are vital to our Single Market.

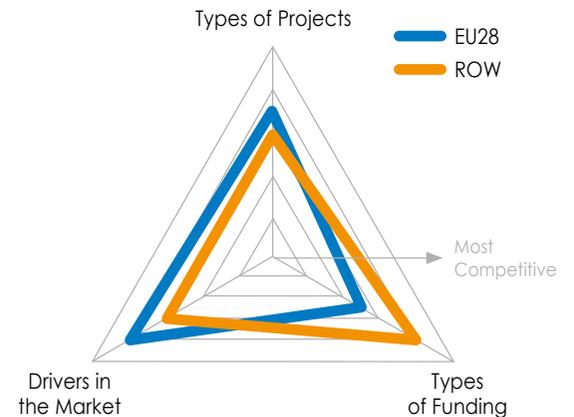
Policy and Legislation



Raw Material Supply



Research and Innovation



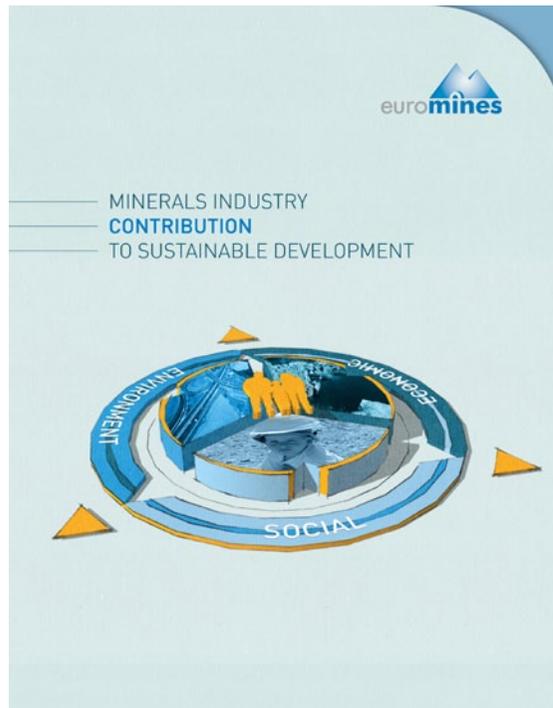
Source: Study on the Competitiveness of the EU Primary and Secondary Mineral Raw Materials Sectors

Chapter 1

Euromines Policy Manifesto

Ahead of these discussions, Euromines developed its Policy Manifesto: "Minerals Industry Contribution to Sustainable Development" which was launched at the Forum of the Non-Energy Extractive Industries Panel (NEEIP) on Reindustrialisation of Europe on 20 November 2014.

It addressed the main three pillars of the industry's contribution to sustainable growth in the EU, economic, environmental and social issues and highlighted the requirements of the industry for such growth.



1.3. Society's Recognition of Raw Materials

Minerals and metals represent the basis for our lives and any industrial production process. They provide everyday products and new solutions for modern infrastructure and technologies. The European mining industry actively promotes society's recognition that access to and use of mineral resources is integral to sustainable development for present and future generations.



Almost every industrial branch needs products from the minerals industry.

Though the mining industry brings high socio-economic benefits to the EU, this does not necessarily make the public outside of mining regions aware of mining. A better understanding of mining could result in increased societal returns from mining operations and make administration less burdensome for mining investors.

To promote society's recognition of raw materials the Euromines Awareness Campaign website www.eumining.org was launched at the beginning of 2014. The campaign aims at promoting the extractive industry as a contributor to sustainable development in Europe and highlighting the role the industry plays in society.

The website is composed of photos which represent the symbolic products/objects/architecture example/ etc. of different European countries. We are highlighting the fact that it is mining that provides us with valuable resources which are used for many essential consumer goods, communication networks, housing, infrastructure etc. that we rely on daily. This is done in a visual way accompanied by the slogan: "Before it's yours, we mine it". The slogan is translated to a number of European languages to reach the widest audience. The relaunch of the campaign started in September 2014 and Euromines is planning to further enlarge the website in 2015.

Critical Raw Materials

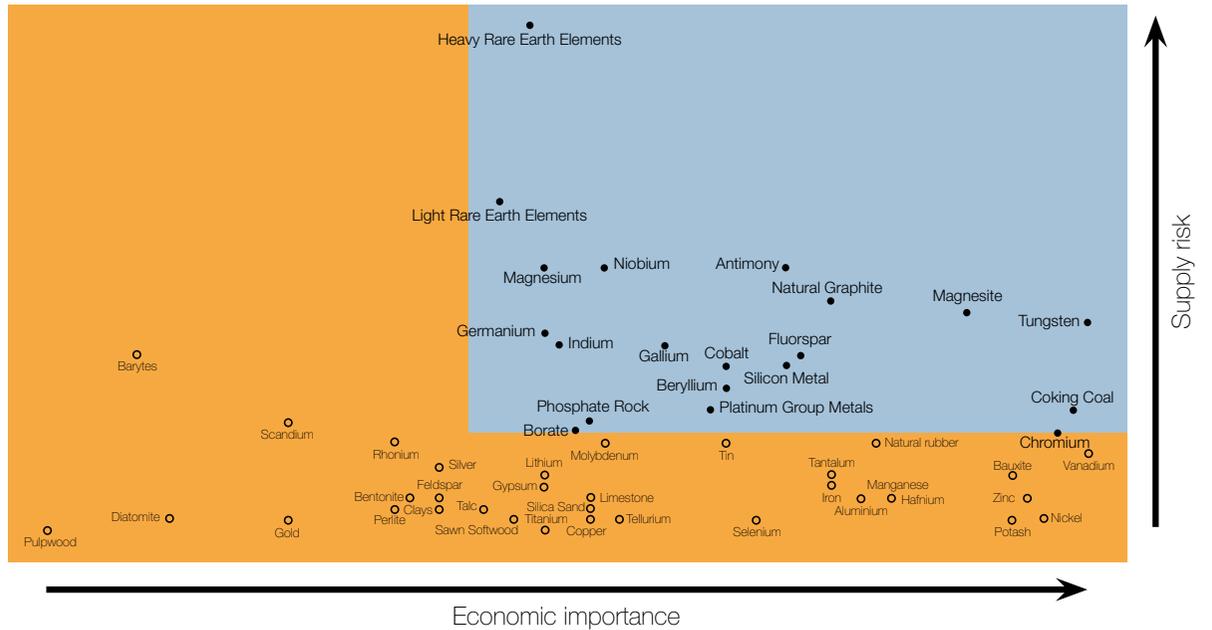
2014 saw the publication of the revised report. The Commission has embarked on a complete review of the methodology by the JRC well in time of the next review in two years. It also launched a major mass flow analysis of the critical raw materials throughout the society in order to assess the bottleneck and the appropriate policy measures to take in the future to reduce criticality and secure future sustainable supply.

Source: Report on Critical Raw Materials for the EU, European Commission, 2014

European Mass Flow Analysis

Following on from the Criticality report the Commission embarked on a major study of assessing the mass flow of critical raw materials throughout the economy.

The study is conducted by the JRC in ISPRA with support of experts and industrial associations, such as Euromines. The assessment will provide a much more detailed picture of the bottlenecks for supply and issues to be tackled by policy makers. In 2015, a whole series of expert meetings on the various commodities will be conducted.



Source: Report on Critical Raw Materials for the EU, European Commission, 2014

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Mining already helps ensure the employment of some 30 million people in Europe.

European mining companies and technology companies are playing an increased global role in securing access to raw materials. EU mines are among the most efficient in the world and are at the forefront of innovation in raw-materials supply.

They are keen to meeting Europe's base load for minerals by:

- ◀ Upgrading & maintaining infrastructure (health, transport, energy,...)
- ◀ Accommodating increased urbanisation
- ◀ Deploying new sustainable technologies
- ◀ Sharing equitably the benefits of new technologies
- ◀ Re-balancing lifestyles and employment across EU regions
- ◀ The EU mining industry consistently adds more to proven reserves than it takes away



© LKAB, Fredric Alm

2.1. Solid base for European Reindustrialisation

The ongoing strong demand for metals and minerals arising from the emergence of new industrialised economies in other parts of the world means that mining - as a sector - is even better placed than it otherwise would be to provide the kind of investment, jobs, training, government revenues, valuable materials, wealth creation and tradable goods that the EU policy is looking for.

Maximising value

In June 2014 Euromines co-organised the Raw Materials High Level Conference "Maximising value: The Importance of the extractive industry to growth in the EU economy and its regions" which was an official event of the Hellenic Presidency of the EU. The conference was organized under the auspices of the Greek Ministry of Environment Energy and Climate Change and the European Economic and Social Committee total more than 150 delegates attended this event.

Securing reliable and undistorted access to raw materials is of continued concern both within the EU and globally. Having established an extended list of raw materials high level panellists from major EU companies in the sector discussed the relevance of this "critical" list for their businesses. These two major projects have been crucial for the past two years.

Equally, a second panel discussed the way forward in implementing Mineral policies and related regulations in the Member States for attracting and facilitating new investments in the sector in Europe. Mostly unknown to the public, there remains a large number of valuable raw materials deposits in Europe. Their sustainable exploitation can increase Europe's supply of mineral

resources, whilst also helping to increase and diversify supply of raw materials for Europe's downstream industries. Thus mineral extraction and manufacturing can foster the growth of Europe's Regions.



Many of the European mining regions are facing the same challenges; applying overlapping EU regulations, the need of exchange of information on European and regional level, the need for a closer interaction between companies and regional actors, and finding solutions for sustainable growth in the regions. Therefore speakers at the third conference session hosted by the European Economic and Social Committee (EESC) focused on one crucial issue - why regional development needs to integrate extractive industries to contribute to industrial growth and regional and national wealth.

Meet Your EU Decision-maker

On the 24th September 2014, MEP Paul Rübige hosted a dinner debate in cooperation with Euromines on "Sustainable Industrial Renaissance" at the European Parliament.

The aim of the event was for the industry representatives to establish direct contact with the Members of the European Parliament and discuss the role and importance raw materials have in Europe. The dinner-debate gathered over 50 participants. Each dining table represented a different European region in order to facilitate the participants the exchange of views and debate on issues important for this part of Europe.



2.2. Mining Employment

When a mining company proposes to develop a mineral resource discovered in Europe it often means that its investments will be significant, sustained and relatively long-term.

In order to shepherd that investment through the good times and the bad, mining companies will protect it by all means available including employing people with the specialist skills needed to keep the mine in business. Very often, there will be an evident business case for bringing those skills to the local population through co-funding of appropriate education schemes.



Unemployment has increased dramatically in Europe as a result of the crisis - peaking in 2013. The EU employment rate stood at 68.4% in 2012 compared to 68.5% in 2010 and is expected to remain below the Europe 2020 target of 75% of the population aged 20-64 by 2020. Portugal, Slovakia, Poland, Romania, Ireland, Bulgaria, Hungary, Italy, Spain, Croatia and Greece are the countries with the highest unemployment - almost all of them have significant unrealised mineral wealth and mine permits pending. Greece, Portugal and Romania, in particular, appear to have missed opportunities to create wealth from the recent upsurge in demand for metals and minerals.

Minerals and mining have brought significant economic opportunities in Europe such as jobs particularly in the areas where unemployment levels are high. For example the Kittila mine in northern Finland not only offers employment to the local community, but opens opportunities for people from outside the region which has contributed to population growth in the Municipality. Mining operations contribute in revitalising the regions which need investment most in the current crisis. Mining projects in the region of Andalucia in Spain are good

Chapter 2

examples. Mining makes an economic impact also in areas which base their activities on seasonal tourism and does not provide work all year long. Mines on the island of Milos prove that mining and tourism can go hand-in-hand to the benefit of the community in a fruitful and sustainable symbiosis. The importance of mining can be also measured in the overall benefits to a country. An example of this is Greece and the impact that foreign investors have on Foreign Direct Investment (FDI).

2.3. Especially (but not only) for Local Communities

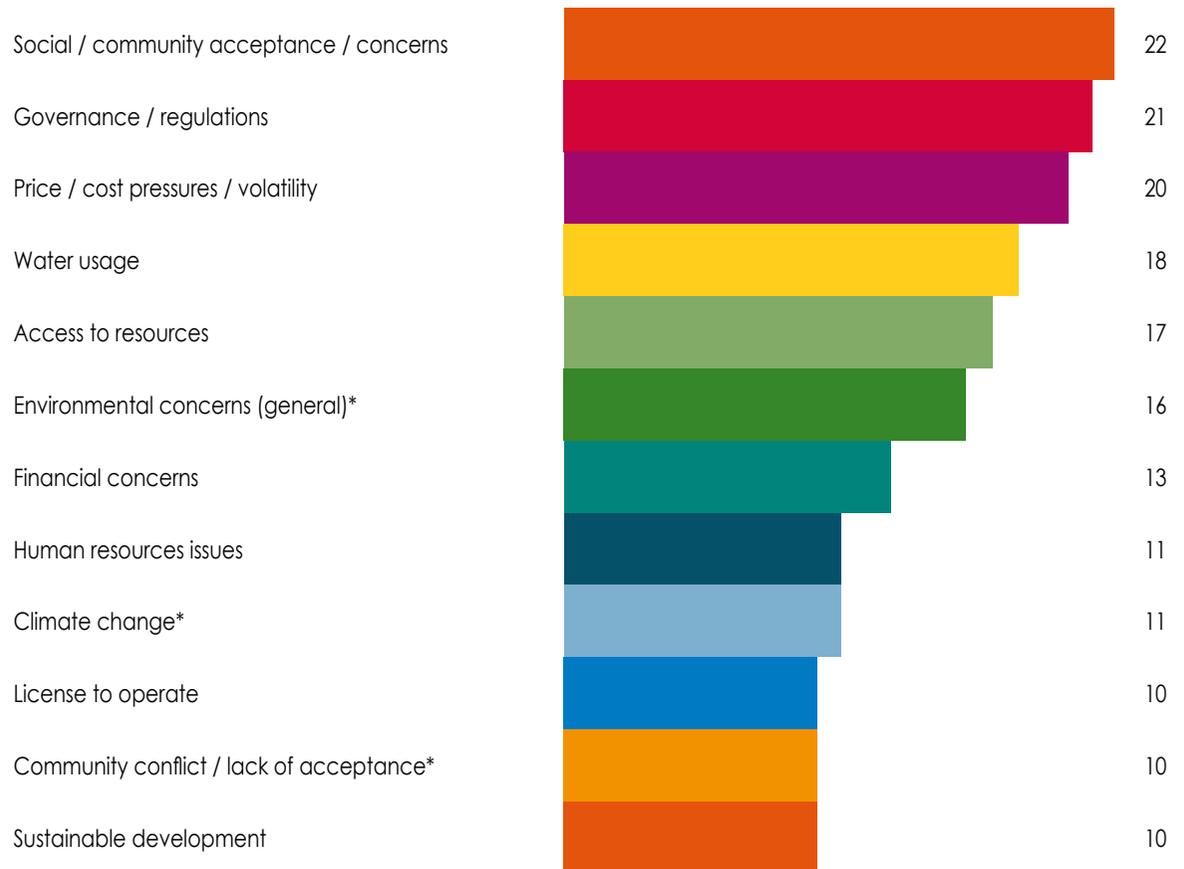
Local communities are directly affected by any operations and their opinion has an influence on the permitting process. Effective engagement with local resident and other stakeholders is required.



Therefore it is important to develop best methods of cooperation with local communities and improve those existing. There are different issues that need to be taken into consideration – local community benefits (direct and indirect), employment of local workforce, local infrastructure and environmental risks. Providing accurate information on these issues also helps to create a better public understanding of mining activities.

In 2014 ICMM conducted a study on the Most serious issues facing the mining industry for the next five years.

Most serious issues facing the mining industry for the next five years



Source: ICMM Stakeholder Perception Study, 2015

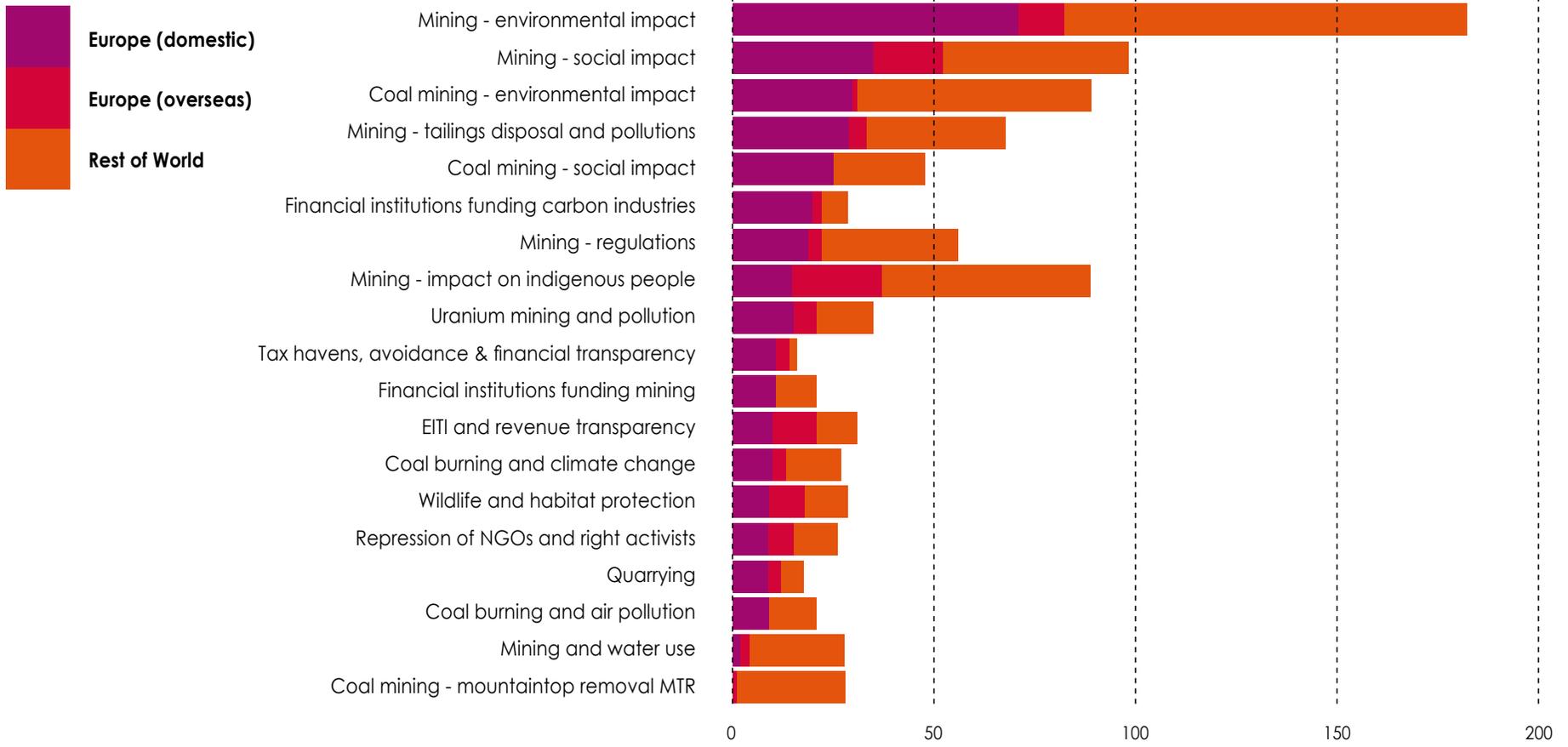
* "Environmental concerns (general)" excludes climate change and pollution. These are now analysed separately. Similarly, conflict and lack of community acceptance is analysed separately from social concerns.

Euromines had an additional review done by SIGWATCH on NGOs issues in 2014.

Resources can be located in various areas often with various environmental risks and constraints on the ground. Minerals extraction currently takes place on about 0.2% of the EU land area. Mining activities attract public attention due to the potential for significant

impacts on the environment. There remains a common assumption that mining is always incompatible with other land uses, particularly conservation or natural land uses. Although mining can have a significant 'footprint', the size and nature of the footprint varies with each project.

Current NGO agenda on mining



SIGWATCH data © 2014

Number of NGO campaigning actions Oct 2013–Sep 2014

Chapter 2

Compatibility with other potential land uses can only be determined on a case-by-case basis in the process of planning land-use, mining and mine closure.

By definition mining is a temporary use of land. This means that land use options after it ceases must be considered as part of every project. Post-extraction land uses are therefore very dependent both on the nature of the mining activity and the extent to which planning for the post-closure phase takes place. Some types of mining allow for 'restoration' of land to pre-extraction status, others can alter the landscape permanently but allow for new land uses. Some types of mineral extraction can also co-exist with other land uses at the same time.

2.4. Innovation Leader

Extraction of metals and minerals in the EU should be encouraged. This is also aligned with the goal of developing new mining technologies and exporting them to the rest of the world. Providing pilot plants and research on mining techniques is a way to stimulate innovation in the mining sector and use the scientific potential in this field.

There is big potential for EU leadership in technology for all aspects of resource management (exploration, extraction, processing, reprocessing, reuse, recycling, recovery and design). Additionally EU mining provides raw materials for numerous greenhouse gas mitigation applications, such as for wind and solar energy farms. High-strength metals help build lighter cars with lower emissions. This is inevitable to achieve the goal of industry input of 20% of GDP in 2020. Growth of efficient industrial production – including mining - must be welcomed within the EU.

The European Innovation Partnership ('EIP') on Raw Materials is an important exercise in building on Europe's

strengths. Our companies lead the world in modern mining and technology and deploy them worldwide. We are an example of a modern, responsible, sustainable and transparent industry. By enabling the mining industry to grow in the EU it will be possible to stimulate innovation in technologies and products that consolidate EU's leadership in resource and energy efficiency. Euromines members' participation in the EIP is thus essential.



© Boliden

EIT Raw Materials

The European Institute of Innovation and Technology (EIT) Raw Materials was designated as an EIT Knowledge and Innovation Community (KIC) by the EIT Governing Board on 09 December 2014.

EIT Raw Materials has the ambitious vision of turning the challenge of raw materials dependence into a strategic strength for Europe. Its mission is to boost the competitiveness, growth and attractiveness of the European raw materials sector via radical innovation

and entrepreneurship. This KIC will integrate multiple disciplines, diversity and complementarity along the three sides of the knowledge triangle (business, education and research) and across the whole raw materials value chain.

EIT Raw Materials will be the strongest consortium ever created in the world in the raw materials field. The approach will pay particular attention to systemic thinking and de-siloing across the value chain. Novel service offerings will be implemented to empower the EIT Raw Materials community and other stakeholders, including four customised tracks focusing on growth and job creation by boosting start-ups, SMEs, radical innovation and education.

EIT Raw Materials will generate significant impact on European competitiveness and employment. This will be realised through the introduction of innovative and sustainable products, processes and services and well-educated people that will deliver increased economic, environmental and social sustainability to European society.



RawMaterials

ETP SMR

The European Technology Platform has become an integral part of the sector's efforts to stimulate research across the sectors concerned with raw materials, be it from an exploration, extraction, beneficiation, manufacturing, reutilisation and recycling point of view. One of the strengths of the ETP is that it brings together many of the leading heads of raw materials research and that it allows to jointly project into the future. In 2014 the ETP therefore conducted a foresight seminar to which it invited a series of experts in the area of raw materials in energy applications which lead to some interesting insights in latest research in this area and a future cooperation with the Commission's own research institute on energy, energy technologies and applications.

For the coming years the ETP will continue to conduct such foresight seminars on topical issues and will explore this way areas of potential research interest. Embedded in its comprehensive Strategic Research Area the ETP did identify a number of these key areas and will continue to stimulate research in these areas. For 2015, a conference on contributing to the "circular economy" was foreseen which was held in Dublin in March.



© Ocean Energy Europe

Horizon 2020

Horizon 2020, the European Commission's research funding programme, has kicked in with considerable research funding for the raw materials research sector in many ways. The Technology Pillar of the EIP is triggering a series of calls in the areas of

- ◀ Raw materials research and innovation coordination
- ◀ Technologies for primary and secondary raw materials' production
- ◀ Substitution of raw materials.

2014 has seen already a number of calls and awarded projects: such as:

| Call | Type of action | Project acronym | Full title |
|---------------|----------------|------------------|---|
| Waste 3-2014 | RIA | CloseWEEE | Integrated solutions for pre-processing electronic equipment, closing the loop of post-consumer highgrade plastics, and advanced recovery of critical raw materials antimony and graphite |
| | | HISER | Holistic Innovative Solutions for an Efficient Recycling and Recovery of Valuable Raw Materials from Complex Construction and Demolition Waste |
| Waste 4c-2014 | CSA | ProSUM | Prospecting Secondary raw materials in the Urban mine and Mining waste |
| | | VAMOS | iViable and Alternative Mine Operating System! |
| SC5-11a-2014 | RIA | Real-Time-Mining | Real-time optimization of extraction and the logistic process in highly complex geological and selective mining settings |
| | | BioMORE | New Mining Concept for Extracting Metals from Deep Ore Deposits using Biotechnology |
| SC5-11b-2014 | RIA | FAME | Flexible and Mobile Economic Processing Technologies |
| | | OptimOre | Increasing yield on Tungsten and Tantalum ore production by means of advanced and flexible control on crushing, milling and separation process |
| SC5-12a-2014 | RIA | INFINITY | Indium-Free Transparent Conductive Oxides for Glass and Plastic Substrates |
| | | INREP | Towards Indium free TCOs |
| SC5-13a-2014 | CSA | MINATURA 2020 | Developing a concept for a European minerals deposit framework |
| SC5-13b-2014 | CSA | INTRAW | International Cooperation on Raw materials |

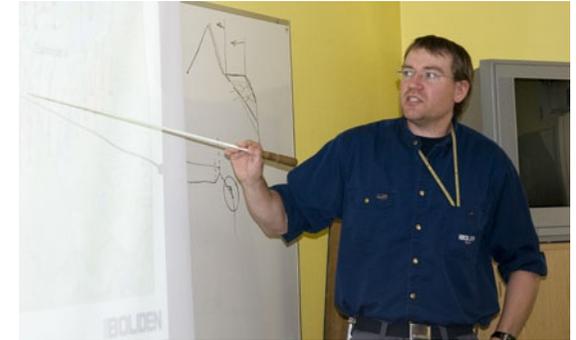
Chapter 2

For 2015 and thereafter a whole range of specific calls are planned. For 2015 the following topics are planned:

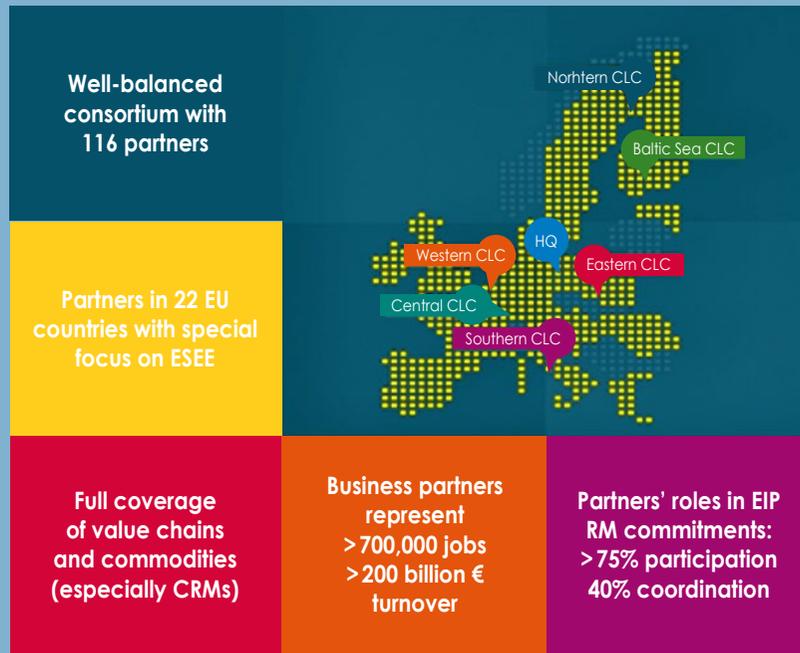
- ◀ New exploration technologies and geomodels,
- ◀ Deep mining on continent and in sea-bed
- ◀ New metallurgical systems
- ◀ Materials under extreme conditions
- ◀ Raw materials partnerships
- ◀ Raw materials intelligence capacity
- ◀ Innovation friendly minerals policy framework
- ◀ Raw materials research and innovation coordination
- ◀ Strategic international dialogues and cooperation with raw materials producing countries and industry.



It seems obvious that such a targeted research funding support will yield much better results than was to be expected in the past when raw material topics were just an add-on to themes and topics. It will be exciting to see the results of these European efforts.



Establishing a pan-European network of excellence



To underpin the research efforts the Commission also approved the creation and funding of the EIT on Raw Materials which will enhance the cooperation of the academic and research institutions across Member States and will foster the exchange and strong cooperation for creating new synergies and competences.

2.5. Health & Safety as a priority

Euromines members seek continual improvement of good, safe and positive working conditions taking all protection measures necessary.

Occupational Exposure Levels NO_x and CO

Following the recommendations of the Scientific Committee on occupational Exposure Levels (SCOEL) on NO₂/NO and CO the Social Dialogue committee had adopted an opinion on both SCOEL proposals and submitted these to the Commission.

Following from this the Standing Working Party on the Extractive industry met in October 2014 in Luxembourg and adopted a position on the proposals as well as a decision to set up a working group that will look into the technical and socio-economic issues around the implementation of the proposed low levels.

Mr Simon Hunter who was the previous representative of Euromines on the SWPEI has stepped down and has been replaced by Mrs Hebestreit. She also was appointed rapporteur for the SWPEI and for the moment the coordinator for the working group that has been set up and which consists of union, Member States and employer representatives. The Standing Working Party concluded that the proposed OELs for NO and NO₂ in the order of 2 ppm and 0.5 ppm could not be applied or implemented in the present situation in the extractive industry.

The Standing Working Party proposed the deletion/non-inclusion of reference to NO and NO₂ in the Fourth List of indicative occupational limit values based on Article 3 of Council Directive 98/24/EC or the inclusion of a footnote that it is not applicable to the extractive industry for technical and social reasons.

The SWPEI also set up a working group to develop further detailed information and submit further information to the Advisory Committee. The work will be continued in 2015.

Other areas of work on health and safety in the sector included guidance to tracking explosives for safety reasons, monitoring exposure to various substances such as crystalline silica, assessing accidents and near-misses.

2015 will see the revision of the whole set of EU OHS Directives including the specific directives on the extraction of and drilling for raw materials.

2.6. ESCO: European Skills, Competences and Occupations taxonomy

The European Commission is developing a European Skills, Competences and Occupations taxonomy (ESCO), which will describe the most relevant skills, competences and qualifications needed for several thousand occupations in Europe. Euromines contributes to the discussions as an expert on the extractive sector.

Aimed at institutions and stakeholders in the labour market and education sector, this new tool will be progressively developed to include as many occupations as possible. The ESCO project should be finalised in 2015 and it will be the first classification of its kind available in all EU languages.



HEALTH CLIMATE CHANGE
COMMUNITY INDUSTRY
BIODIVERSITY MINE
MINERALS EU PRODUCTS
SOCIAL MEMBER STATES
SUSTAINABILITY

BEFORE IT'S YOURS WE **MINE** IT

COMPETITIVENESS **ENERGY**
EXPLORATION MATERIALS
WEALTH METALS **RESOURCES**
SAFETY POLICY LEGISLATION
WATER MINE CLOSURE EUROPE
ECONOMY **ETS** INDUSTRIAL
RENAISSANCE RAW ENERGY
ENVIRONMENT ACCEPTANCE
INVESTMENTS EMPLOYMENT
VALUE-CHAIN **LAND ACCESS**
STAKEHOLDER

Each unique mineral deposit requires its own mining and processing techniques such that mining companies are constantly innovating in order to turn mineral resources into valuable raw-materials, to extend the life of the mine, to cut costs and increase profits and, finally, to ensure that the mine is closed securely at the end of its productive life. Our European neighbours are demanding from us that we increase production within the EU, invest in the local communities that live amongst the natural resources we identify for extraction and maintain the highest standards of mine operation.

In short, they demand from us a sustainable model of mining for sustainable economic growth in the EU.

3.1. Caring about the Environment

Industrial minerals and metal ores can only be extracted from their naturally occurring geological locations. In that respect, mining activities invariably have some impact on the environment, and the minimization of such impact should be integrated into the conduct of all mining activities.



The European mining industry is committed to taking all necessary steps to improve its environmental impact. All European mining operations are now legally obliged to consider environmental protection throughout the life of a mine from the very first exploration stage to mine closure and after-care.

Waste management, water protection, air emissions, and biodiversity are the key issues in this sector.



Best Available Technologies for Extractive waste management

Since 2013 the Commission, Member States and industry are engaged in updating the BAT document on Management of wastes from the Extractive Industry. A Technical Working Group (TWG) was established in December 2013 with 150 members (35 industry, 11 NGOs, the remainder MS and EC). The Kick-off meeting was held in May 2014, followed by the data & information collection process which will take till September 2015. The release of a MWEI BREF draft version is expected for October 2015 with a consultation period till December 2015 and a final TWG meeting for summer 2016.

Whilst the BAT conclusions will not be mandatory, it will still provide the permitting authorities with an up-to-date guidance on latest environmentally sound technologies to be used in the sector.

Product Environment Footprint (PEF)

Euromines is a partner in a project for the European Commission to pilot the setting of Category Rules for the assessment of the Product Environmental Footprint (PEF) of “metal sheets”, which will run for two more

years (2015-2016). The project is currently at the stage of preparing first draft Category Rules following a first screening of available data.

The screening revealed significant methodological difficulties. The use of generic data related to an assumed mix of energy sources and explosives has a significant effect on life cycle hot-spot analyses. Mining activities tend therefore to be highlighted as potential hotspots for greenhouse gas emissions and eutrophication of water bodies by nitrates – over and above the smelting &



Chapter 3

refining stages (the use-phase must also be considered, but has not been included in the screening phase).

Euromines' focus is to motivate improved assessment of resource depletion in LCA. If current life cycle assessment methods are not corrected, the EU PEF will be used to cut 10-20% of metal products from the EU market. The European Commission's rules for conducting Life Cycle Assessment and Environmental Footprinting, reflect a world view that considers metals & minerals as a fixed quantity of consumable and non-renewable

reserves. No account is made of the fact that the growth in mineral reserves continues to outpace production, or that many metals & minerals are not consumed, but available for re-use and/or recycling. Euromines & ICMM co-hosted an industry Workshop on resource depletion on 24 October 2014. As recommended at that Workshop, Euromines has assembled a broad industry alliance to raise awareness of the issue and encourage public debate, so that the EU does not settle upon non-scientific, un-justified market restrictions.



EU Biodiversity Strategy

The new European Commission is undertaking a Fitness Check of the Natura 2000 legislation to determine if it is fit for purpose. DG Environment is being supported in this work by a consortium led by Milieu Ltd and also involving the Institute for European Environmental Policy (IEEP), ICF International and Ecosystems Ltd.

Euromines has been invited to provide input to the evidence-gathering phase, which ran until the end of April 2015. Strong liaison with our National Federations was required to ensure a minimum quality of input, but the impractical timing of the European Commission's study has prevented a thorough assessment. Within selected Member States, input has also been sought from competent authorities for nature conservation; one other public body which interacts with the legislation; one private sector; and NGOs.

In April 2015, the Commission published an online, 12-week public consultation which will offer other stakeholders and interested members of the public an opportunity to express their views.



Eco-Label Directive and Natura 2000

Following a decision of the Board, in 2014 Euromines commissioned a legal study on the Eco-label Directive's criterion to not award any eco-label to products that had been sourced from Natura 2000 sites.

The legal study was completed at the beginning of 2015 and indicated that the criterion was not in conformity with applicable EU law. The study has been presented to DG Growth with the recommendation to have this checked by the legal services of the Commission.

Resource Efficiency and the Circular Economy

In recent years, the "Circular Economy" has become an indulgent theory that its adherents proclaim provides an alternative to primary production. It is not.

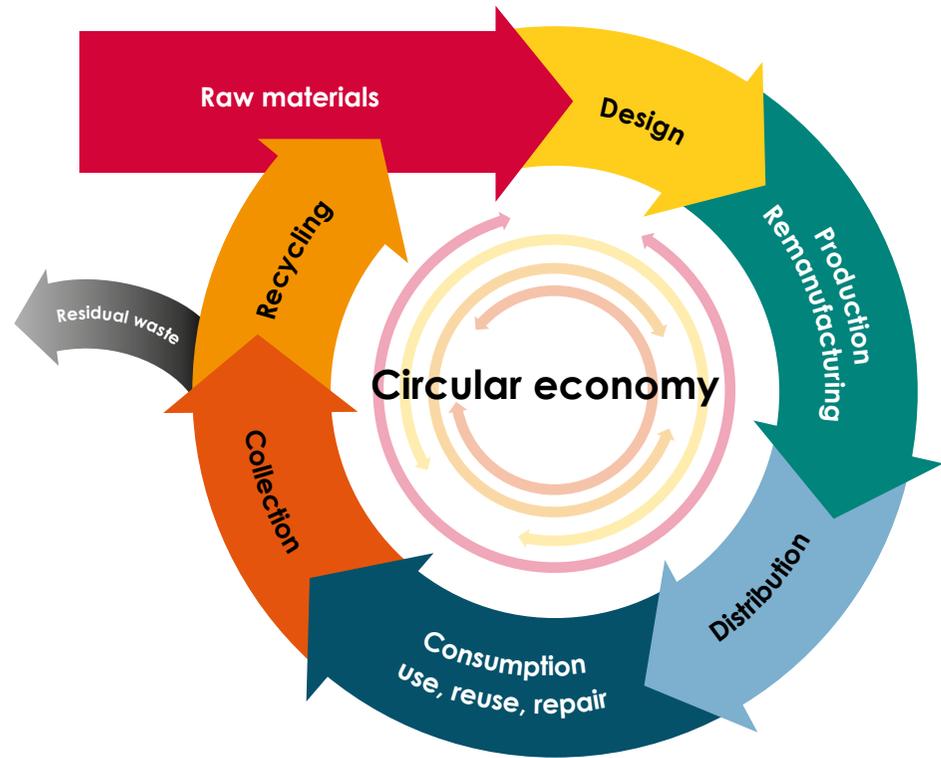
Euromines representatives and representatives of other resource producing industries have repeatedly stressed their support to resource efficiency all along the value chain, i.e. from the extraction site to recycling of the end consumer products, and we want to play a central role in embracing the resource efficiency goals of the proposed Circular Economy package whilst ensuring industrial renaissance in Europe. However, whilst understanding the programmatic approach of the Commission the suggesting resource productivity targets need to be carefully assessed in light of possible innovations and global competition.

The deep concerns of the resource producing industries regarding the methodology, grounds for and consequences of the establishment of a resource productivity target based on a lead indicator reflecting Raw Material Consumption (RMC) have been communicated and they remain. The resource producing industries will reiterate these in the context

of the mid-term review of the Europe 2020 Strategy, notably their concern that a lead indicator based solely on the quantity of resources used provides no indication of efficiency, at production stage or further down the value chain.

Such a shortcut between efficiency and volume can only prove detrimental in the long term. Resources should be used better, and not less, at processing, design and recycling stages.

It is therefore highly appreciated by the industry that the new Commissioner for Environment, Maritime Affairs and Fisheries, Karmenu Vella, will assess the state of play of the Circular Economy package in the light of the first reactions of the European Parliament and Council to see whether and how it is consistent with the Commission's jobs and growth agenda and broader environmental objectives.



Source: COM(2014) 398 "Towards a circular economy: A zero waste programme for Europe"

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First indications seem to suggest that the Commission is still concerned with the waste generated in the EU and how its reduction and utilisation can be fostered. Different models and indicators of progress as well as policy measures in various areas were under discussion in 2014. A new proposal is expected to be tabled in 2015.

3.2. Calling for reasonable energy and climate change policies

Energy prices have a big influence on overall mining costs. Most mining sectors are fully integrated into global value chains where additional costs cannot be passed on to their customers. Therefore, in any jurisdiction globally, mining requires competitively priced energy in order to benefit host communities over the long-term. Decoupling of economic growth from greenhouse gas emissions can and does occur where significant mining industries are present or even growing. High energy prices alone do not yield CO₂ reductions in mining sectors and yet they affect competitiveness and cause premature mine closures.

The mining sector is a highly energy intensive industry. This means that energy prices have a big influence on the overall operating costs. European industrial electricity prices were recently estimated by the International Energy Agency to be double those in the USA and Russia and 20% higher than in China. The price gap is even bigger in gas: gas is three to four times more expensive for EU industry than for US, Russian and Indian competitors and 12% more expensive than in China. Energy intensive industries, including mining, compete on international markets where they can't pass the additional cost to the customers. This means that the extra costs can't be successfully integrated into global value chains. The mining industry requires lower energy prices in order to compete globally and commit successfully to the industrial renaissance of Europe.

The EU mining industries are generally more energy efficient than their international competitors. With the mining industry goal of having only high-tech mines in place in Europe, they serve as examples to other facilities in the world in terms of energy efficiency and general operating efficiency.



Reduction of greenhouse gases

The successful reduction of greenhouse gases in the mining industry was not driven by investments triggered by the ETS but unfortunately by severe economic downturn combined with use of the right raw materials combined with good use practices to significantly reduce emissions from downstream sectors.

The European mining industry is producing at the technical frontier and great technological steps are observable on the near horizon.

Therefore the ETS in its current form is not the right tool to drive CO₂ emission reduction for energy intensive sectors. It has shown conceptual weaknesses in its system design during the last periods. It leads to a massive competitive disadvantage for the European industry and distorts competition. Without a comparable international agreement the risk of carbon leakage will continue or even increase.

Review of the EU Emission Trading System (EU ETS) Directive

In December 2014, the European Commission launched a public consultation on the revision of the EU Emission Trading System (EU ETS) Directive for the period after 2020.

Beyond the current reform process regarding the EU Emission Trading System (EU ETS), the European Commission intends to propose further changes to the legislation after the market stability reserve legislation has been agreed. These changes are justified by the need to implement the strategic guidance on how the EU ETS should operate in the decade up to 2030.

According to the Strategy, legislation will also be amended to allow industry to benefit from carbon leakage measures and free allocation of emission allowances beyond 2020 in line with principles previously agreed at EU level.

Finally, changes to the ETS Directive will be made to create a legal basis for establishing an innovation and a modernisation fund. The innovation fund will support low-carbon demonstration activities across the EU and the modernisation fund will support the modernisation of energy systems in low-income Member States.

EIP partnership

Under the EIP Euromines entered a partnership with the European Economic and Social Committee to conduct 4 Industrial Roundtables in 2015 in 4 EU Member States to intensify the national dialogue on industrial policy and related raw material supply. The four countries chosen for the first round are Spain, Slovakia, Romania, and Finland.

The objective is to link the member states's economic and industrial policy along the value chain from raw materials to end products and to develop strategies and overcome obstacles to maintain a well-functioning

European industrial fabric by improving investment conditions and creating new jobs.

Along those same lines Euromines together with other partners will consider projects to improve the investment conditions for European and foreign investment by launching other projects across Europe and in specific Member States.

Fostering research across Europe to improve Europe's global competitiveness whilst at the same time improving the EHS performance will be a key priority for many companies and the sector as a whole and close

cooperation with the newly formed KIC will hopefully bring new break-throughs, new developments and new markets. New solutions in the energy efficiency area and the CO₂ utilisation will be needed to contribute to a higher sustainability and still increase the sector's contribution to GDP.

The coming years remain a challenge, but with good potential prospects, if the EU policies continue to support the sector since the 2008 and 2011 Communications were launched and if burdensome obstacles for investments are removed.



Slovak Round-table discussion
From left to right: Dr. Ján Petrovič, Mr. Milan Grohol, Mr. Pol Liemans, Dr. Corina Hebestreit, Mr. Brian Ricketts, Mr. Dumitru Fornea

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