

The title "Annual Report 2015" is displayed in a blue serif font. The text is overlaid on a horizontal blue bar that spans the width of the page. Below the bar, the background shows a close-up of a curved architectural structure with many vertical, metallic-looking columns, set against a clear blue sky. The bottom portion of the image is a soft-focus, light-colored landscape, possibly snow or sand dunes.

Before it's yours, we MINE it

THE SUSTAINABLE GOODS AND SERVICES WE PROVIDE

The Euromines Annual Report 2015



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FOREWORD



Hard times.

Both the European Union and our own industry face multiple crises as I write. We are in an uncertain time and must do more than just manage our daily issues to move forward. Disruptive change: political, technological, economic and social, confronts us.

But this has always been our industry's way of life. Yes, we still extract resources from the Earth but in ever-changing ways and meeting constantly evolving needs. We cannot sell what was needed yesterday and so must anticipate what tomorrow will demand and deliver it in a responsible and sustainable way.

When we say that European companies "lead the World" that goes beyond profits or market share. Value and investment is expressed in innovation and development but also in conduct. European Companies deliver to the highest standards in the world in all respects and in this annual report we set out some examples of how that is achieved.

European values must be relevant to today's Europeans. In the Book of Deuteronomy we are guided that "Justice, and only justice you shall follow, that you may live and inherit the land." Mining must be recognized as beneficial to our society, as a responsible and reliable industry and partner that provides both prosperity and hope to Europe.

We struggle with regulation, threats to trade and political issues but our industry always invests for a better future. We need to tell more people that. As Charles Dickens wrote in "Hard Times"

"Do the wise thing and the kind thing too, and make the best of us and not the worst."

Mark Rachovides
President of Euromines

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

EUROMINES VISION & MISSION

Euromines' Vision for the European extractive industry

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

Euromines' Mission

To promote sustainable and prosperous extractive industry in Europe through operational excellence;
To serve as a network for cooperation and for the exchange of information throughout the sector;
To foster contacts with the mining community internationally to achieve its objectives;
To participate in European and international policy-making.

Euromines Steering Committee

Mark Rachovides	- President,	Eldorado Gold Corporation
Thorsten Diercks	- Vice President,	Vereinigung Rohstoffe und Bergbau
Pierre Heeroma	- Member,	Boliden
Ingmar Haga	- Member,	Agnico-Eagle
Henryk Karaś	- Member,	KGHM Polska Miedź
Roman Stiftner	- Member	Austrian Mining and Steel Association, Austrian Non-Ferrous Metals Association
Vicente Gutierrez Peinador	- Member,	Iberpotash

Euromines Team

Corina Hebestreit	- Director
Johannes Drielsma	- Deputy Director
Veronika Sochorova	- Communication Manager
Mirona Coropciuc	- Environmental Manager
Kasia Palaczanis	- Public Relations Manager
Dana Brunner	- Office Manager

EUROMINES IN BRIEF



Who we are

Euromines is the recognized representative of the European metals and minerals mining industry. The 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.

What we do

Euromines is the primary interface between the European extractive industry and the European authorities and international or intergovernmental bodies. The association works to establish common industry positions and initiatives, enhance constructive dialogue on areas of European and international policy affecting the industry and assert the industry's views and positions.

As an advocate for the extractive industry, Euromines promotes the benefits and societal value of both its activities and its investments.

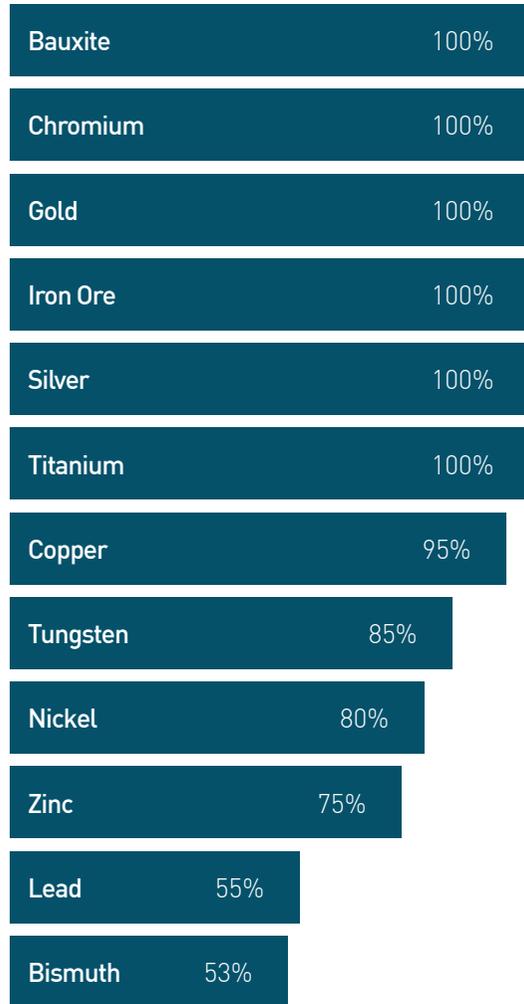
Euromines members are large and small companies, who with their subsidiaries in Europe and in other parts of the world provide jobs to more than 350,000 people. Their activities and operations produce more than 42 different metals and minerals.

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

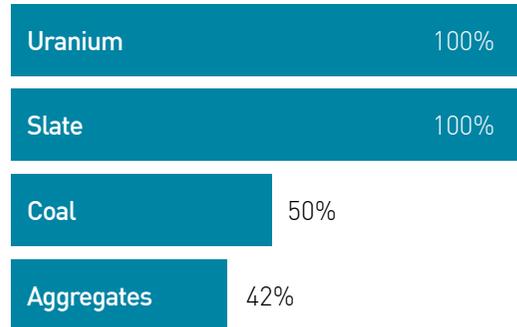
Why we do it

Euromines provides members with early warnings of policy change. The association also stimulates policy debate, articulates what's needed and creates opportunities to secure what's needed. At the same time Euromines seeks to protect and maintain the industry's reputation so that members can stay in business.

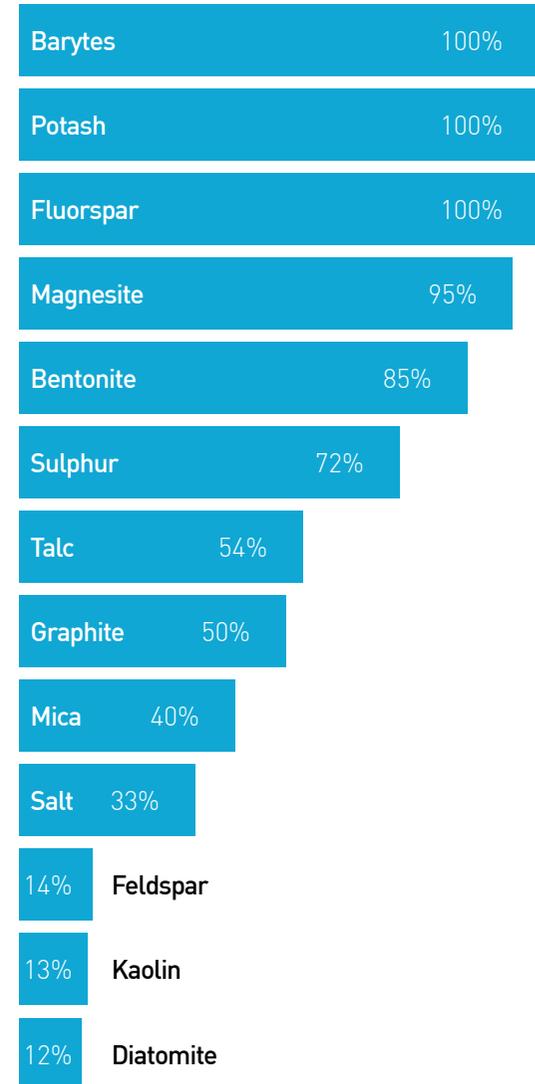
Euromines Representativity in Metals Mining
in % of EU production



Euromines Representativity in other Minerals
in % of EU production



Euromines Representativity in Industrial Minerals
in % of EU production



REVITALISING AND INVESTING IN EUROPEAN ECONOMIC GROWTH

1

Backed by centuries of experience, the European mining sector has a crucial role in today's economy – and will play an even more important one in rebuilding a strong economic Europe of the future.

Excavated and refined minerals form the foundations of today's society. These materials are used in a vast array of products ranging from communication satellites to the steel reinforcement bars in modern buildings.

The European mining sector is a global leader in many ways, not least in its push for increased occupational safety and care for the environment. In addition to creating safer and more environmentally sensitive workplaces, the sector's extensive R&D has resulted in new technologies and automated equipment. Our technology and expertise are exported across the globe, multiplying Europe's contribution to sustainable development and increasing the total value of goods and services to its citizens.

While Europe is almost self-sufficient in many industrial and construction minerals, it is a significant net-importer of most metals and metal ore concentrates. Responding to that deficit, the European extractive sector continues to develop new European sources including more effective utilisation and recycling of existing materials.

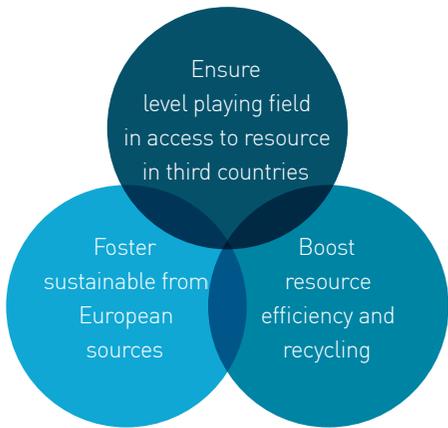
The European extractive industry works as a pan-European community. Not only do individual mines make substantial contributions to their local communities, the sector supplies needed materials for the whole of the European economy and operate within the evolving sets of European Union guidelines and regulations. As a key component in Europe's present and future development, the mining sector has a vital contribution to make and responsibility to carry.

Euromines, as the representative of the extractive sector in Europe, ensures that the sector has an active voice that is heard within the European community.

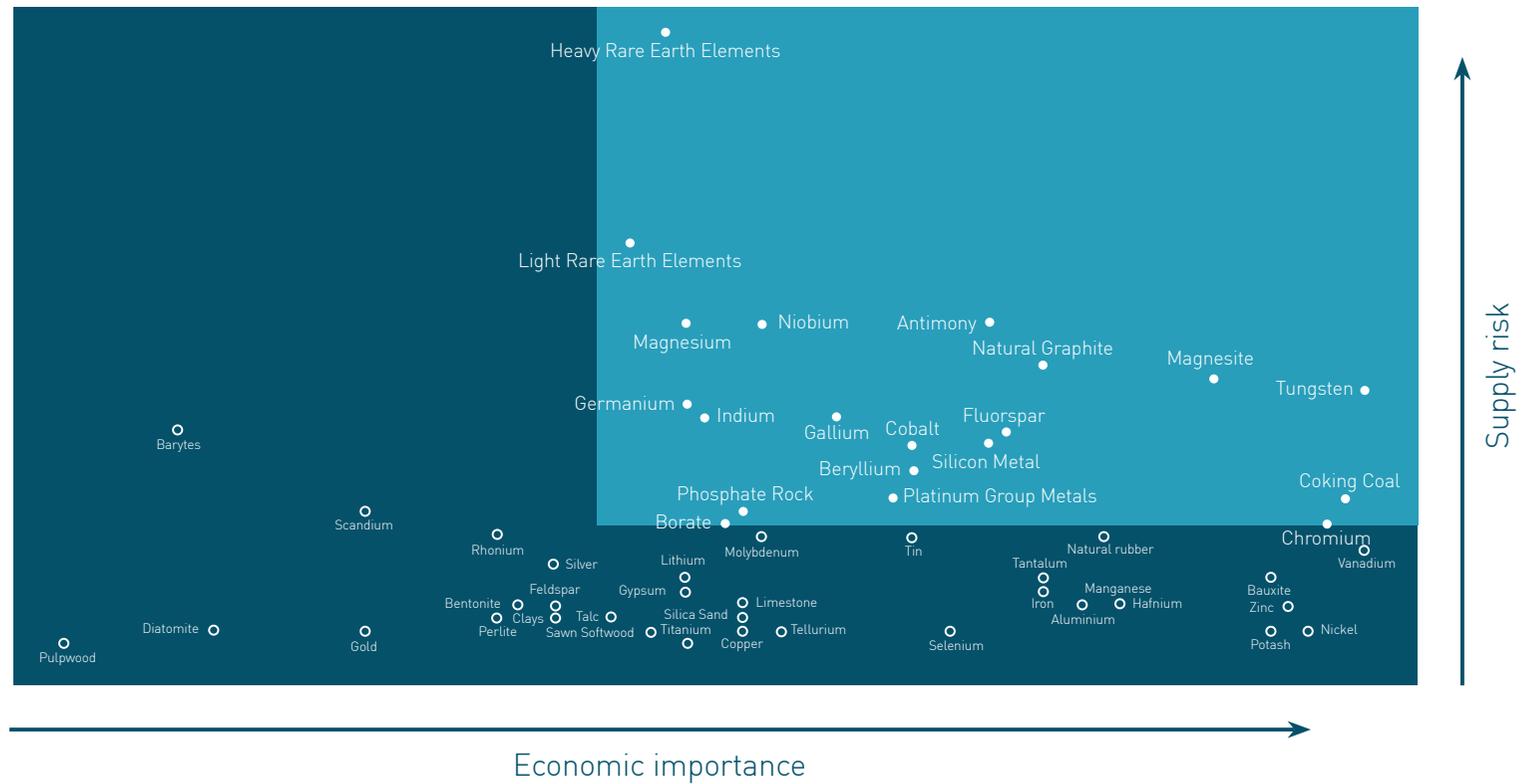
Decreasing EU's dependency on imports

The EU is a major importer/exporter of products and goods and much of its wealth depends on this trade. It would be unrealistic to believe that it could be self-sufficient and maintain its current standard of living. Virtually all regions of the world trade raw materials for products and vice –versa.

Securing reliable and undistorted access to raw materials is a major and growing concern both within the EU and across the globe. As a consequence, the EU Raw Materials Initiative was adopted in 2008 to manage responses to raw materials issues at EU level. Euromines has been an active partner in the initiative from the beginning and will continue to support it. We believe that the extractive industry makes a fundamental contribution to the regional, national and European economy through each of the three pillars of the strategy: 1) access to raw-materials from outside of Europe, 2) from within Europe through exploration and extraction and 3) to improve access as well through research, development of skills and in re-use and recycling.



The EU Raw Materials Initiative has given rise to the regular identification of raw materials that can be considered critical for EU manufacturing and their flows through the European economy. At the end of 2015, such critical raw materials were identified for targeted action under the European Commission's Action Plan for the Circular Economy.



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



Increased recovery of critical raw materials can entail investments to extract critical raw materials from primary and/or secondary sources, developing access to such materials in other parts of the world, or optimising their use profiles in future technologies.

Clearly, to realise the European Union's ambitions with respect to raw-materials access and a more circular economy, investment conditions in and around Europe need to be improved.

Recognising China as a free market economy?

At the same time, Europe must ensure that its trading partners do not jeopardise such investments through unfair trade practices. For example, according to previous negotiations China is looking forward to being granted Market Economy Status (MES) by the EU by the end of 2016 depending on the fulfilment of certain criteria. Prematurely recognising China as a free market economy will place a number of recent investments in Europe in jeopardy.

Hence, in 2015 several sectors joined efforts at a regional and national level to correctly inform such a decision. One such Alliance is AEGIS Europe*, bringing together nearly 30 European associations. Other alliances include not only US industries, but several others in Poland, Slovakia, France, etc.

Industry position

As expressed by the industry, China is not a market economy according to the EU law and there is no indication that it will become one any time soon. The WTO has general rules to allow members to address unfair trade. Special rules are needed to calculate dumping margins of imports from non-market economies because costs and prices in a non-market economy are distorted by government interference. Under Section 9 of its WTO Accession Protocol, China made the general commitment to allow all prices "to be determined by market forces". However, China has not honoured that commitment. If it had, then there would be no need for special dumping calculation rules for imports from China.

The debate on interpretation of the Protocol is whether or not these special rules can continue to apply to China after December 2016, once subparagraph 15(a)(ii) will have expired, even if China has not become a market economy and prices continue to be distorted by government interference. How should the remaining provisions of Section 15 be interpreted? And should importing WTO members not interpret the Protocol the same since the Protocol language is the same for all?

As China's Protocol of Accession is a WTO document, the WTO is the only organisation competent to give a global and definitive interpretation of the Procedure. Until the WTO establishes an agreed interpretation, no WTO member can be sure that its own interpretation of one part of the Protocol is correct.

Despite that, some in the European Commission seem keen to press ahead with a unilateral interpretation of the Protocol and propose that China be considered a market economy. In practice, this would translate into amendments to the Basic EU Anti-dumping Regulation to mandate the use of Chinese prices and costs as the basis for determining the "normal value" for purposes of the calculation of dumping margins

***AEGIS Europe**

AEGIS Europe is a grouping of nearly 30 industrial associations dedicated to ensuring that EU policymakers work towards free and fair international trade. AEGIS members are leaders in sustainable manufacturing and account for more than €500 billion in annual turnover and millions of jobs across the EU. www.aegiseurope.eu.





Round-table discussion in Madrid,
March 2015



Round-table discussion in Bratislava,
April 2015

Focusing on the 2nd pillar of the European Raw Materials Initiative

The EU should no longer sacrifice economic or strategic interests for the sake of “free trade” as long as the level playing field is not ensured - particularly in the area of raw materials. A solid and predictable network of raw-materials access within the EU is needed for EU manufacturing industries to produce their tradable goods and services without depending totally on less geopolitically stable supply markets. 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, but all legislative proposals should also be properly assessed for undesirable impacts on EU raw material supply, recognising that geological and social conditions in each Member State and economic developments around the world require specific adaptation in order to improve access to raw materials for all.

It is in the nature of the EU that Member States, and sometimes even regions, are the key holders to industrial and supporting raw material policies. Hence it is felt that addressing national, regional and local questions by stakeholder consultations in Member States is the best way forward: Euromines therefore supported the European Economic and Social Committee with a new initiative in 2015, encompassing:

- An active dialogue on national and regional economic policies and their relevance for raw materials supply issues;
- Stimulating engagement with a diversity of stakeholders and governmental institutions;
- Encouraging transparency and understanding of current challenges such as the limitations of current and future supply and discussion of possible solutions.

The Industrial Round-table Series of 2015 was organized by the European Economic and Social Committee’s (EESC) Consultative Commission on Industrial Change (CCMI) in partnership with relevant European and national organizations: Euromines, Euracoal, IndustriAll Europe, the European Commission and numerous national high level partners from academia, geological surveys, Non-Governmental Organisations and civil society.

The EU Raw Materials Initiative and the European Innovation Partnership on Raw Materials are key instruments that may contribute decisively to maintaining the competitiveness and sustainability of European industry, and consequently, the creation and safeguarding of new jobs, especially in regions that were affected by restructuring due to globalization. The aim of our round-tables is also to fulfil the mandate set by the European Commission for consultation and participation of civil society and social partners on the implementation of these initiatives.



Round-table discussion in Bucharest,
June 2015



Round-table discussion in Helsinki,
September 2015

Topics addressed in the round-table discussions included:

- Production, trade and consumption of energy and non-energy raw materials;
- Political, legal, administrative and societal challenges related with the secure access to raw materials from EU sources;
- Secondary raw materials and aspects related to the concept of the Circular Economy;
- Health and Safety issues.

The objective of the round-table debates was to link each Member State'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.

The series of round-tables has shown huge diversity: in terms of awareness of EU policies on raw materials, on relevant linkages between supply chains, and also of opportunities missed and challenges to be tackled. The round-tables have also clearly shown that the cultural and historical development in each country brings elements to the debate that need to be addressed before real progress can be made.

In each country, starting points, their stages in the wider debate and the relationships between stakeholders are all different and are clearly determining factors in the speed of progress.

In summary the following issues in varied degrees of concern and importance could be drawn:

- **Access to raw materials resources** - A transparent and clear framework in terms of exploration and access to deposits is a minimum requirement;
- **Land and property rights** - Gaps and challenges in land-use planning practices should be identified (application of the one-stop-shop model, use of e-government solutions);
- **Social Dimension and labour market** - Strong anticipation mechanisms in view of technological and skill developments are needed;
- **Regional trade agreements and integration** - Explicit political support for mining as a particular growth strategy;
- **Promoting investment in Skills & Innovation** - Support of access to finance and investments in Research & Innovation;
- **Supporting industrial competitiveness** - Industrial competitiveness should be considered across all policy areas;
- **Energy price** - Enabling competitive energy prices for energy intensive industries;
- **Competition** - Identify and protect European industries against unfair competition;
- **Regulation and Policy Initiatives** - Development of a Minerals Policy (strategy) together with an appropriate action plan and including the concept of mineral deposit of public importance;
- **Financial** - Applying specific financial incentives and fiscal instruments to encourage investment and establish National Investment Facilities to provide money for start-ups.

Following its various opinions adopted over the years, the EESC together with other European and national partners has managed to bring together key stakeholder and instigated a dialogue that will be continued in the coming years in these countries and in others. In 2016, the series of high-level discussions will continue in Portugal, Ireland, Poland, Sweden and Czech Republic.



Providing more jobs and investment in Europe

The experience of the Global Financial Crisis has taught us that globalisation can make economies stronger, but in some ways it has made the European economy weaker - due to its over-reliance on imports of energy and raw-materials and its declining industrial base. The Organisation for Economic Co-operation and Development (OECD) has concluded that the recovery of the EU after the Global Financial Crisis has been delayed and lengthened because of its under-representation in key parts of important global value-chains. Even as recovery appears in sight, the European Commission has warned us that the absolute wealth of the EU has been eroded. In order to replace lost wealth and create further wealth, the EU must have something to sell to the rest of the world.

What we need to help lift 20 million people out of poverty:

- Adoption by the EU Council of a target of 20% industrial contribution to GDP by 2020.
- Creation of possibilities to keep production in the EU and attract as much investment in new facilities as possible including through successful conclusion of the TTIP (Transatlantic Trade and Investment Partnership) negotiation with the United States.
- Policies for more efficient EU production and resource efficiency targets that drive positive contributions from the whole value chain in Europe – including from mining & quarrying.
- Further development of "environmental footprints" into full "net benefit assessments" of products and processes in economic, environmental and social terms.

As well as direct wealth creation from mining and value-adding to mineral products, the minerals sector has a much broader impact on society through employment in services and infrastructure development. In active mining regions in Europe, the extractive industry can have a strong impact on the development of the area by providing growth, prosperity and by creating well-paid jobs which lead to increased tax revenues and further diversification of regional economies.

European mining regions and their companies also have a significant impact on the global extractive industries through the development and production of modern mining technologies, machinery, equipment and services. The people of these regions feel proud to be providing raw materials for countless downstream manufacturing sectors in Europe and equipment and services for many other mining regions around the world.



Access to competitive energy and energy efficiency in and for Europe

A new Climate Change Agreement – December 2015

After four years and two long weeks of negotiations, the Paris agreement was finally approved on the evening of Saturday 12 December 2015. The Agreement will replace the Kyoto Protocol starting in 2020.

The 21st Conference of the Parties (COP21) outcome is made of two parts, both legally-binding: the COP Decision (pages 1-20) that sets out the process of how to put the agreement into effect and the Agreement itself (pages 21-32) setting out the provisions for global action on climate change.

187 countries, including all major economies, have submitted national emissions reduction plans ahead of COP21, representing 98.6% of total global emissions. These post-2020 national plans – Intended Nationally Determined Contributions (INDCs) – will be turned into NDCs from 2020 onwards when the Paris agreement starts being implemented.

The fact that the US Congress needs to ratify the agreement and in February 2016 refused to do so must have consequences also for the EU policies.

The EU's policy on the Energy Union

The "Energy Union" is based on the three long-term objectives of EU energy policy: security of supply, sustainability and competitiveness. To reach these objectives, the Energy Union focuses on five mutually supportive dimensions:

- Energy security, solidarity and trust;
- The internal energy market;
- Energy efficiency as a contribution to the moderation of energy demand;
- Decarbonisation of the economy; and
- Research, innovation and competitiveness.

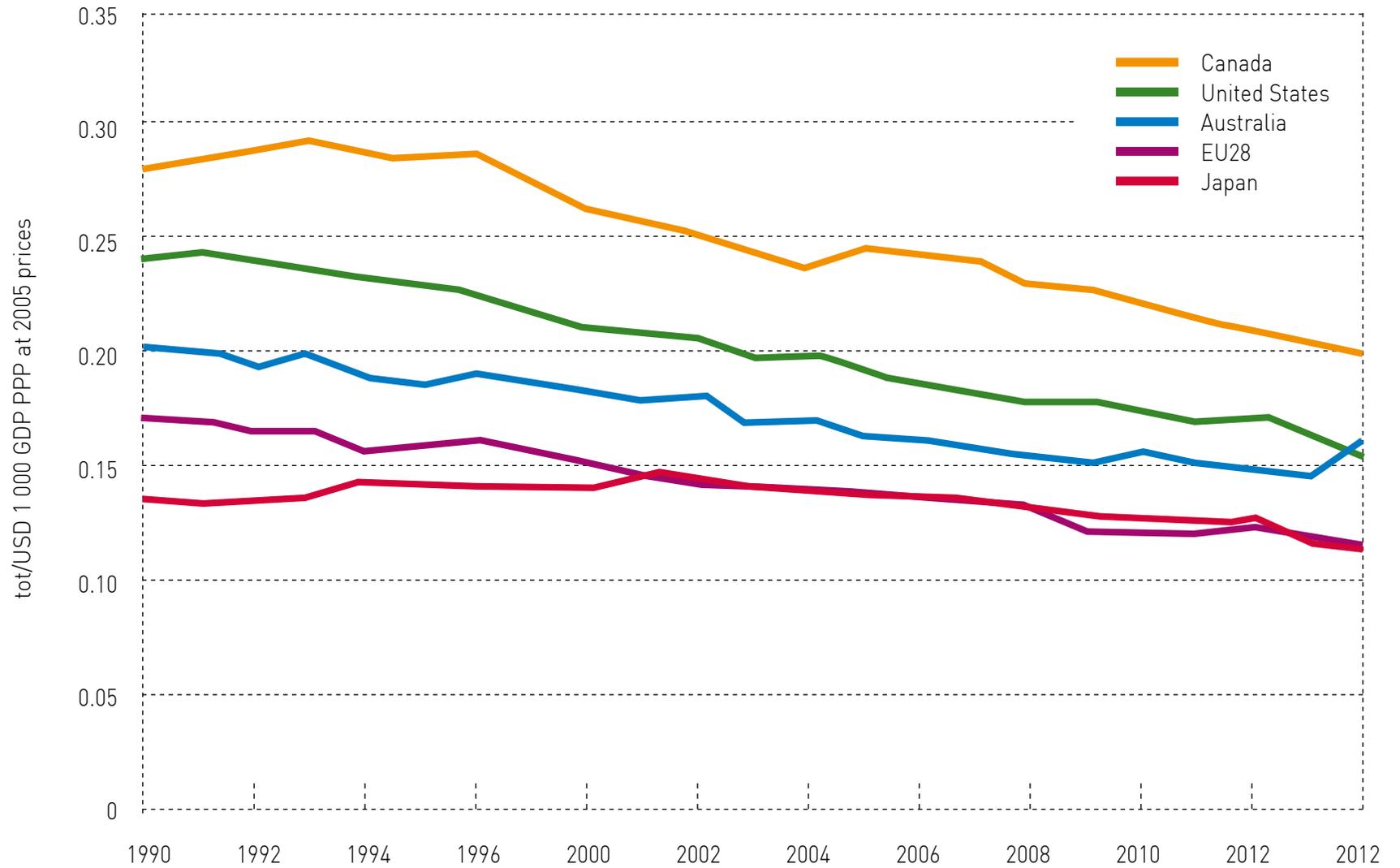
All these dimensions are areas that require more integration and coordination across Europe. The adopted action plan should be followed-up and reviewed as time progresses to ensure that it keeps responding to evolving challenges and new developments.

The Commission is currently working on a number of issues in this area and when it comes to diversification of energy sources the Commission and some Member States seem to be intent on phasing out coal in the EU. However, it should not be forgotten that the aim of diversification is to make Europe less dependent on outside suppliers and this cannot be achieved with renewables only.

The downstream users of energy are concerned that the strong political signal will in turn result in an even weaker energy infrastructure and higher prices. Without accompanying measures it also increases the environmental and health and safety risks since needed investments will be redirected.

More investments should be made into research and development of cleaner coal technologies and CO₂ sequestration to ensure diversity, efficiency and security of supply.

Energy intensity in the European Union and in selected IEA member countries, 1990-2012

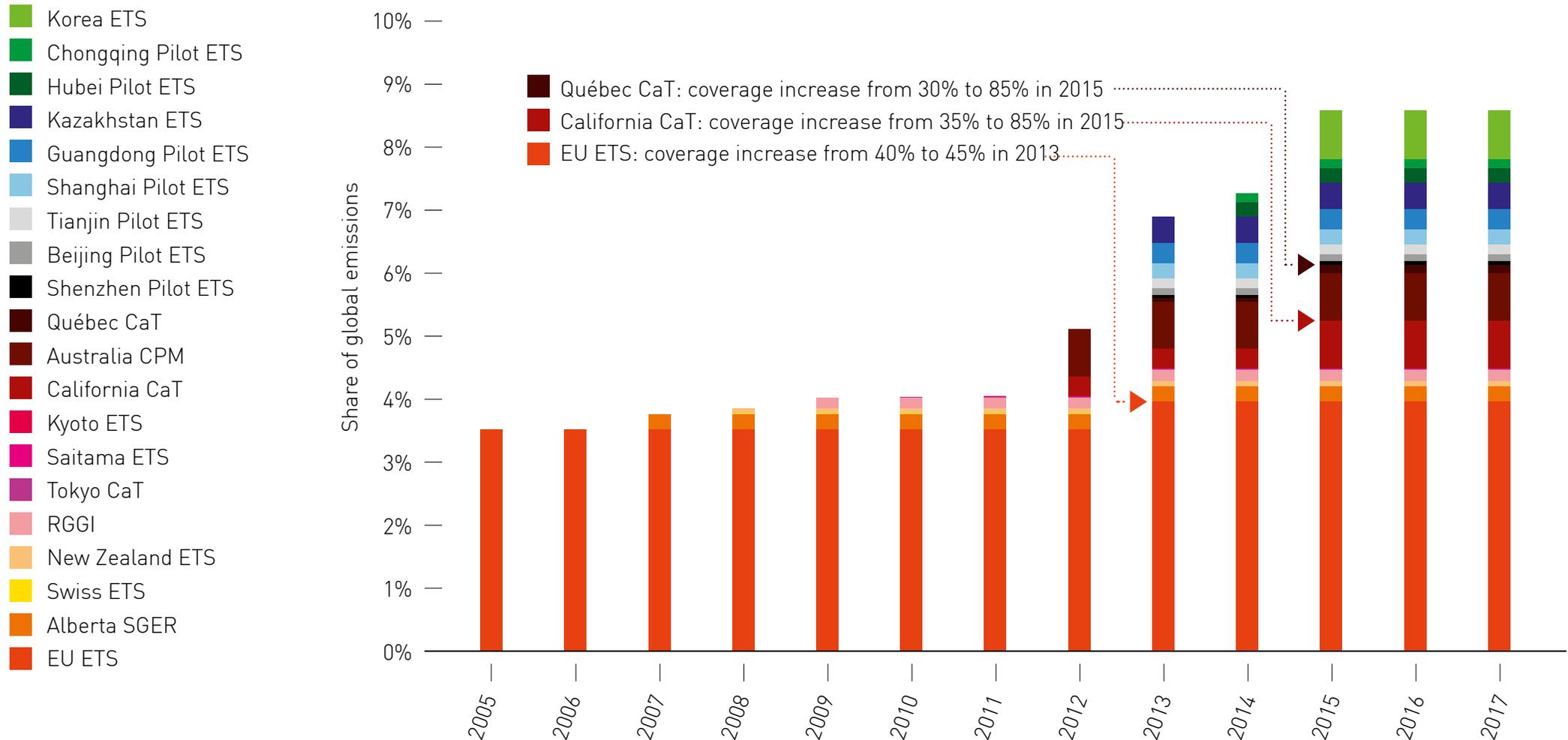


Sources: IEA (2014a), Energy Balances of OECD Countries, OECD/IEA, Paris; IEA (2014b), Energy Statistics of Non-OECD Countries, OECD/IEA, Paris.

Emissions Trading System Directive (ETS) Revision – Euromines supporting conclusions of the Stakeholder Consultation

All ETS regimes world-wide jointly only address less than 10% of the overall emissions which can be allocated to industry. And all industrial emissions account for only 8-9 % of total emissions.

Regional, national, and sub-national emissions trading schemes: share of global emissions covered



Source: Ecofys and World Bank



On 14th January, 2016 the Commission staff published its working document on stakeholder feedback on the revision of the Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investment and came to the following main conclusions:

- Support was expressed for the ETS in general, with the power sector particularly indicating support for the Market Stability Reserve (MSR) and the increase of the annual emission reduction rate (the so-called linear reduction factor) from 1.74% to 2.2%. At the same time, many industry stakeholders expressed concerns regarding the impact of the ETS on their competitiveness and, in this context, some of them welcome the continuation of free allocation and carbon leakage measures beyond 2020;
- The competitiveness concerns range from issues of a more general nature (e.g. need for predictability, industrial sectors are approaching limits to reduce emissions with existing technologies, overlapping or interlinked national/EU policies, lack of comparable measures/systems in third countries), to more sector-specific ones (e.g. high share of electricity costs in total production costs in the case of the non-ferrous metals sector, need to ensure sufficient allowances are auctioned in the case of the power sector);
- Concerning the Innovation Fund, several industry stakeholders welcome the broadening of the scope to include industry and some also welcome that part of the funds might be provided before 2020, and support the higher funding rates proposed. Moreover, several industry stakeholders call for carbon capture and use (CCU) to also be eligible.

Industry's needs

Overall it is fair to say that the industry has serious concerns about the revision and the proposed changes.

1. It will be important to have free allowances in the future in order to secure future growth of new and most efficient installations, and to avoid the application of the cross-sectoral correction factor;
2. Allocation of allowances should be driven by realistic industrial activity levels to support economic growth and to prevent under or over allocation;
3. Realistic benchmarks are crucial and the level of ambition for emission reductions should be in line with technological progress to ensure European industry's competitive edge;
4. It will be important to get the carbon leakage list right allowing for the future development of industry in Europe.
5. Harmonising compensation for indirect costs is the only way to avoid intra-EU distortions on the Single Market;
6. Making the innovation fund fit-for-purpose by improving the eligibility criteria and removing the financial risk for companies wishing to invest in innovation projects and focusing on the ETS sectors.

ENHANCING EUROPEAN INNOVATION AND LEADING ENABLING TECHNOLOGIES



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.

"We strive for a robust and reliable and legal framework for mining in all of the EU Member States, to promote new investment in exploration and knowledge, to continue research and technology development, to show the world how to mine deeper, smaller and more complex deposits successfully" Mr. Rachovides, President of Euromines

There is great 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 integral for us to achieve the EU's goal that industry contributes 20% of GDP in 2020. Growth of efficient industrial production, including mining, must therefore be welcomed within the EU.

European Innovation Partnership (EIP) on raw materials

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. European Mining industry is 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.

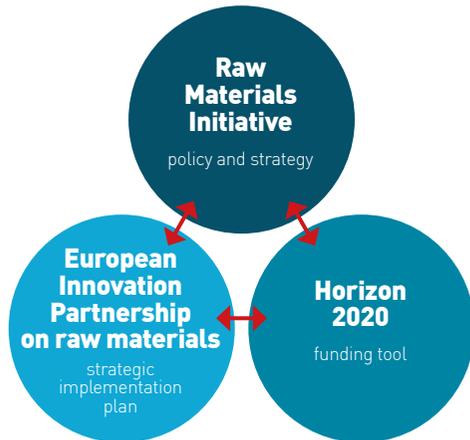
European Innovation Partnership (EIP) on raw materials

The EIP is one of the very few European-scale initiatives that brings together, among others, EU countries, companies, researchers and NGOs to promote innovative solutions to Europe's challenges.

The key objectives are:

- Reduction of import dependency by improving supply conditions from EU sources, providing resource efficiency and alternatives in supply.
- Bringing Europe to the forefront in raw materials sectors and mitigating their negative environmental and social impacts.

EU Raw Materials Framework - Building Blocks



Source: European Commission, DG for Internal Market, Industry, Entrepreneurship and SMEs

In 2015 Euromines was heavily involved in the EIP on Raw Materials:

- Providing input to the development of a Raw Materials Scoreboard which will help to assess the impact of the EIP on the development of the access to resources in and for Europe;
- Providing input into the reviewing and refining of the methodology for assessing critical raw materials by the European Commission Joint Research Centre;
- Providing data for the study on Mass Flow Assessment for critical raw materials;
- Providing input to the report on the progress of commitments made under the EIP;
- Participation in the Horizon 2020 Challenge 5 – Advisory Committee; and
- Participation in the DG Research Horizon 2020 foresight seminars on innovation till 2050.

The 3rd annual **High Level Conference of the European Innovation Partnership (EIP) on Raw Materials** was held on 9th – 10th December, 2015 in Brussels. Its focus was on three parts: European for Technology on Raw Materials, EIP on Raw Materials, and Raw Materials in Horizon 2020.

The conference featured the new EU co-funded Knowledge and Innovation Community (KIC) on Raw materials called “EIT Raw Materials” and concentrated on creating new business and entrepreneurs opportunities in the raw materials area.

A comprehensive overview of developments in the fields covered by the EIP was presented, including the High level panel; successful and new Raw Materials Commitments; regional approaches and investment in raw materials; and the launch of the 2nd call for the EIP “Raw Materials Commitments”.

The Conference also provided networking opportunities for new initiatives and projects under the 2016 Horizon 2020 calls relevant to Raw Materials. In parallel the first 28 specific raw materials projects of Horizon 2020 worth €140 million of EC funding were launched in 2014 and 2015.

Euromines considers the increase in Member States’ involvement a prerequisite for the long-term success of the partnership and is looking forward to a higher participation at the next conference in 2016.



Horizon 2020 and what it does for raw materials

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.

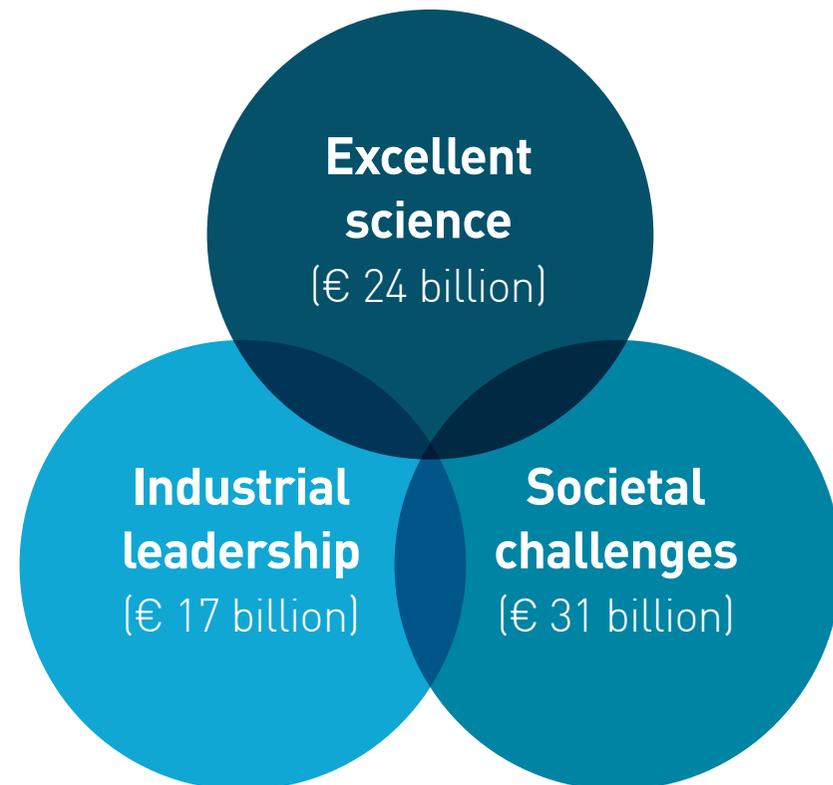
For the moment, Horizon 2020 has a whole range of tenders/calls for research projects supporting the raw materials supply and use to support modern exploration, resource efficient processing and sustainable use of resources.

Until 2020 there will still be a range of pilot actions and many more projects that may yield major break-throughs towards increased sustainable supply from European sources.

A number of EU activities on raw materials should lead to recommendations for research and innovation measures that might well include policy conclusions.

Horizon 2020 - Context and Overview

Source: European Commission, DG for Internal Market, Industry, Entrepreneurship and SMEs





Pushing boundaries beyond - Circular by 2020?

On 9th March 2015, the International Conference on New Technologies and Policies for Mining and Mining Products "Pushing boundaries beyond - Circular by 2020?" was held at Trinity College Dublin with support from Euromines and the European Technology Platform on Sustainable Mineral Resources.

The conference focused on the role of new technologies and policy approaches for a future mining industry in Europe. With Ireland having been a major supplier of raw materials to the EU and its downstream industries, particularly in lead and zinc, the country scored highly on the latest Fraser Institutes assessment of investable countries for exploration and mining investments in Europe.

Hosted by the country's leading university, the conference brought together high level representation from the Ministry of Communications, Energy and Natural Resources, the European Commission, academia and geological surveys as well as European mineral suppliers and technology providers and sector organisations such as Euromines, European Technology Platform on Sustainable Mineral Resources and Irish Business and Enterprise Council.

Some 100 participants from all over Europe attended this conference which explored:

- The development of alternative energy sources and their future material demands including critical raw materials;
- New technologies for the production and use of raw materials;
- New approaches to address public awareness and social validation of the mining industry;
- Strategies and technical and political requirements for achieving a more circular economy with increased reuse and recycling of materials currently in use;
- Strategies and policies around providing raw materials for Europe's innovation and reindustrialisation strategy;
- The European Innovation Partnership on Raw Materials and the funding programmes and topics available in the future.

Innovation is a powerful vehicle in meeting Europe's challenges in raw materials. For example, new technologies help to reduce losses, safely extract minerals deeper underground, and source the raw materials in more areas and under a wider range of conditions. This is also why a European Innovation Partnership on raw materials has been set up by the Commission towards increasing Europe's own production. "Europe is rich in natural resources. Our future is one where technological advances lead our industry, where regulation compliments growth and is born from a hard-won consensus for a better future." highlighted Euromines President Mr. Rachovides in his speech.



The Minerals4EU Project

The Minerals4EU project is designed to bring Europe's minerals related geo-data into one, virtual, place through a web portal so that users can more easily get the information they need, directly onto their computer, and free-of-charge. The Minerals4EU project is designed to meet the recommendations of the EU's Raw Materials Initiative and will develop an EU Mineral intelligence network structure delivering a web portal, a European Minerals Yearbook and a Foresight Study. It will provide data, information and knowledge on mineral resources around Europe linking to the European Innovation Partnership on Raw Materials, seen by the EU Competitiveness Council as key for the successful implementation of major EU2020 policies.

In August 2015 a simplified, user-friendly and efficient access to all available and new data related to mineral resources through the 'Minerals4EU' Knowledge Data Platform became operational. More than 17 European Geological Surveys are serving their national data on mineral resources. Some others will contribute shortly. Over 190 documents related to European mineral potential are stored in the Knowledge base and are available for download.

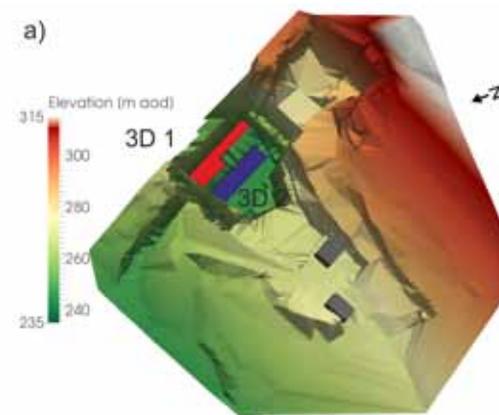
Sustaming Project

The Sustaming project marks the start of a series of development activities aiming to realize the concept of an invisible, zero-impact mine. The natural stone extractive sector, still seen as being old-fashioned, joined forces to revise this image showing that natural stone extraction can be approached with a cutting edge methodology with low impact underground and zero impact above ground.

At the end of 2015 the Sustaming project concluded. It has assessed the possibility to adapt and transfer new exploration technologies previously used in the metals sector to the ornamental stone and industrial minerals sector and improve its environmental performance, its resource efficiency and its safety. The application of these methods makes some drilling and excavations unnecessary and thus reduces unnecessary impact on land and biodiversity; it increases the efficiency and reduces the costs. The distribution of the project results across Europe will be a task for 2016-2017.

Applying electrical resistivity tomography (ERT) to delineate stone quality

- a) Plan view of Girardi Quarry showing the locations of 3D surveys superimposed on 3D topographic model of the wider quarry area.
- b) Photograph of the quarry during the survey. Highlighted are the 2 3D ERT surveys covering the two levels of the quarry.





ETP SMR

In November 2015, the European Technology Platform for Sustainable Mineral Resources (ETP SMR) marked the 10th Anniversary since its establishment in 2005. Dr. Corina Hebestreit was re-elected as President of the Platform and will continue her efforts in leading the ETP SMR forward and build on the success of the last ten years.

The 7th General Meeting of the ETP SMR – which brought together some of the leading industry representatives, technology providers, academics and geologists in the field of mineral resources – also discussed the possibility to link their own activities to those of the rapidly developing EIT Raw Materials Knowledge and Innovation Community, especially in relation to the VERAM Project.

VERAM Project

The European Technology Platform for Sustainable Mineral Resources was awarded a research coordination action called **VERAM** that officially started in December 2015.

The VERAM project aims to provide an umbrella and coordination function for raw materials. For the first time it combines two raw material sectors (mineral resources and forestry) and their related research and innovation activities across their ETPs, their national technology platforms, their ERA-NETS (Member States funding agencies) as well as related stakeholders across the raw materials value chain in order to increase synergies and facilitate uptake of research results and innovation across the sectors and their value chains. Its main objective is to identify the future research needs of raw materials till 2050.

The project will also encourage capacity building as well as sharing of knowledge and innovation capability. It will coordinate a unique new network of people involved in the different Horizon 2020 and other projects and initiatives and will provide a platform for identifying gaps and complementarities and bridge these, even between different raw material sectors.

At the end it will advise the European Commission and national governments of future research needs and tools to stimulate innovation and assist in overcoming any fragmentation in the implementation of the Strategic Implementation Plan of the EIP on Raw Materials.

We will look for mutually beneficial information exchange, encourage cross-fertilization between actions undertaken by different raw material industries and will speed-up exploitation of breakthrough innovations. The final result of the activities will be a common long term 2050 vision and roadmap for the relevant raw materials, including metals, industrial minerals and aggregates and wood.

I2Mine Project

In October 2015 the I2Mine Project concluded and the results were presented at the Aachen International Mining Symposium (AIMS) 2015. I2Mine partners presented concrete technological innovations for the invisible, low/zero-impact mine as a vision of the future deep intelligent mine. The I2Mine Project paves the way to sustainability by fostering the concept of a green mine and delivering concrete results towards this goal.



REINFORCING SUSTAINABLE PRODUCTION AND ENVIRONMENTALLY FRIENDLY PRODUCTS

3

The shift to most sustainable production and most environmental-friendly products is not possible without metals and minerals. On-shoring of mining operations and for the same reasons downstream industries from other countries back to the EU will mean that materials can be mined, processed and produced in more environmentally friendly facilities.

It should also be noted that know-how is developed across supply chains and that off-shoring of parts of the supply chain can disrupt the innovation process considerably.

It is therefore important to create possibilities to keep production in the EU and attract as much investment in new facilities as possible. This means not only providing jobs but also supplying manufacturing industries with needed resources.

Creating a solid and predictable market of raw materials supply is needed for manufacturing industries to provide various goods and services.

Environmental Footprint: Mineral resources in life cycle impact assessment

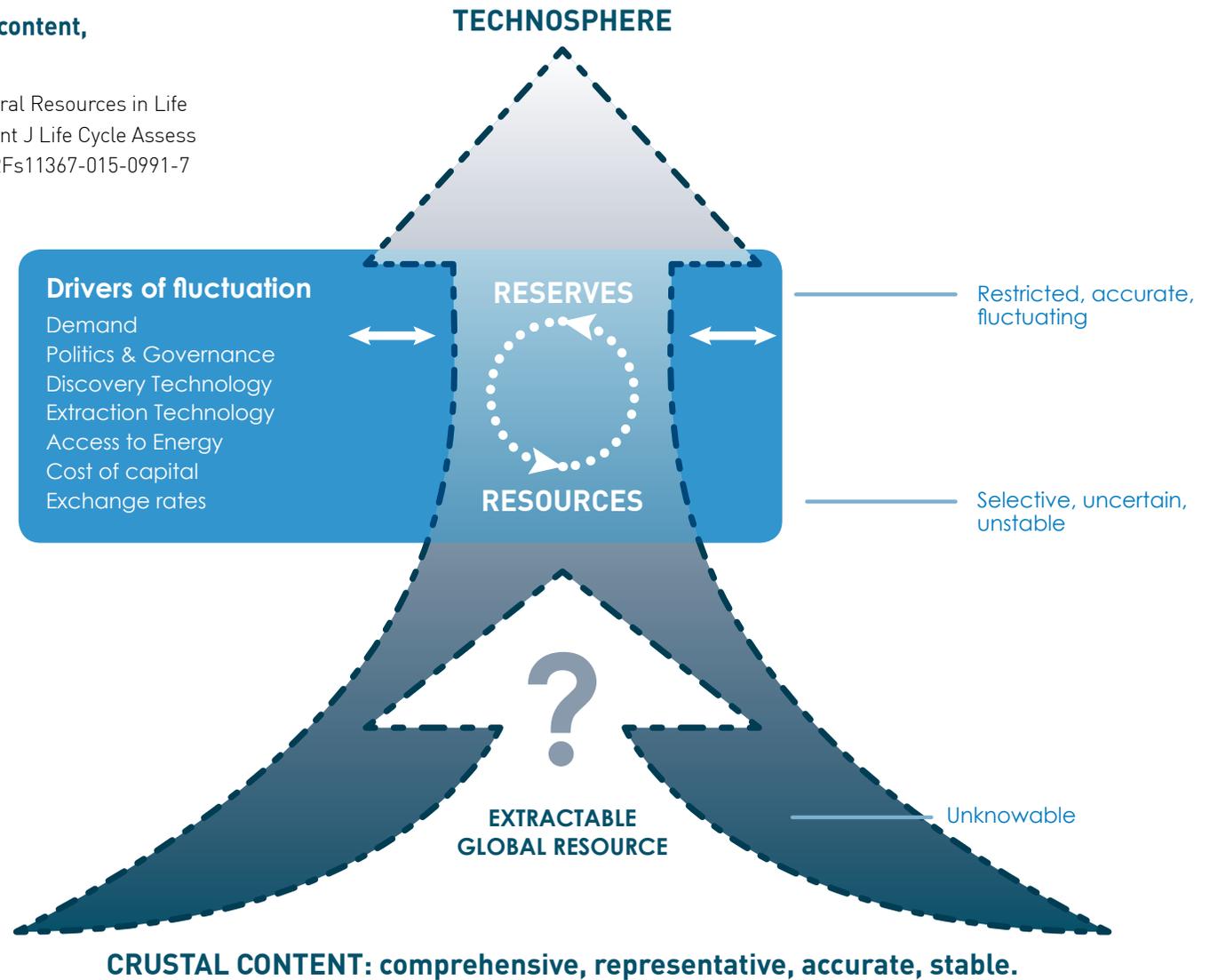
Originally, Life Cycle Assessment (LCA) used estimates of total crustal content to calculate how many years' worth of different natural resources existed. Later, practitioners began limiting existing stocks to those identified by the United States Geological Survey in its annual Commodity Summaries. Because of the nature of the equations used, LCA results are highly sensitive to these differences in assumed total stock of abiotic resources. There is increasing international consensus that this aspect of Life Cycle Impact Assessment is well and truly broken and in need of an entire re-think.

More recently, several researchers have suggested that metal production has peaked, that resources will be depleted within decades and that declining ore grades can be used to forecast a time when mining will no longer be viable. This has underlined a lack of cross-disciplinary understanding of mineral economics.

In a new peer-reviewed publication, "Mineral resources in life cycle impact assessment – defining the path forward", Euromines with other industry partners (Align Consulting, RHI AG, Newmont Mining, Lulea Technical University, The Nickel Institute, European Copper Institute) have come forward with probably the first globally coordinated mining industry contribution to the last twenty years of research into resource assessment in Life Cycle Thinking.

Depiction of the relationship between crustal content, resources, reserves, and the technosphere

Source: Drielsma J, Russell-Vaccari A, et al. (2016) Mineral Resources in Life Cycle Impact Assessment – Defining the Path Forward. Int J Life Cycle Assess 21(1): 85-105: <http://link.springer.com/article/10.1007%2Fs11367-015-0991-7>



In the paper (which is freely available for download link.springer.com/article/10.1007%2Fs11367-015-0991-7), exploration, geology, and economic experts from the global mining industry provide recommendations to ensure that future research into mineral resource assessment has a sound basis and that practitioners can utilize more appropriate tools for their work.

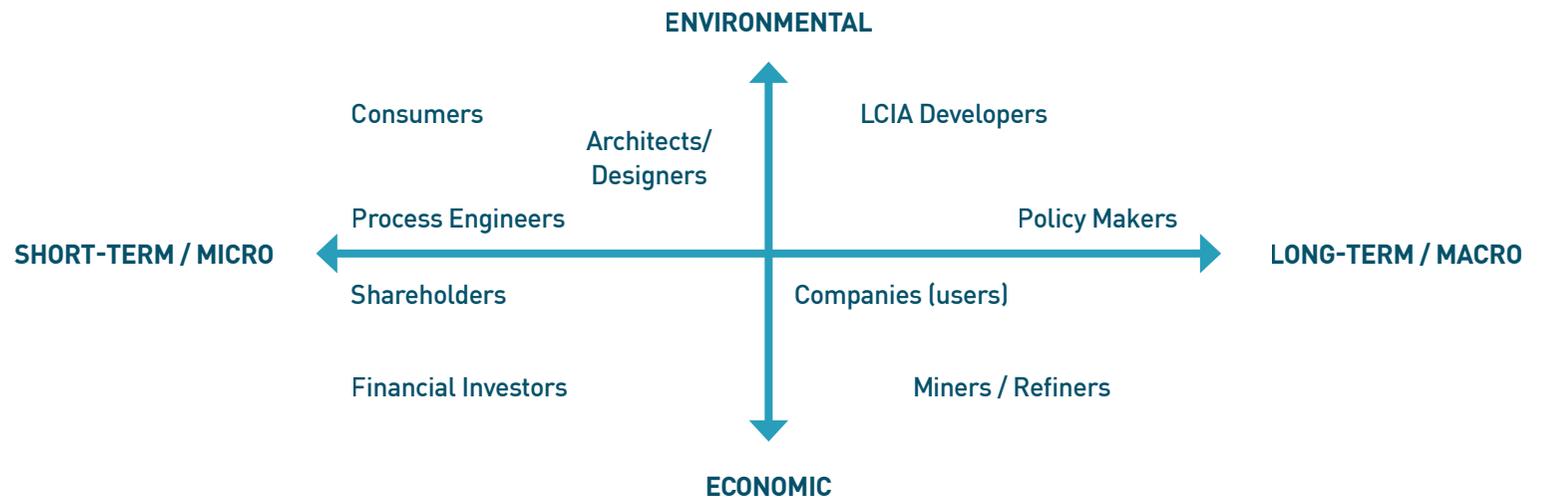
The paper is highly relevant to the European Commission's current piloting of its Product Environmental Footprint (PEF) method, which will run till the end of 2016. The project is currently at the stage of preparing individual PEF calculations by volunteer companies using their own actual data according to certain product category rules.

The screening of potential environmental impacts and preparation of product category rules during 2015 revealed significant methodological difficulties – not least related to assumed depletion of natural resources in the environment.

As a first step in establishing a new dialogue between the industry, developers of LCA methodologies and their customers, the Natural History Museum London – in association with Euromines – organised a Workshop on Mineral Resources in Life Cycle Impact Assessment: "Mapping the path forward", which took place in London on October 14th, 2015. The workshop provided an excellent opportunity to bring together geologists, mineral economists and sustainability experts of leading mining companies, agencies, consultants and universities, and the EU regulators.

The metals and mining industry will continue to work constructively with the European Commission and its Joint Research Centre during 2016 to resolve the data and methodological issues raised within the PEF pilots.

A proposed mapping of different decision-makers across a range of different abiotic raw material information needs



Source: Drielsma J A et al. (2016) Abiotic Raw-Materials in Life Cycle Impact Assessments: An Emerging Consensus across Disciplines. Resources 5(1), 12: <http://www.mdpi.com/2079-9276/5/1/12>



Water management

In accordance with Article 18.4 of the Water Framework Directive (WFD), the Commission published in 2015 an interim report to the European Parliament and to the Council on the implementation of this Directive. It includes a review of progress in the implementation of the programmes of measures planned by Member States in their River Basin Management Plans. The interim report is based on the analysis of the reports submitted by Member States themselves in accordance with Article 15.3 and it also provides suggestions for improvement of future programmes of measures to be inserted in the update of the River Basin Management Plans.

This 4th WFD implementation report was adopted on 9th March 2015. The reports from Member States are also available in the EU languages on the website of DG Environment (ec.europa.eu/environment/water/water-framework/impl_reports.htm#fourth).

When it comes to identifying substances of concern for extra monitoring by Member States, Euromines, CEFIC, Eurofer and Concawe have been involved in discussing with the Commission the need to monitor free cyanide in EU water bodies. So far, any extra monitoring has been hindered by the fact that there is no established and agreed methodology available for such monitoring. In the interest of all parties, the Fraunhofer Institute was commissioned in 2015 to attempt to develop such a methodology. 2016 will see a continuation of this project to test Fraunhofer's proposal and to carry out some trial sample monitoring.

BAT on extractive waste management

The work on review of the Reference Document on Best Available Techniques for Extractive Wastes, involving 150 Technical Working Group members out of whom there are 35 industry representatives, has been underway since December 2013. Petros Maraboutis is coordinating a Euromines Task Force for the process. In 2015, a questionnaire was distributed by the European Commission Joint Research Centre to collect techno-economic information on the management of waste from the extractive industries covered by Directive 2006/21/EC. With co-ordination by Euromines, 89 operators from EU, Norway and Turkey answered the data collection questionnaire; 39% are from metal mines and 32% from industrial and construction mineral producers.

The first draft Reference Document on Best Available Techniques for Extractive Wastes will be released for comment by the JRC during 2016.



”Track and Trace” Directive for Explosives

Under the EU Directive 2008/43/EC a Task Force for Civil Uses was set up to monitor the implementation of the directive including manufacturers and distributors of explosives, industries using explosives, Blasting Associations and engineers of explosives as well as Software developers.

The TF set an action plan:

- Identify any challenges raised during the first and second phase of the implementation;
- Actions to solve challenges;
- Create and disseminate a first Guidance document for the whole supply chain.

It created a guidance document for end users in leaflet format translated in 9 languages and a Questions & Answers paper. It set up a TF Website www.explosives-for-civil-uses.eu

In 2015 a questionnaire was launched about the issues around implementation and the results were reported to the Commission. The results showed that some countries are applying the T&T Directive till the gate of the user’s site which is a question of interpretation of the EC end users definition in the Directive and create distortions of the market and unfair competition between companies from the different surrounding countries. There are no clear procedures to demonstrate that a single company is already complying with the Directive & on Sanctions for non-compliance. Not only different approaches at national level but also, in some countries, regions have their own interpretation causing some confusion. And in addition, there are some technical and practical problems with the labelling and the readability of the labels in some instances.

The TF will address these issues in in 2016.

The majority of Euromines members concerned have implemented the directive.



KGHM Polkowice-Sieroszowice mine

Occupational exposure

The "Refit exercise of the Commission with regard to Occupational Health and Safety legislation (OHS Refit)

Occupation Health and Safety takes first place in extractive operations which has a strong track record of implementation of safety measures and health monitoring. Hence the Commission's intention to review the European legislative framework is of great interest to the sector.

For the OHS refit the consultant appointed by the Commission finalised his report during the summer 2015. A first consultation round in the relevant bodies was conducted and the Commission has developed their first conceptual ideas of what Europe's legislation in this respect should look like. For 2016 a public consultation on these ideas is expected.

Setting of Occupational Exposure Limits for NO, NO₂ and CO

Still whilst reviewing the whole body of legislation, the Commission is currently trying to amend the Chemical Agents Directive by setting OELs for NO, NO₂ and CO and is assessing the recommendations made by the SWPEI and the Advisory Committee to grant the extractive industry a five year grace period in which the implementability of the proposed limit values should be assessed and new measures and techniques should possibly be developed.

The industry is concerned that it will not only seriously impact on its competitiveness, but in many underground situations it will simply not be achievable with currently available technologies for technical reasons.

RECOGNISING THE VALUE OF RAW MATERIALS FOR SOCIETY



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.

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.

Public opinion on mining and quarrying varies considerably across Europe and depends on the level of knowledge about raw materials and whether people have been actually exposed to mining and quarry operations. It is probably fair to say that most people in Europe are rarely conscious of the amount of raw materials that go into the daily products they use and the dependency of food and water quality on raw materials being used. Communities that are linked and related to modern mining and quarrying areas tend to be more positive than those that are very far removed from these industrial activities. It is a human condition to be scared and uneasy with things you do not know and whilst we used to have many more mining regions in Europe, today large parts of the population live far away from it.

Corporate Social Investments in Mining

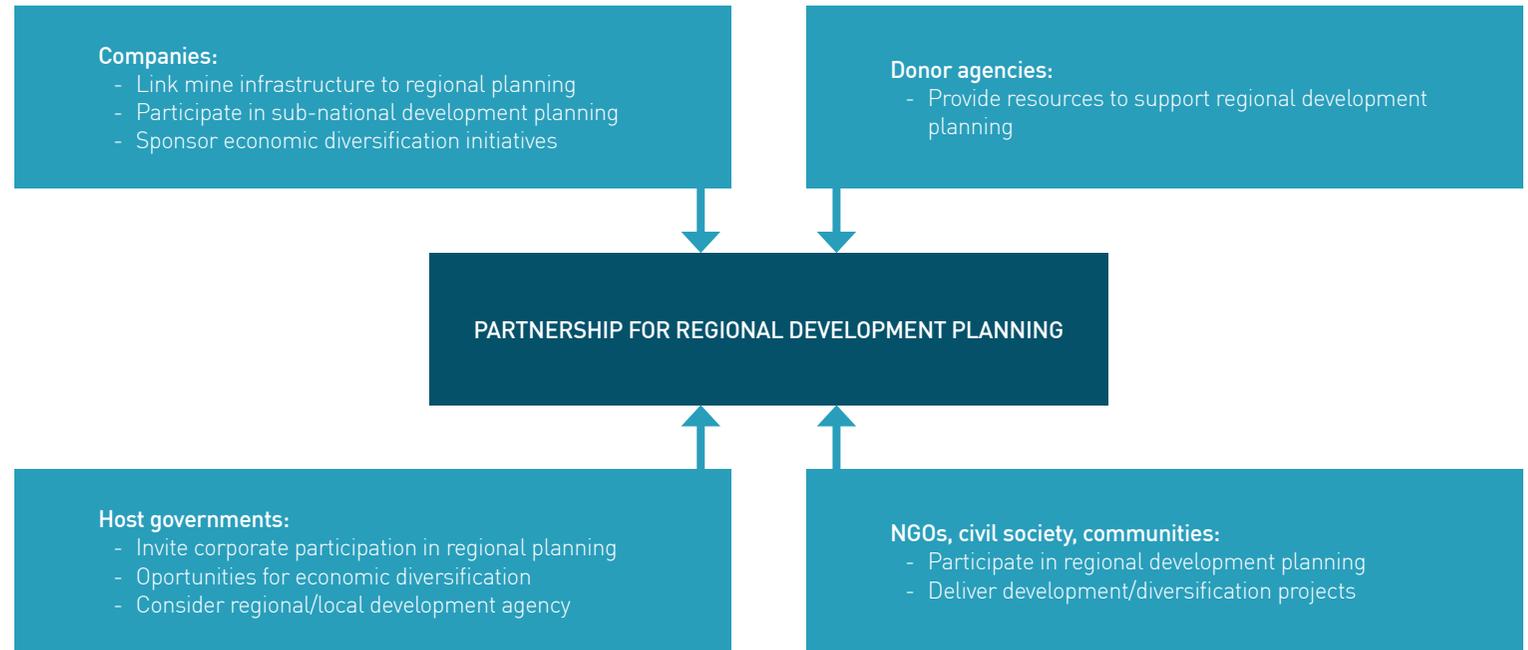
For mineral companies to demonstrate that their projects are having a human development impact, they must move beyond measurements of input, such as the scale of economic and social investments, or descriptions of activities, programs and their outputs. Instead, they must show that:

- their investments have been co-ordinated to achieve strategic outcomes in areas of greatest need, and for greatest benefit,
- there is progress towards human development goals that can be linked to mining,
- mining has left long-term positive social and environmental legacies.

In short, to demonstrate whether or not mining projects have a human development impact, measurement must be focussed on outcomes and not just inputs.

Illustration of partner roles and responsibilities for mining and regional development planning:

Illustration of partner roles and responsibilities for mining and regional development planning:



Source: Mining: Partnerships for Development Toolkit, ICMM, 2011

Leading by Example - Best Practice from our members

Finnish Network for Sustainable Mining

The Finnish Network for Sustainable Mining was set up in May 2014 to ensure that mining practices in Finland are responsible and performed in a way that takes into consideration the needs of other people, livelihoods and nature. The aim of the network is to reduce potential crises in the mining sector by improving stakeholder cooperation and raising sustainability standards in mining operations.

The network is comprised of representatives from environmental groups, exploration and mining companies, other industries (such as tourism, reindeer herding, forestry and agriculture and metal refineries), funding agencies, the Sami people and local decision-makers from municipalities and regions. The network is placed administratively under the auspices of the Finnish Mining Association, but it operates as its own entity.

So far, the network has provided a toolbox for local actions and a common model for CSR reporting. In addition, it is in the process of finalising a new sustainability standard for mining companies operating in Finland. The standard is based on the Canadian initiative Towards Sustainable Mining, and it has been adjusted to the Finnish context.



Finnish Network for Sustainable Mining, Kettula, Finland



The First Minister of Northern Ireland's visit to Curraghinalt in April 2015



Galmoy Mines in Ireland, Wildflower flourish wetland

Stakeholder engagement in Ireland

Dalradian Gold's stakeholder engagement and CSR strategy at its high grade Curraghinalt gold deposit; Northern Ireland, is characterised by intensive face to face and one to one engagement. The strategy has witnessed remarkable success with the latest household survey conducted by the company in Spring 2015 showing a favourable rating of 93% for development of a mine.

The company has a community relations team on the ground daily. Comprised of five people, four of whom are immediate to the local area, their communication and engagement with locals is intensive and robust. Characterised by fast, proactive information provision, complaints have been minimal with no site noise complaints from the current development phase. Staff give their time to community and charity initiatives including environmental clean-up, recent assistance in packaging aid for the refugee crisis in Europe and small scale financial support for community groups and charities. The company provides Summer internships to students across a range of disciplines and supports and encourages local employment and training.

Planning for mine closure and restoration starts at the earliest stages of new mine development and has become a core part of doing business. Wherever possible, reclamation is carried out while mining is still active. Today, closure plans must include social, economic, and environmental parameters as well as community engagement to find ways for the mine to provide lasting value to communities.

Galmoy Mines in Ireland, owned by Lundin Mining, located in County Kilkenny, 110km south west of Dublin, is in the final stages of mine closure. The closure process began with discussions between the mine and stakeholders including government ministries, local councils, and environmental groups. Several opportunities for land use were identified. Industrial lands would be sold for continued industrial use, agricultural and forestry lands would be removed from the mines licensed boundary and retained as such, the tailings storage facility would be remediated and future use determined with input from the community.

As the mine's active closure phase comes to an end, Galmoy is demonstrating that careful planning and engagement can lead to successful remediation and closure with former mine lands being put to long-term productive use benefiting local communities.

Social responsibility is a certain part of the sustainable development of the whole industry, as well as of the mining sector's philosophy. The companies have an active role and heavily invest in improvements of the environment and the quality of life, preservation of traditions, education and children, as well as in rendering assistance in cases of disaster. The professionals who manage these projects are the company's ambassadors in these local communities.



Young visitors at Asarel Medet AD are making their usie-group-photo



Employee of Ellatzite-Med AD paints local church



Bulgarian social responsibility programmes

In Bulgaria the public at large gives two parallel explanations of why mining companies fulfil their social responsibility.

First, despite old perceptions, mining companies are more flexible and they make effort to listen carefully to the needs of local people. This could be seen as business "replacing the role" of the state in providing assistance or resources without seeking anything in return. We may find some evidence in educational projects run by companies, in fighting floods in 2014, where mining companies were the first to help local people. Social relations are prioritised in all long-term plans of mining companies. Thus, contributing to the quality of life of local communities.

Another misconception is that through CSR projects companies are "paying back what they took from the community". However, this is an archaism replaced by the proactive role of companies as a part of the community. In other words, in true partnership, the community and the mining business can define their common future in which the majority of companies exceed their legally set obligations and daily business activities with a significant social role.

Efficiency and adequacy of social responsibility programmes are rooted in the values of the companies, and in the principles they follow. Bulgarian mining companies are mature and modern organizations, which implement best practices of the sustainable development. Here we speak about large-scale and complex programmes for interaction and dialogue with local communities.

Euromines Awareness Campaign

To promote society's recognition of raw materials the Euromines Awareness Campaign website www.eumining.org was launched two years ago. 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. In 2015 Euromines further developed its campaign with the updated website, new set of posters and a new image book.

The website was completely redesigned and has a number of new features:

- "Did you know?" facts (interesting information about the product/object in the photo)
- More photos per country,
- New section: Mineral of the month,
- New section: Event of the month,
- Links to Euromines statistics,
- Links to Wikipedia

The book "Before it's yours, we mine it" was finalised in December 2015. The book aims to increase awareness of the use and importance of raw materials in our daily life among professionals and the general public. Numerous examples of the use of raw materials across a wide range of applications demonstrate that mining provides valuable resources for essential consumer goods, communication networks, housing or infrastructure, from architecture to everyday items such as toothpaste.

The writing style is equally engaging to the interested general reader as well as to those who are more familiar with the mining industry, whether in companies, governments or civil society. The book uses an informal and journalistic style whilst featuring many images that will be interesting to a broader audience.

Before it's yours, we MINE it

THE SUSTAINABLE GOODS AND SERVICES WE PROVIDE

Before it's yours, we mine it.



Infrastructure



Transportation



Our homes



Architecture



Information Technology and Communication



Renewable Sources of Energy



Rehabilitated Mining Sites



Jewellery



Our Households



Food Production



Agriculture



Pharmaceuticals



Flora, Fauna and Our Bodies





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