

#### MSP-REFRAM

Coordination and Support Action (CSA)

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Report containing the results about strategic analysis of EU regions with a potential to implement actions on refractory metals

Authors : Mrs. Diez ANA (ADE) Ana Diez de la Rosa (ADE), Jose Diego Calvo (ADE), Beatriz Casado (ADE), Rocío Barros (ICCRAM), Santiago Cuesta (ICCRAM), Sonia Martel (ICCRAM)

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Multi-Stakeholder Platform for a Secure Supply of Refractory Metals in Europe

Document title	Report containing the results about strategic analysis of EU regions with a potential to implement actions on refractory metals
Author(s)	Mrs. Diez ANA Ana Diez de la Rosa (ADE), Jose Diego Calvo (ADE), Beatriz Casado (ADE), Rocío Barros (ICCRAM), Santiago Cuesta (ICCRAM), Sonia Martel (ICCRAM)
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### **Summary**

Report containing the results about strategic analysis of EU regions with a potential to implement actions on refractory metals.

Approval	
Date	Ву
2017-02-10 13:08:57	Dr. Santiago CUESTA-LOPEZ (ICCRAM)
2017-02-10 13:21:35	Mr. BOURG STéPHANE (CEA)



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### **INTRODUCTION**

In this report, the main EU Regions with potential to work on refractory metals are identified through their Smart Specialisation Strategies.

These Regions were asked to participate on the High Level Conference «European Regions in the Critical Raw Materials Strategy and the Circular Economy», held in Burgos, 27th October, the main inter-regional specific oriented action under this Task. Eight of these Regions participated on it.

#### **IDENTIFYING MIRROR REGIONS**

#### SMART SPECIALISATION STRATEGIES

Regions wrote their Smart Specialisation Strategy (S3) with the aim of focussing their R&D activity in some specific themes, in which they want to be excellent.

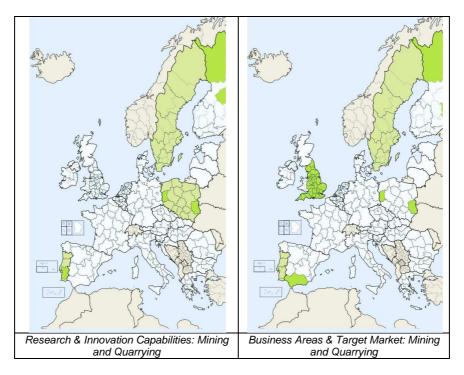
The JRC compiles all these regional S3 in its webpage:

#### http://s3platform.jrc.ec.europa.eu/map

In this webpage, it is possible to find the regions with interest in mines through 3 criteria:

- Research & Innovation Capabilities
- Business Areas & Target Market
- EU Priority





### 1. Research & Innovation Capabilities-Mining and quarrying:

Name [NUTS ID]	Description	Research & Innovation Capabilities	Business Areas & Target Market	EU Priority
Kainuu [FI1D4]	Natural resources: Mining (Green mining, process and environmental applications) and Bioeconomy (Forestry biomass, Bioenergy and Wood industry)	1. Mining & quarrying	Agriculture, forestry & fishing	Sustainable innovation
Lappi [FI1D7]	Mining	<ol> <li>Mining &amp; quarrying</li> </ol>	<ol> <li>Mining &amp; quarrying</li> </ol>	
Poland [PL]	Natural Resources and waste management: Modern technology sourcing, processing and use of natural resources and the production of substitutes	1. Mining & quarrying	1. Manufacturing & industry	Sustainable innovation     Resource efficiency
	Low-carbon emission energy:	1. Mining & quarrying	1. Mining & quarrying	Sustainable innovation
Lubelskie [PL31]	resource efficiency (Mining & mining support services)	2. Mining support service activities	2. Mining support service activities	2. Resource efficiency
	Innovative industry: Mining & quarrying (innovative			Sustainable innovation
Lubuskie [PL43]	quarrying processes, energy efficiency & limitation of greenhouse gas emission, new application of fossil fuels)	1. Mining & quarrying	1. Mining & quarrying	2. Sustainable energy & renewables
Portugal [PT]	Deep sea mining	1. Mining & quarrying 2. Other	1. Mining & quarrying 2. Other	1. Blue growth



		mining & quarrying	mining & quarrying	
Portugal [PT]	Extractive industries linked to Portuguese manufacturing strengths, especially pulp and paper, petrochemicals, ceramics, cork, textiles and tiles, as well as an emerging bio combustible specialisation	1. Mining & quarrying		Sustainable innovation
Alentejo [PT18]	Stones	1. Mining & quarrying	1. Manufacturing & industry	Specific local policy priority
		1. Mining & quarrying	1. Mining & quarrying	Sustainable innovation
Sweden [SE]	Mining and metal extraction	2. Mining of metal ores	2. Mining of metal ores	2. Sustainable land & water use

### 2. Business Areas & Target Market- Mining and quarrying

Name [NUTS ID]	Description	Research & Innovation Capabilities	Business Areas & Target Market	EU Priority
	Sustainable management of natural resources - Green economy/Research and	Water supply, sewerage,	1. Mining & quarrying	Sustainable innovation
Andalucía [ES61]	innovation on mining resources exploitation and development of potential metallurgical technologies. Sustainable mining and mining recovery/	waste management & remediation activities	2. Mining support service activities	2. Resource efficiency
Pobloic Kariala	Technology and materials	1. Information &	1. Mining	1. KETs
Pohjois-Karjala [FI1D3]	(photonics, mining, broadband issues)	communication technologies (ICT)	& quarrying	Advanced materials
Lappi [FI1D7]	Mining	1. Mining & quarrying	1. Mining & quarrying	
Lubelskie [PL31]	Low-carbon emission energy: resource efficiency (Mining & mining support services)	1. Mining & quarrying	1. Mining & quarrying	Sustainable innovation
		Mining     support service     activities	2. Mining support service activities	2. Resource efficiency
Lubuskie [PL43]	Innovative industry: Mining & quarrying (innovative quarrying processes, energy efficiency & limitation of greenhouse gas emission, new application of fossil fuels)	1. Mining & quarrying	1. Mining	Sustainable innovation
			& quarrying	Sustainable energy & renewables
Portugal [PT]	Deep sea mining	1. Mining & quarrying	1. Mining & quarrying	1. Blue growth



		2. Other mining & quarrying	2. Other mining & quarrying	
Sweden [SE]	Mining and metal extraction	1. Mining & quarrying	1. Mining & quarrying	Sustainable innovation
		2. Mining of metal ores	2. Mining of metal ores	2. Sustainable land & water use



### 3. EU Priority

For this third criteria there is no any concept directly related to mining. The EU Priority are:



For this reason, a deeper search has been needed through the entire database of the S3. The result is:

Name [NUTS ID]	Description	Research & Innovation Capabilities	Business Areas & Target Market	EU Priority
Walloon Region (BE3)	Sustainable chemistry - Green Chemistry and bio-based economy, Renewable (biosourced) or recycled raw materials, Environmental technologies, new products and systems applied to energy management, sustainable energy and energy efficiency, effluent treatment, re-use or recycling and sustainable building	1-Manufacturing & industry  2-Chemicals & chemical products	1- Manufacturi ng & industry	1-Sustainable innovation  2-Eco-innovations
Moravskoslezsko (CZ08))	Treatment and utilisation of secondary raw materials and wastes in environment of Ostrava agglomeration (with utilisation of infrastructure of former mining facilities, former industrial sites - brownfields, etc.), development of wasteless production technologies	1-Water supply, sewerage, waste management & remediation activities	1-Water supply, sewerage, waste manageme nt & remediation activities	1-Sustainable innovation
		2-Waste collection, treatment & disposal activities, materials recovery & remediation activities	2-Waste collection, treatment & disposal activities, materials recovery & remediation activities	2-Waste management



Name [NUTS ID]	Description	Research & Innovation Capabilities	Business Areas & Target Market	EU Priority
	Sustainable economy & energy (energy research - energy storage, electricity grids, photovoltaic construction & energy efficient cities, green economy, bio- economy, sustainable agricultural production, securing provision of raw materials, future city, future construction, sustainable consumption)	1-Energy production & distribution	1- Manufacturi ng & industry	1-Sustainable innovation
Germany (DE)		2-Power generation/rene wable sources		2-Sustainable energy & renewables
	Maritime engineering.  Development of a metallic transformation sector for blue economy (off-shore energy,	1-Manufacturing & industry	1-Energy production & distribution	1-Blue Growth
Cantabria (ES13)	submarine mining, marine leisure resorts, services for off-shore infrastructure, altitude aquaculture, resource control and prediction of coastal phenomena) and other ICT based applications such as data mining, mathematic modelling, etc. Links to aquaculture and fishery.	2-Basic metals & of fabricated metal products	2- Power generation/ renewable sources	2-Offshore mining, oil & gas
Pohjois- Pohjanmaa (FI1D6)	Mining, steel and processing industries, and wood processing	1-Manufacturing & industry	1- Manufacturi ng & industry	1-Specific local policy
		2-Basic metals & of fabricated metal products	2-Other manufacturi ng	priority
Bretagne (FR52)	Maritime activities for blue growth ( a) Marine renewable energy, b) Sustainable use of biomass and biotechnology (for all applications), c) Recovery and use of marine mineral resources, d) New models for exploiting living resources (fishing and aquaculture), e) Boats of the future, f) Maritime security and safety)	1-Manufacturing & industry	1-Energy production & distribution	1-Blue growth
		2-Motor vehicles & other transport equipment	2-Power generation/ renewable sources	
Finnmark (NO073)	Minerals	1-Mining & quarrying	1-Mining & quarrying	
Malopolskie (PL21)	Production of metal, metal products and mineral products	1-Manufacturing & industry	1- Manufacturi ng & industry	1-KETs
Konya Subregion (TR52)	Basic Metal	1-Mining & quarrying 2- Mining & quarrying	1- Mining & quarrying 2- Mining of metal ores	



A very important conclusion of this work is that not all the Regions with interest on mining and metallurgy can be found by the S3 database. That is the case for Castilla y León Region. The conclusion is that it is necessary to read the whole text of the S3 to determine the real interest of each European Region about this subject and much more, to talk with them.

#### **INTER-REGIONAL ORIENTED ACTIONS**

#### HIGH LEVEL CONFERENCE IN BURGOS

The 27 of October, organised by ICCRAM (<a href="http://www3.ubu.es/ccrms/">http://www3.ubu.es/ccrms/</a>), was held in Burgos the High Level Conference «European Regions in the Critical Raw Materials Strategy and the Circular Economy».

During this event, the regional strategy for Critical Raw Materials at EU level was discussed by relevant authorities, between them:

 Flor Pulido, Deputy Head of Unit, DG Internal Market, Industry, Entrepreneurship and SMEs Unit GROW C-2, Resource Efficiency and Raw Materials.



- Taina Tukianen, Member of the cabinet of EU Committee of the Regions (CoR).
- Richard Tuffs, Director of European Regions Research and Innovation Network (ERRIN).
- Regional representatives.
- Mark Rachovides, President of Euromines.

During the Conference, 8 Mining Regional Cases were presented:

- Lapland (Finland)
- Castilla y León (Spain)
- Czech Republic
- Andalusia (Spain)
- Greece
- Alentejo (Portugal)



- Central Region (Portugal)
- North Sweeden (Sweeden)

The presentations appear as annexes at the end of the deliverable.

#### CREATION OF THE WORKING GROUP ADMINISTRATION-TECHNICIANS

At the end of the Conference, it was launched the so-called Working Group Administration-Technicians. The idea is to establish a platform to facilitate the dialogue between both stakeholders, which is not very usual and is necessary to facilitate the development of the sector.

Some participants asked to sit in the same group also Mining Companies.

#### QUESTIONNAIRE FOR THE REGIONS

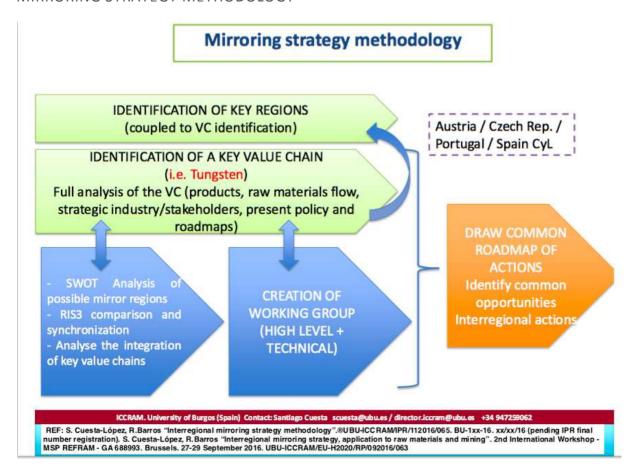
A questionnaire has been defined and sent to the Regions who participated in the High Level Conference in Burgos, in order to better understand the importance, the decision makers and the capabilities of the mining and metallurgy sector in these Regions.

- Does mining or metallurgy (specifically containing any of the refractory metals mentioned above) in the RIS3? (Yes/No)
  - If yes, could you please attach the document and indicate the page number where to find it?
- What % of the GDP (Gross Domestic Product) address to mining? And to metallurgy?
- Please provide absolute data (in €) and relative (%). Please provide number and location (map, if possible) of opened mines for each metal mentioned. Also include general data of the mine if possible:
  - o Annual Production
  - Number of employees
  - o Turnover
- Please provide number and location (map, if possible) of metallurgic industries for each metal mentioned. Also include general data if possible:
  - o Annual Production
  - Number of employees
  - o Turnover
- What mining enterprises work in the region? Are they regional or multinationals?
   Could you provide turnover of these companies?



- Are there specific mining clusters in the region? (Yes/No) If yes, please identify them and their partnerships.
- What centres / Agencies devoted to mining are operating in the region? Please identify them and its main thematic (e.g. Minpol GmbH Agency for International Minerals Policy-SLO
- Are there specific mining policies in the region? Please identify the administration in charge and duties.
- Are there specific funding programmes for mining?
- What is the regional participation in international projects (EIP Raw Materials, etc.)
- Is there a chance for new mining exploitations in the region devoted to the mentioned metals? If so, could you provide more information? (how many, maps, estimated production, company leading the project?)

MIRRORING STRATEGY METHODOLOGY<sup>1</sup>



<sup>&</sup>lt;sup>1</sup> REF: S. Cuesta-López, R.Barros "Interregional mirroring strategy methodology".®UBU-ICCRAM/IPR/112016/065. S. Cuesta-López, R.Barros "Interregional mirroring strategy, application to raw materials and mining". 2nd International Workshop - MSP REFRAM - GA 688993. Brussels. 27-29 September 2016. UBU-ICCRAM/EU-H2020/RP/092016/063

MSP-REFRAM D7.1 [Report containing the results about strategic analysis of EU regions with a potential to implement actions on refractory metals] Rev.1|



#### FUTURE H2020 SC5-15 E) PROJECT PROPOSAL MIREU

The European Commission desires that Regions talk together about Mining into the EU. The Commission asks for a Consortium which applies to the SC5-15 e) topic "EU network of mining and metallurgy regions". The Commission looks for a Consortium in which the Mining Competent Authorities of the Regions are truly involved.

One of the Inter-Regional oriented actions under this Task, and inside the MIREU Commitment of the EIP of Raw Materials, has been three meetings to form a good Consortium and to plan a good project proposal for this topic.

The first one was held the 15<sup>th</sup> of September in Brussels. The second one was held the 26 of October/2016 in Burgos. And the last one was held the 1<sup>st</sup> of December/2016 in Brussels.

#### WORKING SUBGROUP INSIDE WORKING GROUP INNOVATION OF ERRIN

We are having permanent contacts to the different networks we participate in (ERRIN, ERIAFF and EURADA) scouting the possible regions interested in this thematic in order to facilitate a future cooperation using the traditional tools available in this kind of networks: Working Groups or SubGroups.

According to the priorities and interests of the different regions we are evaluating the best possible and practical alternatives.



### **ANNEXES**



### **ANNEXES**

Annex 1: "Critical Raw Materials and a need of a Coordinated Strategy across EU Regions" by Taina Tukianen (Member of the Cabinet of the President of the European Committee of the Regions CoR).

Annex 2: "EU Commission – EU Raw Materials Strategy, Critical Raw Materials and the role of Regions" by Flor Diaz Pulido (Deputy Head of Unit, DG Internal Market, Industry, Entrepreneurship and SMEs Unis GROW C-2, Resource Efficiency and Raw Materials).

Annex 3: "Euromines - Mining in Europe: Current Issues" by Mark Rachovides (President of Euromines).

Annex 4: "ERRIN – European Regions in Critical Raw Materials Strategy and the Circular Economy" by Richard Tuffs (Director of European Regions Research and Innovation Network (ERRIN).

Annex 5: Case Study 1: "Modern clusters, Smart Specialisation, and transition of the economy into Circular Economy Case Lapland, Finland" by Mika Riipi (County Governor of Lapland).

Annex 6: Case Study 2: "Strategy of Mineral Resources in Castilla y León 2016-2020" by Ricardo González Mantero (General Director for Energy and Mining. Castilla y León Regional Government)

Annex 7: Case Study 3: "Role of the Ministry of Industry and Trade in Modernization of Critical Raw Materials Sector in the Czech Republic" by Martin Vlastnik (Head of State Mineral Policy Department).

Annex 8: Case Study 4 "Regional Specialization Strategy in Critical Raw Materials and Mining in the region of Andalusia" by Maria José Asensio Coto (Deputy Councillor of the Ministry of Employment, Enterprise and Trade in the Government of Andalusia).

Annex 9: Case Study 5: "Regional Specialization Strategy in critical Raw Materials in Greece" by Antonis Politis (Mining and Metallurgical Engineer School of Mining and Metallurgical Engineering. National Technical University of Athens - NTUA).

Annex 10: Case Study 6: "Regional Specialization Strategy in Critical Raw Materials in Portugal. Region of Alentejo" by Jorge Pulido Valente (Vice-president of the Alentejo Regional Comission for Coordination and Development).

Annex 11: Case Study 7: "Regional Specialization Strategy in Critical Raw Materials in Centro of Portugal" by António Veiga Simão (Vice-President of Comissão de coodenação e desenvolvimento regional do centro-CCDRC).

Annex 12: "EIT Raw Materials – Connecting Matters" by Pier Luigi Franceschini (PhD Director, CLC South).

Annex 13: "Interregional Mirroring Strategy, Application to Raw Materials and Mining" by Santiago Cuesta (General Director of International Research Center in Critical Raw Materials for Advances Industrial Technologies-ICCRAM)



ANNEX 1-"CRITICAL RAW MATERIALS AND A NEED OF A COORDINATED STRATEGY ACROSS EU REGIONS" BY TAINA TUKIANEN





# "Critical Raw Materials and a need of a Coordinated Strategy across EU Regions"

**Burgos 26 October, 2016** 

Taina Tukiainen

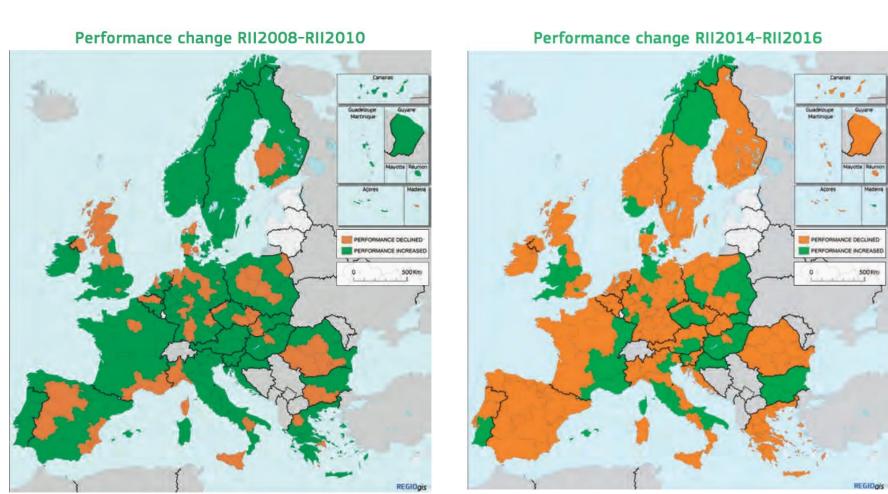
Member of the Cabinet of the President of the European of the Regions CoR

http://cor.europa.eu/en/about/president markku.markkula@cor.europa.eu



OREŘCKU MAPJIAMENT PARLAMENTO
EVROPSKÝ PARLAMENT EUROPAEUROPÁJSCHES PARLAMENT
EUROOPA PARLAMENT EYPOMAÍKO KO
EUROPEAN PARLAMENT
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# Innovation Performance Declining in Europe (2008-2010) → (2014-2016)



Regional Innovation Scoreboard 2016: Innovation performance in 214 regions in the EU.

Green = Performance Increased; Orange = Performance Declined;

What is the European Committee of the Regions?

CoR is an EU-Institution, part of the EU decision making process, representing cities and regions. Plenaries in Brussels 5-6 times a year: 350 elected members (+350 alternates).

# CoR Priorities 2015-2020, number 1: Creating Jobs and Sustainable Growth → New European Mind-set for Entrepreneurial Discovery

A bottom-up movement is needed to stimulate targeted investment into real economy and trigger an exchange of best practices. A new entrepreneurial spirit combined with a functioning Digital Single Market and Smart Specialisation could lead to new skills and knowledge, innovation and employment. The CoR highlights the following measures:

- Boosting the research and innovation capacity of the regions and bridging the digital and innovation divide between them;
- Boosting the entrepreneurial spirit;
- Creating the right conditions for digital networks and services to flourish;
- Removing key differences between online and offline worlds;
- Stimulating leading interregional networks;

•

More: www.cor.europa.eu



CoR: Raising awareness and market making

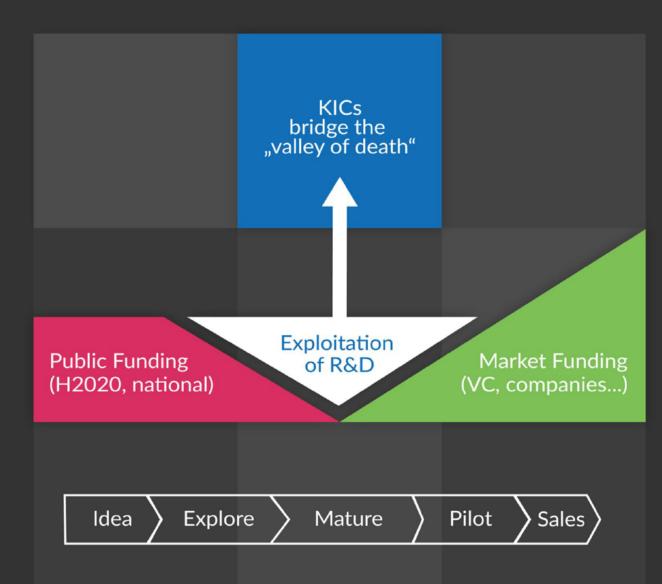


EIT RawMaterials
Realizing the turnaround Raw materials as a major
strength for Europe

CoR: Creating sustainable jobs means boosting start-ups and growth businesses

## Mission

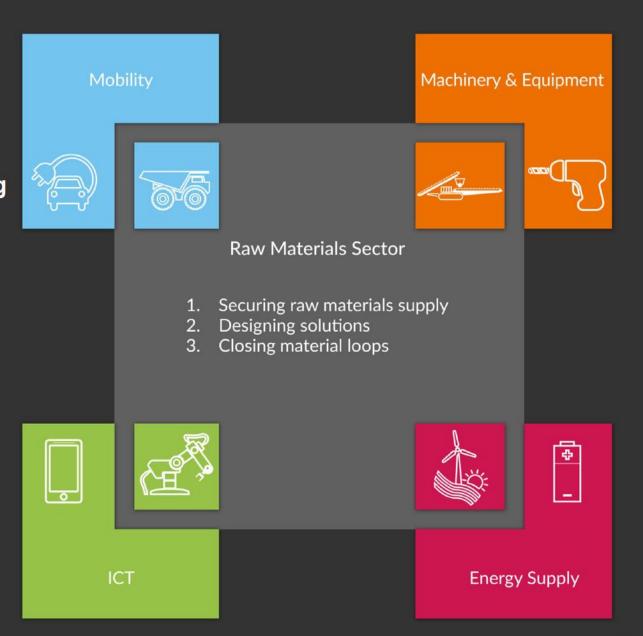
EIT RawMaterials
boosts the
competiveness, growth
and attractiveness of
the European raw
materials sector via
radical innovation and
entrepreneurship





# **Focus markets**

Creating and developing new game changing businesses across Europe





# Geographic coverage

Partners cover 80% of the raw material sector in Europe

Well-balanced consortium with 116 partners

Partners in 22 EU countries with special focus on ESEE

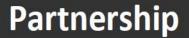
Full coverage of value chains and commodities (especially CRMs)

Business partners represent >700,000 jobs >200 billion € turnover

Partners` roles in EIP RM commitments: >75% participation 40% coordination







CoR: Networking should lead to building critical mass through European partnerships based on RIS3 & market making



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**Business** 



21/10/2016

# Coverage of the resource industry

- Boosting the existing raw materials sector
- Creating new entrepreneurial education approaches
- Tackling European resources sustainably
- Focus on metal and mineral raw materials











CoR: Europe needs pioneers

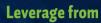
**Arctic Smartness Exellence** 



LAPLAND

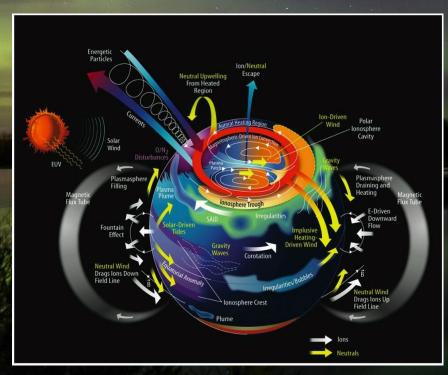
**Above Ordinary** 



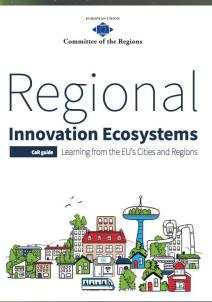


# CoR:

Critical Raw Materials and a need of a Coordinated Strategy across EU









ANNEX 2-"EU COMMISSION – EU RAW MATERIALS STRATEGY, CRITICAL RAW MATERIALS AND THE ROLE OF REGIONS" BY FLOR DIAZ PULIDO



# EU Raw Materials Strategy, Critical Raw Materials and the role of Regions



High Level Conference on the "Role of regions in the European Circular Economy plan and Critical Raw Materials Strategy Burgos, ICCRAM, 27 October 2016

Flor Diaz Pulido, Deputy Head of Unit, DG GROW C2 Resource Efficiency and Raw Materials



# **Content**

# 1) EU Policy background

- 1) Raw Materials Initiative
- 2) European Innovation Partnership
- 3) Horizon 2020
- 4) Circular Economy

# 2) What regions can do about it

- 1) Raw Materials Commitments
- 2) Horizon 2020
- 3) Cohesion Policy





# **EU Policy background**



# Background, aim and structure RMI



# **1. EU Policy background** Raw Materials Initiative

### EU "Raw Materials Initiative"

- •Aim: securing sustainable supply of raw materials
- ·Launched in 2008, consolidated in 2011
- Non-energy, non-agricultural raw materials
- Connecting EU external and internal policies
- Integrated strategy (3 pillars)
- •Introduced list of Critical Raw Materials (CRMs) in 2011 and 2014

Ensure level playing field in access to resource in third countries

Foster
sustainable supply
from European
sources

Boost resource efficiency and recycling

# Outcome 2014 CRM list





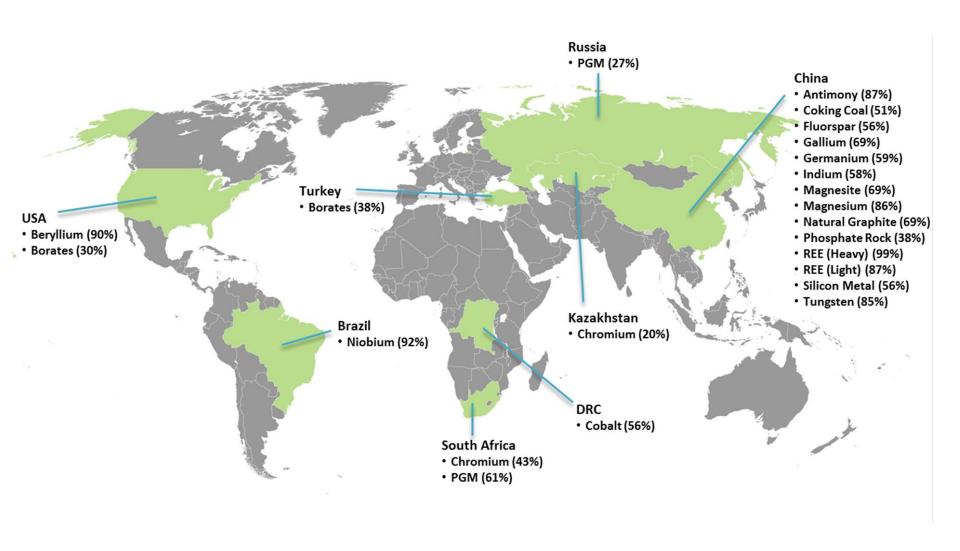
Economic importance

ENTR F

Supply risk

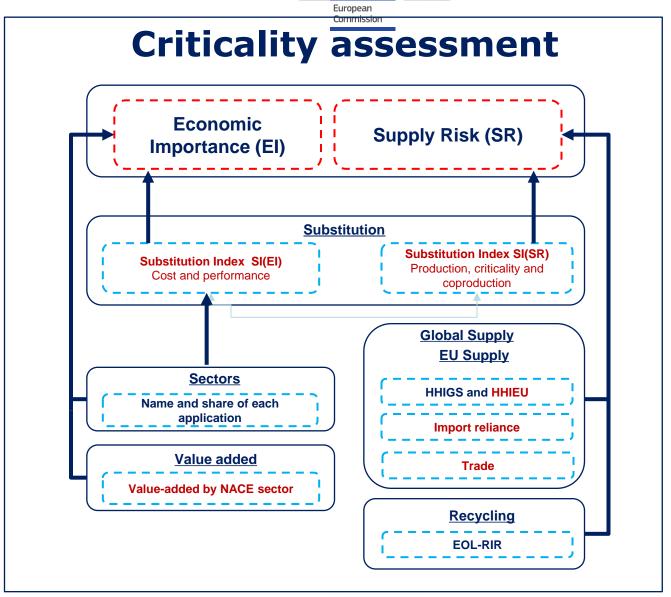
# **Critical raw materials 2014**





# Revised CRM methodology





# **Novelties list of CRM** 2017



# Comparability with the 2011 and 2014 list of CRMs is ensured. However there are a few novelties:

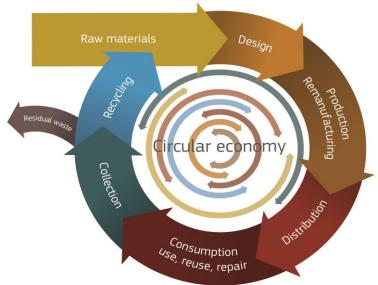
- New abiotic materials were assessed (aggregates, bismuth, helium, lead, magnesia, sulphur)
- □ Some materials were assessed individually for the first time: Light Rare Earth Elements, Heavy REEs and Platinum Group Metals. They will remain groups on the graph though
- New biotic materials
- □ Publication new list of CRM foreseen for first half 2017

# Circular economy



#### Actions on critical raw materials:

- > Report on critical raw materials and the circular economy
- Improve exchange of information between manufacturers and recyclers on electronic products
- European standards for material-efficient recycling
- Best practices for the recovery of critical raw materials from mining waste and landfills



### **Impact of EIP**



## **1. EU Policy background** EIP on Raw Materials

## The EIP plays a central role in the EU's raw materials policy framework

- It reinforces the **Raw Materials Initiative** by:
  - translating the strategic policy framework into concrete actions
  - mobilising the stakeholder community to implement them

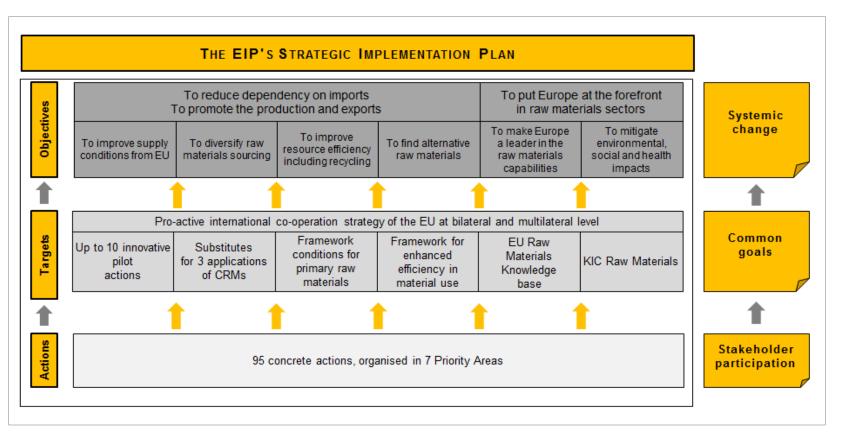
It has been instrumental in helping securing
 R&I funding: EUR 600 million secured under
 Horizon 2020

#### Strategic Implementation Plan



## 1. EU Policy background EIP on Raw Materials

## The Strategic Implementation Plan is the EIP's action plan



#### **EIP Progress**



## 2. European Innovation Partnership on Raw Materials

- 123 Raw Materials
   Commitments: 980 partners,
   indicative budget ± EUR 2 billion
- European Commission:
  - Horizon 2020 (2014-2016):
     Near 40 Projects on Raw Materials under SC5. EC Contribution>EUR 200 M
  - Circular Economy Package
  - Studies, reports, conferences, dialogues etc





Indicative budget secured by the Commitments

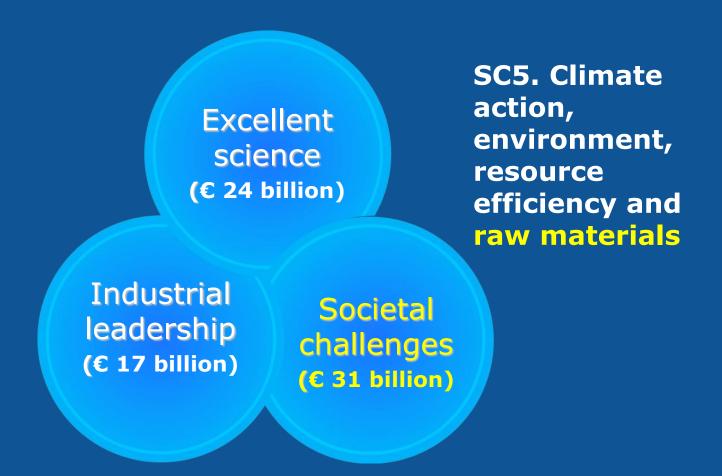


## **Role of regions**



## **Horizon 2020 Context and overview**

## **1. EU Policy background**Raw Materials in Horizon 2020





#### Relevant calls



## **2. Role of regions** Horizon 2020

Horizon2020 research projects (Coordination and Support Actions) (Calls for tender)



#### Past calls

- MINLEX (2016)
   To address permitting procedures
- MINATURA2020 (2015-2017)
   To develop a concept and methodology for the definition and subsequent protection of "mineral deposits of public importance"
- MIN-GUIDE (2016-2018)
  To develop a "Minerals Policy Guide"



Horizon 2020 Societal Challenge 5 Work Programme 2016-2017

#### **Societal Challenge 5** Call 'Greening the economy'.

#### Raw materials

SC5-13-2017 New solutions for sustainable production of raw materials

New sensitive exploration technologies (1 RIA, €10m)

SC5-14-2017 Raw materials Innovation actions (2 IA, €56m)

- Processing of lower grade and/or complex primary and/or secondary raw materials in the most sustainable ways
- Sustainable metallurgical processes

SC5-15-2017 Raw materials policy support actions (5 CSAs, €10m for all)

- Good practice in waste collection systems
- Optimising collection of raw materials data in Member States
- Linking land use planning policies to national mineral policies
- EU network of mining and metallurgy regions
- EU network of regions on sustainable wood mobilisation (wood supply)

SC5-16-2017 Raw materials international co-operation (1 CSA)

International network of raw materials training centres

#### **Deadlines for Topics in 2017**

- Open on 08 November 2016
- 7 Mar 2017 (RIA, CSA, and First stage of IA)
- 5 Sep 2017 (Second stage of IA)

**Budget 2017: €76 million** 

#### Relevant calls



## **2. Role of regions** Horizon 2020

## Horizon2020 research projects (Coordination and Support Actions)



#### Future calls

- 2017 call Linking land use planning policies to national mineral policies
  - Follow up of MINATURA2020, how to include *MDoPI in land-use planning policies*
- 2017 call EU network of mining and metallurgy regions
  - Focus on regional cooperation and social licence to operate/public awareness, acceptance and trust



Horizon 2020 Societal Challenge 5 Work Programme 2016-2017

#### SC5-15 e) EU network of mining and metallurgy regions [2017]

The purpose is to create a sustainable EU network of regions dedicated to mining (including exploration), processing and metallurgy aiming at improving related framework conditions, social aspects and industry competitiveness.

Specifically, this network should cover all the following points:

- establish coherent co-ordination and support mechanisms among a representative number of EU regions, and identify and engage the other relevant EU regions;
- establish the right raw materials framework conditions based on good practices in the addressed regions, including administration, land use planning, investment conditions, training and attracting skilled workforce;
- define Social Licence to Operate (SLO) guidelines and develop a toolbox improving communication and transparency during the permitting and licensing procedures and in the production cycle (from exploration, mine operation to rehabilitation and residues and tailings management) by mobilising all the concerned EU's stakeholders (relevant authorities municipalities, mining and other relevant companies, civil society organisations and local communities) which can be affected by a mining project.
- explore and promote in and across the regions potential synergies between raw materials, value chains, market and societal players in order to create new business opportunities and economic growth;



#### SC5-15 e) EU network of mining and metallurgy regions [2017]

- plan and establish operational synergies between R&I investments (public and private) and the European Structural and Investment Funds (ESIF) to strengthen competitiveness of the industry, through different improved R&I infrastructure and capacity and to foster market uptake and replication of innovative solutions in the relevant fields;
- perform communication activities across the EU to present, challenge and validate the outputs of the project;
- involve relevant competent authorities, private sector, research and academic organisations, civil society and experts in relevant social sciences and humanities. Participation of regional authorities from all the regions addressed in the proposal is compulsory;
- identify synergies and collaborate closely with the relevant established or new initiatives at the EU and national levels, such as EIP on Raw materials and KIC on Raw materials and link to circular economy and resource efficiency policies;
- use a multidisciplinary approach, involving in particular social sciences and humanities, in order to better understand the different aspects of Social Licence to Operate (SLO) in mining in a given cultural context. Proposals should also benchmark the EU SLO guidelines and initiatives with those developed internationally (Canada, Australia, USA, etc.).
- provide methodologies, information and data that can be included in the Scoreboard and can also contribute to the RMIS, with special regard to the regional dimension
- Indicative size of proposals: EUR 3 million
- 19 Up to one project shall be funded



## SC5-15 e) EU network of mining and metallurgy regions [2017]

- Expected Impact: Projects are expected to contribute to:
- achieving the objectives of the EIP on Raw Materials in terms of improving conditions for sustainable access and supply of raw materials in the EU;
- creating a longer term sustainable network;
- establishing operational synergies between R&I investments and ESIF to improve R&I infrastructure and capacity and to foster market uptake and replication of innovative solutions in the relevant fields;
- improved framework conditions at regional level leading to a more transparent and secure environment for investment in new mining and metallurgy projects in the EU and economic growth in the regions;





## SC5-15 e) EU network of mining and metallurgy regions [2017]

- Expected Impact: Projects are expected to contribute to:
- improving awareness of the importance of raw materials for our society and about new ways of mining taking into account environmental, health and safety considerations;
- helping stakeholders to make informed decisions about new mining and metallurgy projects in the EU through engagement of local communities, facilitating social agreements, improving the awareness, gaining citizens' acceptance and trust in a sustainable raw materials production in the EU;
- effective implementation and widespread use of the Social Licence to Operate (SLO) guidelines and toolbox in practice.





## SC5-15 d) Linking land use planning policies to national mineral policies [2017]

#### Proposals should cover all the following points:

- review and analyse how exploration and extraction of mineral raw materials in Member States are integrated in land use planning and practices at all levels of implementation (national, regional, local) seeking the harmonization and convergence in national approaches towards minerals policies and land-use planning policies and practices;
- consider how to best link land-use planning with the concept of safeguarding valuable mineral deposits (such as mineral deposits of public importance) in order to ensure the current and future access to the deposits and to avoid 'land sterilization';
- take into account the following relevant issues: a) the integration of land use and subsurface planning, b) the assessment of different options for land use where there is no pre-exclusion, c) the INSPIRE Directive, d) information needed in the process, e) e-procedure, f) smart regulation, g) the infrastructure planning and approaches;



## SC5-15 d) Linking land use planning policies to national mineral policies [2017]

#### Proposals should cover all the following points:

- involve civil society, practitioners, land-use planners and mining public authorities at local, regional and national levels and develop a dissemination strategy;
- provide recommendations and publish guidance documents to promote a harmonized approach and good practise sharing among Member States in order to ensure a more effective access to raw materials;
- build on the report 'Recommendations on the framework conditions for the extraction of non-energy raw materials in the European Union' (2014) of the Ad-Hoc Working Group on exchange of best practices on mineral policy and legal framework, information framework, land-use planning and permitting.
- provide methodologies, information and data that can be included in the EIP Raw Materials Scoreboard and can also contribute to the Raw Materials Information System (RMIS).
- Indicative size of proposals: EUR 1.5 million
- Up to one project shall be funded



## SC5-15 d) Linking land use planning policies to national mineral policies (2017)

#### **Expected Impact:**

- achieving the objectives of the EIP on Raw Materials, particularly in terms of improving conditions for sustainable access and supply of raw materials in the EU;
- more transparent and efficient exploration and mining permitting and licensing processes in the EU;
- better land-use planning based on a better knowledge of identified or potential deposits and their potential environmental impacts at EU level;
- bringing mineral resources in parity with other natural resources within land use planning whilst implementing the environmental acquis.

Agency for

### **Cohesion Policy**



## **2. Role of regions** RIS3

## Synergies between ESIF and other instruments



#### **Guides**

Enabling synergies between European
 Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programmes – Guidance for policy-makers and implementing bodies

https://ec.europa.eu/research/regions/pdf/publications/h2020 synergies 20 1406.pdf#view=fit&pagemode=none

 European Structural and Investment FUNDS and European Fund for Strategic Investments complementarities – Ensuring coordination, synergies and complementarity <a href="http://ec.europa.eu/regional policy/sources/thefunds/fin inst/pdf/efsi esif-complen.pdf">http://ec.europa.eu/regional policy/sources/thefunds/fin inst/pdf/efsi esif-complen.pdf</a>



# Raw Materials Week! 28 November to 2 December

Register NOW!

**DEADLINE: 6 November 2016** 





## Thank you!



#### **Raw Materials Week:**

http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item\_id=8915&lang=en&tpa\_id=1040

#### **EU raw materials webpage:**

http://ec.europa.eu/growth/sectors/raw-materials/index\_en.htm

#### Check the EIP website for fresh news:

https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en/meetings-listing

#### Horizon 2020 - Raw materials webpage:

http://ec.europa.eu/programmes/horizon2020/en/area/raw-materials

#### **Horizon 2020 - EXPERTS**

http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html





ANNEX 3-"EUROMINES — MINING IN EUROPE: CURRENT ISSUES" BY MARK RACHOVIDES



## Mining in Europe: Current Issues

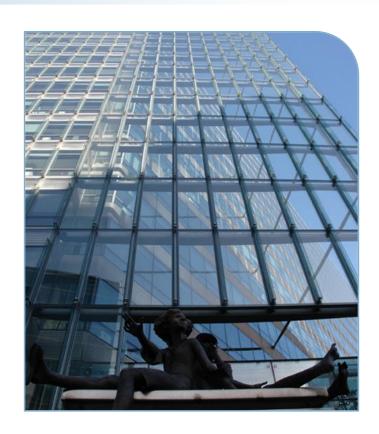
European association for mining industries, metal ores and industrial minerals

**Mark Rachovides** 

### Euromines activity towards the El Institutions:



- Monitoring and evaluating EU policies;
- Providing facts to the EU Commission on the issues;
- Preparing Euromines positions on EU proposals of relevance;
- Promoting the sector's contribution to sustainable development;
- Liaising with other associations and sectors to increase leverage;
- Cooperation with the Commission and Member States in organizing events focused on implementation of EU legislation.



### Euromines – why we do it



- To provide members with early warnings of policy change.
- To stimulate policy debate, say what's needed and create opportunities to secure what's needed.
- To project, shepherd and maintain the industry's reputation.
- So that members can grow and prosper.





## Vision & Mission

### European Mining Context 2015 - 2020



- Economic Political and Social disruption
  - Need for jobs & growth through export
  - Need for regional stability & well-being
- Climate agreement / Coal divestment
  - Energy market & infrastructure re-build
- Demand for sustainable supply/prices
- Demand for greater re-use and recycling
- Demand for greater governance
- EU funding for research & innovation



#### Euromines Vision & Mission



 A viable and responsible minerals and metals mining industry providing essential assets to society's sustainable development.

#### **Euromines' Mission**

- to promote a sustainable and prosperous extractive industry in Europe through appreciation of its 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 in order to achieve its objectives;
- to participate in European and international policy-making.



### Euromines' Objectives



- To promote mining as a contributor to sustainable development in Europe  $\rightarrow$  achieve broader recognition of the role the industry plays in society.
- To promote the extractive industry towards transnational bodies in Europe as
  - an economically crucial sector,
  - a responsible environmental sector,
  - a responsible employer,
  - an innovative sector,
  - a repository of essential specialist expertise for evidence-based policy-making.
- To deliver Euromines as the premier voice for its membership and the industry in Europe.
- Maximise the positive image of the industry.

### Our Key External Messages



#### **RESOURCES**

We strongly believe that Europe has viable mineral resources.

#### **DEMAND**

The demand for raw materials is continuously increasing.

#### **STANDARDS**

 Maintain an enabling environment which provides highest standards, excellence and leadership of the European extractive industry.





## Delivery

# Delivering specialist expertise for evidence-based policy-making



#### □ H & S

- OSH revision
  - Chemical Agents Directive
  - Carcinogens Directive
  - Physical Agents: Vibrations and Noise, manual handling of loads, electromagnetic fields
  - NEW: Psycho-social issues
- REACH and OELs
- Machinery and Safety
- ☐ Traceability of Explosives

#### 2015:

- Cooperation with IMA-Europe and UEPG
  - Reviewing consultant's report
  - Preparing position of SWPEI
  - Preparing position for ACH

#### 2016:

 Analysing Commission's proposal and influencing the legislative proposals



Cooperation with CII alliance on relationship for REACH and OELs: avoiding authorisation



Participating in CENT TC 196 on machinery and safety



Participating in Commission and MS working group on Explosives



# Structural matters and image building



- SWPEI\* new mandate to be adopted, proposal made to Advisory Committee
- SWPEI New nomination of employers representatives will be required once the new mandate has been adopted
- Social Dialogue: Chairmanship for 2016 with Euromines: Vicente Gutierrez
- Euromines Health and Safety Conference in Luxembourg in April 2016
- Website and H & S publication

<sup>\*</sup> Standing Working Party for the mining & other Extractive Industries

### Keeping loud mining's voice



#### Policy:

- Critical Raw Materials
- EIP on Raw Materials
- Horizon 2020

- Permitting Issues
- Industrial Policy & Data Needs
- Minerals4EU Minerals Yearbook and EU Minerals Agency



#### 2015:

- Participation in relevant EU Working Groups
- Privileged input to Criticality methodology
- Privileged input to Raw Materials Scoreboard 2016:
- Updated listing of Critical Raw Materials
- First reporting of Raw Materials Scoreboard



2015: Participation in Advisory Committee, and Foresight workshops, Advisory Board of some projects, ETP SMR research agenda and Commission's funding programmes



2016: Study proposal



#### 2015:

- Set out the need for better data provisions 2016:
- Data acquisition project proposal



2015: Participating in Advisory Committee of project



# Promoting our contribution to sustainable development



#### ☐ Environment

- Circular Economy
  - Product Environmental Footprint
- Natura 2000 refit and nonet loss of biodiversity
  - Eco-label criterion
- Mine Waste Legislation
  - BAT on mine waste management
  - Inspections





- Inclusion of EU mining in Circular Economy
- Global industry publication on LCA in PEF
- International Workshop on LCA in PEF 2016:
- Discredit use of resource depletion in PEF

#### 2015:

- Participation in Commission working group
- Fixed common Euromines position
- Contributed to CSBI industry guides
- Achieved reversal of Ecolabel criterion 2016:
- Fitness Check outcomes
- Communication on Land as a Resource

#### 2015:



Avoided inappropriate inspections Reg.

#### 2016:

- EC/EP studies on implementation
- New EU Guidance on Hazardous Waste

#### 2015 → 2016:

- Joint monitoring research platform (CN)
- Participation in EQS-setting through WG







# Promoting mining as an economically crucial sector - 1



Energy Union



- Promoting sustainable supply of competitive energy
- Research
- Social Dialogue positions on maintaining coal as an option
- Support for subsidies for energy intensive industries in light of unfair competition
- Support for CCS and CCU

 ETS and EU subsidy regulation



- Support for Carbon leakage list (CLL)
- Consultancy study on sectors' eligibility for CLL
- EU subsidy regulation for indirect energy positioning industry for eligibility

 HLG on energy intensive industries



Participation in DG Grow HLG and positioning of the industry



## Promoting mining as an economically crucial sector - 2



#### A favourable investment climate:

- Availability of skills
- Tax regimes
- Streamlining permitting
- EIP on Raw Materials: innovation and access to funding (Investment facility and Horizon 2020)
- **EESC** Industrial Roundtables in Member States

#### Creating a level playing field:

- China MES and EU anti-dumping/ anti-subsidy regulations
- Critical raw materials: regular assessment and methodology
- Material flow analysis of critical raw materials
- Critical raw materials for the defence industry



- Lobbying for adequate transparency of financial reporting
- EC study on permitting in MS monitoring and influencing
- Lobbying for RTD funding
- Cooperation with EESC to establish industrial roundtables in MS
- Lobbying Cabinet Juncker for EU investment facility for the minerals sector



- Cooperation with the AEGIS alliance on securing level playing field with CHINA
- Strengthening the EU's antidumping/anti-subsidy regulation
- Positioning with regard to criticality assessment and policy measures



# Highest Standards: Excellence and Leadership



- Different international standards and commitments, certifications and audits on sustainability
  - Conflict Minerals
  - Tax Transparency Reporting
- International Reporting Standards on Reserves and Resources
- H&S
  - ISO and CEN standards on safety of machinery
  - ICMM performance standards: zero accidents
- Environment
  - Lifecycle assessment and PEF methodology standards
  - Monitoring standards of water quality for free cyanide



# Communicating with stakeholders Roundtable Series: 2015



- Organised by the European Economic and Social Committee's (EESC)
  Consultative Commission on Industrial Change (CCMI) in partnership with
  Euromines, Euracoal, IndustriAll Europe,
- Addressing national ministries and authorities, the supply chain partners and other national relevant organisations.
- **The aim** of the round-tables was to meet the needs of the EC regarding consultation with and participation by civil society and social partners on the implementation of the SIP of EIP on raw materials.
- Brought together more than **200 participants**.
- **Publication** "Implementing the EIP on Raw Materials in selected EU Member States" is now available.

Topics addressed in the roundtable 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 "circular economy";
- Health and Safety issues.











### 2015 Roundtable discussions

Spain: 3rd March 2015 Slovakia: 17th April 2015 Romania: 4th June 2015

Finland: 7th September 2015



# Roundtable Series: 2016



April: Portugal

May: Ireland

June: Poland

November: Czech Republic

December: Brussels



# Projecting the Sector's Image focusing on target audience



- Senior regulators and politicians in the extractive industry - relevant jurisdiction
  - Representatives of the EU authorities (European Parliament, European Commission, European Council, Permanent Representatives)
  - Representatives of Member States authorities (Member States Parliaments, other governmental institutions, regional regulators)
- Communities / Neighbours in particular mining regions
- NGOs acting in the mining relevant issues
- Representatives of customer industries
- Environmental experts and independent experts
- Universities, schools, teachers
- **Trade Unions**
- Other European associations (IMA, UEPG, Eurometaux etc.)

European Association of Mining Industries, Metal Ores & Industrial Minerals

- Media, international media commentators
- General public

- Organising and participating in Round-table discussions
- Participating in International conferences and events
- Participating in national conferences and events
- Participating in Minerals Days
- Face-to-face meetings
- Position papers
- Stakeholder consultations
- Publications
- Electronic communication includina
  - Euromines External Newsletter
  - Euromines Raw Materials Campaign
  - Social media
- Media Relations publishing articles

# Improving social acceptance: examples



## General public

- Minerals Day
- Communication campaign: "Before it's yours we mine it."

## Employees

Social Dialogue

# Member States and regional authorities

- Project: Cultural heritage and urbanisation
- Project: Mining regions

# European Parliament

 Meet your decision maker: European Parliament

## European Commission

- PEF
- H&S performance



### Deutsche Bahn

According to the London Metal Exchange about 7% of copper is used by the transportation industry and 60% of copper is used in all types of electrical wiring. Because copper does not spark, it is the safest constituent to use for this purpose. Unfortunately the copper cables of railways often get stolen, resulting in delayed trains.



Before it's yours, we mine it.



# A viable EU extractive industry



Ensuring legal compliance and an adequate framework

> Ensuring adequate EHS **legislation**

> > Improving the competitiveness and securing the markets

Keeping the costs down

Shaping standards – Improving performance

**Improving** social acceptance



# We must shape the future of our industry in Europe

# Thank you for your kind attention

# In case of any questions please contact:

### **Euromines**

12, Avenue de Broqueville B-1150 Brussels Belgium

Tel.: +32 2 775 63 31 Fax: +32 2 770 63 03

E-mail: assistant@euromines.be

www.euromines.org



ANNEX 4-"ERRIN – EUROPEAN REGIONS IN CRITICAL RAW MATERIALS STRATEGY AND THE CIRCULAR ECONOMY" BY RICHARD TUFFS



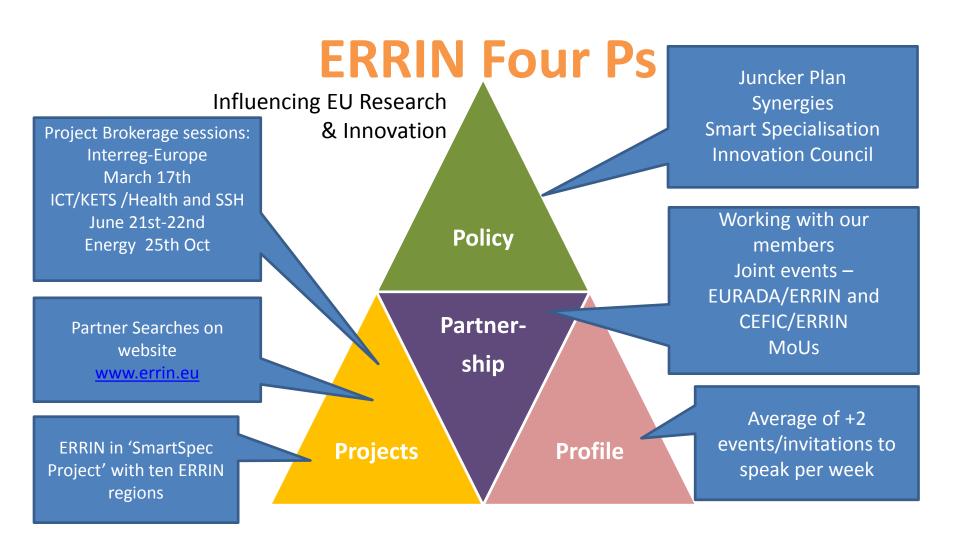


# European Regions in Critical Raw Materials Strategy and the Circular Economy

27th October 2016



www.errin.eu



Supporting project development and engaging ERRIN regions in EU projects

Raising the profile of ERRIN and member regions in Brussels

# **ERRIN Working Groups 2016**

Strategic	Cross-cutting	Societal Challenges	Industrial Competitive- ness	Innovation
Policy	Smart Specialisation	Health	ICT photonics robotics	Innovation & Investment
Projects	Smart Cities	Opening Science	Adv. manu- facturing & nano	Tourism
	Blue Innovation & Growth	Energy and Climate Change	Bio- economy, food & agriculture	Design & Creativity
		Transport		
		Water		

# Working Groups and Leaders 2016



- Policy Scotland Europa, East & North Finland & South Tyrol
- Projects West Midlands, Eindhoven & Lombardy

40 regions involved in leading Working Groups



- Energy Scotland Europa, Flanders, West Finland & South Denmark
- Health Stavanger, South Denmark, Skåne & Lombardy
- Opening Science Bremen, Berlin, Capital Region DK, Wales Higher Education & South Norway
- Transport & Logistics Aragon, Ile de France & Scotland
- Water Fryslan & Puglia

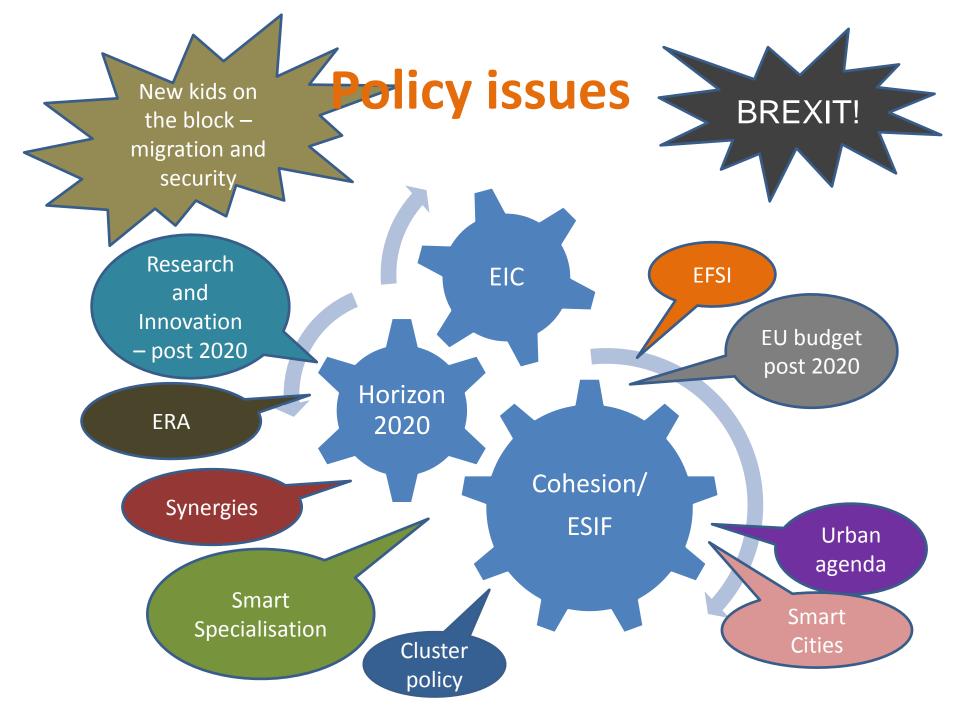


- Advanced manufacturing & nano Twente University, Rhone-Alpes, West Mids & Basque Country
- Bio economy, food & sustainable agriculture West Finland, Northern Ireland, Navarra, Pays de la Loire & Veneto

• Design & creativity - Central Denmark, Lombardy & Stuttgart

- ICT Zealand, Berlin & Extremadura
- Innovation & investment Cantabria, Eindhoven, KEPA & Trento
- Tourism Valencia, Crete, Lombardy & Saxony Anhalt
- Smart Cities Communities & Regions Eindhoven, East & North Finland, North Sweden, Noord Regio & Stavanger
- Smart Specialisation Scotland Europa, PACA, Helsinki & Malta
- Blue Innovation & Growth Brittany, Pomorskie & Emilia Romagna

### **Working Groups** Developing positions EU institutions **Policy** speakers Visibility Brokerage Regional sessions x 1 presentations per year Regional Working interests & Early **Profile Projects** intelligence competences Group **Working Groups** Project Develop an annual work plan dissemination with broad objectives and Sharing planning Other Meet approx 4 times per knowledge **Partnership** year networks Most meetings involve Brussels representatives Making Regional experts needed for Mutual contacts brokerage events for project learning development



# **Policy positions**



### ERRIN Response to the Call for Ideas on European Innovation Council (EIC)

Innovation is most often driven at the local and regional level through downstream, proximity-driven ecosystems supported by a range of local and regional actors and organisations all contributing to regional innovation ecosystems. Thanks to smart specialisation strategies, all regions have had to go through an 'entrepreneurial discovery process' to select strategic priorities and innovation strategies and so all regions have the basis of an innovation ecosystem. Through a range of regional and innovation networks, most regions are connected and have access to knowledge, technologies and expertise. Therefore, one of the key roles of a possible EIC should be to support, strengthen and to add value to regional innovation ecosystems so that they all contribute to enhanced regional and EU competitiveness across all regions in the EU.

Support for innovation also involves a wider dimension of building new entrepreneurial and innovation-focused mind sets and stimulating new ideas and creative thinking across Europe and more focus on reducing fragmentation and regulation burdles within the single market.

### ERRIN proposes a two phase approach for a proposed EIC.

The first phase (2017-2020) is made under the assumption that there will be no specific Elc funding programme in place before 2020 within the current EU budget. ERRIN would be against any reduction in the current Horizon 2020 budget. The first phase involves setting up an expert group to act as a think-tank on innovation and develop a solution-focused approach to bottlenecks and gaps in EU innovation policy and funding. The ElC should be seen as a pilot activity featuring a more incremental approach until 2020, and then, building on this pilot, the second phase would be a more radical overhaul of the European research and innovation landscape post-2020 with a dedicated budget for a possible ElC that would not reduce funding for future research and innovation programmes.

The following seven points outline in more detail the above thinking.

### Phase 1

- 1. The EIC should be entrusted to implement and steer specific parts of the EU's innovation policy commitments, playing the role of a practically-focused think-tank on open innovation which aims, in particular, to evaluate existing innovation activity across Europe and judge where exactly Europe needs to invest/take action in order to reduce fragmentation of innovation efforts. Specific attention should be placed on synergies between existing funding programmes at the regional level which will also require better quality regional data. This is an action that can be taken up as a pilot activity 2018-2020 and feed into a stronger and well-resourced EIC nost-2020.
- 2. One of the early tasks of the EIC should be to identify how Europe could simplify, restructure and streamline EU funding instruments for innovation both in the ESIF and Horizon programmes, in particular, those which are based on the excellence criterion where it should be made easier for companies and other innovation actors to access funds for innovation. The EIC should investigate how funding to support innovation, while linked to EU objectives, could be decided as close to the user as possible and delivered as quickly as possible.
  - This would enable the EIC to become a real 'mirror' organisation to the ERC with a core role of **stimulating** disruptive market creating innovations in Europe. Funding for individual actors (as in the SME Instrument) would be acceptable with an emphasis on scaling up and an awareness of the importance of people in the innovation process. Other tasks should only be assigned when there is no duplication of roles already performed by other European, national or regional bodies.
- 3. Another early task of an EIC remit should be to find solutions to identified gaps in both EU competitive and regional innovation funding programmes (e.g. emerging technologies, incomplete value chains, research infrastructure and less-effective funding instruments) and provide a strategic and operational lead role on EU-level coordination and consolidation of investments in innovation, systematically taking into account regional innovation systems and value-chains. Practically speaking, this could include surveying what regions are doing

ERRIN 15 7

## No progress in Europe (jobs and growth) without excellent regional research and innovation ecosystems

### HORIZON 2020 INTERIM EVALUATION

### **ERRIN DRAFT Position**

ERRIN (European Regions Research and Innovation Network <a href="https://www.errin.eu">www.errin.eu</a>) promotes networking and cooperation within innovation and research activities in European regions. For these activities the EU programme HORIZON 2020 is one of the most important and valued funding sources.

The European Research Programmes are of utmost importance to the European research and innovation landscape and is essential to encourage collaborative research and innovation. We acknowledge the contribution and opportunities the current programme Horizon 2020 is providing for all stakeholders. It is therefore important that the programme addresses its weaknesses for the next generation of European research and innovation funding and enhances the powerful instruments already in place.

In this context we wish to raise twelve points:

### 1. Regional Innovation Ecosystems

Innovation is key to retain a competitive Europe which will support growth and jobs. Thus innovation must be at the forefront of European policy. Innovation requires the strong collaboration of four actors: regions, research institutions, industry and citizens – the quadruple helix. A recent European Commission report on innovation<sup>1</sup>, argues that innovation happens in complex ecosystems. Too often, we imagine innovation in a linear way, as a pipe-line with inputs and outputs. But the pipeline theory is too simple and leads to policy over-simplification. In reality, our innovation economy is not a Roman aqueduct but a "muddy pond". Rich but obscure. Innovation requires of all actors, corporate, academic, civic and political to collaborate together. Europe must support this collaboration both within the region and between regions.

### 2. Research supporting regional innovation strategies

Strengthening the regional innovation ecosystem does not mean jettisoning support for research. But, it means, at the European level, encouraging researchers to contribute to and engage with regional innovation strategies and smart specialisation strategies as well as encouraging universities to play a strong leadership role at the regional level. This means innovation in academic reward systems.

### 3. Simplification

A well-structured and simplified programme stimulating participation. The whole set of sub-programmes (IPIs, TIIs PPPs, EIPs, EIT and KICs Art 185, ...)- implemented after the approval of Horizon 2020 – covers mostly the same topics and obscures the funding opportunities and the specific rule to the participants.

### 4. Increased funding

The limited availability of funding has led to a situation in which projects evaluated even with high or top scores are not funded. In response to a specific call often only one project and subsequently only one technical solution is funded. This is not only discouraging for the community. It also leads in the mid- and long run to monopolies in certain fields of innovation. In addition, we face the problem of depleting the pool that nurtures innovation and product development. Limiting scientific approaches to a large extend do not provide a sufficient basis for a competition of the best ideas in a field.

Final Version 28th April 2016 ERRIN Response to EIC Consultation





# ERRIN activities Oct 2016 (1)

- 4<sup>th</sup> Oct: ERRIN presents at Swedish national S3 Conference
- 6<sup>th</sup> Oct: ERRIN to moderate session at Lodz Bioeconomy Conference
- 10<sup>th</sup> Oct: ERRIN at SWAFS Expert Group Meeting
- Week of cities and regions (Open Days)
  - 11<sup>th</sup> Oct ERRIN to moderate session on ESIF Saxony-Anhalt
  - 11<sup>th</sup> Oct ERRIN to moderate Smart Cities event
  - 12<sup>th</sup> Oct ERRIN to moderate session on EUSALP: an engine for Europe growth
     Lombardy
  - 12<sup>th</sup> Oct ERRIN to moderate session on Circular Economy for South Norway
  - 13<sup>th</sup> Oct ERRIN presentation at EARTO/EBN/ERRIN event

# ERRIN activities Oct 2016 (2)

- 12th-13th Oct: ERRIN stands at FOOD 2030 'Food Village'
  - 4 ERRIN regions able to present with one paid travel and accommodation for each region
- 17<sup>th</sup>-18<sup>th</sup> Oct: ERRIN moderating session at Bratislava
   Bioeconomy Conference with three ERRIN regions in session
- 24<sup>th</sup> Oct: Innovation and Investment WG Innovative Public Procurement with EAFIP
- 24<sup>th</sup> Oct: Transport WG
- 25<sup>th</sup> Oct: Energy WG Brokerage Session
- 25<sup>th</sup> Oct: Opening Science WG
- 26<sup>th</sup>- 27<sup>th</sup> Oct: ERRIN moderating session at CRM Conference Burgos

# **ERRIN** activities Nov 2016>

- 14<sup>th</sup> Nov: RIM Plus Event on advanced manufacturing
- 24<sup>th</sup> Nov: ERRIN event (with ERA Stakeholder Platform) on knowledge transfer
- 1<sup>st</sup>- 2<sup>nd</sup> Dec: ERRIN at Cluster Conference
- Dec: ERRIN AGM
- Dec: RIM Plus Final event (mid-December)

 Jan 19<sup>th</sup> 2017: 'Going Green in Seventeen' – energy efficiency project brokerage event with AER

# ICCRAM: Introduction to regional case studies

- 1. Regional innovation ecosystems now accepted as key dimension of research and innovation
  - On the ground
  - Pipeline approach to innovation less accepted innovation 'more a muddy pond than an aqueduct' (Robert Madelin Innovation Report July 2016
  - Need to build triple>quadruple>quintuple helix model in regions
- 2. Regions need to collaborate where:
  - Share similar priorities in their smart specialisation strategies
  - Share best practice on key areas of interest
  - Identify links in value chains

# Introduction to regional case studies

- 4. Collaboration is supported by 'leading' or 'pioneering' regions
  - Ambition clear long term strategies
  - Action concrete actions on the ground / good practice examples
  - Awareness communicating to a wide public inside and outside region
- 5. Pioneering regions can increase <u>speed and depth</u> of change but need:
  - Commitment long term and possible political backing (e.g. Vanguard Initiative)
  - Content something to show
  - Communication telling

# Introduction to regional case studies

- 6. Pioneering regions with a clear strategy can influence future EU policy:
  - FP9
  - Cohesion policy (ESIF
- 7. Future challenges will be to bring together various funding steams
  - Local/regional (via State or ERDF Funding )
  - EU competitive funding (FP9 / COSME / Interreg, etc. )

# Conclusions after case studies

- Need to seek vertical and horizontal collaboration (V = EU/MS/region/local) (H= other regions)
- Clear interest in all regions regarding mining and environmental protection and citizens – how to enable a symbiosis between mining and tourism (e.g. Lapland)
- 3. CRM and mining will be key players in the Circular Economy policy and brings some low density/periphery regions centre stage
- 4. Still issues of moving from the theory of Smart Specialisation and clusters to practical implementation how do we engage industry?
- 5. The Czech example of 'mining diplomacy' may be worth investigating within Commissioner Moedas' 3 O strategy open to the world as well as the Responsible Research and Innovation agendas being developed in the EU

# Ryan Titley

Communication & Planning Manager <a href="mailto:communication@errin.eu">communication@errin.eu</a>

Andrea Lagundzija

Member Relations Manager

<u>members@errin.eu</u>

**Anett Ruszanov** 

Projects Manager projects@errin.eu

Richard Tuffs for listening
Director
director@errin.eu



Nordic House 3 rue du Luxembourg B-1000 Brussels Tel +32 2 503 3554



www.errin.eu

@ERRINNetwork

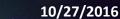


YOU!

ERRINNetwork ERRIN Group



ANNEX 5-"MODERN CLUSTERS, SMART SPECIALISATION, AND TRANSITION OF THE ECONOMY INTO CIRCULAR ECONOMY CASE LAPLAND, FINLAND" BY MIKA RIIPI







# Arctic Smartness - The story of the power of regional innovation ecosystem

ARCTIC DEVELOPMENT ENVIRONMENTS











# Modern clusters, smart specialisation, and transition of the economy into circular economy Case Lapland, Finland

European Regions in the Critical Raw Materials Strategy and Circular Economy Policy

Burgos 27th October 2016 By Mika Riipi, Governor











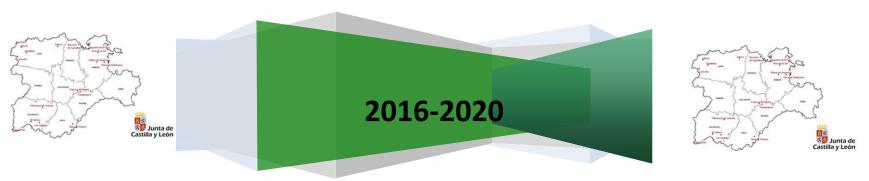
ANNEX 6-"STRATEGY OF MINERAL RESOURCES IN CASTILLA Y LEÓN (SPAIN) 2016-2020" BY RICARDO GONZÁLEZ MANTERO



# **High-level workshop in Critical Raw Materials**

Ricardo González Mantero

General Directorate for Energy and Mining. Castilla y León Regional
Government



Burgos, 27th October 2016



### THE APPROACH

- Commitments:
  - <u>Legislature</u>, investiture speech (29th july 2015) and appearance before the Committee of Economy and Finance (1st september 2015).
  - State of the Región debate, (29th june 2016), aprovement in 2016.
- The strategy is integrated and coincides with two existing plans:
  - The Director Plan for Industrial Promotion.
  - The Plan to Increase Activity in Coal Mining Municipalities. (frame period 2016-2020).
- Approval by the Council of Government of Castilla y Leon.
- Its <u>structure</u> is based on:
  - (I) Demonstraiting the wide **mineral potential** of the region.
  - (II) Adopting **administrative measures** to create appropriate conditions to ensure the development of actions and projects that activate the latent mining potential.
  - (III) Supporting the **mining business sector and the mining municipalities**, joining efforts in harmony with the society and focusing in its internationalization.





### THE OBJECTIVES

### **OBJECTIVE 1: Administration:**

Reconfiguring the administrative model to contribute to achieve improvements in the mining sector. It must be at the forefront to tackle those changes from an intergovernmental co-ordination which could imply an added value to the mining system.

### **OBJECTIVE 2: Mining Sector:**

Boosting the improvement of the mining activities competitiveness which will develop the mining potential in Castilla y León. It will strengthen specific aspects of mining sector capacities in order to be revitalized. On the other hand, it will increase the tools and human resources, as a turning point in its evolution and with new criteria for social and environmental sustainability.

## **OBJECTIVE 3: Society:**

An improved integration of mining activities in the whole society and its sustainable integration in the territory.

### The key aspects are:

- (I) Obtaining a social license, which means that only if there is a progress in their relation with the society, mining projects will be accepted, and therefore, developed.
- (II) Mechanisms for dialogue should be implemented, looking for socio-environmental consensus and generating shared values.

## **THE SPANISH MINING ACTIVITY (Mining Statistics 2014 MINETUR)**

SPAIN (2014)S	VA	LUE	Nº EXPL	OITATIONS	HUMAN RESOURCES		
3FAIN (2014)3	M€	%	NUM.	%	NUM.	%	
Industrial minerals	777	25,8%	171	5,9%	3.862	13,5%	
Ornamental rock	386	12,8%	567	19,6%	5.660	19,7%	
Energy minerals	387	12,8%	30	1,0%	4.041	14,1%	
Quarry Products	758	25,1%	2.122	73,3%	11.572	40,4%	
Metal mining	708	23,5%	6	0,2%	3.539	12,3%	
TOTAL	3.016	100,0%	2.896	100,0%	28.674	100,0%	

## THE CASTILLA Y LEON MINING ACTIVITY (Mining Statistics 2014 MINETUR)

CASTILLA Y LEÓN	VAL	_UE	Nº EXPLO	ITATIONS	HUMAN RESOURCES		
(2014)	M€	%	NUM.	%	NUM.	%	
Industrial minerals	132	36,4%	16	3,3%	446	11,1%	
Ornamental rock	67	18,5%	101	20,9%	1.033	25,8%	
Energy minerals	77	21,2%	10	2,1%	1.010	25,2%	
Quarry Products	67	18,5%	355	73,5%	1.409	35,2%	
Metal mining	20	5,5%	1 0,2%		106	2,6%	
TOTAL	363	100,0%	483	100,0%	4.004	100,0%	

## **THE CASTILLA Y LEON MINING ACTIVITY (variation 2014-2013 MINETUR)**

CASTILLA Y LEÓN (2014-	VAL	_UE	_	I⁰ FATIONS	HUMAN RESOURCES		
2013)	M€	%	NUM.	%	NUM.	%	
Industrial minerals	-1	-1,0%	-2	-11,1%	-24	-5,1%	
Ornamental rock	-14	-17,5%	-3	-2,9%	-360	-25,8%	
Energy minerals	-4	-5,2%	-6	-37,5%	-239	-19,1%	
Quarry Products	8	13,2%	14	4,1%	-2	-0,1%	
Metal mining	6	46,1%	0	0,0%	11	11,6%	
TOTAL	-6	-1,5%	3	0,6%	-614	-13,3%	



## THE CASTILLA Y LEON MINING ACTIVITY by provinces (Mining Statistics 2014 MINETUR)

		ERGY ERALS	METAL I	MINERALS	INDUS' MINE		ORNAMEN	TAL ROCKS	QUARRY	QUARRY PRODUCTS		ТО	ΓAL	
CASTILLA Y LEÓN (2014)	N° EXPLT	HUMAN RES.	N° EXPLT	HUMAN RES.	N° EXPLT	HUMAN RES.	N° EXPLT	HUMAN RES.	N° EXPLT	HUMAN RES.	N° EXPLT	%	HUMAN RES.	0/0
AVILA					1	8	2	12	18	72	21	4%	92	2%
BURGOS	1	16			5	239	18	82	62	329	86	18%	666	17 %
LEON	8	962			1	12	38	703	45	241	92	19%	1.918	48 %
PALENCIA	1	32					1	9	30	146	32	7%	187	5%
SALAMANCA			1	106	2	51	6	17	28	133	37	8%	307	8%
SEGOVIA					3	99	14	51	64	139	81	17%	289	7%
SORIA					1	1	5	19	26	101	32	7%	121	3%
VALLADOLID					1	1	7	20	38	116	46	10%	137	3%
ZAMORA					2	35	10	120	44	132	56	12%	287	7%
TOTAL	10	1.010	1	106	16	446	101	1.033	355	1.409	483	100%	4.004	100 %
1														

## THE CASTILLA Y LEON MINING ACTIVITY (Mining Statistics 2014 MINETUR)

CASTILLA Y LEÓN (2014)	VALUE					
CASTILLA I LEON (2014)	€	%				
LEON	140.086.589,00	39%				
BURGOS	122.462.299,00	34%				
SEGOVIA	29.596.630,00	8%				
SALAMANCA	28.278.821,00	8%				
ZAMORA	14.590.789,00	4%				
PALENCIA	11.154.875,00	3%				
AVILA	9.209.295,00	3%				
SORIA	3.853.767,00	1%				
VALLADOLID	3.294.581,00	1%				
TOTAL	362.527.646,00	100%				



#### THE CASTILLA Y LEON MINING ACTIVITY (Mining Statistics 2014 MINETUR)

SECTOR	ACTIVITY	AVILA	BURGOS	LEON	PALENCIA	SALA MANCA	SEGO VIA	SORIA	VALLADOLID	ZAMORA	то	TAL
WATER	BOTTLING PLANTS	1	1	5	1	3	2	1	1	2	17	26
	SPAs		2	1		2		1	2	1	9	20



THE CASTILLA Y LEON MINING ACTIVITY FRAME (Mining Statistics 2014 MINETUR)

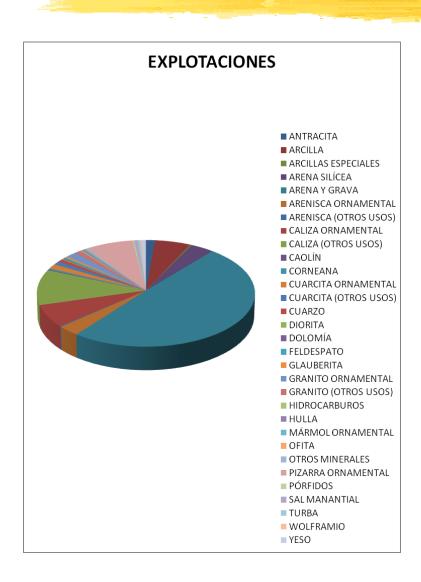
#### Consejería de Economía y Hacienda

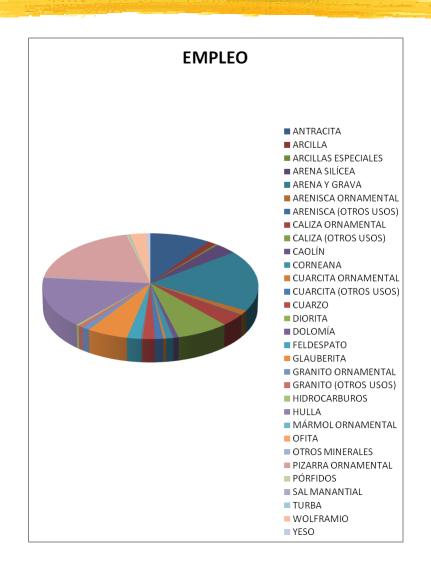
#### .-SUBSTANCES ALLOCATION IN CASTILLA Y LEÓN -.

				-										-
CASTILLA Y LEÓN	1 to	9	10 t	o 19	20 t	o 49		o 99	100 t	o 499	500 &	more	TO	TAL
2014 (MINETUR)	EXPL	EMPL	EXPL	EMPL	EXPL	EMPL	EXPL	EMPL	EXPL	EMPL	EXPL	EMPL	EXPL	EMPL
ANTRACHITE	2	12			3	96	1	78	1	196			7	382
CLAY (arcilla)	27	53											27	53
SAND CLAYS			1	18									1	18
SILICEOUS SAND	15	50	1	12	2	71							18	133
SAND AND LOOSE STONE														
(arena y grava)	235	691	3	40	1	22							239	753
ORNAMENTAL SANDSTONE (arenisca ornamental)	14	39	1	14									15	53
SANDSTONE (OTHER USES)	14	5 5		14									1	5
ORNAMENTAL LIMESTONE	I	<u> </u>												<u> </u>
(caliza ornamental)	30	105	3	40									33	145
LIMESTONE (OTHER USES)	41	163	11	137									52	300
KAOLIN					1	29							1	29
CORNEANA			1	15	1	28							2	43
ORNAMENTAL QUARTZITE	7	15											7	15
QUARTZITE(OTHER USES)	4	17			1	30							5	47
QUARTZ	2	14	1	12	1	44							4	70
DIORITE	1	2											1	2
DOLOMITE (dolomía)	1	5											1	5
FELDSPAR (feldespato)					2	81							2	81
GLAUBERITE									2	234			2	234
ORNAMENTAL GRANITE	7	32	1	11									8	43
GRANITE (OTHER USES)	3	4	2	26									5	30
HYDROCARBONS			1	16									1	16
BITUMINOUS COAL (hulla)									2	612			2	612
ORNAMENTAL MARBLE	2	3											2	3
OFITA	1	2											1	2
OTHER MINERALS	1	7											1	7
ORNAMENTAL SLATE	13	45	6	95	12	358	4	274					35	772
PORPHYRIES (pórfidos)			1	15									1	15
SPRING SALT (sal manatial)	3	5											3	5
PEAT (turba)	2	2											2	2
WOLFRAM									1	106			1	106
GYPSUM (yeso)	2	9	1	14									3	23
TOTAL	414	1280	34	465	24	759	5	352	6	1148	0	0	483	4004

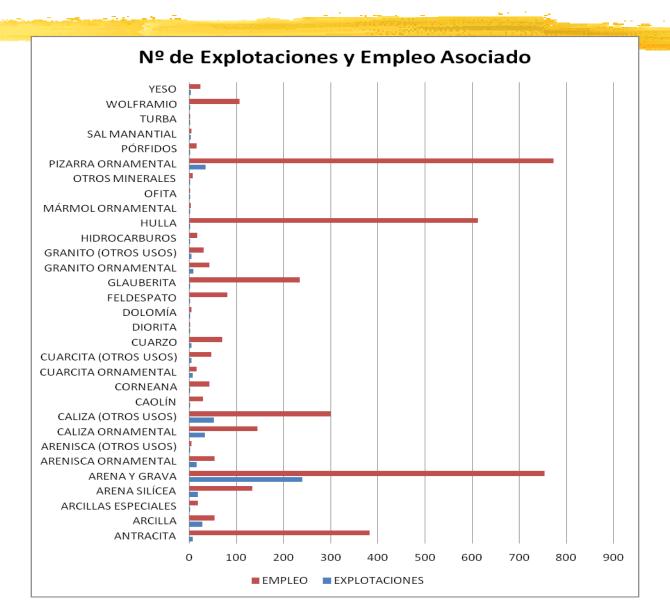


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#### STRATEGY OF MINERAL RESOURCES FOR CASTILLA Y LEON REGION 2016-2020

#### THE CASTILLA Y LEON MINING ACTIVITY (Mining Statistics 2014 MINETUR)



'LOS SANTOS-FUENTEROBLE', WOLFRAM MINE (SALAMANCA)



STRATEGIC AIM (actions)	NUM.	MAIN LINES
	1	Mining potential
1 MINING & ENVIRONMENTAL ORDINANCE	2	Legal regulations
	3	Environmental issues
2 CUDVEUL ANCE AND CONTROL	1	Inspection
2 SURVEILLANCE AND CONTROL	2	Specific interventions
2 ECONOMIC VALUATION	1	Territorial
3 ECONOMIC VALUATION	2	Bussines
4 ADMINISTRATIVE EFFOTIVENESS	1	Structural
4 ADMINISTRATIVE EFECTIVENESS	2	Operational
	1	Training
5 KNOWLEDGE MANAGEMENT	2	Information and dissemination



					-
STRATEGIC AIM (AXIS)	NUM.	LINES	NUM.	ACTIONS	NUM.
			1	Updating the Repository OF geological and mining fund	1
	1	MinIng potential	2	Organization of a congress on mining	3 4 5
			3	Participation in European cooperation programs related to research and exploitation of mineral raw materials	
			1	Development of general provisions of mining regulations	4
1 MINING AND	2	Legal regulations	2	Development of instructions on mining regulations	5
ENVIRONMENTAL ORDINANCE			3	Promote amendments in Regulation of Urban Planning in Castilla y León to remove prohibitions on the mining sector	6
		Environmental issues	1	Promotion of a new joint Decree with the Environment authorities related to restoration of Natural Areas affected by mining activities	7
	3		2	Reform of the Instruction on financial guarantees or equivalent. Regularization Plan of financial guarantees or equivalent	8
			3	Plan of integration and rehabilitation of old mining and their structures	9



#### STRATEGY OF MINERAL RESOURCES FOR CASTILLA Y LEON REGION 2016-2020.

Consejería de Economía y Hacienda

**ERA-MIN2 2017. Joint Call – Budget and Topics** 



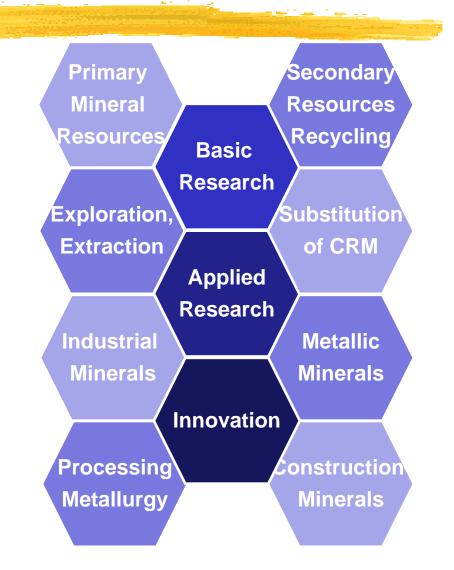
#### 2017 – Joint Call co-funded by European Commission:

- Participants: 18 countries/regions (14 EU MS/Associated + 4 international countries)
- Call budget: EUR 11 11.5 Million
- EU co-funding: EUR 5 million (to top-up transnational projects)

## 2018 and 2019 – TWO joint transnational calls without EC co-funding

 Open to participation to funding organisations from countries across the globe.

SAVE THE DATE (30/11/2016)!!!!!!! BROKERAGE EVENT RAW MATERIALS WEEK IN BRUSSEL



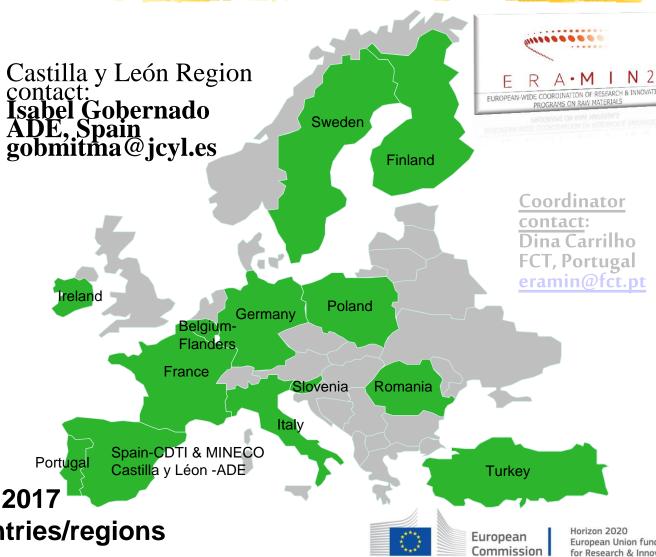
#### STRATEGY OF MINERAL RESOURCES FOR CASTILLA Y LEON



Pan-European network of the main R&I funding organisations on raw materials to strengthen the industry competitiveness and the shift to a circular economy







**Joint Call 2017 Participating Countries/regions** 

European Union funding for Research & Innovation



STRATEGIC AIM (AXIS)	NUM	LINES	NUM.	ACTIONS	NU M.
		Inspections	1	New collaborations with the National Institute of Silicosis	1
	1		2	Strategic and Operational Inspection Plans for the mining sector	2
2 SURVEILLANCE AND CONTROL	-		3	Update and implementation of procedures, inspection protocols and inspection guides	3
		Specífic Interventions	1	Coordination of accidents and incidents with 112 (the SOS service)	4
	2		2	Supervision of outdoor mining projects through drones and appropriate software	5
			3	Incentives on safety and health in work	6



STRATEGIC AIM (AXIS)	NUM.	LINES	NUM.	ACTIONS	NUM.
		Territorial	1	Economic boost for Coal Mining areas	1
	1		2	Plan of valuation of the geo-mining heritage	2
3 ECONOMIC VALUATION			3	Support for Corporate Social Responsibility	3
				Support for research, development and implementation of new technologies in the mining sector	4
	2	Bussines	2	Support for marketing and exports of mining products	5
			3	Energy efficiency and saving plan in the mining sector	6

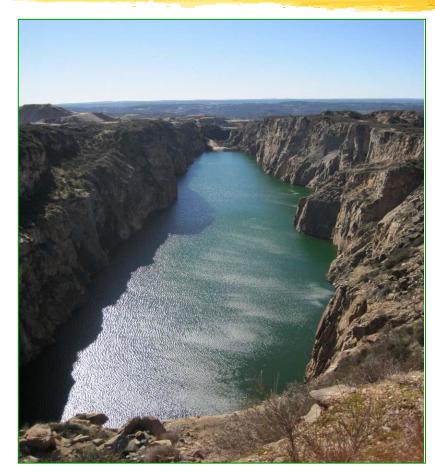


STRATEGIC AIM (AXIS)	NUM.	LINES	NUM.	ACTIONS	NUM.
			1	New configuration and new phase for the Castilla y León Regional Mining Commission	1
	1	Structural	2	Reallocation and structural configuration of resources for a new operation and mining horizon	2
4 ADMINISTRATIVE EFFECTIVENESS			3	Decree on administrative of mining related procedures	3
LITEOTIVENEOU		Operational	1	Reinforcement of the electronic procedure for mining issues	4
	2		2	Inter - administrative collaboration in basic and regional regulations	5
			3	Update and improvement of the Administration's web for mining in Castilla y León.	6



STRATEGIC AIM (AXIS)	NUM.	LINES	NUM.	ACTIONS	NUM.
		to the Mining Regional Administration  Support for vocational training and learning specialists  Conferences for professionals related mining sector  Collaboration with the Universities of	1	Training updated plan for civil servants subject to the Mining Regional Administration	1
			Support for vocational training and lifelong learning specialists	2	
	1		Conferences for professionals related to the mining sector	3	
5 KNOWLEDGE MANAGEMENT			4	Collaboration with the Universities of the region for organizing students practices in the Mining Administration.	4
	2	Information and dissemination	1	Mining statistics	5
			2	Mining Registry	6
			3	Dissemination and better image plan for the mining sector	7





#### 'FUTURE BARRUECOPARDO' WOLFRAM MINE (SALAMANCA)

# Thank you for your attendance



ANNEX 7-"ROLE OF THE MINISTRY OF INDUSTRY AND TRADE IN MODERNIZATION OF CRITICAL RAW MATERIALS SECTOR IN THE CZECH REPUBLIC" BY MARTIN VLASTNIK

# Role of the Ministry of Industry and Trade in Modernization of Critical Raw Materials Sector in the Czech Republic





## History of Geology

- → First modern university for education in geology was established in Příbram in 1849. It became famous by the Profesor František Pošepný.
- Czech territory started to be mapped step by step in the scale 1:75.000 in nineties of 19th century.
- → Complete territory of the Czechoslovakia has been geologicaly mapped in the scale 1:50.000 until the year of 1965 and result was released in the scale 1:200.000. Later were added specialized maps like hydrogeology, geophysical, landslide risks, etc. In the same scale.
- → Today continues the mapping in the scale of 1:25.000. Of course, deposits under mining have much more detailed geological prospection.





## Recent state of RM in the Czech Republic

- Czech Republic belongs to EU countries with relatively good position of mining sector.
- → Continues mining of brown coal, industrial minerals and construction materials. Hard coal is in collapse due to low prices of surplus of American coal on global market.
- > Starts geological exploration for modern minerals like lithium and other data
  - searching in the field of EU critical minerals. Due to long time mining history, we suppose that we have those minerals not only in original deposits, but also on pit heaps and tailing ponds.
- → Geological companies continues to work partially abroad and keep know-how of prospecting in green-fields. They are experienced all around the world from Greenland through Jamaica, Mali, Mongolia till Vietnam.



## Historical and recent needs of industry

- Czech Republic is well explored for classical minerals like copper, lead, zinc, iron, silica sands, kaolin, etc.
- → Modern minerals like lithium, beryllium, REE and others that are needed by modern technologies were taken for undesirable foreign matters in classical minerals in the past. We have scarce information about their appearance only.
- → Czech Republic is relatively reach on the lithium. We know it from the past, because some mineral deposits of classical minerals were so much contaminated by on that days undesirable lithium that they were abandoned. Detailed geological prospection of first lithium deposit started last year.



## Role of the Ministry – New RM Policy

- Create conditions for assurance of RM for domestic use.
- Strengthen national RM security.
- → Assure consistent protection of strategic RM deposits.
- Keep sustainable mining in conditions of strong protection of environment.
- Create conditions for new phase of national RM diplomacy, which has long tradition in the Czech Republic.
- Support of material-saving technologies as a starting point for the circular economy.



## Role of the Ministry – Practical Targets

- Enforce new State Raw Materials Policy.
- → Use EU projects like EIP RM, Horizon 2020, KIC for supporting RM sector in the Czech Republic.
- → Prepare conditions for R&D projects supported by Ministry and by European Commision too in the field of Raw Materials exploration, mining and processing.
- → Continue the Raw Materials Diplomacy on bilateral or multilateral base. That diplomacy has very long tradition in our country.
- Support Czech companies in link-up contacts and cooperation with foreign partners.





## Role of the Ministry – Circular Economy

- State Policy on Secondary Raw Materials was approved in 2014.
- → Involvement of the Ministry into working groups of European Commission and other organizations in the field of secondary raw materials and circular economy.
- Support of material-saving technologies as a starting point for the circular economy.
- → Support projects for R&D projects in waste managements and circular economy financed or co-financed by the Ministry or by European Commission.



# Thank you for your attention

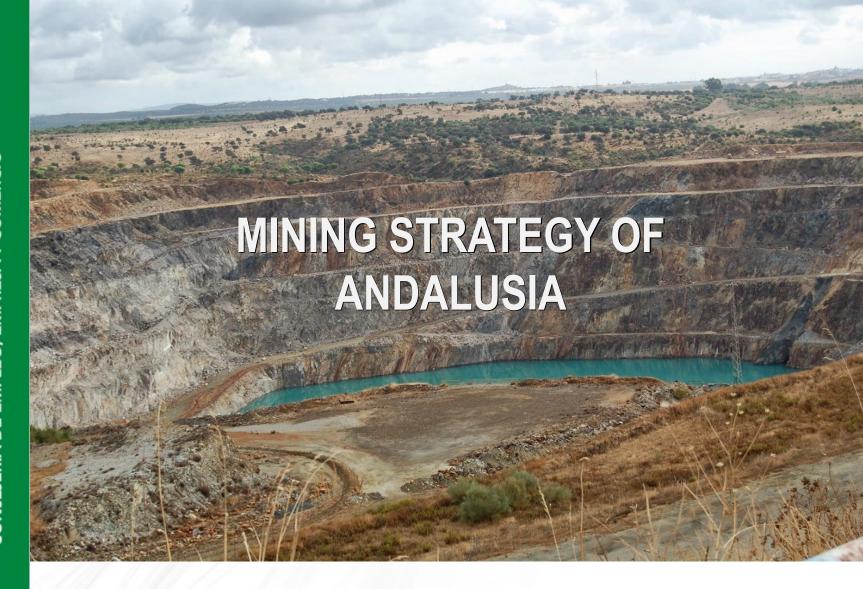
vlastnik@mpo.cz







ANNEX 8-"REGIONAL SPECIALIZATION STRATEGY IN CRITICAL RAW MATERIALS AND MINING IN THE REGION OF ANDALUSIA" BY MARIA JOSÉ ASENSIO COTO





General Secretariat of Innovation, Industry and Energy Regional Minister of Employment, Business and Commerce Regional Govenment of Andalusia

#### Value of mining activity

- Driving force of extractive industry
- •Value added that it represents the **transformation**
- •Generation of jobs in traditionally depressed regions
- •Fix and boost the **population** in these areas
- Source of innovation





#### The reality of this sector



17.078 jobs





**GVA: 1.423 M€** (9,21% about GVA industry)



Source: IECA y DGIEM. Year 2014.



#### Scope of action

- •Aggregates:
- Limestone dolomitic aggregates
- •Siliceous aggregates
- •Special aggregates
- Energy minerals
- Metallic minerals

- •Ornamental rocks:
- •Limestone, marble and travertine
- •Sandstones and related rocks
- •Granites
- •Shales and rocks related
- Serpentine
- Industrial rocks and minerals





#### The why of the strategy 2020

- •Excellent balance of the plan above (**PORMIAN**)
- •Necessary planning for setting up of measures of form coordinated
- •Orientation to the sector strategically, focusing and ordering all phases involving the mining activity in Andalusia (investigation, extraction and transformation)
- Allow trace some objectives that are correspond with the reality of the sector
- •Develop in coordination with the rest of plans developed by the Government Andalusian.

Action coordinated and compatible with economic, environmental and territorial planning of Andalusia



#### Purpose of the mining strategy

Put in value to the mining and to its sector transformer and promote them potential existing that are object of use, making it in an activity dynamic, innovative, generating of employment and of wealth, capable of give response to them needs of materials raw of the economy international



Draw a path with the help sector, to strengthen mining





#### **Identifying Features**

- Governance
- Interdisciplinary contributions
- •Concordance with the Andalusian and European regulatory framework. Horizon 2020.





#### **Context Regulatory**

#### •EUROPE:

- ✓ European Strategy 2020, by CE
- ✓EIP onRawMaterials.

#### •ANDALUSIA:

- ✓ Strategy for the competitiveness. Economic plan of Andalusia 2014-2020, with 6 actions specific to the sector mining
- ✓RIS3 Andalusia Innovation strategy of Andalusia 2020.
- ✓ Energy strategy of Andalusia 2020.
- ✓ Industrial strategy of Andalusía 2020.
- ✓ Andalusian research plan. Development and innovation (PAIDI 2020)
- ✓ Strategic plan for internationalization Horizon 2020
- ✓ Environment Andalusian Plan
- ✓ Management of the Andalusian territory plan (POTA 2006)





#### 4 objectives

- •The **exploitation of the mining potential** of the Andalusian territory, the creation of employment and the improvement of the competitiveness of the mining sector
- •It improves of the services public linked to the mining sector, adapting the management adminsitrative to the needs of the sector
- •The environmental integration of the mining activity and the enhancement of the Andalusian mining heritage, as a cultural, social and economic resource that will help the sustainable development of the territory.
- •Impulse and development of the right frame of relations labour, with special attention to the security and health labour in the sector, increasing the training and fitness of the personal to your since of work.



#### 5 strategic aims y 13 lines of action

#### STRATEGIC AIM 1. PROMOTION OF THE POTENTIAL MINING ANDALUSIAN

- ■Increase of the knowledge of the potential mining Andalusian.
- Support of the Administration to the activity mining.
- Improvement of the image and perception social of the mining.
- •Mining research support.

## STRATEGIC AIM 2. IMPROVEMENT OF THE BUSINESS NETWORK ASSOCIATED TO THE SECTOR

- ■Research, innovation, cooperation and competitiveness.
- Commercialization and internationalization.

#### STRATEGIC AIM 3. MODERNIZATION OF THE MINING ADMINISTRATION

- Improvement of the management administrative.
- Coordination with other agencies with competence in the matter.
- Andalusian of the mining portal.

# STRATEGIC AIM 4. INTEGRATING ENVIRONMENTAL AND PUT IN VALUE OF THE HERITAGE MINING

- Environment.
- Tourism, culture and other uses.

#### STRATEGIC AIM 5.HUMAN CAPITAL

Prevention of risks occupational, safety and health.

Training and qualification.



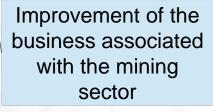
#### Objective 1, strategic aim 1 y 2

Exploitation of the potential mining of the Andalusian territory, creation of employment and improve of the competitiveness of the mining sector

Promotion of Andalusian mining potential Knowledge increase of the Andalusian mining potential

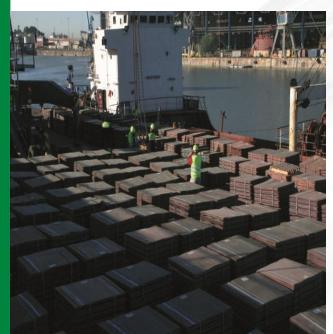
Improving the image and social perception of mining

Administration support to the mining activity and the improvement of its image



Marketing and internationalization

Research, innovation, cooperation, creation and competitiveness





#### Objective 2, strategic aim 3

Improvement of public services related to the mining sector, adapting the administrative management to the needs of the sector

Modernization of the Mining Administration

**Environment** 

Coordination with the rest of authority with competence in the matter

Mining Andalusian Portal



# Objective 3, strategic aim 4

Integration environmental of the activity mining and valuing of heritage mining Andalusian, as resource cultural, social and economic to help to the development sustainable of territory

Integration environmental and valuing of heritage mining Andalusian

**Environment** 

Tourism, culture and other uses





# Objective 4, strategic aim 5

Promote and develop the implementation of the appropriate framework of labour relations, with special attention to the occupational safety and health in the industry, increased training and adequacy of the staff to work

Human capital

Prevention of occupational risks, health and safety

Training and qualification



# **Monitoring and Assessment**

- •Monitoring: Annual Monitoring led to out by Directorate General of Industry, Energy and Mines of the Regional Minister of Emplyment, Business and Commerce.
- •Assessment: 2 Assessment, intermediate and final. The assessment authority is composed by:
- •Regional Minister of Presidency and 1 representative of each Regional Minister participating in the writing of the Mining Strategy.
- •A social pact of transition: 2 representatives of the business agents and 2 representatives of the social agents.









# ANNEX 9-"REGIONAL SPECIALIZATION STRATEGY IN CRITICAL RAW MATERIALS IN GREECE" BY ANTONIS POLITIS





Regional specialization strategy in critical Raw Materials in Greece



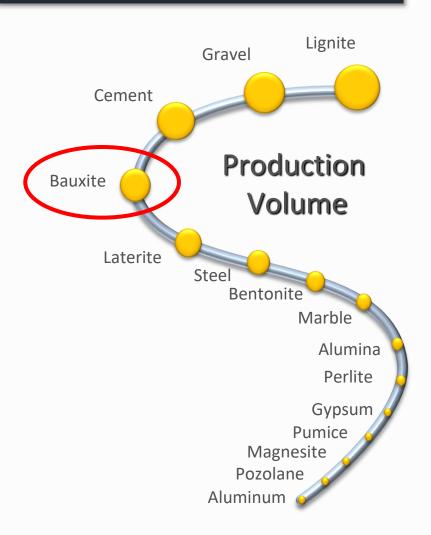
Antonis Politis, Mining and Metallurgical Engineer
School of Mining and Metallurgical Engineering
National Technical University of Athens [NTUA]

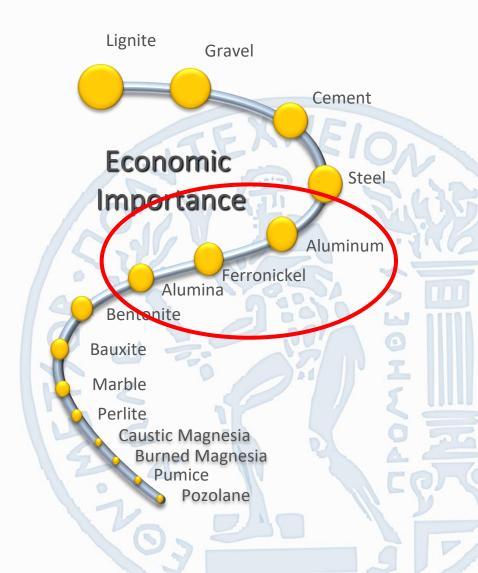
# Mining – Non-Metallic Minerals and Basic Metallurgy in the Greek Economy

- Greek extractive industry together with the corresponding manufacturing sector has a constant contribution of 3.0 – 5.0 % to the GDP of Greece.
- The extractive sector is highly extroverted with the exports of primary and processed materials accounting for over 65% of its sales.
- Some Greek companies of the mining sector are highly ranked in European and International level.

#### **Greek Raw Materials:**

Relative Importance to Greek economy



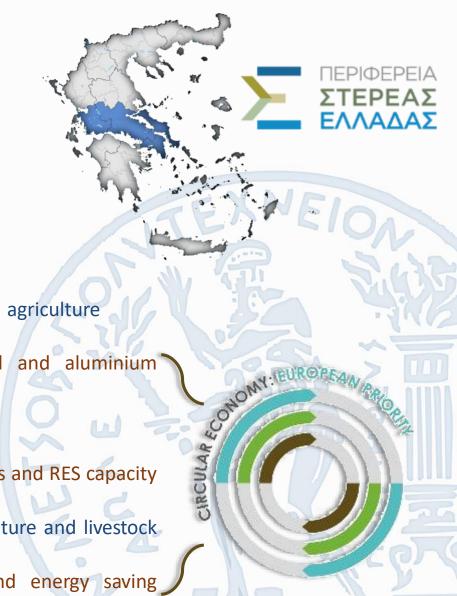


#### Region of Central Greece

- Area of 15.549 km<sup>2</sup>
- 2nd largest in Greece in total area
- Permanent population: 547.390 inhabitants,
   (5.07% of the country)

#### **Strengths**

- Great geographic position (proximity to Athens)
- Rich agricultural land and production expertise in agriculture and livestock production
- Strong industrial sector first place in nickel and aluminium production
- Great concentration in fisheries and aquaculture
- Important cultural resources (Delfi, Thermopyles)
- Sound infrastructure of national transport networks and RES capacity (solar, wind, hydro)
- Potential in development of synergies with agriculture and livestock production
- Development of environmental technologies and energy saving technologies



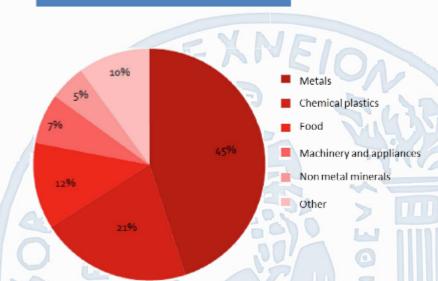
#### Case study 5: Regional specialization strategy in critical Raw Materials in Greece

#### Region of Central Greece



Gross Value Added by Industry 2013				
Industry/ Sector	Gross Value Added (amount in million euro)	% in total GVA of the Region		
Agriculture, Forestry and Fishing	561	7.6		
Mining, energy, water supply and waste management	584	7.9		
Manufacturing	1856	25.2		
Construction	213	2.9		
Trade, transportation and storage, accommodation and food service activities	1449	19.6		
Information and Communication	75	1.0		
Financial and Insurance activities	158	2.2		
Real Estate activities	986	13.4		
Scientific, administrative and support service activities	128	1.7		
Public administration, education, health and social work activities	1130	15.3		
Arts, recreation and other service activities	234	3.2		
Total	7375	100		

## Key exporting goods



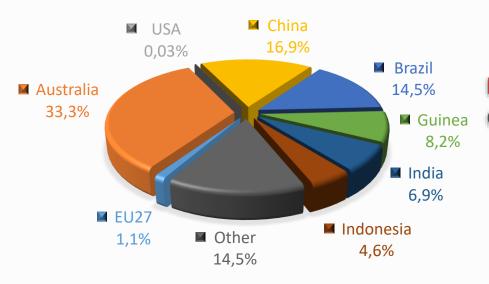
The region has an active interest on EU Critical Raw Materials priorities (REMIX research project, MIREU commitment, SC5 call for regions etc.) and is interesting in being part of mirroring activities and part of several regional networks.

### **Bauxite – Alumina - Aluminum**



Greece in included in the world's top 10 countries with the biggest bauxite reserves, estimated to 600 Mt

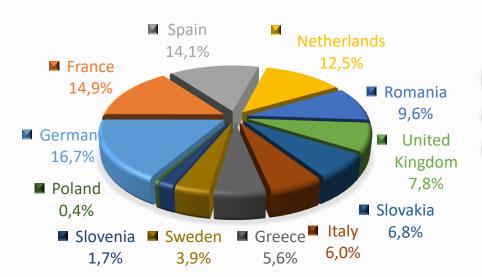
## Bauxite - Alumina - Aluminum



## EU27 produced 1.15% of world bauxite Greece is ranked (2010)

1st in EU27 with 85%

11th in the world with 1%



# EU27 produced 5.8% of world primary Aluminum

Greece is ranked (2010)

9th in EU27 with 5.6%

32nd in the world with 0.3%

#### Case study 5: Regional specialization strategy in critical Raw Materials in Greece



#### THE LARGEST VERTICALY INTEGRATED ALUMINIUM & ALUMINA PRODUCER IN E.U.



#### Bauxite Mines

- Second largest bauxite producer in Europe with ~700 ktpa of production capacity.
- Long life of mine underpinned by 11mt of resources.
- Long-term off-take agreement with third parties in Greece and abroad.



#### Aluminium Smelter

- ~182 ktpa of production capacity
- · Established customer base
- Long-term off-take agreements provide security of sales



#### Alumina Refinery

- · Amongst largest standalone smelters globally
- Producer of 17% of total European Alumina output
   820 ktpa
- Sufficient capacity to cover internal needs for the smelter and to export ~500 ktpa
- Long-term off-take agreement with global and regional players



#### 334 MW CHP

- On-site power and steam production offering purchasing flexibility – Secured Electricity Supply
- · Internal Steam production using Natural Gas



#### Port Facilities

 On-site port facilities for incoming raw materials and outgoing finished products, minimising logistical costs.



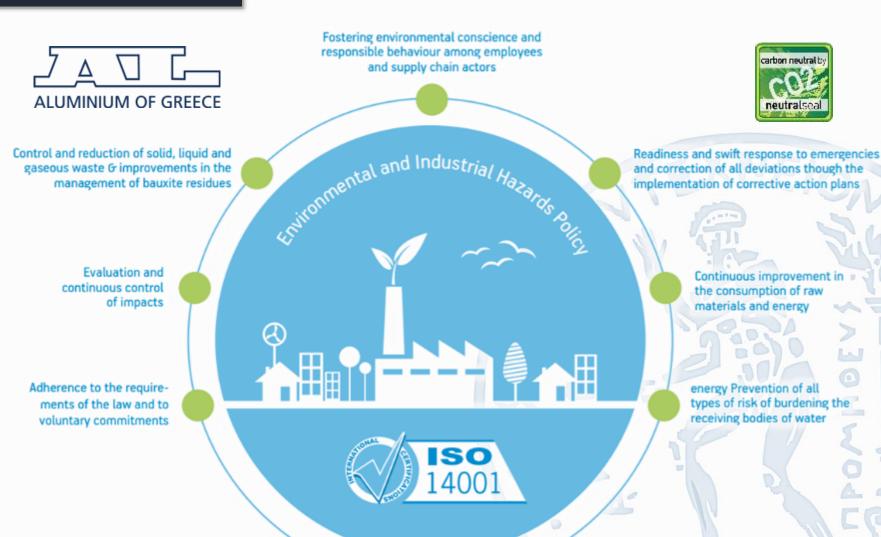


Refined Alumina Annual Capacity



### Region of Central Greece

## Bauxite - Alumina - Aluminum



## Bauxite - Alumina - Aluminum

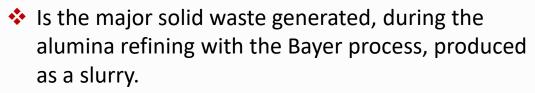


Mining and Metallurgical wastes

Wastes of industrial minerals exploitation



# Bauxite residue production



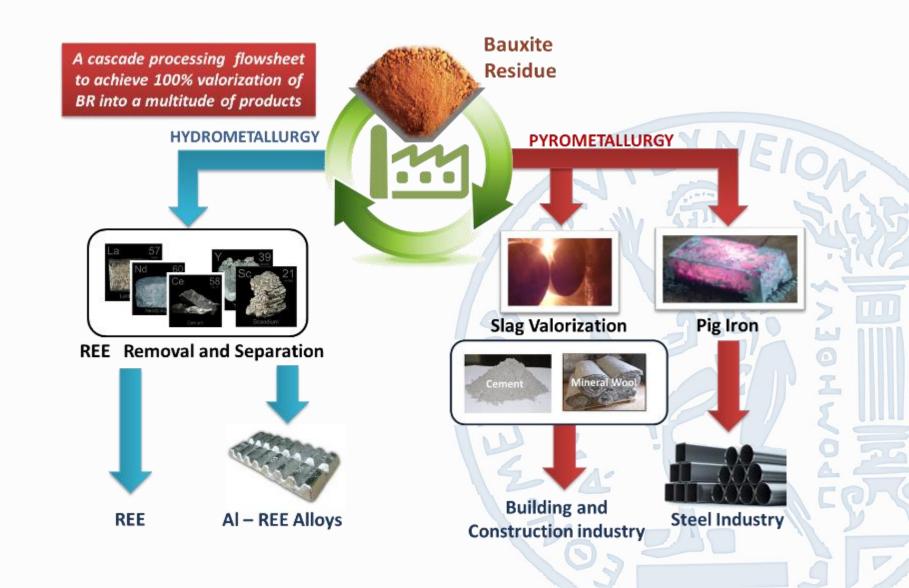
More than 120 million tons of BR are produced worldwide each year.

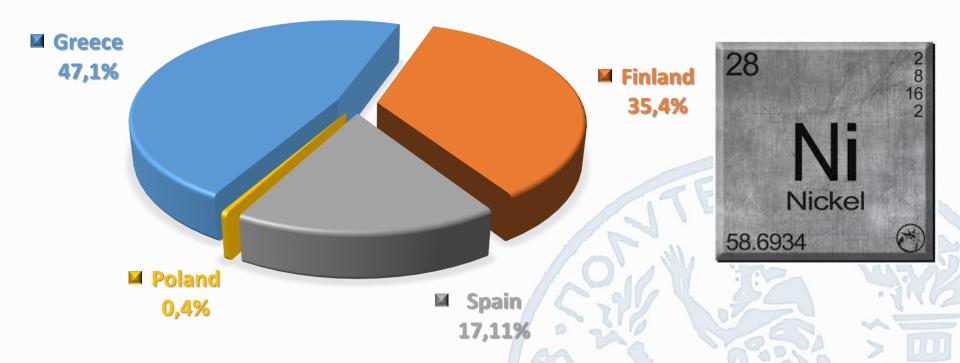
In AoG Greece the annual production is 700,000 tons.

The solid filter cake is stockpiled in landfill; only a small part of it (1-3%) is utilized in the cement industry



## Bauxite - Alumina - Aluminum





# EU27 produced 2.22% of world mine nickel (2010)

Greece is ranked (2010)

1st in EU27 with 47.1%

12th in the world with 1%

Reserves in Nickel content: 490 ktons



- G.M.M.S.A. LARCO is today the only Ferronickel producer in European Union from local deposits, covering 5 % of European market annual demand in nickel
- The annual production in the three nickel mines (Euboea, Agios Ioannis, Kastoria) exceeds two million tones
- Larymna smelter: an annual production of 19.000 tones of Ferro Nickel Alloy
- Among the company's customers are the greatest stainless steel producers of western Europe
- GMMASA LARCO is a 100% exporting company and is considered among the most reliable producers in the global nickel market



Developing a life cycle assessment of mining projects for waste minimization and long term control of rehabilitated sites

**Coordinator: Imperial College of Science, Technology and Medicine** 

a holistic approach to minimising the total impacts of mining, from exploration and development of a mineral deposit; to mining, processing of the ore, production of the concentrate; waste disposal, remediation; environmental monitoring, decommissioning and long term control and monitoring of the impacts of the mining related activities.

#### Applying space age technology to environmental aspects of surface mining

Coordinator: Integrated Information Systems (IIS) S.A./MuViReX

development of an electronic database for a specific test mining site. This database will be incorporated in a GIS system and will include multidate satellite data and other physical, environmental, geomorphologic, geologic and socio-economic factors.

#### Region of Central Greece



# RIS3 Regional Assessment: Central Greece

A report to the European Commission, Directorate General for Regional Policy, Unit I3 - Greece & Cyprus

# **Key points:**

"Environmental and energy saving technologies would have an impact on a wide range of industries"

"The most significant challenge for Sterea Ellada is the establishment and strengthening of mechanisms for collaboration with R&I stakeholders"

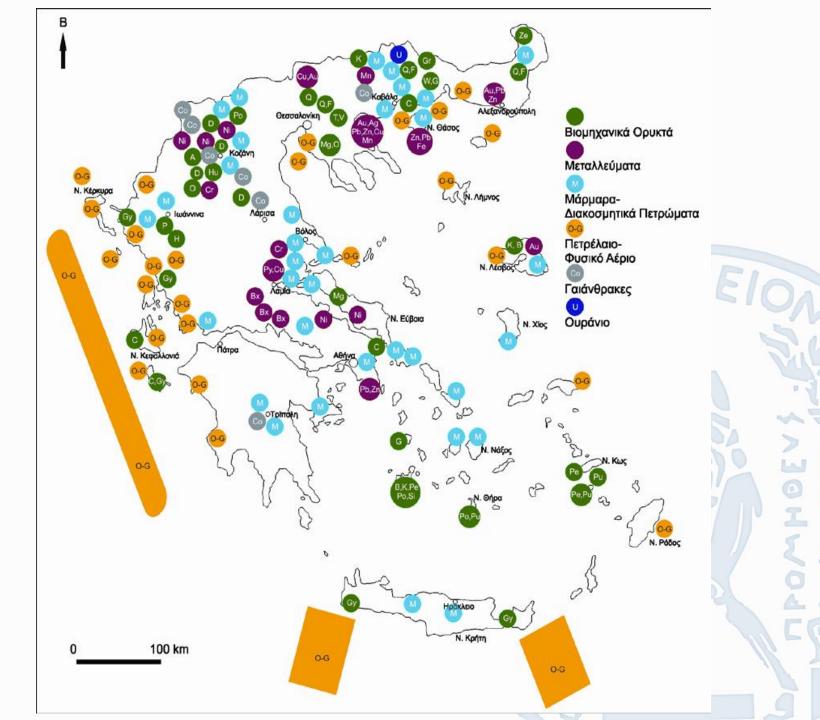
"It is **recommended** to **replicate a competitive technology industrial cluster** approach to facilitate the rapid spread of good practice"

"A particular focus should be given to strengthening the cooperation of existing/emerging sectors/clusters to make connections to local, national and global value chains"

# Region of Central Greece NTUA delegate

- ✓ NTUA is the only higher education and research body for Mining in Greece performs as a hub over the whole RM value chain connecting academia-research-industry of Greek mining sector.
- ✓ It has a continuous collaboration with the Ministry of Environment, Energy and Climate Change and of the Regions involved in the Raw Materials sector. The relevant one for this project is Region of Sterea Ellada.
- ✓ Active in various projects and networks towards the enhancement of the National and Regional development of the RM Sector.





## National Policy for the Exploitation of Mineral Resources





#### MAIN POLICY AXES

MINISTRY OF ENVIRONMENT ENERGY &

CLIMATE

CHANGE

#### The national policy about the Mineral Resources as a basic component of the national and regional development policy of the Country.

#### REQUIRED POLICIES & ACTIONS

- Integrating the guidelines of the national policy for the exploitation of mineral resources horizontally into all individual policies and plans in order to ensure the optimal exploitation of the deposits and the common interest.
- Establishment of a Forum for the Implementation of the National Policy for the Exploitation of Mineral Resources.
- Adequate land-use planning that shall ensure the possibility of access to the MRM deposits and contribute to the resolution of issues related to the competition of different land uses.
- Integrating the national policy of MRM into the land-use planning policy of the country in order to strike a balance between:
- A sustainable supply of the necessary mineral raw materials
- Economic development
- Social environment
- Natural environment
- Competitive land uses.
- The adequate land-use planning in order to ensure the possibility of exploiting the MRM deposits in the long term while providing accessibility to them.
- The specificity of the mining industry, which, unlike other activities, is inextricably linked to the locations where nature has created the mining deposits and the fulfillment of the spatial requirements for carrying out the mining activities and the transportation of products (e.g. access to sea transportation), must be taken seriously into account at the land-use planning.
- To provide for processes of land-use changes, when necessary, with a view to harnessing new deposits of mineral raw materials that had not been identified and, therefore, had not been taken into consideration during the previous phases of land-use planning.

#### ACTIONS SPECIFICATION

- Ensuring the exploitation of the MRM deposits potential through the proper interventions in the legal framework.
- · Providing MRM research oriented incentives to the enterprises.
- · Enhancing the existing state research institutes on MRM-related issues.
- Re-evaluating the state owned mining areas through complementary exploration where needed, and then auctioning them to ensure their optimal exploitation for the benefit of the common interest.
- Mapping and registering the regions with exploitation of deposits of mineral raw materials in the land-use planning and adoption of measures (recognition of requirements to be met) to ensure the long-term continuation of their exploitation.
- The land-use planning must also take into account any deposits that have identified but are not yet exploited in order to prevent, to the greatest extent possible, their potential "sterilization" due to the establishment of competitive land uses or the construction of infrastructure works.
- Development of an updated GIS database of digital spatial data which, alongside it's other
  uses, will include geological and mineralogical data, established zones for extractive activities, aggregate quarrying areas, possible Organized Development Areas for Productive
  Activities of mining and quarry activities, other existing areas with extractive activities.
- Review of Regional Land-Use Planning Frameworks taking into account the priorities of the national policy on MRM.
- Updating the management studies about the protected areas in the light of the new
  developments in the relevant legislation and the guidelines of the EU on the possibility
  of establishing mining activities in NATURA 2000 areas. In addition, a more clear delineation of these areas is required.



NTUA and Region of Sterea Ellada can contribute with expertise and experience across the whole value chain of the RM sector in the Region of Sterea Ellada, including:

- ✓ circular economy,
- ✓ metallurgical innovative region
- ✓ valorization processes for mining and industrial wastes
- ✓ policy making
- ✓ novel processes on raw materials production,
- ✓ critical raw materials expertise,
- ✓ mine closure and remediation
- networking



# **EIT Raw Materials: 1st Greek Raw Materials Community Dialogue**







09:00-09:10



Ioannis Paspaliaris

Deputy Rector (NTUA)

#### AGENDA (tentative, changes may occur)

#### Day 1: Wednesday 23 November

12:00-14:00	Registration and light lunch			
14:00-14:20	Welcome	Ioannis Paspaliaris Deputy Rector (NTUA) Dimitrios Kaliampakos Dean of Mining and Metallurgical Engineering School (NTUA)		
EU and RM., Str	rategy and Actions			
14:20-14:40	8 years post Raw Materials Initiative. Results and prospects of EC strategies for the RM sector	Name TBA DG GROWTH, Raw Materials Unit		
14:40-15:00	EIT RawMaterials. Linking academia-research-industry for innovation	Karen Hanghoj (TBC) & Krzysztof Kubacki CEO and ECLC General Manager		
Greece and RM. Status, policies, challenges and opportunities				
15:00-15:20	National Mineral Policy	Michalis Verriopoulos Secretary General of Energy and Mineral Raw Material (Ministry of Environment & Energy)		
15:20-15:40	Greece and RM. Current status, issues, prospects	Thanasis Kefalas President (Greek Mining Enterprises Association)		
15:40-16:10	Coffee break and networking			
16:10-16:30	Land use planning and Greek policies relevant to RM sector	Lena Karka Senior Land Planning Expert		
16:30-16:50	Regions role in the Raw Material Sector. Smart Specialisation Strategies (RIS3) and support actions. The case of Sterea Ellada.	Name TBA Region representative		
16:50-17:10	GMEA. 90 years of experience in the mining industry. Challenges and actions	Christos Kavalopoulos General Director (Greek Mining Enterprises Association)		
17:10-17:30	Education and industry. A common vehicle to improve competitiveness and business creation	Name TBA Hellenic Federation of Enterprises		
17:30-17:40	Wrap-up of 1 <sup>st</sup> day	Ioannis Paspaliaris Deputy Rector (NTUA)		
19:00-22:00	Dinner and drinks with view to Acropolis			
*TBC: To be confirmed				

#### AGENDA (tentative, changes may occur)

Introduction to Day 2

#### Day 2: Thursday 24 November

		Deputy Rector (NTOA)
Funding, Legal	Framework and Business Opportunities.	
09:10-09:30	Tools and Funding schemes for the RM sector	Name TBA Greek National Contact Point
09:30-09:50	EIT RawMaterials surpluses Operations – networking - projects	Karen Hanghoj (TBC) ceo
09:50-10:10	EIT RawMaterials business development Support for SMEs and start up	Markus Klein ECLC Business Manager
10:10-10:30	Innovation and start up support	Name TBA Eurobank representative
10:30-11:00	Coffee break and networking	
11:00-11:20	Challenges for the development of RM sector SME's in Greece	Tasos Kladis Co-Founder & Co-Owner (AdMiRIS)
11:20-11:40	EIT Raw Materials: Support Centre for the Greek Raw Materials Community (GRAMASC)	Maria Taxiarchou & Antonis Politis Assistant Prof. & NTUA Manager for EIT RawMaterials (Laboratory of Metallurgy – NTUA)
Greek RM Valu	ue Chain. Importance and contribution	
11:40-12:00	LARCO Extracting value from the waste	Anthimos Xenidis CEO
12:00-12:20	VIOHALCO Recycling with emphasis on innovation	Name TBA VIOHALCO
12:30-13:30	Lunch with view to Acropolis	
13:30-13:50	HELLAS GOLD Social Licence to Operate issues, price fluctuation, wastewater management	Emmy Gazea Environmental Manager
13:50-14:10	GRECIAN MAGNESITE Critical Raw Material. Magnesite importance	Theofilos Zampetakis Research Manager
14:10-14:30	IMERYS Industrial minerals. Excellence in specialty materials	Thanasis Karalis Research and Applications Manager
14:30-15:00	Coffee/beverages and networking	
15:00-15:20	SUNLIGHT Recycling SME success story	Spiros Kopolas General Manager
15:20-15:40	STONE Group Technology excellence matching quality excellence	Ilias Rigopoulos CEO
15:40-16:00	TITAN Group Innovation and sustainability	Yannis Paniaras Executive Director
16:00-16:30	Wrap-up of event and future actions	Ioannis Paspaliaris



ANNEX 10-"REGIONAL SPECIALIZATION STRATEGY IN CRITICAL RAW MATERIALS IN PORTUGAL. REGION OF ALENTEJO" BY JORGE PULIDO VALENTE

# Alentejo Regional Comission for Coordination and Development Portugal

Jorge Pulido Valente

Vice-president

pulido.valente@ccdr-a.gov.pt

2016





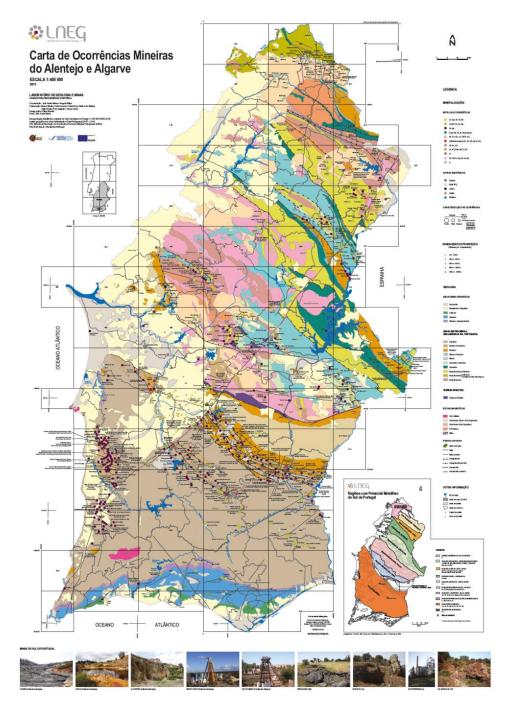


# Alentejo mineral potential

 Alentejo and Algarve mineral occurrences map Atlanterra project, EU Interreg Atlantic Area, Matos and Filipe Eds, LNEG 2013

http://www.lneg.pt/download/7904









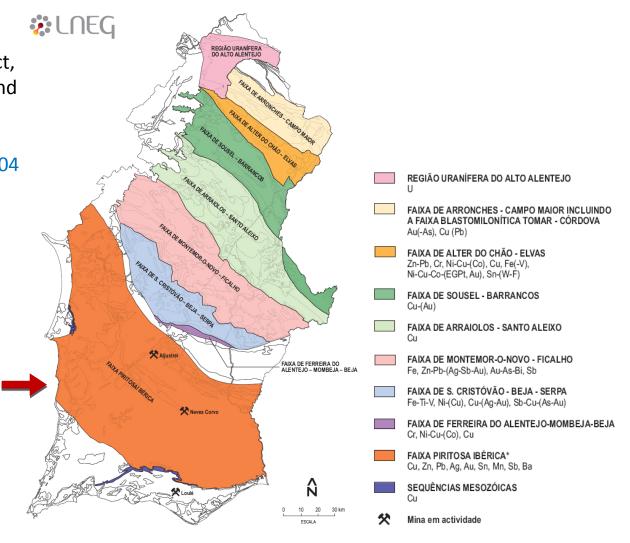
# Alentejo mining regions

**Alentejo and Algarve mineral** occurrences map Atlanterra project, EU Interreg Atlantic Area, Matos and Filipe Eds, LNEG 2013

http://www.lneg.pt/download/7904

**Iberian Pyrite Belt, an European Mine Region Active mining:** 

- Neves Corvo (Somincor/Lundin Mining)
- Aljustrel (Almina)



Adaptado de: V. Oliveira 1986, Tornos et al. 2006, Mateus et al. 2013, T. Oliveira et al. 2013



\* Incluindo áreas com cobertura Flysch e/ou Cenozóico



# **Production**

Minérios Metálicos, 2014					
	Quantidade Produzida Ton	Valor Produção M€			
Portugal (Cobre, Zinco, Chumbo)	473.926	412			
Alentejo (Cobre, Zinco)	471.946	390			
(Alentejo/Portugal) (%)	99,6	94,7			
Fonte: DGEG					

Minérios Metálicos, 2015				
	Quantidade Produzida Ton	Valor Produção M€		
Portugal (Cobre, Zinco, Chumbo)	501.596	407		
Alentejo (Cobre, Zinco)	500.366	394		
(Alentejo/Portugal) (%)	99,8	96,8		
Fonte: DGEG				





# The portuguese national government entities related with geology, mining and exploration:

#### Laboratório Nacional de Energia e Geologia (LNEG)

Geological mapping, geological, geochemistry and geophysical databases, exploration R&D projects

Portuguese Geological Survey since 1848, www.lneg.pt



#### Direção Geral de Energia e Geologia (DGEG)

Mineral exploration and exploitation permit licenses, administrative process, legislation, www.dgeg.pt

#### Empresa de Desenvolvimento Mineiro (EDM)

Mine rehabilitation program, exploration projects, experimental mining (Gavião license), www.edm.pt







# Strategic plans

- Green Growth National Strategy
- National Strategy for Geological Resources

- Regional Action Plan 2020 Alentejo 2020 (research, innovation, internationalization, competitiveness)
- Regional Strategy for Smart Specialization

- Region Plan for Innovation
- Regional Development Plan for the Territory





# Portuguese regional and local government entities with intervention in mining sector

- Regional Comissions for Coordination and Development
- Regional government non elected
- European Funds management
- Territorialization of national policies and strategies
- Planning, Financing, Licensing, Inspecting, Fiscalizing





# Portuguese regional and local government entities with intervention in mining sector

- Intermunicipal Communities
- Sub regional government elected by municipalities
- European Funds management
- Planning and financing
- Strategic and Action Plan 2020
- Integrated Territorial Intervention





# Portuguese regional and local government entities with intervention in mining sector

- Municipalities
- Local government elected
- Planning, Financing, Licensing, Inspecting
- Municipal Master Plan





# **Projects**

- Regional System for Technological Transference
- Science and Technological Network of Alentejo
- Alentejo Science and Technological Park
- Cevalor
- Valorpedra
- Promoting Circular Economy





Miner Deposita (2013) 48:749–766

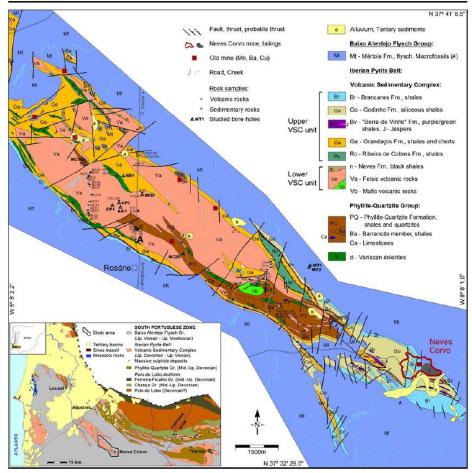


Fig. 1 Geological map of the Neves Corvo antiform at the Rosário area (LNEG for Lundin Mining, 2010). Inset shows the location of the Iberian Pyrite Belt and the study area is outlined in black

LNEG, RTD research in the Alentejo's geological resources:

new CEGMA (QREN INALENTEJO project)
Centro de Estudos Geológicos e Mineiros do Alentejo, Aljustrel
Alentejo Geological and Mining Study Centre, Aljustrel

#### **Current Alentejo2020 projects:**

- EXPLORA Neves Corvo deep exploration geological, geophysical and geochemical research
- ZOM 3D GIS systems applied to the Ossa Morena mining regions

Geological mapping in the Neves Corvo area, ad. Oliveira et al., 2013, future LNEG Almodôvar 1/50 000 Geological map





# Challenges

- Change public perception on mining activities
- Reduction of environmental passive / liability
- Adaptation to the new paradigma of Circular Economy
- Knowledge and protection of mineral resources
- Reduction of context costs
- Environmental responsible and sustainable projects
- Mitigation and adaptation to climate changes
- Clusterization
- Innovation: materials, products, ecodesign,...



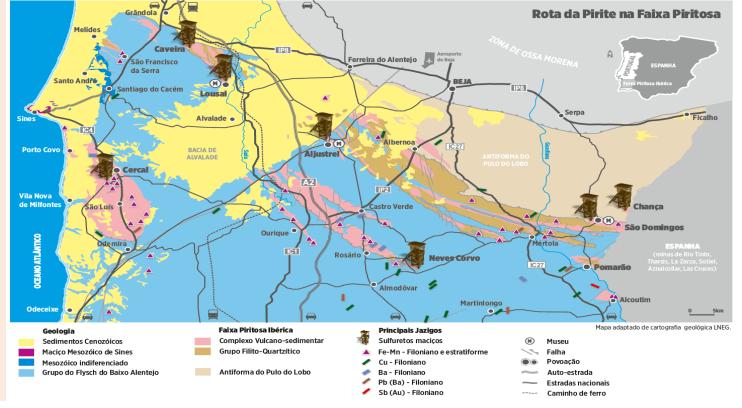


# **The Pyrite Route**

## a complementary thematic route focused in the Iberian Pyrite Belt

The Pyrite Route a thematic tourism route promoted by an informal network of partners, focused in the Iberian Pyrite Belt province, shared by Portugal (Alentejo and Algarve) and Spain (Andalucía), (Matos et al. 2008, 2011, Martínez & Gómez 2008, Matos & Pereira 2013). In Portugal the network is promoted in the Roteiro de Minas portal and by LNEG, CCV Lousal, Frederic Velge and Serrão Martins foundations, Aljustrel and Entradas museums and Grândola, Aljustrel, Mértola and Castro Verde municipalities.











ANNEX 11-"REGIONAL SPECIALIZATION STRATEGY IN CRITICAL RAW MATERIALS IN CENTRO OF PORTUGAL" BY ANTÓNIO VEIGA SIMÃO













Regional Specialization Strategy in Critical Raw Materials in Centro of Portugal (PT)

António Veiga Simão

Vice - President of CCDRC | 27.10.2016













# **CENTRO REGION (PT) IN THE NATIONAL CONTEXT**

• Population (2011): 2 256 364 inhabitants; (22.0% of Portugal)

• Area: 28,200 km<sup>2</sup> (31,0% of Portugal)

• Gross Domestic Product, GDP (2014); (18.0% of Portugal)

• GDP per capita (2014): 14.392 euros; (86.0% of Portugal)

• **GDP in PPS** *per* inhabitant (2014); (67,4 / EU28 = 100)

Exports of goods (2014): 9.648 million euros; (19,0% of Portugal)











# **CENTRO REGION (PT) IN THE NATIONAL CONTEXT**

# **GVA** in industrial sector **Exports/Imports of Goods** 140<sup>%</sup> 120 Coverage rate of import and export goods in Portugal and in 100 80 60 24 24,1 23,6 22 **Relative Resilience of Employment →** Portugal **→** Centro





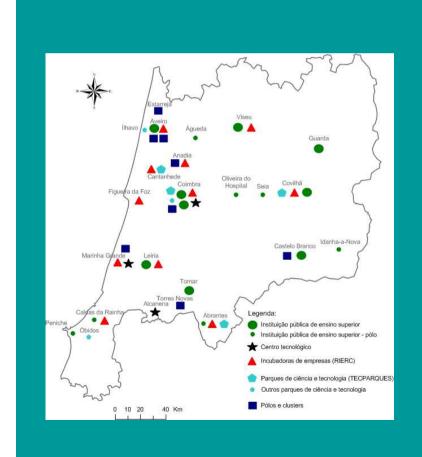








# CENTRO REGION (PT) A BALANCED SCIENTIFIC AND TECHNOLOGICAL SYSTEM



- 9 public higher education institutions
- ★ 3 technology transfer centers
- 11 business incubators (in a network)
- 7 science and technology parks
- 3 clusters and 5 poles of regionally-basedCompetitiveness

+

73.000 companies

A polynuclear network of medium-sized cities











# **CENTRO REGION (PT) - REGIONAL STRATEGY - THE RIS3**

4 innovation hubs, based in 8 temathic domains and in cross cutting priorities were defined in the RIS3 process of the Centro Region



Sustainable resources

**Cross cutting priorities** 

**Energy efficiency** 

**Territorial cohesion** 

Internationalization

1. Sustainable industrial solutions

2. Valorization and efficient use of natural endogenous resources

3. Technology supporting quality of life

4. Territorial innovation











# **CENTRO REGION (PT) - REGIONAL STRATEGY - THE RIS3**

1. Sustainable industrial solutions

Promotion of sustainable materials, products and processes leading to a new industry as a reply to societal challenges such as the efficient use of resources, circular economy, mitigation of climate changes and Industry 4.0.

2. Valorization and efficient use of naturār endogenous resources

Valorization of endogenous resources, mapping and preserving them as well as creating new added value products for different sectors. Monitoring and integrated management of endogenous resources.

3. Technology supporting quality of life

Development of technologies and solutions for health prevention, diagnosis and new treatments. Healthy and active ageing solutions. ICT systems development. Welfare and health tourism integrated offer.

4. Territorial innovation

Territory innovation projects development from low density rural areas innovation to sustainable cities solutions as a test bed for green and low-carbon economy as well as for tourism qualification and regional competitiveness.











# CENTRO REGION (PT) - REGIONAL STRATEGY - THE RIS3 HUBS AND THEMES IN CRITICAL RAW MATERIALS

#### 1. Sustainable industrial solutions

- Promotion of projects that will lead to an efficient use of resources (energy, water and materials) including decarbonization and reducing other impacts as well as the valuation of mineral resources in the region;
- Recycling, reuse and recovery of waste and by-products as secondary raw materials, including industrial symbiosis.

- 2. Valorization and efficient use of natural endogenous resources
- Promotion of study and research initiatives of the geological resources of the region;
- Promotion of enhancement projects of geological resources of the region, particularly in the application of new technologies for the detection and exploitation of deep deposits (land and sea) and metallic low concentration deposits.





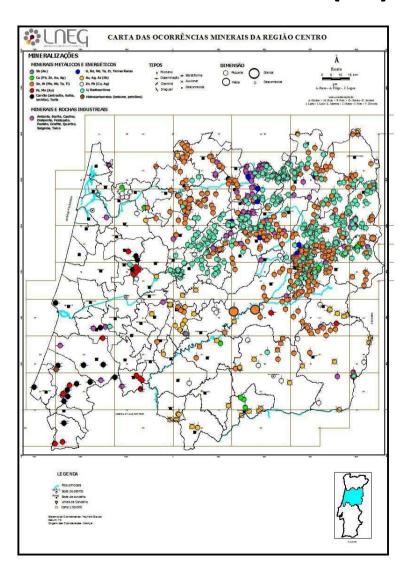








# **CENTRO REGION (PT) - MINERAL OCCURRENCES**



metallic and energetic minerals

	Antimony (Au)	
	Copper (Pb, Zn, Au and Ag)	
	Tin, <b>Tungsten</b> (Mo, Nb, Ta, Tl)	
	Iron, <b>Manganese</b> (Au)	
•	Coal	
	Uranium, <b>Beryllium</b> , <b>Niobium</b> , Tantalum and Zirconium	
	Gold, Silver, Arsenic (Sb)	
0	Zinc, Lead (Cu, Ag)	
	Uranium	
	Hydrocarbonates	

nonmetallic minerals











# **CENTRO REGION (PT) - CRITICAL RAW MATERIALS**

In a small scale, the following critical raw materials occur in the Centro Region:

- Antimony;
- Manganese;
- Beryllium;
- Niobium.

In small, medium and large scale, the following critical raw material occurs in the Centro Region:

Tunsgten.



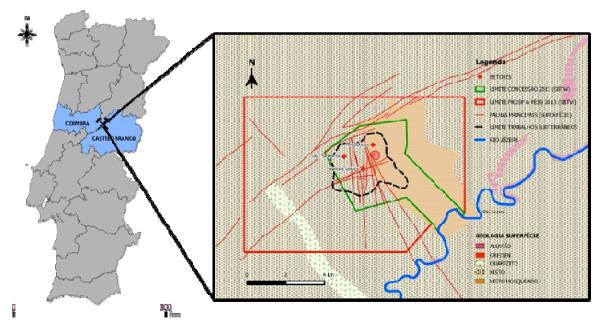








Portugal has been the main European producer of Tungsten but exploration is currently restricted to a single mine (Panasqueira).



















Aerial view

Waste tailings











Today, there are doubts about the lifetime of the Panasqueira Mine.

According to MINDAT.ORG, the mine will last approximately 40 more years.

The Centro Region has a favorable geological setting for the occurrence of new Panasqueira-type deposits, although, at a larger depth.

New technologies must be developed for prospecting deep deposits as well as mining exploitation.











The mine waste tailings of the Panasqueira Mine have a great potential for recuperation of other metals, including critical raw materials.

New technologies, including biotools, must be developed for the recycling, reuse and recovery of the mine waste tailings.















# Thank you for your kind attention

**António Veiga Simão** 

antonio.simao@ccdrc.pt



ANNEX 12-"EIT RAW MATERIALS — CONNECTING MATTERS" BY PIER LUIGI FRANCESCHINI



EIT Raw Materials –
Connecting Matters
Pier Luigi Franceschini, PhD
Director, CLC South



## Outline

- •EIT RawMaterials presentation
- Synergy Regions-KIC RM activities



# European Union

European Institute of Innovation and Technology (EIT)

Climate-KIC

**EIT RawMaterials** 

EIT Digital

EIT Community KIC InnoEnergy

**EIT Health** 

**EIT Alumni** 

2016 - 2018

EIT Manufacturing | EIT Urban Mobility
EIT Food |



HORIZON 2020\*

\* The EU Framework Program for Research and Innovation

### What is EIT RawMaterials?

- A company formed by 120 European partners from the raw materials sector
- Financially supported by the European Union (2016 ca 20 Meur, 270 Meur over 5-years)
- Aims to improve innovation in the raw materials value chain through financial support and network activities
- Focus is the whole raw material value chain:
   From exploration to mining, and from processing to recycling, substitution and eco-design
- Pre-commercial funding, TRL 5-7



#### **TRL 5:**

Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

#### **TRL 6:**

Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

#### **TRL 7:**

System prototype demonstration in operational environment



# **Knowledge and Innovation Themes**

- Exploration and raw materials resource assessment
- Mining in challenging environments
- Increased resource efficiency in mineral and metallurgical processes
- Recycling and materials chain optimisation for End-of-Life products
- Substitution of critical and toxic materials in products and for optimised performance
- Design of products and services for the circular economy



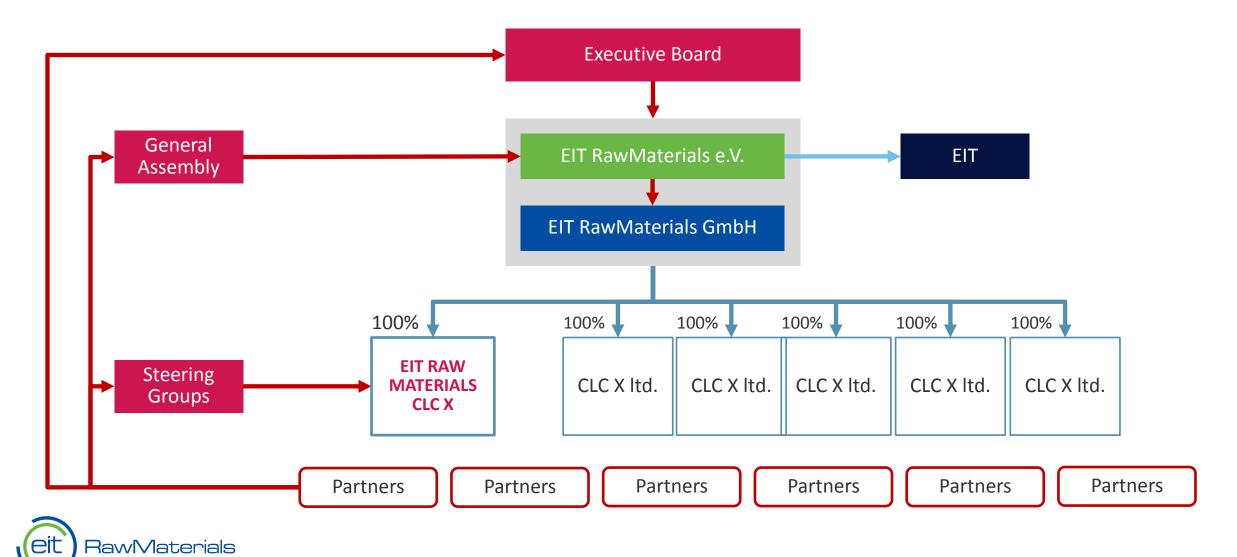
### **EIT Raw Materials Activities**

- Funding of Innovation Projects (upscaling projects)
- Support to Networks of Infrastructure (R&D facilities, data infrastructures competence/experts networks) to provide innovative services
- Matchmaking and Networking (brokerage/match events, Ideacamps, Intrapeneurship facilitators)
- Education—funding of Master programmes, PhD course, Summer Schools,
   Lifelong Learning, Wide Society learning
- Start-up creation, acceleration, incubation. Support to SMEs growth

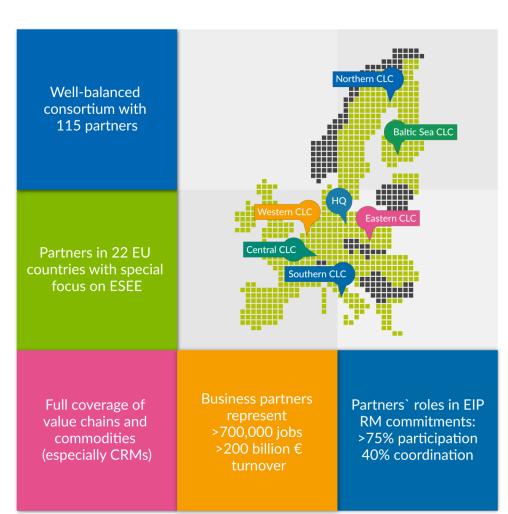


# General Governance Setup and Control

Connecting matters



# A pan-European network of Excellence







### Partners of the Co-location Centre «SOUTH »







# **Upscaling Projects**

•	AMCO	Automated Microscopic Characterization of Ores
•	CaproKIC	Upscaling of one step process for automotive continuous fiber Polyamide 6 composite parts based on the in situ polymerization of $\epsilon\text{-caprolactam}$
•	COPPLEX	New Sustainable Process to treat Complex Raw Materials, Revaluating Residues.
•	TAPA	ThermoplAstic fluid handling Pipes for Automotive sector

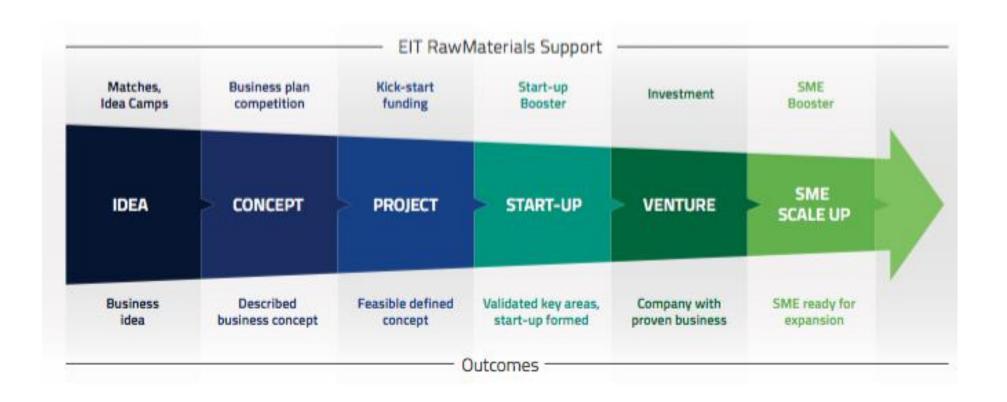


# Education, training, wide societal learning and entrepeneurship support

- RM@Schools Raw Matters Ambassadors at Schools
- ACCHAIRSTU Attracting Students to RM Metallurgy
- RMCONFDIF RM METALLURGY ANNUAL CONFERENCES CYCLE
- RAMSES Advanced School on Critical Raw Materials Substitution for
  - **Energetics and Photonics**
- RefresCO Professional Refresher Courses
- EURO-RM KIC RawMaterials Business Plan competition toolkit



# Supporting to entrepreneurship





### Kick-start Funding, SME/Start-up Booster

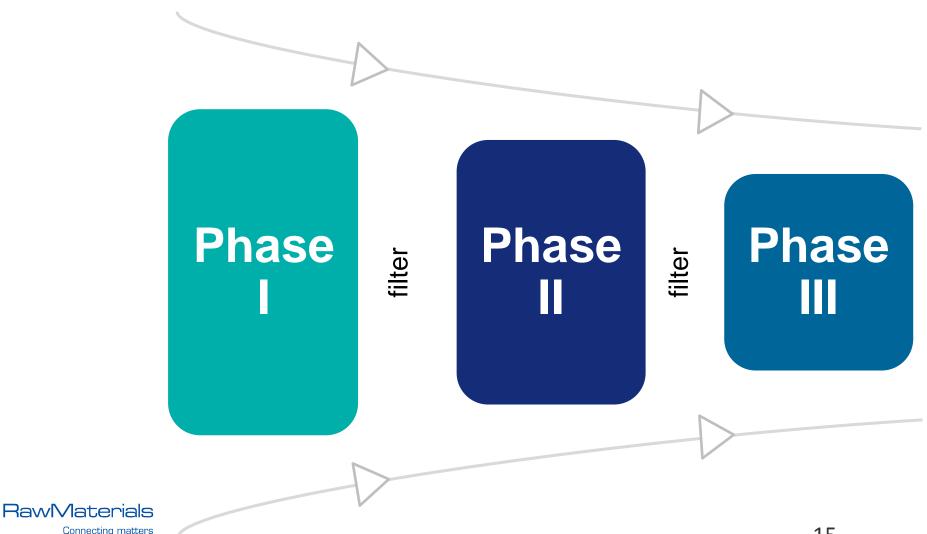
- Funding of around 60 keuros for feasibility studies (market study, IPR landscape, design, technical feasibility, etc..)
- Open continuously
- Selection cycle of around 8 weeks
- Process: 5 page concept idea -> invitation to pitching session -> internal evaluation -> funding!
- Deadline <u>31<sup>st</sup> October, visit:</u>
   eitrawmaterials.eu/activities -> Kick starter and SME booster







# **Phases of the Competition**



### Importance of the Regional governments in the KIC RM actions

- Synchronize regional support schemes to RD&I with KIC initiatives
- Support the regulatory framework favoring sustainable resources utilisation and innovative business concept (e.g. in the Circular Economy sector)
- Regional schemes to support RD&I may be upstream and downstream to the KIC activites
  - KIC initiatives build upon existing KCA (KIC Complementary Activities)
  - KIC activities may serve to complement lack of resources
- Understanding of the structure of the value chain for RM to better monitor materials flows, reduce inefficiency and support business models aiming to increase value chain efficiency



# KIC Raw Materials Initiatives – the Regional Innovation Scheme

- These activities concern the East and Southeast European (ESEE) countries where projects will aim to boost economic development and employment
- The East & South-East Europe (ESEE) region is of particular interest due to its unique RM potential, especially for critical minerals (both geological resources and secondary RM) and its specific geopolitical situation.
- The ESEE region is also included in specific transnational programmes as part of the EU Cohesion Policy.
- Example of eligible countries: Croatia, Greece, Hungary, Romania, Slovakia and Slovenia.



# Pilot actions in the EIT RawMaterials: cross-KIC competence centre

- Collaboration of EIT Digital-Climate KIC-EIT Raw Materials to
  - Analyze the value chain of WEEE in Italy's Southern regions and perform a market assessment
  - Develop a pilot-phase innovation project idea on WEEE to be funded in 2017 as a cross-KIC collaboration, through regional funds (Structural Funds)
  - >Assess the feasibility of a cross-KIC Centre located in the Southern Regions of



## EIT RawMaterials · VISION

Turning the raw materials challenge into a strength for Europe.

Visit us at eitrawmaterials.eu

### **Contacts**

Pier Luigi Franceschini pierluigi.franceschini@eitrawmaterials.eu







# ANNEX 13-"INTERREGIONAL MIRRORING STRATEGY, APPLICATION TO RAW MATERIALS AND MINING" BY SANTIAGO CUESTA

## **EU-H2020**

EU-H2020-WASTE-2015-MSP-REFRAM-GA-688993

### REPORTING PRESENTATION

# Interregional Mirroring Strategy, Application to Raw Materials and Mining

Authors: Dr. Santiago Cuesta-López

MSP-REFRAM International Second Workshop, Brussels, 27-29 September 2016





ICCRAM "International Research Center in CRMs for Advanced Industrial Technologies"

Edificio I+D+i Plaza Misael Bañuelos, s/n 09001 Burgos (SPAIN

## Mirroring strategy methodology

# IDENTIFICATION OF KEY REGIONS (coupled to VC identification)

IDENTIFICATION OF A KEY VALUE CHAIN

(i.e. Tungsten)

Full analysis of the VC (products, raw materials flow, strategic industry/stakeholders, present policy and roadmaps)

- SWOT Analysis of possible mirror regions
- RIS3 comparison and synchronization
- Analyse the integration of key value chains

CREATION OF
WORKING GROUP
(HIGH LEVEL +
TECHNICAL)

Austria / Czech Rep. / Portugal / Spain CyL

ROADMAP OF
ACTIONS
Identify common
opportunities
Interregional actions

ICCRAM. University of Burgos (Spain) Contact: Santiago Cuesta scuesta@ubu.es / director.iccram@ubu.es +34 947259062