

# ERA-MIN : a key actor for R&D on Raw Materials



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Foundation for Science and Technology – Portugal

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Co-funded by the Horizon 2020  
programme of the European Union



Pan-European,  
Innovative and  
Flexible Network  
of Public Research  
and Innovation  
Funding  
Organisations

ERA-MIN3

# Objectives

**01** Promote **world-wide coordination of R&I funding programmes** to support research and innovation (R&I) cooperation on **non-food, non-fuel mineral raw materials**.

**02** Support **EU policies** and **Strategic Partnerships on Raw Materials** and contribute for the sustainable and responsible supply of raw materials for a **green, digital** and a **circular economy transition**

**03** Implement **Joint Calls** for **transnational R&I projects** on **needs-driven research** on primary and secondary resources of **metallic, construction materials and industrial minerals**

**04** Finance international R&I projects between **universities, research institutes, small, medium and large enterprises**, NGOs, public authorities, geological surveys,...

**05** Reduce the fragmentation of R&I funding across Europe and globally



# ERA-NET

Complements EU Programmes, EIT Raw Materials  
and national/regional research funding programme:

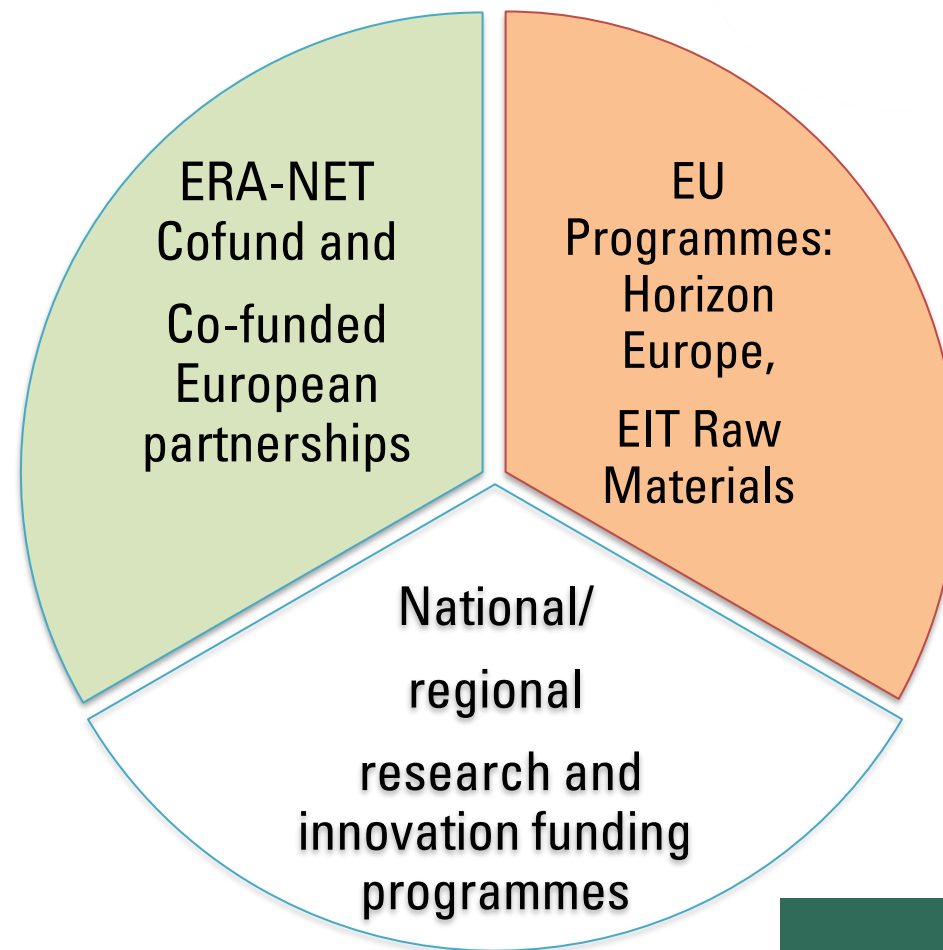
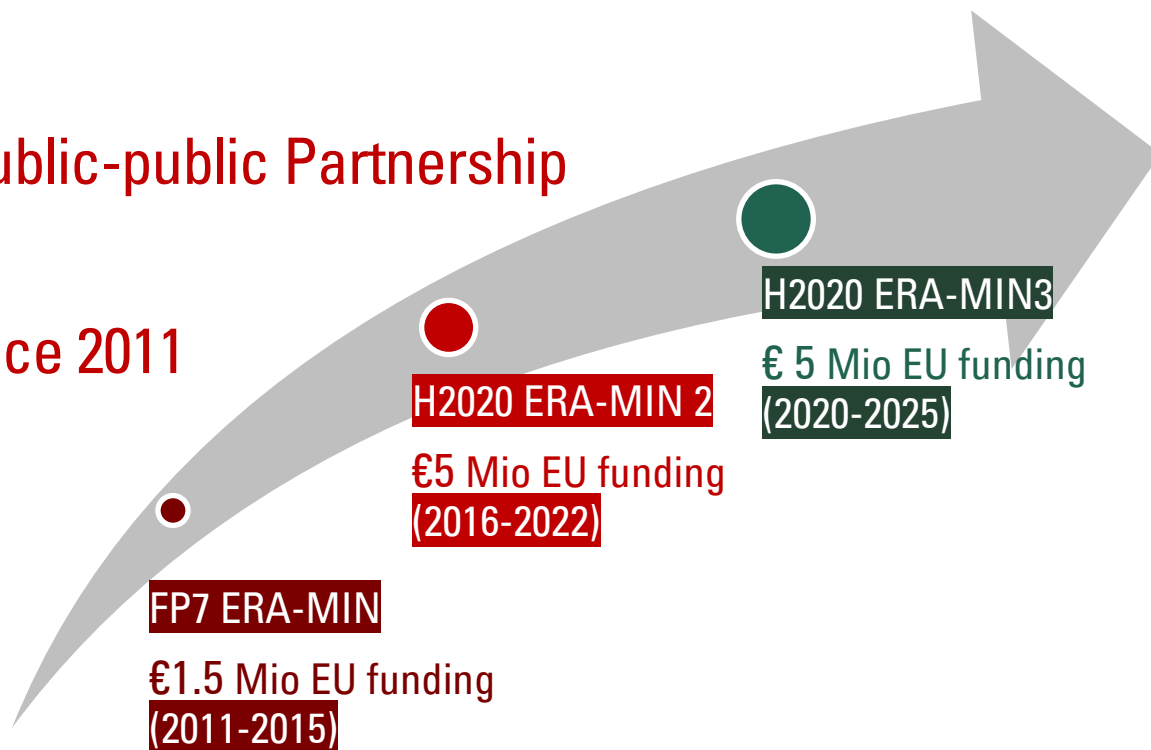


RAW MATERIALS FOR THE SUSTAINABLE DEVELOPMENT  
AND THE CIRCULAR ECONOMY

## Raw Materials

### 3 Public-public Partnership

Since 2011



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Learn more about partnerships at  
<https://www.era-learn.eu/>

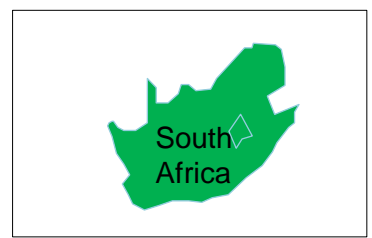
ERA-MIN3  
Raw Materials for the Sustainable Development  
and the Circular Economy

# ERA-MIN Consortium

## Evolution since 2011

## Countries involved in ERA-MIN network

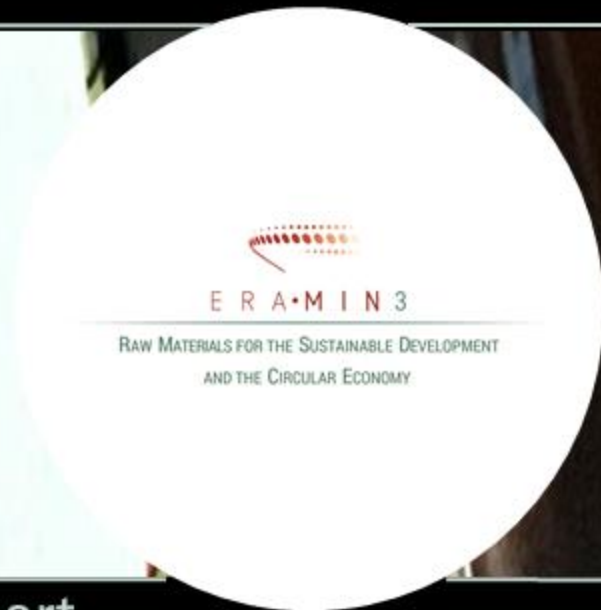
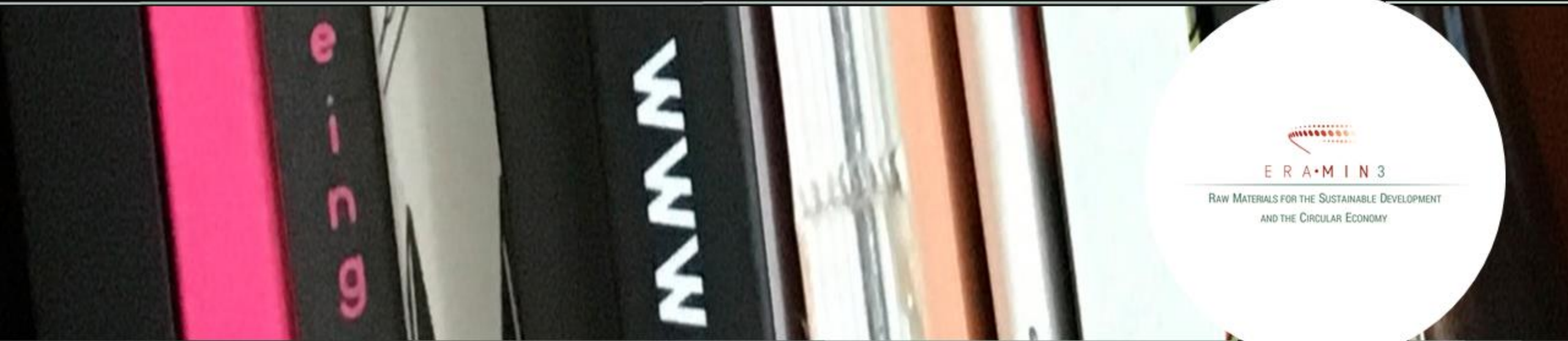
19 EU Member States Countries + 4 EU regions + Turkey  
5 Non-EU countries



**EU regions**  
Castilla y León  
Navarra  
  
Flanders  
Wallonia



# ERA-MIN 10th Anniversary Full Paper Published



"ERA-MIN: A Decade since the Inception of the EU Led Effort to Support the International Raw Materials Research Community" is an Open Access Proceeding Paper published on 28th January 2022 on the journal Material Proceedings

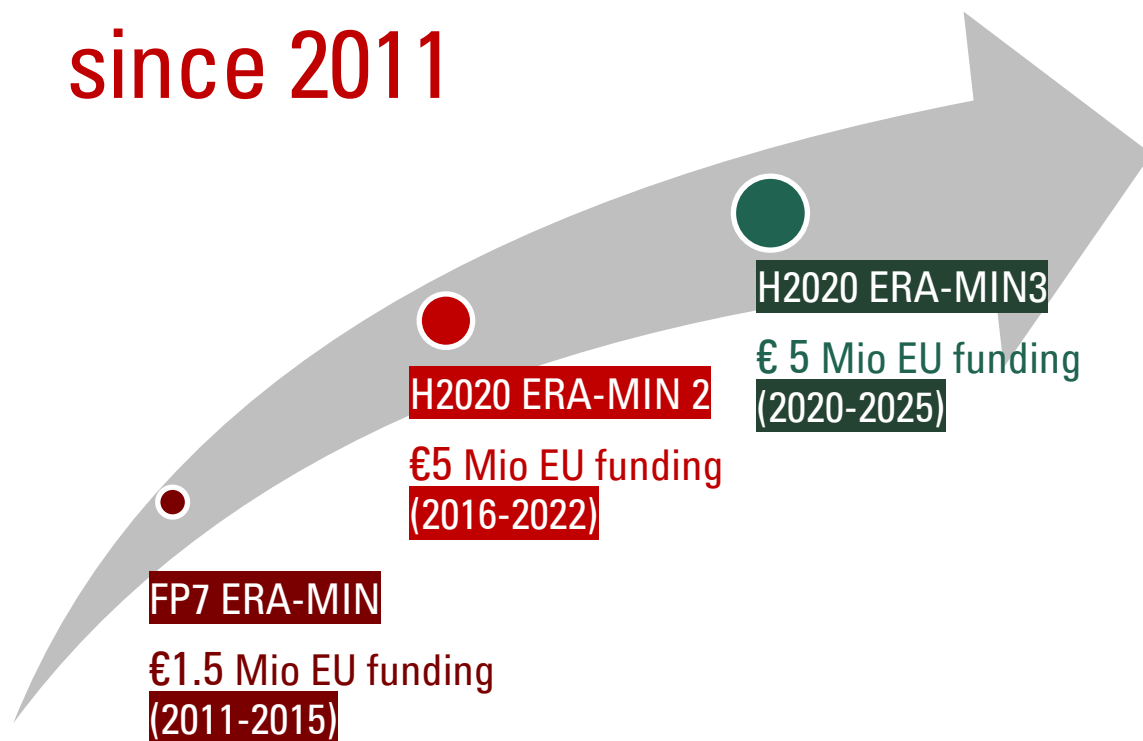


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# 3 Pan-European Networks of Public Research Funding Organisations

since 2011



✓ **8** Joint Calls for transnational R&I projects on  
**non-fuel, non-food industrial, construction and  
metallic minerals**



**88** R&I transnational projects (total)

**30%** enterprises (average)

**€68 Million** total public funding

**€93 Million** total project costs



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13 Battery related projects (€8.8 million) from  
ERA-MIN Calls (2015-2023)

## RMIS – Raw Materials Information System

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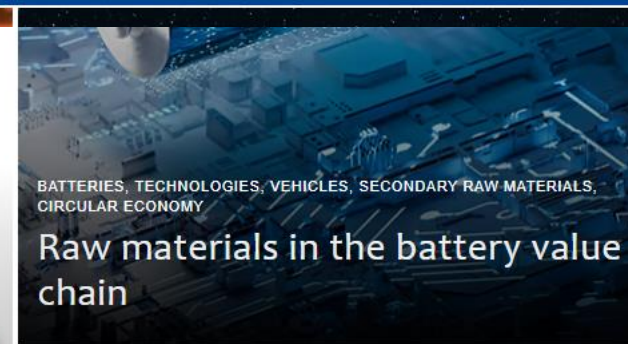
EU PROJECTS, MEMBER STATES, HORIZON 2020, HORIZON EUROPE, CIRCULAR ECONOMY, CRITICAL RAW MATERIALS

### ERA-MIN: Raw Materials for the Sustainable Development and the Circular Economy



SCOREBOARD, MONITORING

### Raw materials scoreboard 2021



BATTERIES, TECHNOLOGIES, VEHICLES, SECONDARY RAW MATERIALS, CIRCULAR ECONOMY

### Raw materials in the battery value chain



VEHICLES, SECONDARY RAW MATERIALS, TECHNOLOGIES, CRITICAL RAW MATERIALS, CIRCULAR ECONOMY, FORESIGHT

### Raw materials in vehicles



EU PROJECTS, HORIZON 2020, HORIZON EUROPE

### EU funded projects



BATTERIES, SUPPLY CHAIN ANALYSES, FORESIGHT

### Battery supply chain challenges



FORESIGHT, DECARBONISATION, TECHNOLOGIES, SUSTAINABILITY

### Green energy and transport



SECURITY OF SUPPLY, MATERIAL AND COUNTRY PROFILES, TRADE, ENVIRONMENT, CIRCULAR ECONOMY, INVESTMENTS, SOCIAL ASPECTS, COUNTRY DATA

### EU country profiles



INVESTMENTS, FOREIGN DIRECT INVESTMENTS, COUNTRY DATA, GLOBAL DATA

### FDI stocks and flows

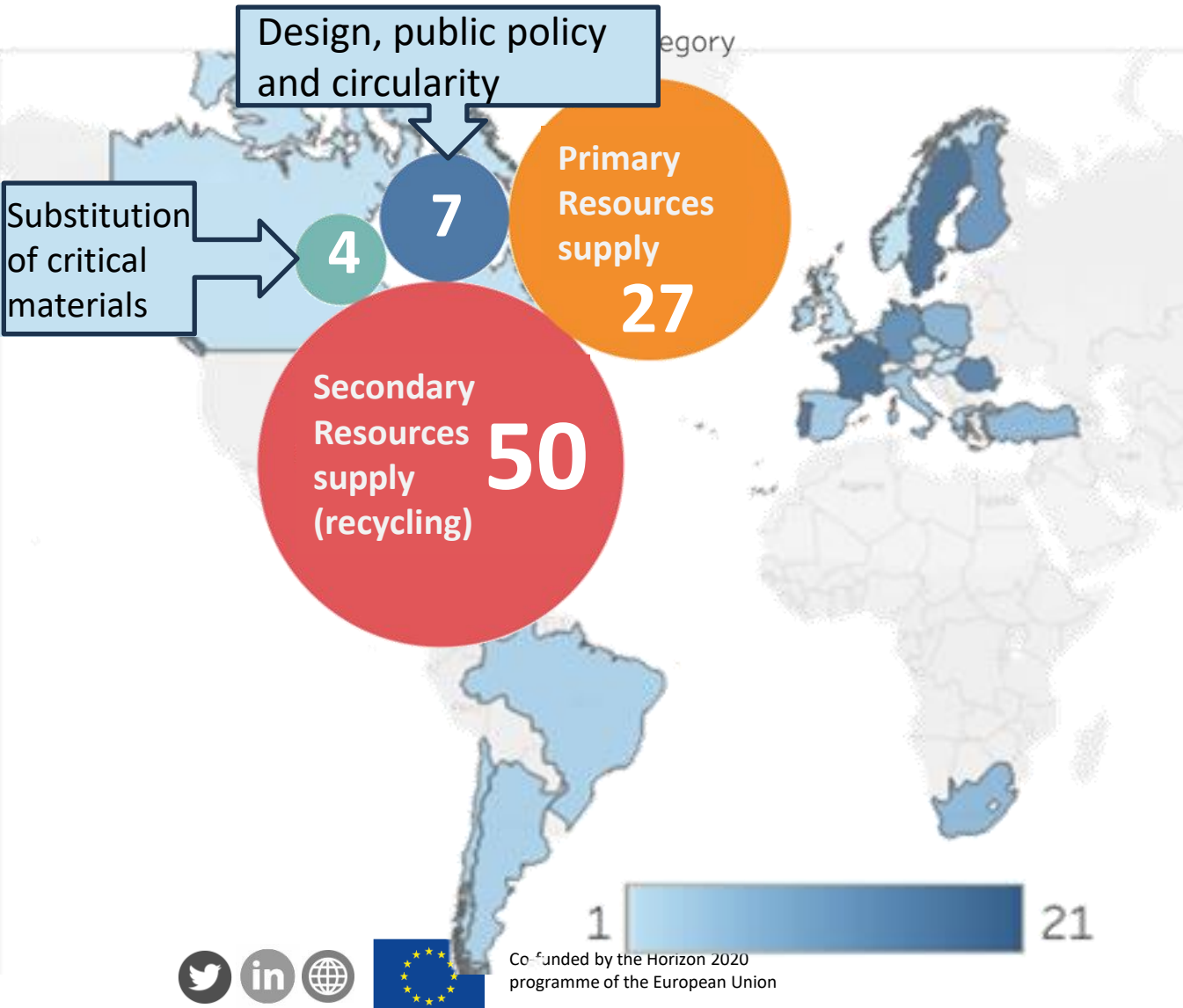


MINES LOCATION, MINERAL INVENTORY

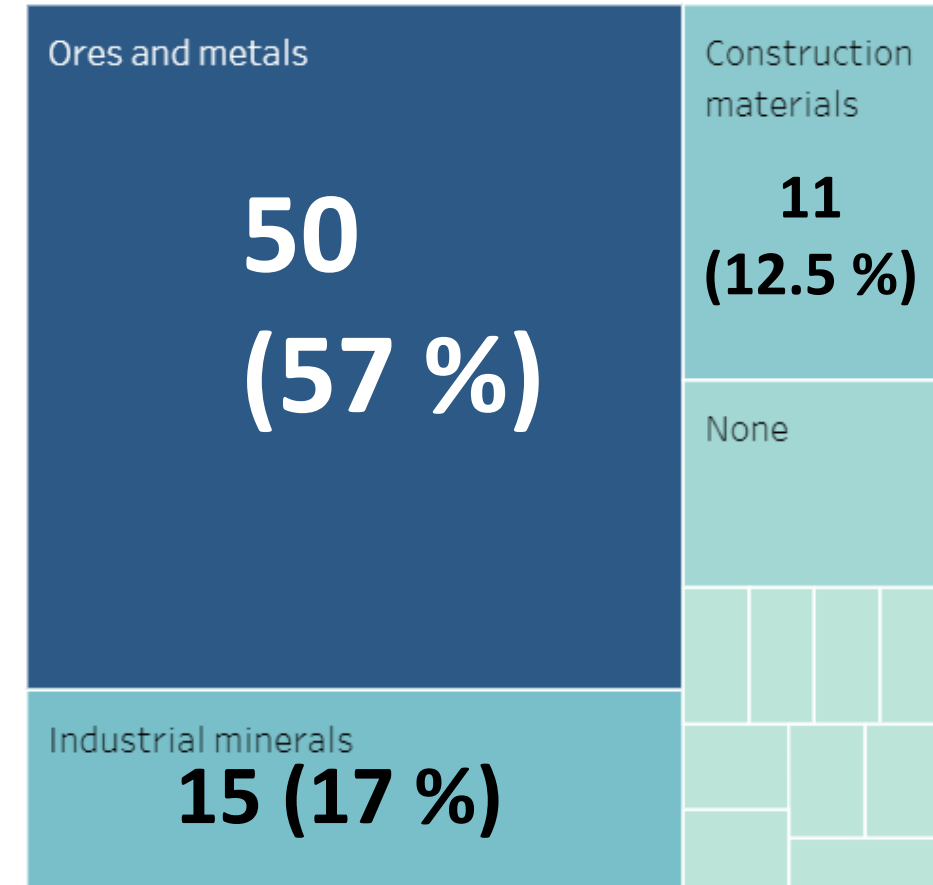
### Mineral inventory

# ERA-MIN Joint Calls Dashboard

Transnational R&I projects (2013-2023)



Mineral Category





## Keyword map of 88 collaborative transnational R&I projects

## Project summaries (<https://www.era-min.eu/results>)



## Project summaries

<https://www.era-min.eu/results>

start TRL 2  
target TRL 6  
(average)



Pesquisar



MENT



### ERA-MIN Project Testimonials

ERA-MIN3

28 vídeos 1.163 visualizações Última atualização e...



Reproduzir ...



Ordem alea...



### Project Sb-RECMEMTEC

ERA-MIN3 • 103 visualizações • há 1 ano



### Project MiCCuR

ERA-MIN3 • 94 visualizações • há 1 ano



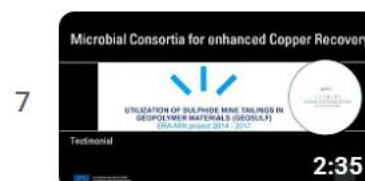
### Project MIWACUT

ERA-MIN3 • 75 visualizações • há 1 ano



### Project MOSTMEG

ERA-MIN3 • 116 visualizações • há 1 ano



### Project GEOSULF

ERA-MIN3 • 52 visualizações • há 1 ano

ERA-MIN3

Raw Materials for the Sustainable Development  
and the Circular Economy



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# ERA-MIN is fully aligned with the Critical Raw Materials Act

International, mutually supportive partnerships

Global engagement with reliable third countries

Research and innovation

National R&I programmes

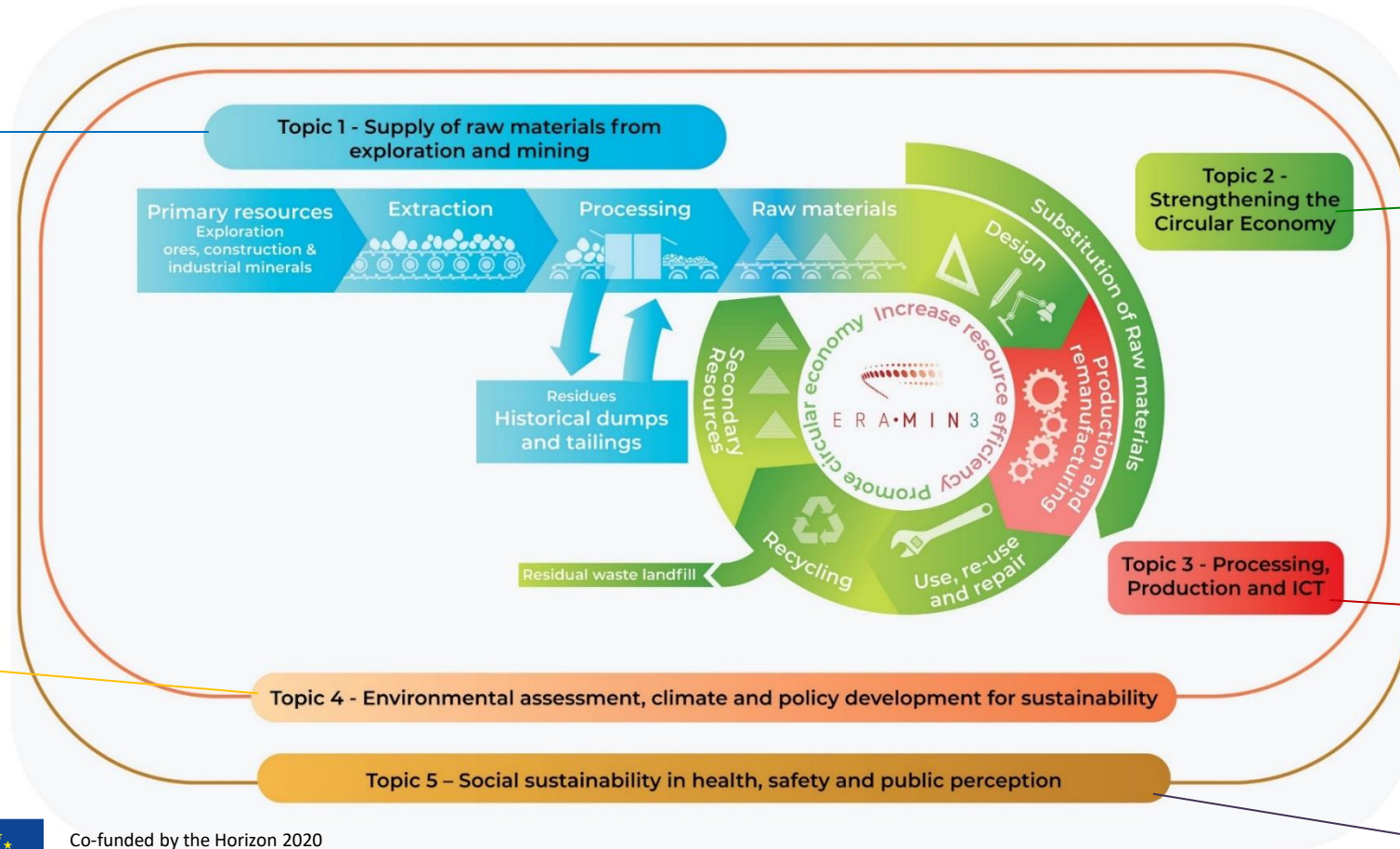
Extraction  
Geological resources  
Economic resilience  
Processing  
Sustainable supply chains  
Permanent magnets

Circularity  
Recycling  
Sustainable supply chains  
Refining  
Processing  
Substitution  
Permanent magnets

Green and digital  
ambitions

Conflict resolution  
Labour and human rights  
Skills partnership

Simplify permitting  
procedures  
Sustainability



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# ERA-MIN supports R&I on Critical and Strategic Raw Materials



2023 Critical and Strategic Raw Materials (*green = covered by ERA-MIN projects*)

**Aluminium/bauxite**

**Coking coal**

**Lithium**

**Phosphorus**

**Antimony**

Feldspar

**LREE**

**Scandium**

Arsenic

Fluorspar

**Magnesium**

*Silicon metal*

Baryte

**Gallium**

**Manganese**

Strontium

Beryllium

**Germanium**

**Natural Graphite**

**Tantalum**

*Bismuth*

Hafnium

**Niobium**

*Titanium metal*

**Boron/Borate**

Helium

**PGM**

**Tungsten**

**Cobalt**

**HREE**

**Phosphate rock**

**Vanadium**

**Copper\***

*Nickel\**

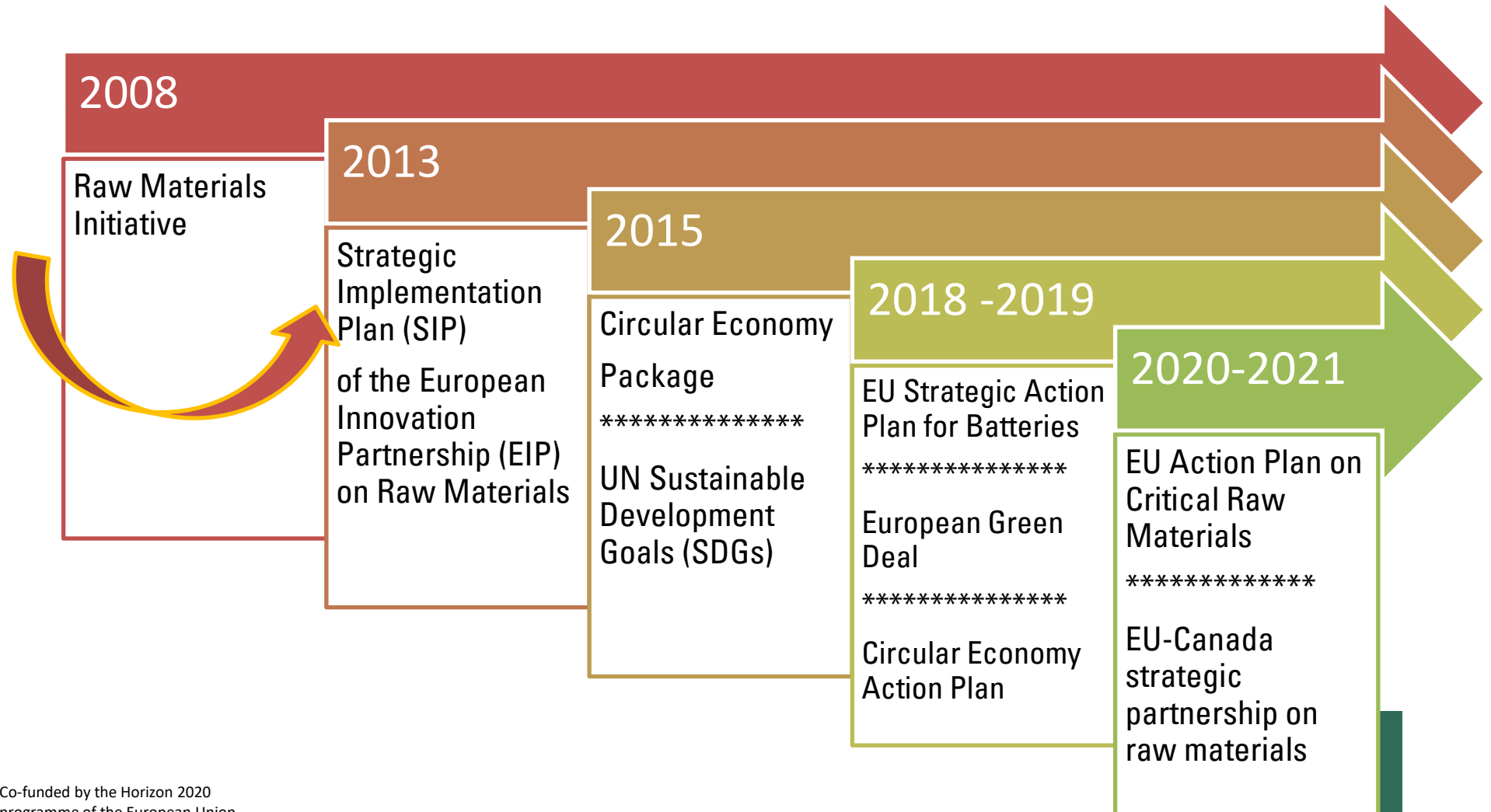


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### landscape

ERA-MIN Research  
Agenda (2013)



# STRATEGIC RESEARCH AND INNOVATION AGENDA IN RAW MATERIALS

Ten years have passed since the ERA-MIN Research Agenda was published. The landscape has changed considerably since then, and experience from the ERA-MIN programme has brought new insights towards innovating the innovation system.



Please join us and check our website for further details:

 [www.era-min.eu](http://www.era-min.eu)

The aims for the new Strategic Research and Innovation Agenda (SRIA) within the field of non-energy, non-food raw materials, are two-fold:

- **Identifying** critical technological and structural challenges within the EU relating to raw material supply for the green and digital transition
- **Addressing needs** for research and innovation to tackle the challenges, as well as prioritizing among strategically important core targets

The SRIA will be used to guide the partners towards actions past 2030, and the document will act as a baseline for regular updates every few years.



E R A • M I N 3

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**29<sup>TH</sup> AUGUST**  
ATHENS, GREECE  
AS PART OF RAWMAT2023

**20<sup>TH</sup> SEPTEMBER**  
ONLINE

**14<sup>TH</sup> NOVEMBER**  
BRUSSELS, BELGIUM  
AS PART OF EU RAW MATERIALS WEEK

## SIX PRELIMINARY THEMATIC AREAS

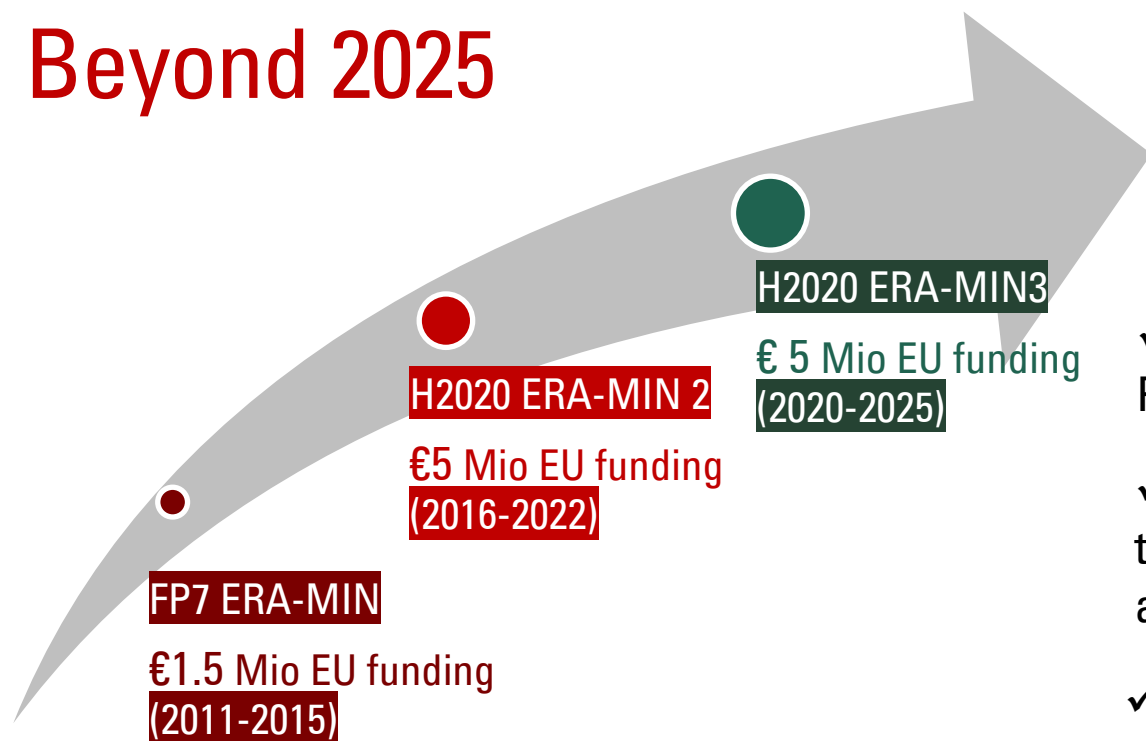
<b>Core Themes</b>	Resilient primary and secondary raw materials supply
	Efficient use of raw materials in design and production
	Sustainable use and reuse of products
<b>Transversal Themes</b>	Effective policy development and governance
	Maximizing societal benefits
	World-class innovation capacity

**CLICK HERE  
FOR REGISTRATION**



# Strategy for cooperation beyond ERA-MIN3

## Beyond 2025



### Proposed EU co-funded Partnership on Raw Materials (2025 – 2032)

- ✓ In support of the EU Raw Materials policies and Strategic Partnerships.
- ✓ annual EU co-funded calls to support focused, small transnational projects from TRL 1 to TRL 6 complementing both HE and EIT Raw Materials.
- ✓ whole innovation chain, from exploration, mining, processing to recycling, re-use and substitution of CRM, including new business models and digital technologies.
- ✓ more balanced EU funding opportunities across Member States and worldwide.





REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA IZOBRAŽEVANJE,  
ZNANOST IN ŠPORT

# Get involved



RAW MATERIALS FOR THE SUSTAINABLE DEVELOPMENT  
AND THE CIRCULAR ECONOMY

## Contact & Info



Fundação  
para a Ciência  
e a Tecnologia



### Newsletter

<https://www.era-min.eu/newsletter>

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# [eramin@fct.pt](mailto:eramin@fct.pt)



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