



# EASME

Executive Agency for Small and Medium-sized Enterprises

## Research and innovation in raw materials in Horizon 2020

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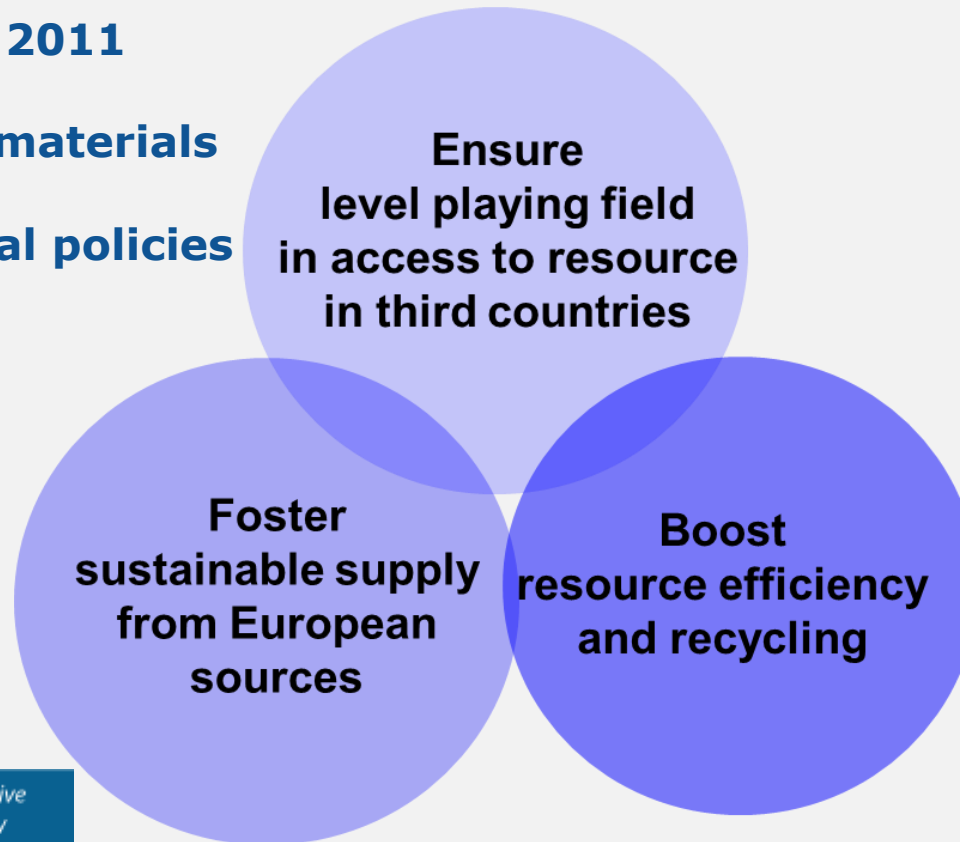
INTMET Clustering Conference  
"Fostering Innovation in the Iberian Pyrite Belt"

Seville, January 23 2019



## EU Policy - "Raw Materials Initiative"

- **Aim: securing sustainable supplies 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 14 Critical Raw Materials (CRM) in 2010, updated 20 CRMs in 2014, updated 27 CRMs in 2017**



- **European Innovation Partnership on Raw Materials**

- COM(2012) 82 final - 29 February 2012

- **Overall objective:**

- Contribute to the 2020 objectives of the EU Industrial Policy (to increase the share of industry in GDP to 20%), the Innovation Union and the Resource Efficiency 'flagships'

- **Specific objectives:**

- Reduce import dependency
- Improve supply conditions from European and other sources
- Push Europe to the forefront in raw materials sectors
- Provide alternatives in supply
- Mitigate negative environmental and social impacts

- **Strategic Implementation Plan**

- adopted on 25 September 2013



# EU Raw Materials Strategy and Commission priorities



Climate Paris agreement

Sustainable Development Goals

**Raw Materials Initiative = EU policy**  
EIP on Raw Materials  
Strategic Implementation Plan

- ✓ CRM list
- ✓ H2020 funding

Transition to a low carbon and circular economy

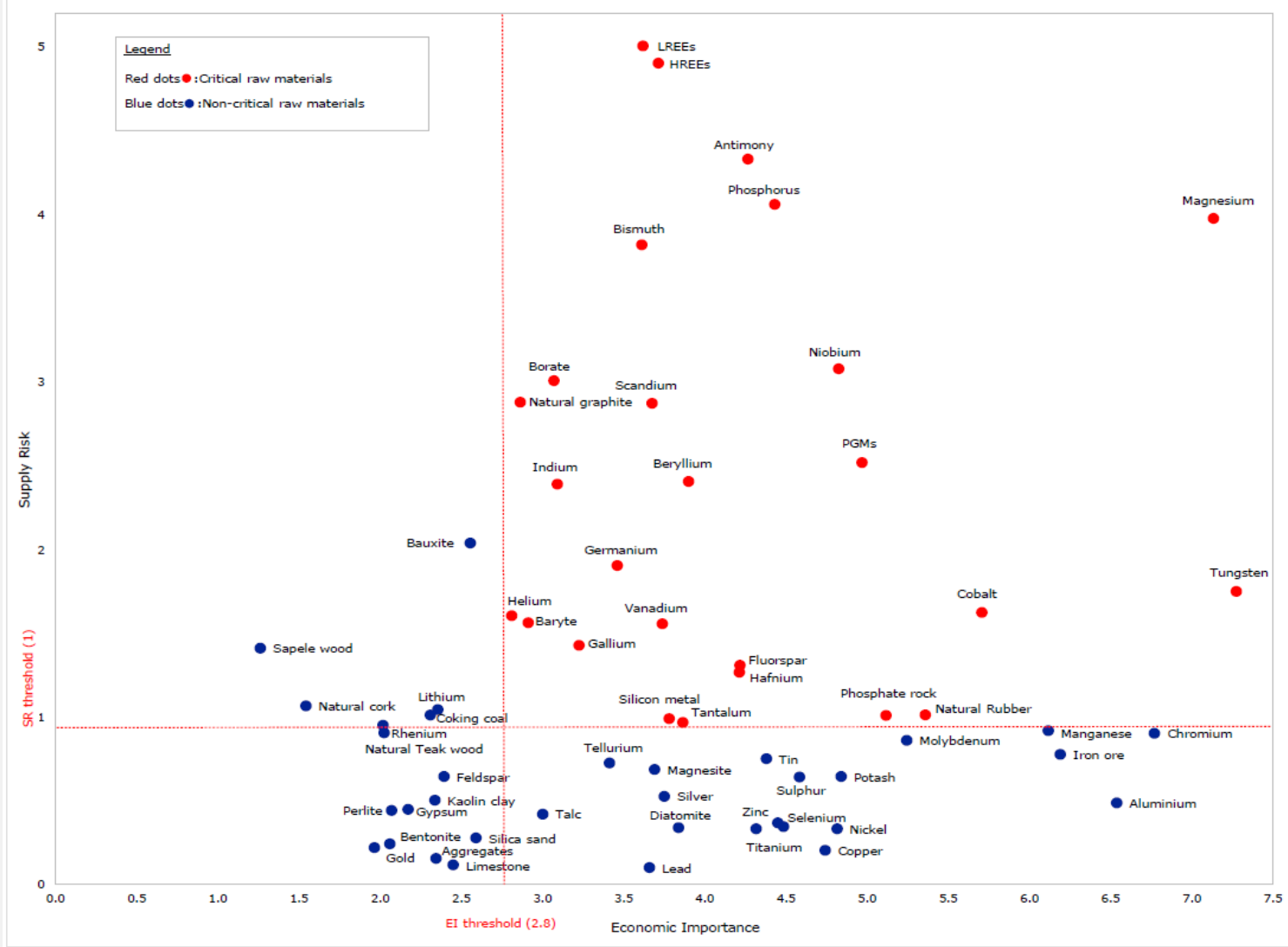
Commission priorities 2015-19

1. Jobs, Growth and Investment  
- **circular economy and green growth**
3. Energy Union  
- **transition to a low-carbon economy (renewables, electricity market, transport...)**
4. Internal Market  
- **unlock the full potential of the single market**  
- **a renewed EU Industrial Policy Strategy**
6. Trade policy to harness globalisation  
- **economic diplomacy**  
- **raw materials chapters in FTAs**
9. A stronger global actor  
- **international cooperation and development**

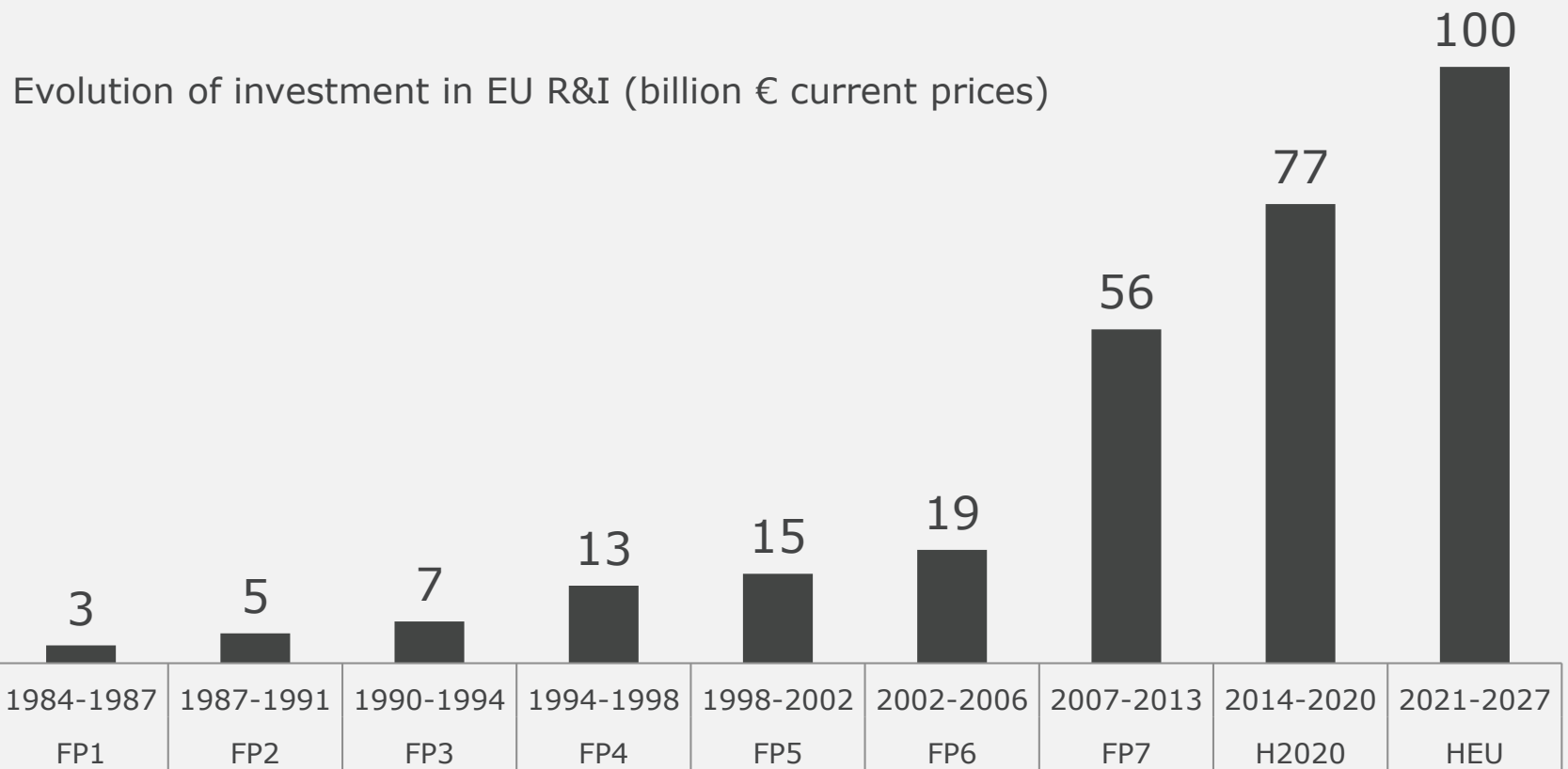
# Critical Raw Materials



European Commission



# Research and Innovation funding



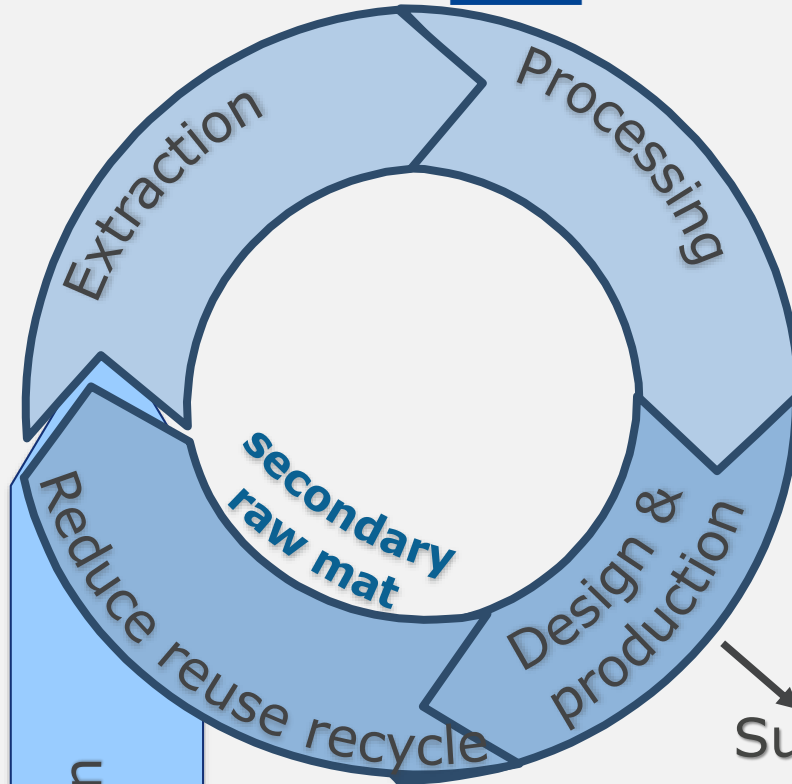


European  
Commission

# Raw Materials projects within the Circular Economy



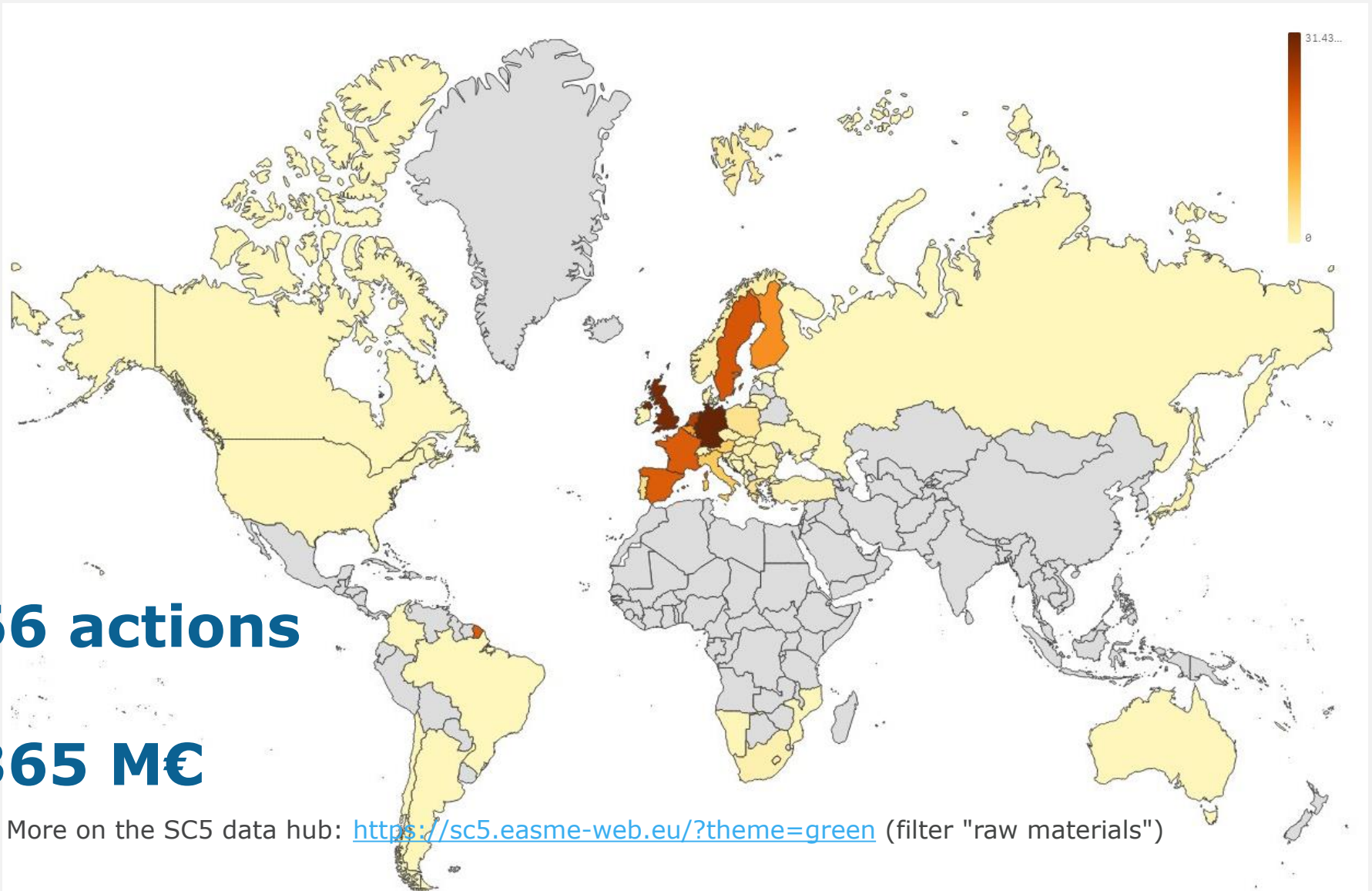
**primary  
raw  
materials**



Substitution

Executive  
Agency  
for SMEs

# Raw Materials actions

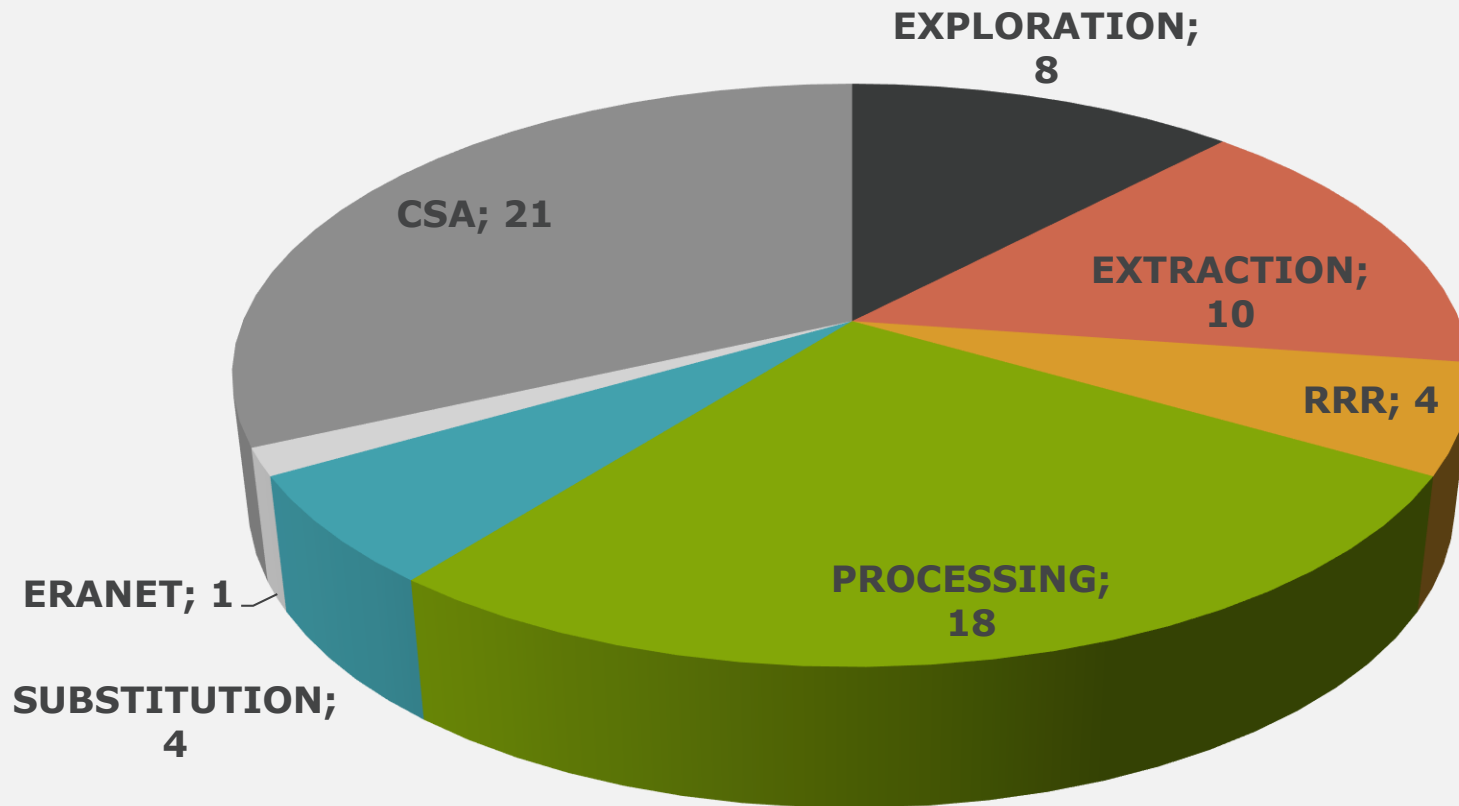




# Raw Materials Actions



**66 PROJECTS\***

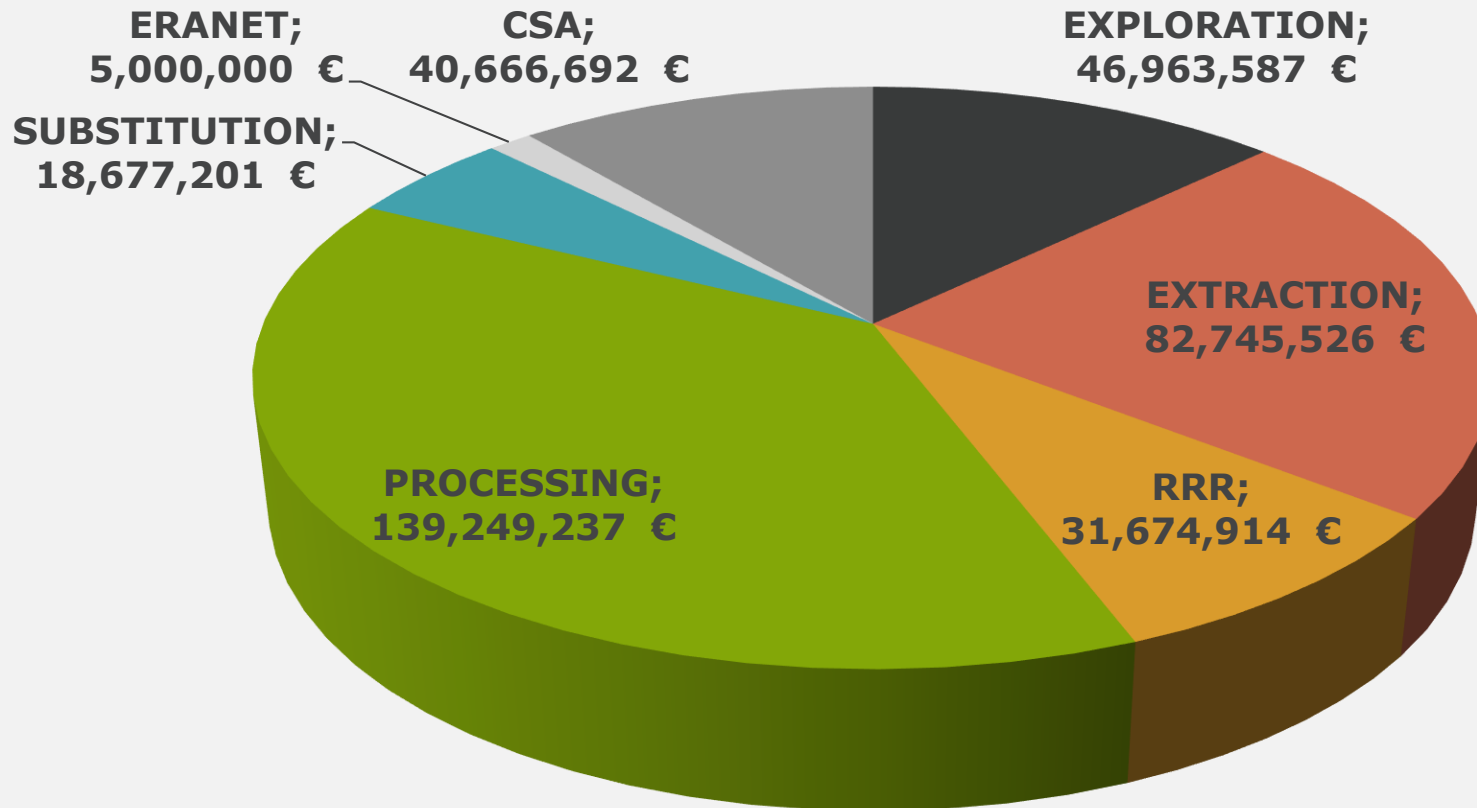


***\*including ongoing GAPs***

# Funding



**365 M€\***

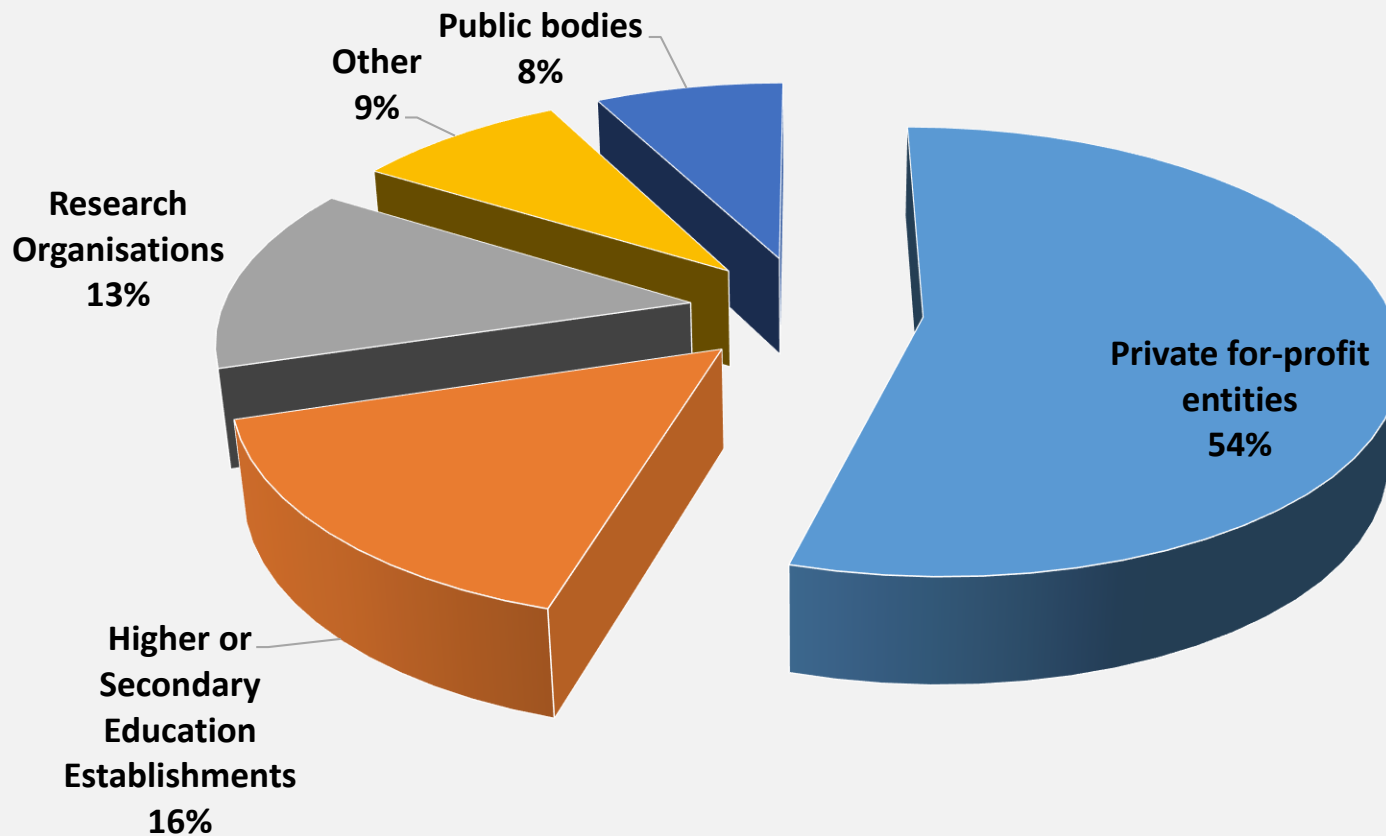


**\*including ongoing GAPs**

# Participants



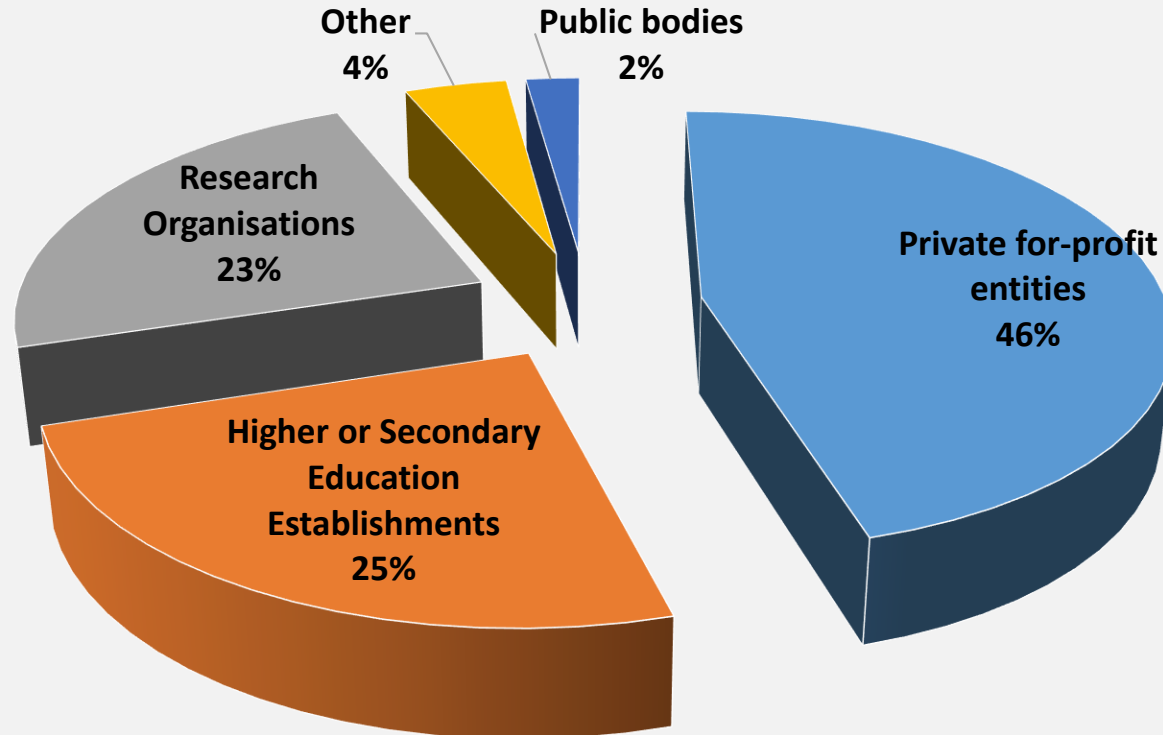
**666 PARTICIPANTS\***



***\*including ongoing GAPs***



**666 PARTICIPANTS\***



***\*including ongoing GAPs***

Project Acronym	Topic Description	Project Title	EC Contribution
FAME	Flexible processing technologies	Flexible and Mobile Economic Processing Technologies	7,458,064.00
OptimOre	Flexible processing technologies	Increasing yield on Tungsten and Tantalum ore production by means of advanced and flexible control on crushing, milling and separation process	5,084,468.75
INTMET	New metallurgical systems	Integrated innovative metallurgical system to benefit efficiently polymetallic, complex and low grade ores and concentrates	7,834,976.25
METGROW PLUS	New metallurgical systems	Metal Recovery from Low Grade Ores and Wastes Plus	7,911,462.50
CHROMIC	New solutions for sustainable production of raw materials	efficient mineral processing and Hydrometallurgical Recovery of by-product Metals from low-grade metal containing secondary raw materials	4,869,687.50
PLATIRUS	New solutions for sustainable production of raw materials	PLATInum group metals Recovery Using Secondary raw materials	6,994,210.00
SCALE	New solutions for sustainable production of raw materials	Production of Scandium compounds and Scandium Aluminum alloys from European metallurgical by-products	7,000,000.00
CROCODILE	Raw materials Innovation actions	first of a kind commercial Compact system for the efficient Recovery Of COBalt Designed with novel Integrated LEading technologies	11,625,289.01
NEMO	Raw materials Innovation actions	Near-zero-waste recycling of low-grade sulphidic mining waste for critical-metal, mineral and construction raw-material production in a circular economy	12,407,294.63
RemovAL	Raw materials Innovation actions	Removing the waste streams from the primary Aluminium production and other metal sectors in Europe	11,481,599.13
SecREETs	Raw materials Innovation actions	Secure European Critical Rare Earth Elements	12,880,031.87
AGRAL	Sustainable Industry Low Carbon II	Development of the optimum AGRAL cermet manufacturing process for aluminium inert anode application and fuel cell interconnect plates.	5,232,146.13
LoCO2Fe	Sustainable Industry Low Carbon II	Development of a Low CO2 Iron and Steelmaking Integrated Process Route for a Sustainable European Steel Industry	7,418,415.02



# 83 M€ in 2019

Innovation Actions (IA)	TRL 6-7	8-13 M€	30M€	CE-SC5-07-2018-2019-2020: Raw Material Innovation for the Circular Economy: Sustainable processing, reuse, recycling and recovery
				<ul style="list-style-type: none"> <li>a) Sustainable processing and refining of primary and/or secondary raw materials</li> <li>b) Recycling of raw materials from end-of-life products</li> <li>c) Recycling of raw materials from buildings</li> <li>d) Advanced sorting systems for high-performance recycling of complex end-of-life products</li> </ul>
			20M€	SC5-10-2019-2020 - Raw materials innovation actions
				<ul style="list-style-type: none"> <li>a) Integrated exploration solutions</li> <li>b) Services and products for the extractive industries life cycle</li> </ul>
Research & Innovation Actions (RIA)	TRL 3-6	3-7 M€	30M€	SC5-09-2018-2019: Sustainable production of raw materials
				<ul style="list-style-type: none"> <li>b) Digital mine</li> <li>c) Recovery of metals and minerals from sea resources</li> </ul>
Coordination & Support Actions (CSA)	Up to 3 M€		3M€	CE-SC5-08-2018-2019-2020: policy support actions
				<ul style="list-style-type: none"> <li>c) Responsible sourcing in global value chains</li> </ul>

# 2018-2020 Work Programme – Raw Materials

**2018**  
**€60M**

**2019**  
**€83M**

**2020**  
**Indicative**

Innovation

CE-SC5-07-2018-2019-2020: Raw Material Innovation for the Circular Economy

€20M

€30M

Sustainable processing, reuse, recycling and recovery  
Processing, EoL products, buildings, sorting systems

SC5-10-2019-2020 - Raw materials innovation actions

€20M

Integrated exploration solutions  
Services and products for the extractive industries life cycle

Mining pilots  
Substitution of CRM

Research & Innovation

€15M

CE-SC5-06-2018: Enhanced recovery of by-products

SC5-09-2018-2019: Sustainable production of raw materials

€20M

€30M

Breakthrough concepts and solutions for sustainable exploration, mining and/or processing

Digital mine  
Recovery of metals and minerals from sea resources

Coordination & Support

CE-SC5-08-2018-2019-2020: policy support actions

€5M

€3M

Certification of treatment facilities for waste  
Resource efficiency in wood processing, recovery and recycling

Responsible sourcing in global value chains



Expert network on CRM  
Sustainable management in extractive industries



European  
Commission



**be an expert  
evaluator !!!**



**Participant Portal**

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



# The future

**WP 2019 – deadline February 19,  
2019**

**WP 2020 – June 2019**

**Information day:  
16-17 September 2019**

**Horizon Europe, 2021 - 2027**

# Horizon Europe

## Specific objectives of the Programme

Support the creation and diffusion  
of high-quality knowledge

Strengthen the impact of R&I  
in supporting EU policies

Foster all forms of innovation and  
strengthen market deployment

Optimise the Programme's delivery for impact in a strengthened ERA



**Pillar 1**  
Open Science

European Research Council

Marie Skłodowska-Curie Actions

Research Infrastructures



**Pillar 2**  
Global Challenges and  
Industrial Competitiveness

**Clusters**

- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources

Joint Research Centre



**Pillar 3**  
Open Innovation

European Innovation Council

European innovation ecosystems

European Institute of Innovation  
and Technology

**Strengthening the European Research Area**

Sharing excellence

Reforming and Enhancing the European R&I system



# Horizon Europe

## Specific objectives of the Programme






European Commission



# Overview of raw material actions

<https://sc5.easme-web.eu/?theme=green> (filter "raw materials")

EASME on Twitter  @H2020EE • @H2020SME • @EEN\_EU • @EU\_ECOINNO

