

Horizon 2020 Work Programme 2016 & 2017

II EU-Latin America dialogue on Raw Materials
22 and 23 September 2015, Colombia



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SC5-13-2016-2017: New solutions for sustainable production of raw materials

RIA – €26 million in 2016

- **Sustainable selective low impact mining (2016)**
- **New technologies for the enhanced recovery of by-products (2016)**
- New sensitive exploration technologies (2017)

SC5-13-2016-2017: New solutions for sustainable production of raw materials

- develop sustainable **systemic solutions through industrially- and user-driven multidisciplinary consortia covering the relevant value chain of non-energy non-agricultural raw materials.**
- Assessment of the related **environmental and safety risks and a plan to communicate** the added value of the proposal **to the local communities and society** for improving public acceptance and trust should be addressed
- **Participation of civil society** from the start of exploration until after-mining activities in a process of co-design, co-development and co-implementation is strongly encouraged.
- **cluster with other projects financed under this topic and – if possible – with other relevant projects** in the field funded by Horizon 2020, in support of the EIP on Raw Materials.
- **international co-operation is encouraged.**

General annex G of the Work programme 2016-2017,

Where a topic description refers to a TRL, the following definitions apply:

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrial environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrial environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

SC5-13 a) Sustainable selective low impact mining [2016]

- develop new **sustainable selective low impact technological solutions for mining of small mineral deposits** (including those with chemically complex ore-forming phases) on the land.
- clearly show **integration of mining solutions with the processing and/or metallurgy steps** in order to justify economic viability of the overall process.
- include the **participation of technology oriented SMEs**, as far as possible.
- Indicative size of proposals: EUR 3 to 7 million
- Expected TRL: 4-5

SC5-13 b) New technologies for the enhanced recovery of by-products [2016]

- **evaluate the potential by-products** existing in primary or secondary raw materials (usually accompanying the major constituents at low concentrations) and
- **develop energy-, material- and cost-efficient new mineral processing and/or metallurgical technologies and processes** to
- **increase the selectivity and the recovery rates** of valuable by-products, particularly **Critical Raw Materials**.
- The **importance of the targeted sources of by-products for the EU economy** has to be duly demonstrated in the proposal.
 - Indicative size of proposals: EUR 3 to 7 million
 - Expected TRL: 4-5

SC5-14-2016-2017: Raw materials Innovation actions IA – €28 million in 2016

- **Intelligent mining on land (2016)**
- Processing of lower grade and/or complex primary and/or secondary raw materials in the most sustainable ways (2017)
- Sustainable metallurgical processes (2017)



- to develop **innovative pilots demonstrating clean and sustainable production** of non-energy non-agricultural **raw materials in the EU** from primary and/or secondary sources.
- **justify relevance of selected pilot demonstrations, finishing at Technology Readiness Levels (TRL) 6-8**, in different locations within the **EU** (if justified also outside);
- **facilitate the market uptake of solutions** developed through **industrially- and user-driven multidisciplinary consortia covering the relevant value chain**;
- outline the **initial exploitation and business plans** (with indicated CAPEX, OPEX, IRR and NPV) with clarified management of IPR, and commitment to the first exploitation;
- consider **standardisation aspects** when relevant;
- **assess health, safety and environmental risks and their management**



- **include a plan to communicate the added value of the proposal to the local communities and society** for improving public acceptance and trust should be addressed by all the proposals.
- **Participation of civil society** from the start of exploration until after-closure activities in a process of co-design, co-development and co-implementation is strongly encouraged.
- **seek synergies, including possibilities for funding, with relevant national/regional research and innovation programmes...**
- **cluster with other projects** financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020, in support of the EIP on Raw Materials
- **international cooperation is encouraged.**

SC5-14 a) Intelligent mining on land [2016]

- **develop and demonstrate new intelligent mining systems**
 - **to avoid exposure of workers in dangerous operations,**
 - **to increase efficiency and profitability,** and
 - **to minimise environmental impacts** of the mining operations.
 - Any of the **metallic, industrials and/or construction minerals** could be targeted.
 - The **importance of the targeted raw materials for the EU economy** has to be duly demonstrated in the proposal.
- Indicative size of proposals: EUR 8-13 million
 - Expected TRL: 6-8

SC5-15-2016-2017: Raw materials policy support actions - CSA

- **Expert network on Critical Raw Materials (2016)**
- Good practice in waste collection systems (2017)
- Optimising collection of raw materials data in Member States (2017)
- Linking land use planning policies to national mineral policies (2017)
- EU network of mining and metallurgy regions (2017)
- EU network of regions on sustainable wood mobilisation (wood supply) (2017)

SC5-15 a) Expert network on Critical Raw Materials [2016]

- The proposed action should **develop** primarily an **EU expert network or structure of networks covering all CRMs** and where possible, include the stakeholders **covering as much of the value chains** as possible. Proposals should build on the experience such as the ERECON a network on Rare Earth Elements, and CRM_InnoNet.
 - Projects should cover all the following points:
 - **Map, comprehensively assess and quantify estimated amounts of existing primary and secondary sources of and alternatives** to the different CRMs. ;
 - **Estimate** the expected **EU demand of various CRMs** in the future and identify major trends;
 - **Provide policy and technology recommendations** for actions improving the production of the various primary and secondary CRMs and actions for their potential substitution;
 - **Provide a plan for transparent consultation with relevant external stakeholders** and effective communication of the findings to the professional and general public across the EU;
 - In the case of secondary CRMs, the mapping information on **Waste Electrical and Electronic Equipment (WEEE) and waste batteries and other relevant end-of-life products** within the EU is crucial, as well as the need to contribute to the further development of European standards for the treatment of WEEE in order to optimise the recovery of CRMs.
- Indicative size of proposals: EUR 3 million
- 12 Up to one project shall be funded

SC5-16-2016-2017: Raw materials international cooperation - CSA

- **Demand-supply forecast and raw materials flows at global level (2016)**
- **Advancing the idea of a World Forum on Raw Materials (2016)**
- International network of raw materials training centres (2017)

SC5-16-2016-2017: Raw materials international co-operation

- Many countries are facing **similar challenges** in the field of mineral raw materials as the EU:
 - **dependence on supply** of raw material from international markets,
 - **shortage of knowledge** on raw materials and their flows for decision making by authorities, industry, financial sector etc.
- Understanding of the **global nature of raw materials value chains** and ensuring sustainable supply of primary and secondary raw materials for the EU requires **knowledge of materials flows** at a global level and **relevant skills**.
- At present, there is a **shortage of specialists in the EU** in some areas related to primary and secondary raw materials production and raw materials markets. This is a challenge that needs to be addressed at the EU level together with the relevant countries around the world having expertise in the field.
- In addition, the **global nature of raw materials value chains** requires common approach and solutions at a global level in order to ensure fair and unrestricted access to raw materials worldwide. There is therefore a need for a **more active involvement of the EU in relevant initiatives and closer collaboration with competent international organisations** in the field of raw materials.

SC5-16 a) Demand-supply forecast and raw materials flows at global level [2016]

- develop a **common methodology to mineral raw materials flows at global level** which could be agreed and used at international level. As a pilot case, focus should be on **critical raw materials** and in particular the ones used in **low-carbon technologies**. The methodology should incorporate models on demand-supply **forecast** in order to allow for dynamic analysis of global materials flows. Proposals should provide **recommendations and feed into future policy** developments.
- In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), **international co-operation is required with the US and Japan in the field of Materials Flow Analysis**. Where appropriate, **synergies with the relevant EU Member States initiatives** are to be explored and fostered.
- Proposals should **build on the outcomes** of the Study on Data Inventory for a Raw Material System Analysis and on related studies performed by the International Resource Panel.
- Indicative size of proposals: up to EUR 1 million

SC5-16 b) Advancing the idea of a World Forum on Raw Materials [2016]

- **Develop an EU-based platform** of international key experts and stakeholders that would advance the idea of a World Forum on Raw Materials and **enhance the international cooperation among G20 Member countries as well as the other third countries** active in the mining and other raw materials sectors.
- **Foster sharing of experience** with a view to increasing understanding of all aspects of trade in raw materials and strategies to leverage natural resources for wider growth and development in close co-operation with the OECD to contribute to the OECD policy dialogue.
- Where appropriate explore and foster synergies with the relevant EU Member States initiatives;
- **Identify common needs and threats, and develop and promote on international fora recommendations** on possible actions to consolidate the efforts of the countries involved towards a more joint and coherent approach towards raw materials policy and investment;
- **Involve relevant organisations**, in particular OECD, International Study Groups, CONNEX, the Intergovernmental Forum on Mining, UNEP Resource Panel, in the planned activities.
- **International co-operation is required**, in particular with G20 Member countries as well as the other third countries active in the mining and other raw materials sectors, and international organisations.

- Indicative size of proposals: up to EUR 1 million

SC5-16 c) International network of raw materials training centres [2017]

- create a **self-sustainable long-term lasting international network of training centres** for professionals.
- involve **educational and research institutions in the EU and the leading counterparts** in third countries, based on specific **country expertise** in the primary and secondary raw materials sectors.
- **map skills and knowledge in the EU and the third countries**, identify key knowledge **gaps** and emerging **needs**, develop **roadmap** for improving skills and knowledge, as well as establish common **training programmes** in the raw materials sectors
- **international collaboration is required.**
- Where appropriate, synergies with the relevant EU Member States initiatives are to be explored and fostered.
- Indicative size of proposals: up to EUR 1 million

SC5-17-2016: ERA-NET Cofund on Raw materials
ERA-NET Cofund – € 5 million

SC5 17- ERA-NET Cofund on Raw materials [2016]

- strengthen **co-ordination of national and regional research programmes** in the field of non-energy non-agricultural raw materials, while
 - building on the **experience of ERA-MIN ERA-NET**.
 - This should be achieved in line with the integrated strategy proposed in the **EU Raw Materials Initiative (RMI) and the Strategic Implementation Plan of the European Innovation Partnership (EIP) on Raw Materials**.
 - The ERA-NET should cover the **whole raw materials value chain** including exploration, extraction and processing technologies and recycling, as well as substitution.
 - Proposals should pool the necessary financial resources from the participating national (or regional) research programmes with a view to **implementing a joint call for proposals** resulting in grants to third parties with EU co-funding in this area.
 - Proposers are encouraged to include **other joint activities including additional joint calls without EU co-funding**.
 - Participation of legal entities from **international partner countries and/or regions is encouraged in the joint call** as well as in other joint activities including additional joint calls without EU co-funding. Participants from countries which are not automatically eligible for funding may nonetheless request a Union contribution (on the basis of the ERA-NET unit cost) for the co-ordination costs of additional activities..
- Indicative size of proposals: EUR 5 million

Thank you for your attention!

