

Commission

Access to raw materials and the circular economy – the EU approach

Svemin Miljökonferens Gruvavfall – resurs och utmaning för en hållbar framtid

Skellefteå/via Skype, 2nd October 2019

Maria NYBERG Policy officer

European Commission. Directorate-General for Internal Market, Industry, Entrepreneurship and SME's (DG GROW). Unit C2 - «Resource Efficiency and Raw Materials» maria.nyberg@ec.europa.eu

GROW C2





• EU Raw Materials policy and circular economy

• Analysis on recovery of critical and other raw materials from mining waste and landfills





Commission

Access to raw materials and the circular economy – the EU approach



We need raw materials for industrial value chains





- Transition to low carbon circular economy
- Increase of raw materials demand
- Increase of export restrictions
- Raw materials impact on all value chains and economy



Global material extraction by resource type Source: Raw materials Scoreboard 2018 in prep., UNEP, World Bank



Annual breakdown of total number of export restriction imposed on exports of raw materials commodities and still in force in 2014, by year of introduction (world; 1961-2014), JRC calculations based on OECD's Inventory on export restrictions on Industrial Raw Materials.



EU Raw Materials Strategy and Commission priorities

Ensure level playing field in access to resource in third countries



European Commission



Boost resource efficiency and recycling

Raw Materials Initiative = EU policy

EIP on Raw Materials Strategic Implementation Plan

 ✓ CRM list 2011, 2014, 2017...2020
 ✓ H2020 funding

78+5 new materials (Strontium, Zirconium, Cadmium, Arsenic, Hydrogen)

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 keep the EU industry competitive on the way to a low-carbon and circular economy;

European

Raw Materials Week

18-22 November 2019

- help the EU industry to master:
 digitalisation, sustainability and innovation;
- strengthen domestic production and EU industrial value chains, all starting with raw materials, particularly critical raw materials (e.g. EU Battery Alliance);
- strengthen partnerships between the EU, Member States and regions;
- attract young generation and develop relevant skills, build knowledge and engage society

Policy framework



- Existing policies, initiatives and documents
 - Raw Materials Initiative (2008, 2011)
 - Strategic implementation plan of the EIP raw materials (2013)
 - Horizon 2020 (2014-2020)
 - Renewed industrial policy strategy (2017)
 - Strategic orientations of the HLSG of the EIP (2017)
 - Circular Economy Action Plan (2015)
 - Battery alliance (2017)
- Horizon Europe proposal (2018)
- EC Strategic Vision for 2050 "A Clean Planet for All" (2018)
- European Council conclusions on 22 March 2019:
 - Commission to present, by the end of 2019, a long-term vision with concrete steps for the EU's industrial future.
- "A European Green Deal" announced by Commission President Elect von der Leyen 11 September 2019



EU Vision for A Clean Planet for All



Paris Agreement

EMBRACING CLEAN, SAFE AND CONNECTED MOBILITY

Decarbonising the transport sector by using alternative means of transport, connected and automated driving combined with the roll-out of electric vehicles and enhanced use of alternative fuels

PUTTING INDUSTRIAL MODERNISATION AT THE CENTRE OF A FULLY CIRCULAR ECONOMY

Reaping first mover benefits by modernising existing installations and investing in new carbon neutral and circular economycompatible technologies and systems



FULLY DECARBONISING EUROPE'S ENERGY SUPPLY

Large scale electrification of the energy system coupled with deployment of renewables will decarbonise our energy supply and significantly reduce our dependency on third country suppliers



Circular Economy Action Plan (CEAP 2015)



Commission

"Closing the loop. An EU action plan for the Circular Economy"

Transition

towards a Circular

Economy

Commission's Communication COM(2015) 614 final

> The value of products, materials and resources is

> > maintained in the

economy for as long as

possible

Waste generation is

minimised

Brings economic, social and environmental gains

Final circular Economy Package 4 March 2019



Brussels, XXX [...](2019) XXX draft

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

on the implementation of the Circular Economy Action Plan

All 54 actions implemented $\sqrt{}$

"European Green Deal" announced by President Elect von der Leyen New Circular Economy Action Plan announced!



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Contributions and proposals from EU raw materials community



Way forward raw materials policies



JRC Science for policy report: 'Recovery of critical and other raw materials from mining waste and landfills'







JRC SCIENCE FOR POLICY REPORT

Recovery of critical and other raw materials from mining waste and landfills

State of play on existing practices

Blengini, G.A.; Mathieux, F.; Mancini, L.; Nyberg, M.; Viegas, H.M. (Editors)

2019



Delivers on action #39 of the Circular Economy Action Plan: "Sharing of **best practice** for the **recovery** of critical raw materials from **mining waste** and **landfills**

- 6 examples of existing practices for the recovery of critical, and other materials from extractive waste and landfills.
- Enable increased recycling and recovery of critical and other raw materials
- Support Member States to promote the recovery of critical raw materials as stated in the Waste framework directive (2018/851)



JRC Science for policy report: 'Recovery of critical and other raw materials from mining waste and landfills'



6 existing practices for recovery of critical and other raw materials

Commission

Focus on technological processes

- → Recovery of Tantalum and Niobium Penouta mine (ES)
- → Recovery of CRMs and valuable metals from inorganic waste streams (CHROMIC H2020)
- → Biohydrometallurgy for treatment of low grade resources, Kasese site Uganda
- → Bauxite Residue as a resource in Europe (REDMUD, RemovAL H2020)

Focus on improving the knowledge base

→ SMART GROUND database and protocols for data collection (H2020)

→CriticEL – Raw material National Survey assessment CRMs potential in coal power plant fly ashes (HU)



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Recovery of Tantalum and Niobium Penouta mine (ES)



© Strategic Minerals Spain



- →Exploitation started in 2018, expected lifetime 12 years
- → Tantalum, Niobium and Tin recovered in combination with industrial minerals (Quartz, Mica, Feldspar, Akolin).
- → Gravimetric + pyro- and hydrometallurgical processes
- →70 direct jobs, 30 indirectly via subcontracting
- → Complex technologies. Lack of information/knowledge base existing mining resources. Extended permitting processes.

CHROMIC (H2020)

 \rightarrow Recovery of Chromium, Vanadium, Niobium, Molybdenum from steel



from low-grade metal containing seCondary raw materials



JRC Science for policy report: 'Recovery of critical and other raw materials from mining waste and landfills



Materials

SMART GROUND (H2020)

GREUND SEARCH MAP SEMANTIC MODULE	Login Register 🕺 良
O Download the user guide here!	
SMART DATA COLLECTION AND INTEGRATION PLATFORM TO ENHANCE AVAILAN ACCESSIBILITY OF DATA AND INFORMATION IN THE EU TERRITORY ON SECON MATERIALS.	BILITY AND DARY RAW
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Raw	

- → Building knowledge base at regional, national, EU level needed for appropriate legislative and technical measures
- → Currently gaps in knowledge on secondary raw materials in mining waste, municipal solid waste and industrial waste.
- → Demonstrated also by other H2020 ProSUM, SCRREEN, ORAMA.
- → SMART GROUND database and protocols for data collection provides quantitative and structural data on resources that could be profitably recovered in the EU.
- → Suggests systematic efforts for field sampling and data collection.

JRC Science for policy report: 'Recovery of critical and other raw materials from mining waste and landfills'





Recovery of critical and other ray materials from mining waste and landfills

> State of play on existing practices Denois, GA ; Natheon, F ; Henori, L ; Nyleng, H ; Viegas, H.H. (billand



KEY MESSAGES of the report

- The recovery of CRMs + other RMs from landfill and extractive waste is not as yet a widely diffused practise in the EU. But there are notable examples which not only demonstrate the potential but also the availability of technologies and the existence of an innovative sector in the EU.
- > The general lack of a knowledge base is certainly a bottleneck as well as adapted legislative framework that has not been optimised yet.
- Recovery from extractive and industrial waste seems to be more advanced, and has a high potential to contribute to a sustainable and secure supply of raw materials. Recovery from enhanced landfill mining seems to be less developed and a less promising area and need to be combined with recovery of land for other uses or environmental remediation. Here, recovery of secondary materials could become a complement in view of the full valorisation of the resource.
- Recovery processes cannot regard a specific material alone (especially if present in low concentration), but most of the available resources must be valorised;
- Environmental and social aspects are powerful drivers: the process can lead to the environmental restoration of abandoned mining areas and to the release of new land space. Community engagement is also very important for the successful deployment of any recovery project.
- > Further development and consolidation of the knowledge base could boost the recovery of secondary raw materials at EU level.

Thank you!



Policy and strategy for raw materials:

http://ec.europa.eu/growth/sectors/raw-materials/policy-strategy_en

Register for Raw Materials Week 18-22 November 2019: https://www.eurawmaterialsweek.eu/event

Policy and strategy for circular economy:

https://ec.europa.eu/growth/industry/sustainability/circular-economy_en

Report Recovery of critical and other raw materials from mining waste and landfills:

https://ec.europa.eu/growth/content/report-recovery-critical-andother-raw-materials-mining-waste-and-landfills_en

/maria.nyberg@ec.europa.eu



Raw Materials Week

European Innovation Partnership on Raw Materials



