CIRAN

Critical Raw Materials and the Future of Europe

CIRAN 2035 Scenarios Workshop
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PLAN FOR TODAY

Part	Action	Description	Timing
INTRODUCTION	Icebreaker	Each pax. introduces themselves + connection to mining	5-10’
	About CIRAN	CIRAN Overview: CRMs in the Future of Europe. Scenarios’ work	20’
DISCUSSION	List of drivers	Pax. work in small groups. Drivers’ list for 5-7’ + prioritisation discussion & roundtable sharing of each group’s outcomes.	15’ – 20’
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CONCLUSION	Feedback round & Conclusion	Round of feedback	15’

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ABOUT CIRAN: THE APPROACH

THE CHALLENGE: BALANCING MINING AND ENVIRONMENT

OVERCOMING HURDLES TO RESPONSIBLE DOMESTIC MINING

A PATH TOWARDS SUSTAINABLE COEXISTENCE

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Critical Raw Materials and Future of Europe

A difficult and sensitive topic: Mining of critical raw materials in protected natural areas

The CIRAN approach:

- Short- and long-term perspectives
- Local, European and global perspectives

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CIRAN CONSORTIUM

Intraw – International Raw Materials Observatory
GTK
SGU Geological Survey of Sweden
LPRC La Palma Research Centre
Generator+ Consulting
alda – European Association for Local Development
PETRONAVIT A.S
Regione Emilia-Romagna
GGC – Geologia e Geofisica, Consultores
ISPRA – Istituto Superiore per la Protezione e la Ricerca Ambientale
MDB MacCabe Durney Barnes
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Critical Raw Materials and their role in society

General Information

What are „Critical Raw Materials“ (CRMs)?

Bauxite	**Coking Coal**	**Lithium**	**Phosphorus**
Antimony	**Feldspar**	Light rare earth elements	Scandium
Arsenic	Fluorspar	Magnesium	Silicon metal
Baryte	Gallium	**Manganese**	Strontium
Beryllium	Germanium	Natural Graphite	Tantalum
Bismuth	Hafnium	Niobium	Titanium metal
Boron/Borate	**Helium**	Platinum group metals	Tungsten
Cobalt	Heavy rare earth elements	Phosphate Rock	Vanadium
		Copper	**Nickel**

In **bold** are Strategic raw materials

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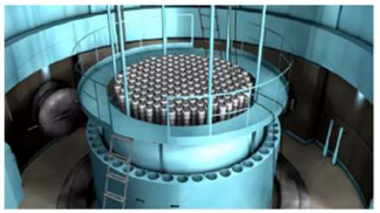
Objects of everyday use containing CRMs

Bateries

Music (elektronics)

Medical devices



Nuclear reactors

Satelites and spacecrafts

Laundry detergent

Blue pigment for decorations

Cookware coating

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Cancer treatment

Screen equipment

Sport equipment

Solar panels

Fertilizers

Turbines

Aluminum alloys

Dental fillings and bridges

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What makes these materials „critical“?

1) High economic importance for Europe (essential for many key sectors & growing sectors)

2) Highly vulnerable to supply disruptions (actual and potential supply risks)

- hight demand that is expected to be raising for many of them (example of lithium) – green-transition technologies, increasing ITCs...
- Europe very much dependent on external suppliers (discussions on CRM autonomy – EU CRM Act)

3) Some elements cannot be replaced by other elements + they have a low recycling rate

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How can we envision the future of CRMs in Europe?

1) Obtaining of CRMs by trade, keeping current dependency on non-EU suppliers (current model)

2) Obtaining of CRMs by trade through building strategic partnerships outside of Europe, thus diversify sources (trusted partners outside of Europe)

3) Obtaining CRMs through EU domestic sourcing initiatives, thus localise and diversify sources (secure resources in the EU)

4) Shift towards a circular economy and resource efficiency (reducing waste, promoting recycling, and maximising resource efficiency throughout the product life cycle – still hidden potential)

5) Drastic change in values and consumption behaviour of European society (reduce consumerism)

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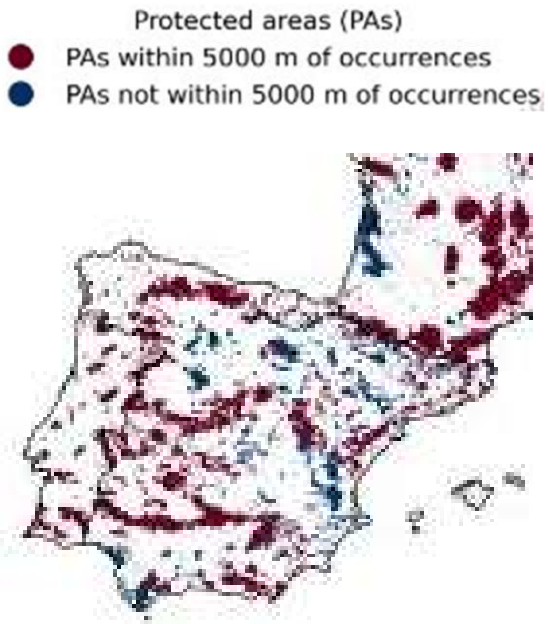
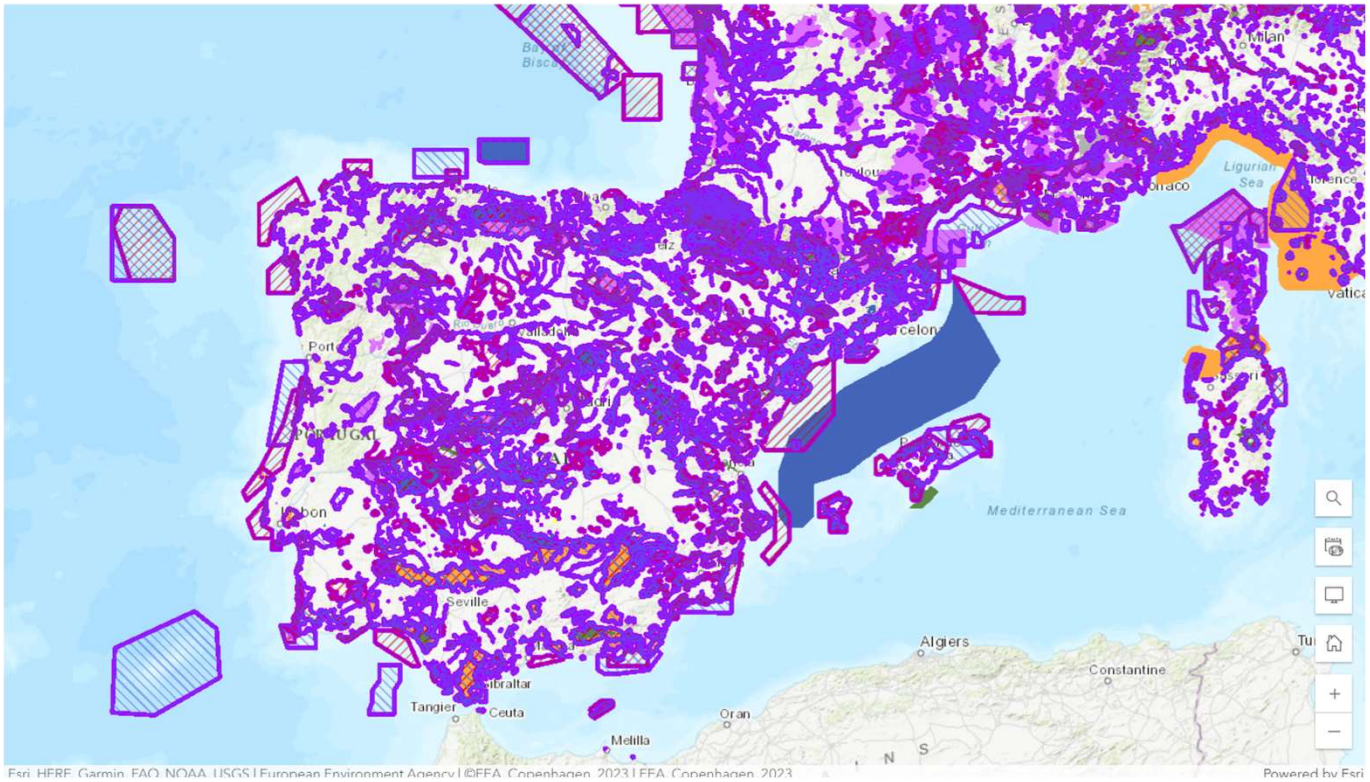
Future of mining of CRMs within the EU

In Europe, in naturally protected areas?

Critical Raw Materials occurrences and protected areas





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Arguments FOR local (European) supply of CRMs

1) Keeping the current standard of life
2) Helping to overcome challenges to address the climate crisis
3) Securing European economic stability by reducing reliance on imports from China and other non-EU partner countries
4) Promoting responsible mining practices, technological innovation, transparency in the supply-webs, and adherence to environmental and social standards
5) Economic Opportunities

Arguments AGAINST local (European) supply of CRMs

1) Exploration and extraction of (critical) raw materials can have a significant impact on the environment.
2) Social impacts associated with raw materials extraction
3) Potential health consequences of mining projects
4) Potential cultural consequences of mining projects
5) Mining from deposit in the EU might pose a technological challenge

It we take the position "Not in my backyard" (not in Europe), CRMs will be extracted elsewhere, however the consequences for local communities will always be there.

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Need for new business models: future reconciliation with the public?

Need to find a way to reconcile these two societal expectations and needs – balancing socioeconomical needs of society and protecting environment.

1) Substituting primary materials with secondary materials (similar as recycled paper)
2) Increasing resource efficiency (nano coating)
3) Extending the lifecycle of products (warranty)
4) Removing idle times when products are not used (timesharing)
5) Replacing products with services (car leasing)
6) Developing new models for mining and extraction

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Key questions about the future: Which choices does the EU have to take?

- Where should we allow in mining? Should we extract from environmentally protected areas? Why?
- What to give up - current quality of life? Stability? Economical and technological development? Geopolitical independence? Environmental standarts?
- Should we mine locally or should we externalise mining (and its impacts) to non-European countries?
- Should we accept that the supply CRMs is controlled by just a few countries or should it be diversified as much as possible? And why?
- What materials should we accept to mine in protected areas? Based on what should we take that decision? Do we really expect for example lithium to be relevant also in the future?
- What is the natural value that we are protecting? For example, if mining takes place deep underground, and the surface would be affected minimally, would it be acceptable? And why?

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MATRIX FOR FUTURE SCENARIOS DEFINITION

High change in CRMs and needs

High change in current CRM needs and demand expectation.
Little access to supply in the EU

Agile Trading

High change in current CRM needs and demand expectation.
High access to supply in the EU

Agile Mining

Low Governance, Permitting, Acceptance

High Governance, Permitting, Acceptance

Accelerating Raw Materials Diplomacy

Little change in current CRM needs and demand expectation.
Little access to supply in the EU

Low change in current CRM needs and demand expectation.
High access to supply in the EU

Mining Renaissance

Low change in CRMs and needs

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HOW DO WE ENVISION THE FUTURE OF EUROPE IN CONNECTION TO EXTRACTION OF NATURAL RESOURCES (from environmentally protected areas)?

QUESTIONS TO BOOST CONTROVERSY & DISCUSSION

1- More green-transition technologies vs Less green-transition technologies

2- Trade blocks formation vs World Cooperation

3- Mining in protected areas vs Not mining in protected areas

4- EU can get its resources (CRM autonomy) vs EU cannot get its resources (CRM dependency)

5- Fluctuations in CRM demand / criticality. Which CRMs will be needed? Which products will have higher demand for CRMs?

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CIRAN FUTURE SCENARIOS – WHAT FOR? HOW?

GENERAL PUBLIC / NON-TECHNICAL AUDIENCES – CIVIL SOCIETY

EU POLICYMAKERS, NATIONAL LEGISLATORS – TOP POWER

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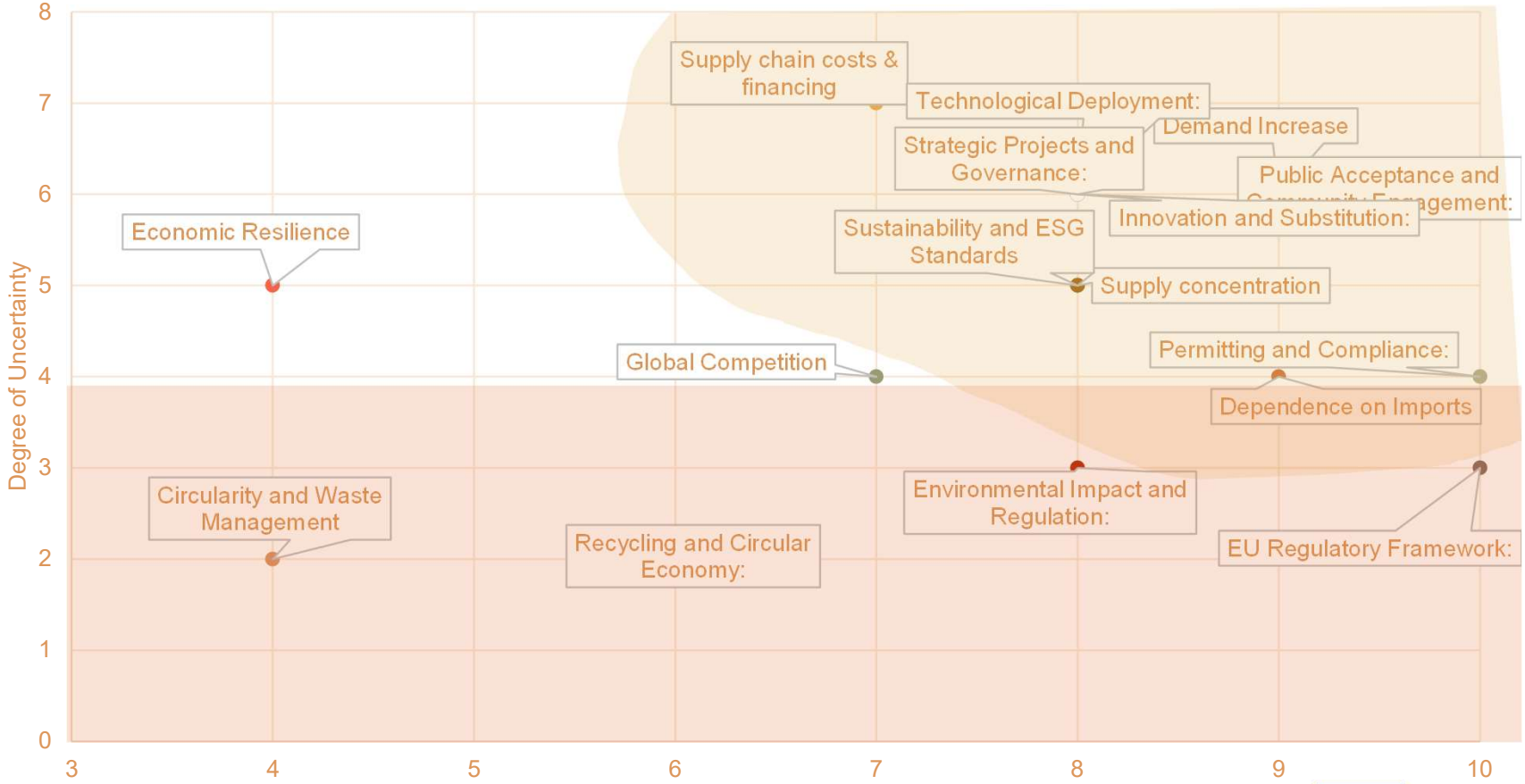
CONCLUSION: OUR FORECAST SO FAR – It's a WIP!



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Thank you!!

To learn about the project, visit
www.ciranproject.eu & social media

Contact us!

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The views expressed are those of the authors and do not necessarily reflect the views of the European Union

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