SUSTAINABLE MANAGEMENT OF CRITICAL RAW MATERIALS

SusMatCrit

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SusCritMat is an education project funded by EIT Raw Materials

- Duration: April 2017 – March 2020
- Coordinator: ESM Foundation, Switzerland
- Partners: TU Delft, University of Leiden (NL), EPFL Lausanne, Empa (CH), BRGM, University of Bordeaux (FR), Fraunhofer (D), Outotec Oyi (FI), Granta Design (GB)

Scope and Objectives

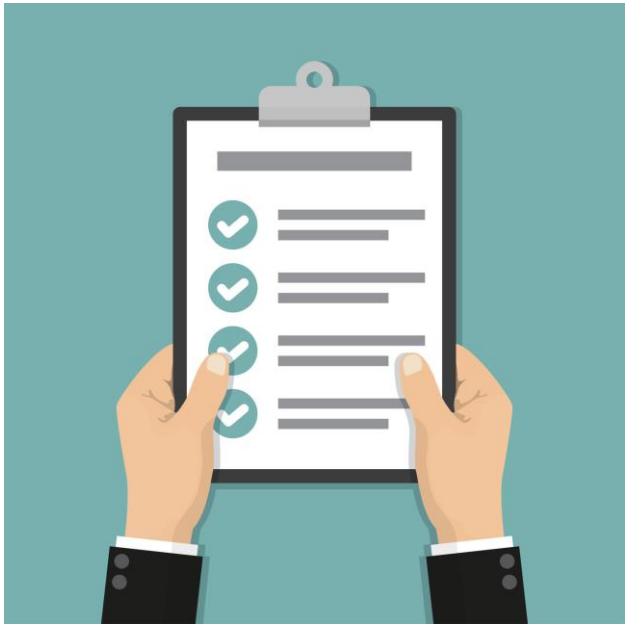
- SusCritMat aims to educate people from Master's student level up, both in industry and academia, about important aspects of critical raw materials.
- In a novel concept, SusCritMat introduces courses on complex and interdisciplinary topics in a modular structure, adaptable to a variety of different formats and accessible to both students and managers in industry.
- Multi-media education materials will be made available to participants of summer and winter schools so that they can work with state-of-the-art techniques and data.

Targeted Impacts

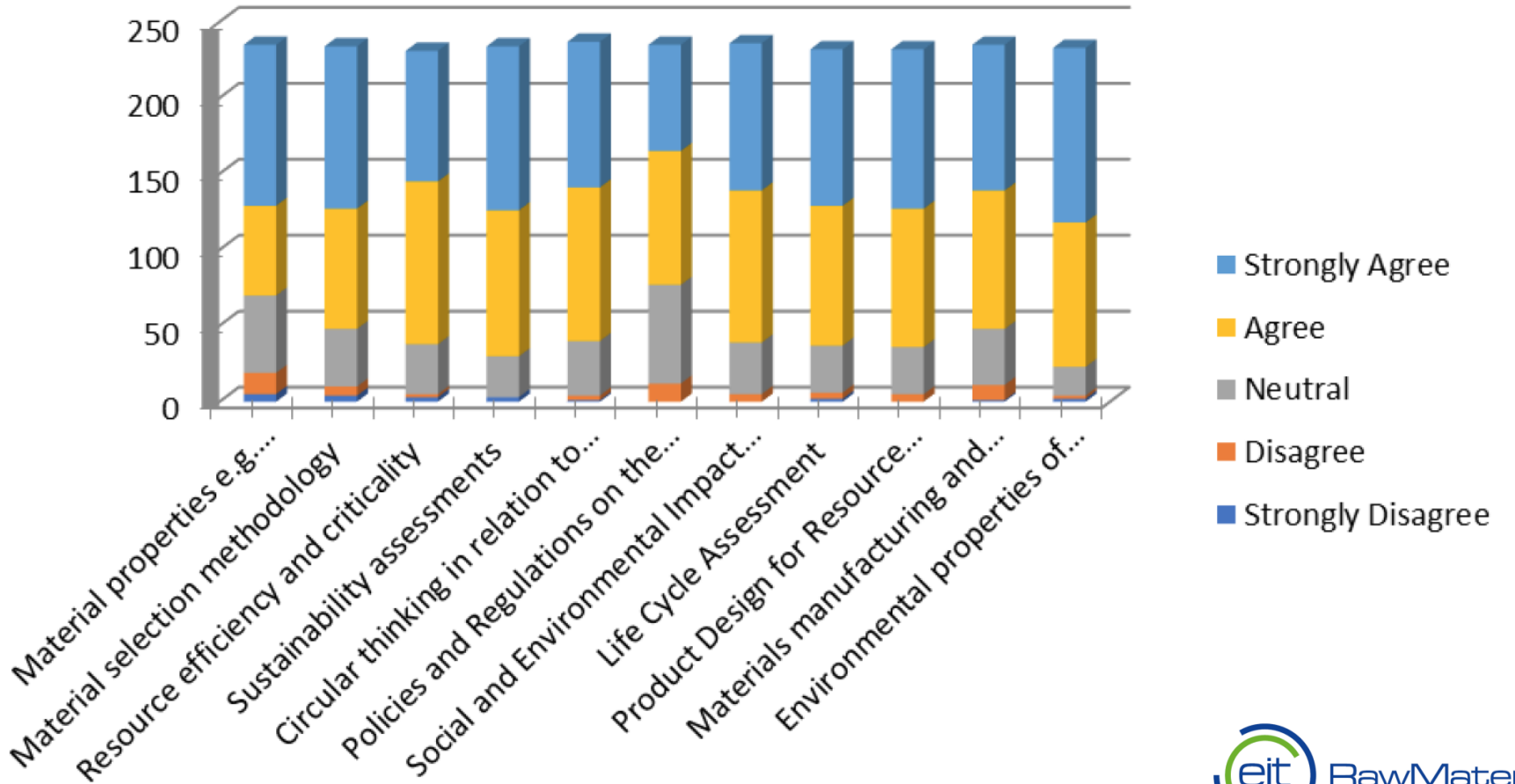
- Introducing and establishing courses aimed at PhD and Master students, professionals and executives on multi-disciplinary topics
- Making these courses adaptable to a variety of different formats by providing a modular structure
- Development of participants' skills to understand the impact and role of critical raw materials in a whole value chain view
- Discussion of environmental and social aspects in order to prepare participants for taking a broad view and face future challenges
- An emphasis on different tools, approaches and data foundations to teach participants individual and informed research methods in this complex area
- Fostering of European competitiveness and innovation
- Dissemination of the approach to other institutions

Survey on expectations towards education in CRM, available educational materials and information sources

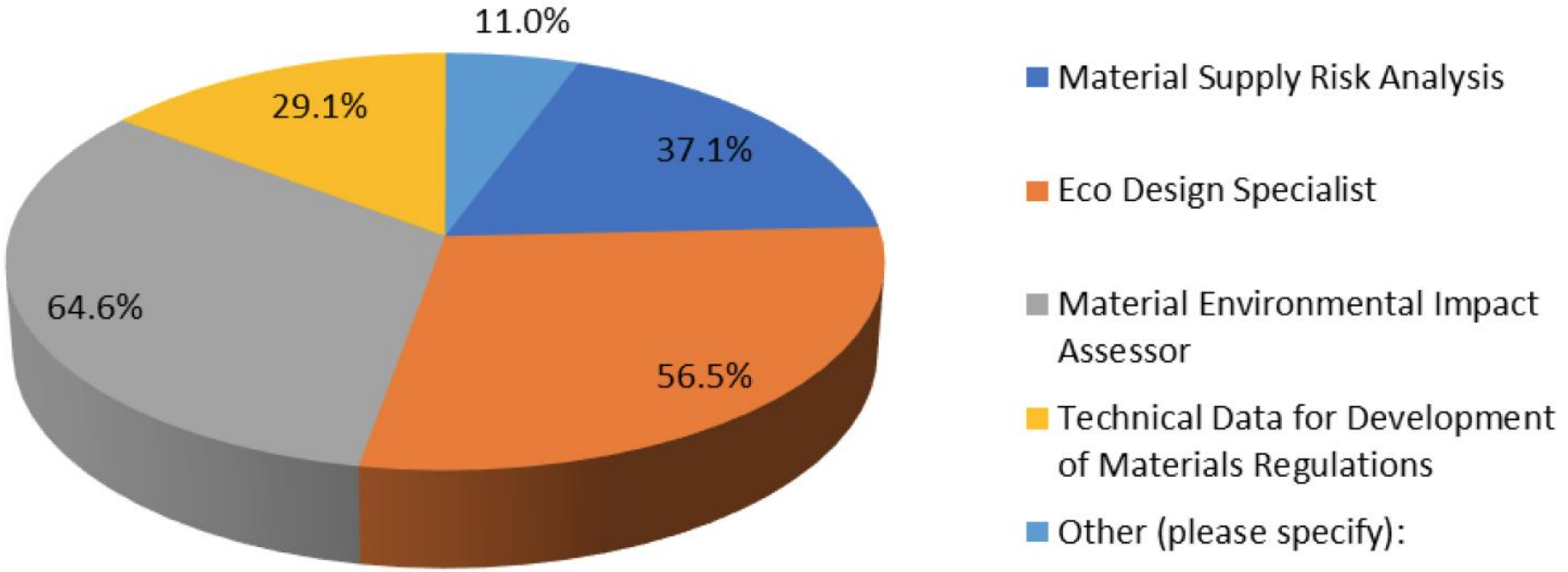
So far:
More than 250 responses from (mainly) academics & industry



Which of these topics areas are both relevant to your work and you need to know more about them?



Which competencies do you hope to acquire? (For you or your students or employees.)



Contribute to our survey

Nov 5 2017 | General

Educating the next generation of materials experts on how to sustainably manage critical raw materials is of vital importance. SusCritMat would like to get your contributions in an online survey asking industry and academics about a variety of topics concerning information sources on critical raw materials. The survey results will contribute to the development of new teaching materials and courses available to all. We would appreciate if you would take the time to complete the survey.

Survey for educators and students on available courses, teaching resources, and data useage.

Survey for industry on data useage.

www.suscritmat.eu

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Contribute to our survey

Watch the SusCritMat short video!

Join a Web Seminar on Critical Raw Materials!

Registration for the Winter School now open!

Survey on information sources on critical raw materials

Modules to develop

2.1	2.3	2.4	2.5	2.6	2.8a	2.8b	2.11	2.12	2.13
CML	**CML**	**CML**	**BRGM**	**Bordeaux**	**Outotec**	**UniA**	**CML**	**CML**	**CML**
MFA Methodology	MFA & CRM Supply chain	MFA & CRM SC with case studies	Criticality	Certification Potentials	System dynamics modelling	Risk Factors	MFA & SC resilience (targeted)	Metals and CRM Scenarios	Metals and CRM Scenarios
Physical	Online	Physical	Physical	Physical	Physical	Physical	Physical	Physical	Online
8	24	33	8	12	24	24	33	8	33

WP.No
Lead
Title
Delivery type
Delivery month*

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
Delft Dave	**Bordeaux**	**Delft Ruud**	**Granta**	**Granta**	**Delft Ruud**	**Delft Ruud**	**Delft**
History of product design	Resource efficiency	Introduction: Prod design for RE	Materials Selection	Sustainability assessment	Recycling potentials	Circularity indicators	CRM & Sust. Development
Physical	Physical	Combi	Physical	Physical	Physical	Combi	Combi
8	8	8	12	12	18	18	18

4.2	4.5	4.6
Delft Dave	**Granta**	**Granta**
Policy & Governance	Regulation	Good use of data
Physical	Online	Combi
new	12	12

5.1	5.2	5.3	5.4	5.5	5.6	5.7
Bordeaux	**CML**	**Bordeaux**	**Granta**	**BRGM**	**Outotec**	**Bordeaux**
Environment & social aspects	LCA	Criticality and LCSA	Social impact assessment	Responsible mining	Responsible business practices	Package on env. and social aspects
Physical	Physical	Physical	Physical	Physical	Physical	Combi
8	8	12	12	18	18	24

6.1	6.2	6.3
Delft Ruud	**Delft Ruud**	**Delft Ruud**
Closing Loops on Product Level	Circular Product Design	Circular Business Models
Combi	Combi	Combi
12	24	30

*as indicated in proposal

… to be piloted in 3 SusCritMat schools

- one with a focus on students
- one with a focus on industry/business (possibility of online participation, short-term residency)
- one with a focus on educators (“teach the teachers”)

Winter school 2018

- January 15-19, 2018, in Les Diablerets, Switzerland
- Registration with a CV and motivational letter – open to everybody from Masters level up
- Costs 400 Euro reduced fee / 800 Euro full fee (including school, documentation, food, and accommodation)
- Register before November 24 on www.suscritmat.eu

SusMatCrit

2018 winter school program

***January 15-19**, Les Diablerets, Switzerland*

Case study: Nd Permanent magnets for electric cars

	DAY 1 INTRODUCTION	DAY 2 ANALYSIS	DAY 3 ANALYSIS 2	DAY 4 SOLUTIONS	DAY 5 PROJECT PRESENTATIONS
8:00 - 12:30	Introduction Module (3h) TU Delft: Historical solutions for CRM and Design BRGM / TU Delft: Circular Economy & Criticality University of Leiden: MFA Methods Project work with mentors (1h)	Analysis Module (3h) University of Bordeaux: Environmental & Societal Aspects University of Bordeaux / Tu Delft: Resource efficiency University of Leiden: Life Cycle Assessment Project work with mentors (1h)	Analysis Module 2 (3h) University of Bordeaux: Certification Potentials TU Delft: Policy & Governance, Economic Aspects Project work with mentors (1h)	Solutions Module (3h) TU Delft / Empa: Product design for RE Granta Design / TU Delft: Materials Selection and Eco-Design Project work with mentors (1h)	Assessment (5h) Group presentations and assessment by consortium experts
14:00 - 17:00	Student project work / outdoors teambuilding	Student project work / outdoors teambuilding	Student project work / outdoors teambuilding	Student project work / outdoors teambuilding	
18:30 - 22:00	Discussions / Project work with mentors	1h Outotec Process model based LCA using HSC Chemistry software 2h Discussions / Project work with mentors	2h Granta Design Sustainability assessment 1h Discussions / Project work with mentors	1h Outotec Production and Recycling of metal cases 2h Discussions / Project work with mentors	

More information and winter school registration at www.suscritmat.eu

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