MAPPING RAW MATERIALS INITIATIVES

Indicators and Metrics

FORAM

TOWARDS A WORLD FORUM
ON RAW MATERIALS

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Deliverable D.1.2

Indicators and Metrics for the Mapping

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Introduction

The objective of task 1.2 is to develop a set of indicators and metrics for each criterion identified in task 1.1 (more information about the criteria can be found in deliverable 1.1). The 'indicators' represent the average priority applied to each category; they rank from High, Medium, Low, or No priority. Metrics are numerical value linked to each indicator that have been attributed to the different criteria and categories. High priority is 3 points, Medium priority is 2 points, Low priority is 1 point and No priority is 0 points. To take into account both the priority of criteria and categories, the scoring of the criteria is multiplied with the priority of the corresponding category. The total number of points for each criterion are summed up, to give the total 'score' of the initiative. This deliverable describes how the indicators and metrics for the assessment and mapping of initiatives (task 1.3) are established. Section 1 explains the approach to determine the indicators, as part of the approach a questionnaire was circulated among the partners of work package 1 to determine the indicators for priority. In section 1 also an update to deliverable 1.1 is given on new categories for two criteria and on the creation of the online form. Section 2 describes the approach to determine the metrics, which are linked to the priority of the indicators. In section 2 the methodology for metrics is applied to two initiatives as example for task 3. Section 3 provides an overview of all the established metrics and indicators. Both the criteria (task 1.1) and Indicators and metrics (task 1.2) will serve as basis for the framework used for the assessment and mapping of initiatives and data collections (task 1.3).

1. Indicators

1.1. Questionnaires

To take a structured approach to identify the priorities of the FORAM project, a questionnaire was developed. In the questionnaire all the criteria and categories were listed to which each partner indicated its priority. The options for priority were High (3 points), Medium (2 points), Low (1 point), No priority (0 points). Seven partners (work package 1) indicated the priority for FORAM for each criterion and category. Based on the average of all partners, the final priority was established.

1.1.1. Priority- Criteria

Table 1 below presents the outcomes of the questionnaire for the **fourteen criteria**. In the first column the criteria are listed, in the columns 2-8 the priorities per partners and column 9 the average priority. Each indication for High priority is coloured green, Medium priority orange, Low priority yellow and No priority red.

Based on the average, it was decided High priority criteria are:

- activities,
- type of stakeholders in the initiative,
- objectives and strategies, and
- the target audience.

Medium priority criteria are:
- the organizational structure,
- type of raw material,
- number of stakeholders in the initiative,
- the geographical focus,
- the step in the value chain,
- description of data, and
- data access.

Finally, criteria with Low priority are:
- the working language(s),
- year of establishment, and
- the source of financial resources.

Criteria	Priority per partner						Average priority
Activities	3	3	3	3	3	1	High
Type of stakeholders in the organisation	3	3	2	3	3	3	High
Objectives and Strategies	3	3	2	3	3	1	High
Target audience	3	3	3	2	3	3	High
Organisational structure	2	1	3	3	2	2	Medium
Type of Raw Material	3	0	3	3	3	2	Medium
Number of stakeholders in the organisation	3	3	2	2	1	3	Medium
Geographical focus	3	3	3	2	3	2	Medium
Step in the value chain	2	0	3	3	2	3	Medium
Description of data	2	2	3	3	2	1	Medium
Data access	3	0	1	3	2	1	Medium
Language(s)	1	0	1	1	0	2	Low
Year of establishment	1	1	2	2	1	2	Low
Source of financial resources	1	0	1	2	1	1	Low

Table 1: Outcomes questionnaire priority criteria

1.1.2. Priority - Categories

For nine of the fourteen criteria, a fixed set of 61 categories was established in task 1.1 (more information about the categories can be found in deliverable 1.1). To identify the priority for each category the same method was used as with the criteria, each partner indicated the priority in a questionnaire. Based on the average of the partners the priority for each category is indicated. The categories with indication of priority, are the 'indicators'.

For two criteria, the 'number of stakeholders' and 'years of existence', the categories are numbers. In the questionnaire the partners indicated which range of numbers has high, medium, low or no priority. As with the previous categories, the average priority is used to determine the indicator. In table 2 the priority per partner and average is presented.

Criteria	Priority range per partner						Average priority range
Number of stakeholders in the organization	High	10	>20	>20	>100	>50	>40	More than 40
	Medium	3 to 10	5 to 20	4 to 20	100<>10	10 to 50	10 to 40	7 to 40
	Low	3	<5	<4	<10	<10	<10	Less than 7
	No							
Years of existence	High		>10	>5	10	>5		More than 7
	Medium		2 to 5	2 to 5	5	2 to 5		2 to 7
	Low		<2	<2	3	<2		less than 2
	No							

Table 2: Outcomes questionnaires priority categories number of stakeholders and years of existence.

1.2. Update categories for criteria 'Objectives and Strategies' and 'Type of Raw Materials'

In task 1.1, for two criteria no categories were defined (free text), these are: 'objectives and strategies' and 'type of raw materials'. In order to establish indicators for these criteria in task 1.2, categories are needed for the chosen approach, therefore in Task 1.2 categories are developed for these criteria as well. For the 'Type of Raw Materials', elements and (secondary) raw material categories were mapped and analysed in word and mindmap software. Based on the analysis, it was concluded to have only high and medium priority categories (table 3). The complete overview of Raw Materials in mindmap and excel will be used for the analysis in task 1.3. The categories for the 'Objectives and Strategies' are based on a discussion between partners and on a preliminary analysis of the answers provided already in the mapping file (table 3). To establish the indicators (priority for each category), the questionnaire method was used. In the end of the deliverable an overview of the indicators will be presented (table 5).

Criteria	Categories
Objectives and strategies	Innovation/ promoting technological development
	Higher resource efficiency
	Policy and governance contribution
	Support and raising awareness for raw materials industry
	Enhance environmental sustainability and protection
	Improving energy efficiency and climate change policies
	Security of supply/material substitution

	Advance recycling and waste management	
	Social and economic development (developing countries)	
	Social and economic development (EU)	
	Supply chain transparency/sustainability	
	Enhance international cooperation	
	Capacity development	
	Other	
Type of Raw Material Materials/elements or material flows containing RM of high importance for EU economy (critical in supply) and Materials/elements or material flows containing RM that are not of high importance for EU economy.	CRM EC 2014	
	PGM/PGE	
	REE	
	Conflict Minerals	
	non-critical metals	
	non-critical ores or minerals	

Table 3: Categories for Objectives and Strategies and Type of Raw Material

1.3. Update Online Form

As discussed in Deliverable 1.1, an online form has been developed to map initiatives. In this file both the FORAM partners as well as initiatives themselves will be able to provide the needed information. In this way the most up to date information can be collected from the initiative and the FORAM project can engage with the different initiatives. The online form has been integrated on the FORAM website (under 'Mapping of Initiatives') and contains the same questions as the mapping file, based on the criteria and categories. The entered information will first be validated by the consortium before it is added to the mapping file.

2. Metrics

In task 1.3 the identified initiatives will be analysed and prioritized using the indicators and metrics developed in this task. To develop metrics, a number of points have been attached to each indicator. This allows each initiative to 'score' a number of points, which can be used to facilitate the prioritization of initiatives. The points of each indicator depend on the priority of the criterion and the priority of the category. As in the questionnaires, High priority is 3 points, Medium priority is 2 points, Low priority is 1 point and No priority is 0 points. To take into account both the priority of criteria and categories, the scoring of the criteria is multiplied with the priority of the corresponding category. For example, the criterion Objectives and Strategies has a high priority (3

points), and the category 'Policy and Governance contribution' has high priority (3 points) too, therefore an initiative with this indicator gets 9 (3 x 3) points. The points for each indicator can be found in the table 5 in section 3. The total number of points for each criterion are summed up, so that the initiative obtains a total 'score'. Table 4 presents an example of the metrics applied to two initiatives. Initiative B (81 points) has more points than Initiative A (65 points), and therefore has higher priority for FORAM. The metrics methodology can assist the assessment in task 3.

2. Name	7. Oganisational structure	8. Type of Stakeholders	9. Number of Stakeholders in the	12. Language (s)	13. Year of establishment	15. Objectives and strategies	16. Type of Raw Material	17. Geographical focus	18. Step in the value chain	19. Activities	21. Description of data	22. Data access	23. Target audience	24. Source of financial resources	Priority
Initiative A	6	9	6	3	3	9	6	6	6	9	0	0	0	2	65
Initiative B	4	9	4	3	3	9	3	6	6	9	6	4	9	2	81

Table 4: Example of two initiatives with the metrics, based on the points assigned for each criterion.

3. Overview Indicators and Metrics

Table 5 presents an overview of the determined indicators and metrics. As none of the criteria or categories had 'no' priority, this column is left out of the table.

	Indicators and Metrics					
Criteria	High (3)	Points	Medium (2)	Points	Low (1)	Points
Type of stakeholders in the organisation (High Priority) 3	Companies/Industry	9	Civil society/ the Public	6	Other	3
	Governmental organization/department	9	IGO	6	Not specified	3
	Policy-makers	9	NGO	6		
	Initiative	9	University/Academia/Research Center	6		
Objectives and Strategies (High Priority) 3	Innovation/ promoting technological development	9	Social and economic development (developing countries)	6		
	Higher research efficiency	9	Social and economic development (EU)	6		
	Policy and governance contribution	9	Capacity development	6		
	Enhance international cooperation	9	Support and raising awareness for raw materials industry	6		

Category						
	Enhance environmental sustainability and protection	9	Advance recycling and waste management	6		
	Improving energy efficiency and climate change policies	9	Other	6		
	Security of supply/material substitution	9				
	Supply chain transparency/sustainability	9				
Activities (High Priority) 3	Data collection / mapping	9	Development of certification or standards	6		
	Networking and strengthening cooperation	9	Research	6		
			Information exchange	6		
			Development of tools and technologies	6		
			Capacity building	6		
			Other, please specify	6		
Target Audience (High Priority) 3	Policy-makers	9	IGO	6	Other, please specify	3
	Industry	9	NGO	6		
	Academia/Research Center	9	Civil society/ the Public	6		
	Government	9				
Organisation structure (Medium Priority) 2	Alliance	6	Community	4	Other	2
	Consortium	6	Panel	4		
	Forum	6	Partnership	4		
	Initiative	6	Platform	4		
	Association	6	Project	4		
			Study Group	4		
			Working Group	4		
Type of Raw Material (Medium priority) 2	Materials/elements or material flows containing RM of high importance for EU economy (critical in supply):		Materials/elements or material flows containing RM that are not listed in the categories of high priority			
	CRM EC 2014	6				
	PGM/PGE	6	non-critical metals	4		
	REE	6	non-critical ores or minerals	4		
	Conflict minerals	6				

Number of stakeholders in the organization (Medium priority) 2	More than 40	6	7 to 40	4	Less than 7	2
Geographical focus (Medium priority) 2	Regional: Europe	6	National/Local	4		
	Regional: Asia	6	Regional Australia	4		
	Regional: Africa	6				
	Regional: North America	6				
	Regional: South America	6				
	Global	6				
Step in the value chain (Medium Priority) 2	Mining/Extraction	6	Product Development (Design and substitution)	4		
	Processing	6	Transport and supply chain	4		
	Manufacturing	6	Other, please specify	4		
	Recycling / re-use	6				
	All	6				
Description of data (Medium Priority) 2	Data on primary raw material extraction/benefication	6	Data on secondary raw materials and recycling	4	Other	2
			Data on the use of materials in production and consumption	4		
Data Access (Medium Priority) 2	Public	5	Restricted	4		
Languages (Low priority) 1	English	3	Multiple working languages excluding English	2	one working language other than English	1
	Multiple working languages including English	3				
Years of existence (Low Priority) 1	More than 7	3	2 to 7	2	Less than 2	1
Source of financial resources (Low			Government	2	Other, please specify	1
			Industry	2	Unknown	

Priority) 1			Intergovernmental Organisation (IGO)	2		

Table 5: Overview of Metrics and Indicators

4. Next tasks

Task 1.3 will continue identifying initiatives, as well as related stakeholders and available data on all steps of the raw material value chain. Identified initiatives will be analysed and prioritized using the criteria, categories, indicators and metrics developed and described in the current task and deliverable. Task 1.3 will also give an overview of the availability of information and statistics on primary and secondary raw materials, their use and needs in various industrial sectors important for the growth and wealth of European economy and society, which will be summarized in a baseline report.