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

**On the review of the list of critical raw materials for the EU and the implementation of
the Raw Materials Initiative**

{SWD(2014) 171 final}

1. INTRODUCTION

This Communication follows the Communication of 24 June 2013¹ on the implementation of the Raw Materials Initiative. It presents the new list of critical raw materials and provides, in the conclusions, an overview of the upcoming activities related to the Raw Materials Initiative, the European Innovation Partnership on Raw Materials and the part of Horizon 2020 that concerns raw materials.

A parallel Staff Working Document summarizes the work done over last year under the three pillars of the Raw Materials Initiative² as well as cross-cutting activities.

In the 2011 Communication on raw materials³, the Commission formally adopted a list of 14 'critical' raw materials (i.e. raw materials with a high supply-risk and a high economic importance) and said that it would continue to monitor the situation to identify priority actions. It also undertook to review and update the list at least every three years. This communication includes therefore a revised list of critical raw materials for the European Union (see Annex 1).

The purpose of the list is to contribute to the implementation of the EU industrial policy and to ensure that European industrial competitiveness is strengthened through actions in other policy areas. This should increase the overall competitiveness of the EU economy, in line with the Commission's aspiration of raising industry's contribution to GDP to as much as 20% by 2020. It should also help to incentivise the European production of critical raw materials and facilitate the launching of new mining activities. The list is also being used to help prioritise needs and actions. For example, it serves as a supporting element when negotiating trade agreements, challenging trade distortion measures or promoting research and innovation. Information on its use by Member States and industry is, however, very scarce. It is also worth emphasising that all raw materials, even if not classed as critical, are important for the European economy and that a given raw material and its availability to the European economy should therefore not be neglected just because it is not classed as critical.

2. THE REVIEW OF THE LIST OF CRITICAL RAW MATERIALS FOR THE EU

The review, the first since the list's adoption in 2011, was conducted with three main objectives:

a) Widening the scope of raw materials analysed

In the 2013 study, 54 non-energy, non-food materials were analysed (41 were analysed in 2010), using the same methodology as the previous study. This extended scope includes seven new abiotic materials and three biotic materials (rubber,

¹ COM(2013) 442 final

² The three pillars are: 1. Ensuring a fair and sustainable supply of raw materials from global markets; 2. Ensuring a sustainable supply of raw materials within the EU; 3. Boosting resource efficiency and increasing the amount of recycling. The Commission will continue reporting through such Staff Working Documents on the implementation of the Raw Materials Initiative.

³ COM(2011) 25 final, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions tackling the challenges in commodity markets and on raw materials".

pulpwood and sawn softwood). The 2014 critical raw materials list includes 13 of the 14 materials identified in the previous study, with only tantalum moving out of the list (thanks to a lower supply risk). Six new materials are included: borates, chromium, coking coal, magnesite, phosphate rock and silicon metal.

b) Refining the analysis and using additional data

In comparison to the 2010 study, greater detail is provided on the rare earth elements by splitting them into 'heavy' and 'light' categories, both included as separate entries in the new list. New European data has been integrated into the study and a 'value chain assessment' is included for all critical raw materials.

c) Preserving comparability with the 2010 study

To enable comparability with the 2010 report, the methodology was not fundamentally changed. New information and insights, on downstream supply chains for example, have therefore been used to improve the qualitative analysis, not the quantitative methodology. The new report contains recommendations for changing the methodology for the next report in 2016.

The new list is presented in Annex 1, consisting of 20 critical raw materials, with key data for each item.

3. CONCLUSION

The Raw Materials Initiative is a medium- to long-term project. All in all, significant progress has been made in implementing the initiative, particularly its first and third pillars. Most actions foreseen in the two Communications have been implemented although indicators that would enable the monitoring of the results are still lacking. In the coming years, the now well-established European Innovation Partnership and the Horizon 2020 programme are expected to drive progress in a wide range of areas.

Further development of the second pillar, especially as regards framework conditions for mining and improving the raw materials knowledge base, should now be a key priority. This could include setting up a pan-European knowledge base of non-energy, non-agricultural raw materials by 2020 and identifying appropriate indicators to measure progress.

The Commission aims to prepare an issues paper on seabed mining by the beginning of 2015.

The Commission will produce a Communication on the European Innovation Partnership to explain how the Commission itself, Member States, industry, academia and NGOs intend to work together to put the strategic implementation plan of the EIP into practice.

Since its launch, the EIP has held an annual high-level conference. The 2014 conference will take place in the autumn in Italy. A number of key 'raw materials commitments' will be presented.

The process for the next strategic programming phase for research covering 2016–18, will begin in 2014. The focus for raw materials will be on industrial demonstration and pilot activities.

With the publication of a call on 14 February 2014, closing on 10 September 2014, the European Institute of Innovation and Technology has launched the selection process for a Knowledge and Innovation Community (KIC) on raw materials. This KIC will bring together

higher education, research and business organisations to boost EU's innovation capacity in the area of raw materials.

The final meeting of the European Rare Earth Competency Network (ERECON) project will take place at the end of 2014, delivering sector papers and policy recommendations.

During the rest of 2014, raw materials diplomacy events are planned with Greenland, the African Union and several technologically advanced countries such as the USA, and Canada. From 2015, various raw materials diplomacy and business development actions with non-EU partners could be carried out using the new Partnership Instrument.

In line with the conclusions of the March 2014 European Council that “efforts should continue to improve market access around the world by facilitating the integration of European companies in global value chains and promoting free, fair and open trade while asserting its interests, in a spirit of reciprocity and mutual benefit. [...]Further action must also be pursued on ensuring access to core raw materials”, negotiations and enforcement of trade rules will remain a high priority, with a particular emphasis on the TTIP negotiations with the United States.

Finally, regarding the third pillar, the highest priority in 2014 will be the waste policy review, including the revision of targets.

Annex 1

List of critical raw materials

The 20 raw materials listed below are critical because risks of supply shortage and their impacts on the economy are higher than those of most of the other raw materials. The chart indicates clearly that China is the most influential country in terms of global supply of the 20 critical raw materials. Several other countries have dominant supplies of specific raw materials, such as Brazil (niobium). Supply of other materials, for example Platinum Group Metals and borates, is more diverse but is still concentrated. The risks associated with this concentration of production are in many cases compounded by low substitutability and low recycling rates.

Raw materials	Main producers (2010, 2011, 2012)	Main sources of imports into the EU (mainly 2012)	Substitutability index*	End-of-life recycling input rate**
Antimony (Stibium)	China 86 %	China 92% (unwrought and powdered)	0.62	11 %
	Bolivia 3 %	Vietnam (unwrought and powdered) 3 %		
	Tajikistan 3 %	Kyrgyzstan 2% (unwrought and powdered); Russia 2% (unwrought and powdered)		
Beryllium	USA 90 %	USA, China and Mozambique ⁴	0.85	19 %
	China 9 %			
	Mozambique 1 %			
Borates	Turkey 41 %	Turkey 98 % (natural borates) and 86 % (refined borates)	0.88	0 %
	USA 33 %	USA 6%, Peru 2% (refined borates); Argentina 2% (natural borates)		
Chromium	South Africa 43 %	South Africa 80 %	0.96	13 %
	Kazakhstan 20 %	Turkey 16 %		
	India 13 %	Others 4 %		
Cobalt (Cobaltum)	DRC 56 % ↑	Russia 96 % (cobalt ores and concentrates)	0.71	16 %
	China 6%; Russia 6%;	USA 3 % (cobalt ores and concentrates)		

⁴ Subject to strong fluctuations.

	Zambia 6 %			
Coking coal	China 53 %	USA 41 %	0.68	0 %
	Australia 18 %	Australia 37 %		
	Russia 8%; USA 8 %	Russia 9 %		
Fluorspar (Fluorite)	China 56 %	Mexico 48 % ↑	0.80	0 %
	Mexico 18 %	China 13 % ↓		
	Mongolia 7 %	South Africa 12 % ↓		
Gallium ⁵	China 69 % (refined)	USA 49 %	0.60	0 %
	Germany 10 % (refined)	China 39 %		
	Kazakhstan 6 % (refined)	Hong Kong 8 %		
Germanium	China 59 % ↓	China 47 % ↓	0.86	0 %
	Canada 17 %	USA 35 %		
	USA 15 %	Russia 14 %		
Indium	China 58 %	China 24 % ↓	0.82	0 %
	Japan 10 %	Hong Kong 19 % ↑		
	Korea 10 %	Canada 13 %		
	Canada 10 %	Japan 11 %		
Magnesite	China 69 %	Turkey 91 %	0.72	0 %
	Russia 6%; Slovakia 6 %	China 8 %		
Magnesium	China 86 % ↑	China 91 % ↓	0.64	14%
	Russia 5 %	Israel 5 %		
	Israel 4 %	Russia 2 %		
Natural graphite	China 68 %	China 57 % ↓	0.72	0%
	India 14 %	Brazil 15 %		
	Brazil 7 %	Norway 9 %		
Niobium	Brazil 92 %	Brazil 86 % (Ferro-Niobium)	0.69	11%
	Canada 7 %	Canada 14 % (Ferro-Niobium)		
Phosphate rock	China 38 %	Morocco 33%	0.98	0%
	USA 17 %	Algeria 13%		

⁵ Gallium is a by-product; the best available data refer to production capacity, not to production as such.

	Morocco 15 %	Russia 11%		
Platinum Group Metals	South Africa 61 % ↓	South Africa 32 % ↓	0.83	35%
	Russia 27 % ↑	USA, 22 % ↑		
	Zimbabwe 5 %	Russia 19 % ↓		
Heavy Rare Earth Elements	China 99 %	China 41 % (all REEs) Russia 35 % (all REEs) USA 17 % (all REEs)	0.77	0%
	Australia 1 %			
Light Rare Earth Elements	China 87 %		0.67	0%
	USA 7 %			
	Australia 3 %			
Silicon metal (Silicium)	China 56 %	Norway 38 %	0.81	0%
	Brazil 11 %	Brazil 24 %		
	USA 8%; Norway 8 %	China 8 %		
	France 6 %	Russia 7 %		
Tungsten (Wolframium)	China 85 %	Russia 98 %↑	0.70	37%
	Russia 4 %	Bolivia 2 %		
	Bolivia 2 %			

The six new critical raw materials are in dark grey in the above table. Unlike in the 2010 report, heavy rare earths, light rare earths and scandium were assessed separately, not as one group of ‘rare earths’. Heavy and light rare earths are in light grey.

For the main producers and the main sources of imports into the EU, arrows indicate an increase or decrease of approximately 10 percentage points since the 2010 report on critical raw materials.

Notes:

(*) The ‘Substitutability index’ is a measure of the difficulty in substituting the material, scored and weighted across all applications. Values are between 0 and 1, with 1 being the least substitutable.

(**) The ‘End-of-life recycling input rate’ measures the proportion of metal and metal products that are produced from end-of-life scrap and other metal-bearing low grade residues in end-of-life scrap worldwide.

Source: compiled on the basis of the 2014 ‘Critical raw materials for the EU’ report by the ad hoc working group on defining critical raw materials of the Raw Materials Supply Group