

QUESTIONS - ANSWERS

POLICY AREA: DEFINING CRITICAL RAW MATERIALS

Major issues:

An expert group, chaired by Enterprise and Industry DG, recently released a report that presented a methodology to measure the criticality of raw materials at EU level. A raw material is labelled "critical" when the risk of supply shortage and their impacts on the economy are higher compared with most of the other raw materials. The report provides an analysis of 41 different minerals and metals, and concluded on a list of 14 critical raw materials. It also contained two sets of recommendations: recommendations for follow-up and further support, and policy-oriented recommendations to secure access to and material efficiency of raw materials.

Questions:

1. Do you have any comments on the methodological approach, including the scope, to determine criticality at EU level? If so, please specify.

Answer

Considering the methodological approach for the determination of the list of Critical Raw Materials the following should be noted:

- 1. There are only a few of the materials considered at their raw mineral form such as bauxite, gypsum, diatomite, perlite, clays, magnesite e.t.c. while the most are examined as after processing end-products such as indium, iron, zinc, germanium etc. This fact introduces serious inconsistencies in the methodology used, as it is necessary for all raw materials to be considered even at their raw – mineral (natural) form or presented by their major final en-product. Nevertheless, under the scope of ensuring access to resources of critical raw materials, it is understood that the whole planning procedure is rather based on exploiting certain geological deposits. Therefore, it is advisable to replace each one of the “critical material” by its major representing raw mineral-s.**
- 2. The scope for the determination of the critical raw materials list shouldn't be focused only on the high-tech materials used for hybrid car batteries, LED displays etc, but should also take into account EU's classic and long term industrial sectors that back up its economy diachronically and will continue to sustain a leading role in the future. Thus, these industrial sectors ought to be examined evenly for ensuring their needs on essential raw materials apart from industries coping with the latest trend on high-tech applications.**
- 3. In the candidate critical raw materials list there are raw materials compared with their own end products such as bauxite-aluminum. This comparison seems rather unorthodox and confusing, causing conflicts to the whole procedure even if it was practical for the Working Group. Additionally this adoption remains unjustified by the**



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Group, making the examining procedure for bauxite and aluminum a “black-box”. As an effect this leads to severe uncertainties and unreliability on the Working Group results as factors like “supply risk” might be miscalculated (ex. supply risk for bauxite and aluminum is not the same but aluminum comes from bauxite). Finally, the “ability” for each of these raw materials to adequately represent its economic importance remains disputed while at the same time the main end product stands for itself independently.

4. The basic scope of the Group’s report was to define critical raw materials under a 10 year period. Given the fact that in order to pre-evaluate, license and prepare the operation of an extractive facility in the EU requires a time-span of ~ 10 years, there should be a larger timescale for consumption predictions. This way, European raw materials industry is rather difficult to respond adequately to changes on the list of materials produced during the next 10 years. Additionally, if there is to be an unpredicted and significant supply change (qualitative or quantitative) after the 10th year, the extractive industry won’t be able to respond on time which will lead to sudden raise on specific raw materials prices and augmentation on their supply risk. Thus, it is recommended to examine the EU’s raw materials demand on a longer period.
5. At the Annex V of the Report the monohydrate bauxite is also examined for its unique non-metallurgical uses, while at the calculations followed on factors such as “supply risk”, “level of concentration of producing countries” (HHI index), both types of bauxite raw materials (tri-hydrate and monohydrate) are taken into account in an aggregated manner.

These calculations are considered as erroneous as deposits of monohydrate bauxite are scarce (located only in Europe and China) and with small-scale productions, while tri-hydrate deposits are big and located in many places worldwide. Also, tri-hydrate bauxite may not substitute the usage of the monohydrate for non-metallurgical applications when, at the same time, China as the largest producer is introducing trade restrictions on monohydrate bauxite.

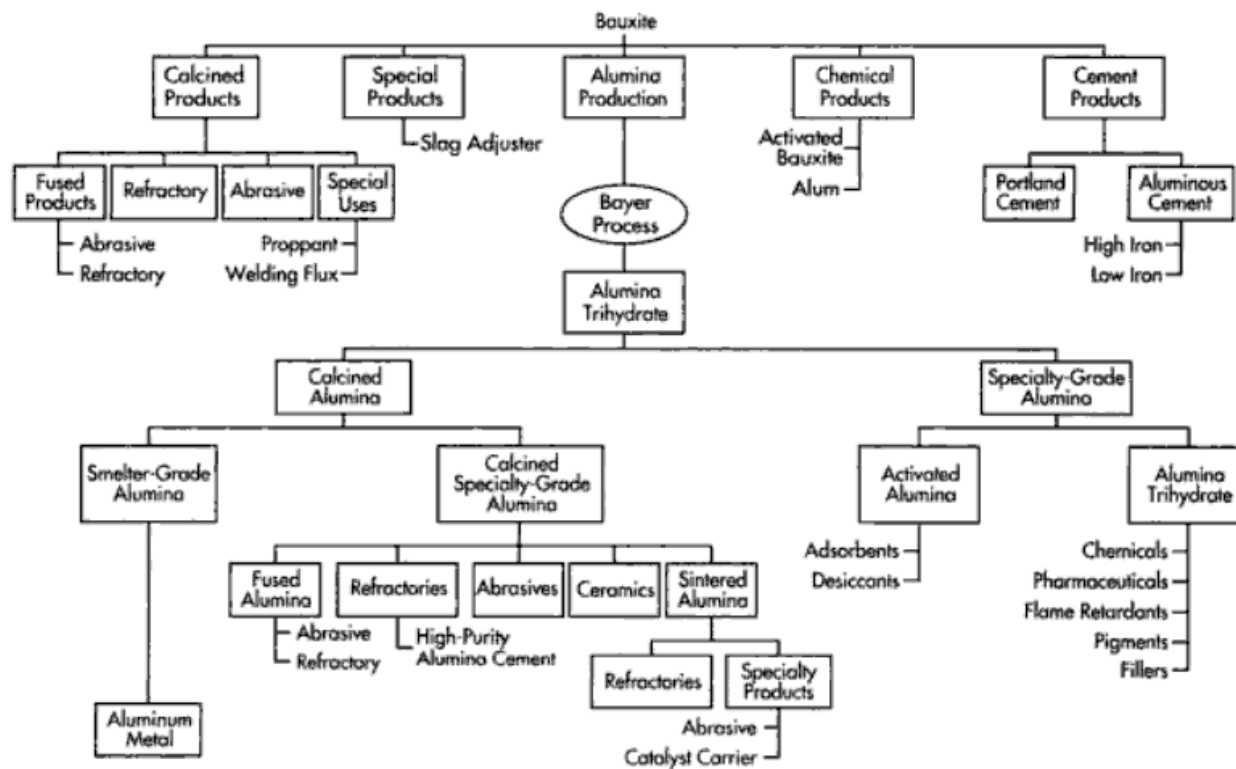
Chemical Composition	Gibbsite, Al(OH) ₃ or Al ₂ O ₃ ·3H ₂ O	Boehmite, AlO(OH) or Al ₂ O ₃ ·H ₂ O	Diaspore, AlO(OH) or Al ₂ O ₃ ·H ₂ O
Al ₂ O ₃ content, wt %	65.35	84.97	84.98
Combined hydroxyl (OH) group content, wt %	34.65	15.03	15.02
Crystal system	Monoclinic	Orthorhombic	Orthorhombic
Hardness, Mohs scale	2.2-3.5	3.5-5.0	6.5-7.0
Specific gravity	2.3-2.4	3.01-3.06	3.3-3.5

Table 1. Properties of major bauxite minerals (Shaffer, 1983, Patterson et al. 1986).



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Diag. 1. Bauxite industry flow diagram.

2. Do you see any additional raw material that should be considered as critical? If so, please explain.

Monohydrate Bauxite (diaspore / boehmite) which stands apart from the tri-hydrate one and the production of aluminium, is a specific-standalone raw material that should be considered as critical for its non-metallurgical industrial uses. This kind of raw material exists only in a few places in the world (Europe and China) while the major producing countries are China and Greece.

The Greek rich iron monohydrate bauxite is very well positioned in the non-metallurgical bauxite market of the world, remaining as a key component for the production of fused calcium aluminate cement (CAC), of white and brown fused alumina, of calcined and sintered mulite and as a proppant.

On the other hand, the European Special Cement industry represents one the most important highly competitive and technologically advanced productive sector of the EU, producing refractory cement used at industrial furnaces and oven linings. Also, lately calcium aluminate cement is becoming the binder of choice for refractory formulators as the properties of monolithic refractories approach, and sometimes surpass, the properties of the classic refractory bricks. This way the European Special Cement industry is becoming increasingly important for the smooth operation of many other industrial sectors such as steel and mechanical equipment, cement, mortars, glass, construction materials, road-transport materials and even food production.

However, given the fact that:

- China, as the major producer of monohydrate bauxite is introducing strong export quotas and taxes in order to reduce drastically the export of such bauxite type,
- under the current economic recession bauxite mining companies tend to consolidate building an over-regulated market
- there is a major setback on licensing mining projects at Greece



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many essential European industrial sectors, far from the aluminate cements one, are exposed to uncertain future under the lack of high quality furnace lining materials becoming depended to non-European monohydrate producers.

Thus, monohydrate bauxite is necessary to be considered as critical for its fundamental role for the European industry and economy because of its non-metallurgical applications, but in the view of administratively reassuring the necessary access to the sufficient local reserves and *not* under the lack of EU mineable deposits.

3. Do you have any comments regarding the recommendations of the report? If so, please specify.
4. Are you aware of any initiatives in your country that aim to assess the criticality of raw materials? If so, please describe briefly.
5. The functioning of raw materials markets has not been dealt with. Do you think that further analysis of their functioning should be carried out? What actions should be proposed to increase their transparency?
6. Do you think that the EU should propose a system of stockpiling for the critical raw materials? If so, please indicate whether you consider it more appropriate to do this at Community or alternatively at Member States level.

POLICY AREA: TRADE

Major issues:

One pillar of the Raw Materials Initiative consists in developing a European external strategy in order to guarantee the sustainable supply of raw materials from global markets at undistorted conditions. In this, trade policy plays an important role.

DG Trade has recently completed its 2009 activity report on raw materials, which summarizes the progresses accomplished along the three axes of the trade raw materials strategy:

- > Include, as appropriate, the relevant trade disciplines on sustainable supply of raw materials in bilateral and multilateral trade agreements.
- > Identify illegitimate trade distortive measures taken by third countries and tackle them using all available instruments, including through bilateral consultations, the Market Access Partnership process or, if necessary, the WTO dispute settlement; while delimitating more clearly permissible exceptions for e.g. development purposes.
- > Reach out to third countries to show that the question of sustainable raw materials supply is an issue relevant to all countries, developing or developed, resource-rich and resource-poor alike as the uncontrolled, unregulated multiplication of trade restrictions can lead to a generalized beggar-thy-neighbour policy detrimental to most countries; while recognising the importance of respecting internationally agreed rules on the subject.

Questions:

7. Do you think that the importance of trade is adequately reflected in the work carried out so far in the Raw Materials Initiative?

8. Do you have any comment regarding the main findings of DG Trade activity report? What activities should be prioritised? Are there, in your opinion, additional activities not mentioned in the report which should be pursued in this strategy?

9. Please identify trade distortive measures (i.e. export restrictions) concerning raw materials that in your view should be tackled.

10. Are you aware of any initiatives in your country that have one of the above-goals in mind such as, for example, developing a raw materials diplomacy, or supporting companies to invest in third countries in the raw materials sector? If so, please describe briefly.

POLICY AREA: DEVELOPMENT

Major issues:

The 2008 RMI Communication highlighted that development policies play a relevant role in at three 'levels':

- > 'Strengthening States'
- > Promote a sound investment climate that helps increase sustainable supplies of raw materials
- > Promote sustainable management of raw materials

In 2010, within the context of the EU-African Union partnership, the European Commission and the African Union Commission recently agreed to develop a bilateral co-operation in the field of raw materials and to work together, taking fully into account the Africa Mining Vision of February 2009 and the EU Raw Materials Initiative of December 2008, in particular on issues such as governance, infrastructure and investment and geological knowledge and skills.

Questions:

10. What specific actions would you consider most relevant needed in the following areas:

- Good governance;
- Infrastructure / investments;
- Geological knowledge / skills.

11. Regarding transparency, what measures do you believe the EU should take to foster revenue transparency in the mining industry in raw material resource-rich countries? What are your views regarding existing initiatives currently being taken in this area, namely by the Extractive Industries Transparency Initiative (EITI⁶)?

12. Concerning the recent agreement between the European Commission and the African Union Commission, in your view, what concrete objectives, targets and deliverables should be included in such a partnership?

13. Do you consider that wood should be addressed in the framework of development policy? If yes, please specify what are the main issues to be analysed.



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14. Are you aware of any initiatives in your country that contribute to promoting exploration and exploitation of mines in developing countries? Should such initiatives be better coordinated or promoted at the EU level?

**POLICY AREA: IMPROVEMENT OF THE REGULATORY FRAMEWORK CONDITIONS
INSIDE THE EU**

Major issues:

The Commission has proposed in the Raw Materials Initiative adopted in 2008 to provide clarity on how to reconcile non-energy extraction activities in or near Natura 2000 areas with environmental protection. In consultation with stakeholders a guidance document has been finalised and will be available on the web site of DG Environment before summer break.

As regards ways to improve the regulatory framework within the EU by promoting the exchange of best practices in the area of land use planning and administrative conditions for exploration and extraction, a report has been delivered by the relevant ad hoc Working Group . This report covers the following topics:

- Minerals Policy
- Land use planning policy for minerals
- Authorisation and permitting procedures
- Achieving Technical, Environmental and Social Excellence
- Improving the EU's geological knowledge base
- Better networking between the national Geological Surveys
- Need to integrate terrestrial sub-surface information into the GMES Land Service

Questions:

16. Do you agree that these topics correspond to the major challenges in this policy area? If not, please specify.

Yes. These topics represent the major challenges in this policy area.

17. Do you think of any other avenues which should be followed by the Commission? If yes, please specify.

It is necessary that the Commission's role on land planning policy for minerals and permitting procedures won't just stand as consultative but as superintending on the right implementation of its regulative framework at each Member State. Since the EC introduced its regulations on various land access and environmental issues such as Natura 2000, MS administrative authorities have complicated their own mine licensing procedures and interpreted the related EC Guidances each time in a subjected and ad hoc way. As a result, most of the proposed mining projects are still jeopardized while their licensing procedures last for many years as the local authorities fail to keep a fixed / clear position and time frame.

The Commission should drastically take action to establish a sound procedure and clear go / no-go criteria for licensing non-energy extractive mining projects, in or close to Natura 2000 areas in the EU.



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18. Do you agree with the recommendations made in the report on "Exchanging Best Practice on Land Use Planning, Permitting and Geological Knowledge Sharing" or do you have any specific ones to be added. Please explain.

19. Do you consider it useful to establish an EU geological service based on a network of Member State geological services?

20. Do you consider that EU regulatory framework conditions for wood and/or recovered paper need to be further analysed? If yes, please specify.

POLICY AREA: PROMOTING SKILLS AND RESEARCH, DEVELOPMENT AND INNOVATION

Major issues:

- > Promote **skills** not only in the mining sector but also in other raw materials sectors is a matter of concern. The Commission is currently supporting this challenge via programmes such as ERASMUS MUNDUS with the specific Minerals and Environment Programme (EMMEP).
- > Focussed **research** on innovative exploration and extraction technologies, recycling, materials substitution and resource efficiency. The Commission has recognised the European Technology Platform on Sustainable Mining (ETP-SMR) to catalyse excellent research and development collaborative projects between the industry and research organisations. In addition, via the 7th framework programme for research, development and innovation the next call for proposals in the area are expected to be public in July⁹.

Questions: Skills:

20. What type of actions would you propose to provide better cooperation between companies, universities and public authorities in order to promote skills and in the extractive or other raw materials sectors? Please specify.

Research, Development and Innovation:

22. Are you aware of any research, development and innovation programme(s) at national, regional or local level? Please specify.

23. Where do you see the major gap / the urgent need for the raw materials sector related research, development and innovation at EU level. Please provide details.

24. What is your idea of a major research and innovation action that would have the highest positive impact on the security of raw materials supply for the EU industries? Please specify.

25. Are you aware of innovative exploration and extraction technologies, where project partners on a European level are needed to develop and implement the new technologies and which are the innovative technologies which need to be developed further. Please provide details.

26. Are there any other aspects related to skills, R&D and innovation for other raw materials, such as wood, that need to be further promoted? Please, specify.

POLICY AREA: RESOURCE EFFICIENCY & RECYCLING

Major issues:

The 2008 RMI Communication identified that the increased use of secondary raw materials contributes to security of supply and energy efficiency. However, today many end-of-life products do not enter into sound recycling channels, resulting in an irremediable loss of valuable secondary raw materials. This mainly concerns exports of end-of-life vehicles and electronic equipment, which leave Europe as reusable products but end up being dismantled abroad. To counter these trends, the need to reinforce the Waste Shipment Regulation and related legislation was identified. Furthermore, prices of some recovered materials have reached record levels due to the high demand from third countries.

The Waste Shipment Regulation also contains requirements on exporters of waste to third countries to ensure that this waste will be treated in an environmentally-sound manner. However, compliance with this principle is not always respected.

Finally, stakeholders have identified the need for an improvement in statistics on secondary raw materials. This includes actions to be taken to measure the extent of illegal trade in products containing these secondary materials.

Questions:

27. In your view, and beyond measures already being taken (e.g. the recast of the WEEE Directive), what practical measures can be taken by the EU and by Member States to prevent the illegal shipment of obsolete end-of-life vehicles and electronic equipment?

28. In what ways should statistics on trade in, and recycling of, products containing secondary raw materials be improved?

29. Have you identified major problems with recovered paper? What are the main issues that need to be further analysed?