

IMA-Europe Comments on the Consultation on the Roadmap for a Resource-Efficient Europe

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1. Executive Summary

Producing primary raw materials which are essential for the whole manufacturing industry, the industrial minerals sector has always considered resource efficiency as a key priority.

As it is the case for many naturally occurring raw materials, at global scale there is no geological scarcity of industrial minerals. The increase in the worldwide demand linked to the demographic boom and the legitimate development of emerging economies has induced significant pressures on some raw materials which are now assessed as critical regarding their domestic supply in the EU. While graphite, fluorspar and rare earths were assessed critical, most industrial minerals are not critical according to the European Commission recent assessment. However this may evolve with the demand and some grades may be at higher risk than others. This is particularly true on some markets where mineral resources may be heavily constrained by local, regional or national restrictions dictated by ecology, landscape, culture, etc. interests. In this case it is the access to the domestic commercial resources which is crucial.

Industrial Minerals contribution to resource efficiency is manyfold:

- They contribute to primary resource efficiency, including efficient sourcing through sustainable mining and processing.
- Enabling savings in downstream sectors, they improve the performances of many applications they contribute to develop, thereby increasing their efficiency of usage.
- They contribute to secondary resource efficiency through the valorisation of by-products and waste, thus allowing the reduction of waste streams.
- Many of their end-applications are recycled, in such a way that industrial minerals are recovered through the recycling of the products which contain them.

Therefore the Industrial Minerals sector stresses that the definition of resource efficiency should encompass all resource efficiency aspects: from efficient extraction, to processing, manufacturing, usage, and end-of-life and finally whenever feasible recycling. Not limited to the reduction of resource consumption, dismantlement and recycling, resource efficient policy should consider instead the full life-cycle of the production chain from cradle to cradle. This requires holistic approaches, not simplistic ones. In that respect “using less - recycling more” risks missing the efficiency objective and not giving the expected result. It is also crucial that the approaches be adapted to the different production chains, taking into account their technical, environmental and economic specificity.

2. Introduction

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The Industrial Minerals Association – Europe, IMA-Europe, is pleased to submit comments on the consultation related to the preparation of the “Roadmap for a Resource-Efficient Europe” by DG Environment. The questionnaire, as provided online, is far too restrictive in its choice of answers, and does not allow for providing documented unbiased responses. This is why our comments are submitted here below.

Making the best of the resource in a sustainable manner is a driver of any economically viable mining company. The environmental concerns have generally enhanced the quest for higher energy and CO₂ productivity, not initiated it. Resource efficiency is a key priority of the industrial minerals industry making it a competitive and innovative sector.

3. Industrial Minerals are defined by the variety of their applications

An Industrial Mineral is defined as a mineral, which may be directly used in an industrial process due to its chemical/physical properties. Industrial minerals are used in a range of industrial applications, including in the manufacture of steel, chemicals and glass, as fertilisers and functional fillers in pharmaceuticals and cosmetics, ceramics, plastics, paint and paper, and in the treatment of gases and waste, etc. Industrial minerals include barites, bentonite, borates, clays, diatomite, feldspar, fluorspar, gypsum, limestone, silica sand, talc, and many others.

IMA-Europe represents 500 companies (685 mines & quarries, 750 plants), employing 42,500 employees producing in the EU, Norway, Switzerland, Turkey and Ukraine more than 180 million tpa, for a value exceeding EUR 10 billion.

Essential in our everyday life where they are hardly substitutable, industrial minerals are also used in high-tech and environmentally friendly applications thereby contributing to reducing their environmental footprint.

4. Globally Industrial Minerals are not scarce however their domestic access may be severely restricted and constrained

According to the Criticality Report recent analysis, given that only a few percent of the Earth’s surface and subsurface has been explored in detail, the potential for discovering new mineral deposits is vast and the geological availability is indefinite.

In this context, the main issue, for the short and longer terms, concerns exploration and technological developments that will allow for a sustainable exploitation of resources, rather than geological scarcity.



Many industrial minerals are ubiquitous and, for some of them, there are still wide reserves in comparison with other mineral resources. For instance, feldspar is the most common mineral on Earth forming up to 60% of the Earth crust, and silica is the second mineral forming 12% of the Earth crust while one may find limestone everywhere worldwide. However not all grades are widely spread and geology designs not only the availability of minerals, but also the availability of their various qualities and grades.

In addition, due to their relatively low prices, Industrial Minerals cannot always bear the costs of transportation. In most cases, resources have to be locally produced close to the manufacturing industries which use them. In the case of lime, for identical production processes, doubling the mean transport distance between production and supply (i.e. around 150 km) leads to increasing the product CO₂ footprint by 6%.

Therefore, access to resources is essential and the industrial minerals industry, as other extractive sectors, may compete with other land uses would it be urban, agricultural or other industrial uses, or also nature protection.

Based on the geological mapping of the deposits in Europe, combined with the potential ability to rework deposits and make use of by-products, Europe should target to be self-sufficient in wherever possible.

5. For industrial minerals resource efficiency is manifold

5.1 Resource efficiency starts with sustainable mining & processing

The efficient management of the resource has always be one of the utmost priorities of the owners and managers of a deposit. Sustainable mining consists in producing the highest possible qualities at the lowest possible costs, notably in terms of energy and water consumption, while supplying at lower prices the less valuable grades to the adequate downstream markets.

In that respect, in the case of limestone, one may regret the decision taken in the Emission Trading Scheme rules not to permit for differentiating technologies in benchmark setting. The horizontal kilns which are beneficial for the valorisation of the resource allowing for calcination of the smaller limestone pebbles and which are greater CO₂ emitters than the vertical kilns would have indeed deserved a specific benchmark

To preserve the resource, new technologies (e.g. electrostatic separation, new generation of optical selection) are used, thus increasing the rate of marketable ore recovered from the raw ore. This approach, associated with R&D, allows reducing some ores (e.g. some talc qualities) imports and valorising ores which performances such as whiteness were judged

inadequate even recently, and making them now suitable for the manufacturing of automotive plastics or non VOC paints.

The Industrial Minerals industry contributes to primary resource efficiency, including efficient sourcing through sustainable mining and processing. As an incentive for still improving the mining productivity of the sector, one may encourage the launch of the European Innovation Partnership (EIP) and the funding of projects focusing on raw materials extraction and processing. One may also encourage specific funding for the implementation of innovative solutions in SMEs.

5.2 Industrial Minerals improve the performances of many applications they contribute to develop

While it is hardly feasible to manufacture everyday life objects without minerals (e.g. glass, ceramics, plastics, paper, steel, pharmaceuticals, cosmetics, etc.), industrial minerals also offer friendly options (e.g. water treatment and filtration, gas treatment) and replace rarer, more critical raw materials, or raw materials with a higher footprint.

A few examples:

- Talc in bumpers decreases the consumption of polypropylene (PP) and the combination replaces heavier components previously made of metal;
- Silica in tyres saves synthetic rubber, but more importantly reduces petrol consumption of the cars, allowing the development of a new generation of energy saver tyres;
- Perlite in bricks increases building isolation and contributes to energy saving;
- Lime in autoclaved aerated concrete helps reducing the weight of bricks and improves the thermal insulation of buildings;
- Kaolin as a barrier replaces fluorocarbons having a much higher footprint;
- Calcined kaolin with a high specific surface gets such opacity performances that it allows reducing the use of pigments and resins in paints;
- Carbonates in polyethylene films reduce raw materials consumption while rendering breathable the film used in anti-irritating baby diapers;
- Graphite replaces mercury in alkaline battery;
- Minerals in paper allow reduced cellulose consumption and in doing so improve the full paper footprint, being an example of a better performance of a non-renewable resource compared to a renewable one.

In addition, with continuously improved qualities and performances, the European industrial minerals contribute to improving the efficiency of the manufacturing processes: the EU consumes only 10 kg magnesia per tonne of steel, while 23 kg of magnesia is used per tonne of steel produced in China, and the mean consumption of magnesia is 15 kg per tonne of steel worldwide.

Industrial Minerals increase the efficiency of usage of their various applications, thereby enabling savings to downstream sectors. By lowering carbon footprint, energy and water consumption to produce smart and environmental friendly applications, they provide a clear example of a naturally occurring resource for which reducing the resource use at all costs does not make sense. To achieve “smart and sustainable growth”, the environmental impacts related to resource use should be minimised with mitigation ensuring the integrity of ecosystems in the long term. However, any negative impact has to be balanced throughout the whole life-cycle with the benefits the resource use generates.

There is still room for improving the eco-efficiency of consumer goods thanks to the use of the best appropriate resources, not only the ones with the lowest environmental footprint, but the ones leading to products with the highest eco-performances. To promote research in that area, it is crucial that the resource efficiency flagship acknowledges the role raw materials play in the manufacture of eco-efficient applications. In addition, integrated life-cycle based approaches should be favoured and funding should also be granted to projects focusing on resource and energy efficiency in the process industries.

5.3 They contribute to secondary resource efficiency through the valorisation of by-products and waste, allowing so to reduce the waste streams.

As part of sustainable mining the less valuable grades are supplied at lower prices to the appropriate downstream markets. The valorisation of these by-products, as well as of mining waste, allows for increasing the mining productivity.

Funding of R&D and Innovation in the valorisation of by-products and the recovery of mining waste may certainly help developing better knowledge and techniques. The EIP should allow for such progresses.

5.4 Industrial minerals are recovered through the recycling of the applications which contain them.

Regarding their recyclability, it must be noted that when they enter in the composition of their end-products, it is technically extremely difficult and energy-wise unsound to retrieve industrial minerals from the complex matrix of these end-applications. Therefore for many industrial minerals, the recycling rate in the strict sense of the term seems to be very low or nil.

However many of their end-applications are themselves recycled, in such a way that industrial minerals are recovered through the recycling of the products which contain them. Industrial minerals recovery is generally not properly acknowledged and quantified. For instance, while in glass feldspar and silica sand are not directly recycled, there is a lot of recycling of glass, which contains at least 20% feldspar and 70% silica sand, and

consequently they are recovered through glass recycling. Many examples may be mentioned in addition to glass recycling such as the recycling of paper, paperboard, and loaded polypropylene, but also recycled building materials which are re-used in base courses (road sub-layers) or lean concrete.

From a resource efficiency point of view, Industrial Minerals provide a clear example of a naturally occurring resource which very often replaces scarcer and less environmentally friendly resources. Therefore, when considering Industrial Minerals, reducing the resource use at all costs does not necessarily make sense.

6. What are the best policy instruments able to enhance resource efficiency?

A great number of EU policy instruments are already in place (eco-design, eco-labelling, green public procurement, waste, end-of-life vehicles, waste of electrical and electronic equipment, etc.). Resource efficiency is already an integral part of these policy instruments. Therefore, as part of the Better Regulation – Smart Regulation approaches, before launching any further legislative initiative, a full implementation of existing legislation and schemes and a sound analysis of their impacts on the EU industrial competitiveness should be conducted.

In parallel, as securing EU access to raw materials is becoming a policy priority, to achieve this in the most efficient way access to domestic raw materials should be privileged whenever feasible. In this respect measures promoting mineral exploration and investment in the EU should be urgently considered, as well as the development of a Common EU Minerals Policy and Minerals Planning Policy to implement the recommendations of the Report from an Ad-Hoc Group of the Raw Materials Supply Group Improving Framework Conditions for Extracting Minerals for the EU - Exchanging Best Practice on Land Use Planning, Permitting and Geological Knowledge Sharing (June 2010).

In addition, to help the EU to access critical foreign resources in a sustainable way, i.e. to share the EU resource efficiency knowledge with third countries, support should be given to the European minerals companies able to contribute through innovation funding, sustainable and resource-efficient developments in developing countries, where they (wish to) operate or trade from.

6.1 The knowledge base including resource efficiency indicators

As pointed out in the Commission background document, there is an urgent need for developing the right knowledge base, including operational indicators and measurement methods. The integrated macro-level approach taken by the Joint Research Centre for developing the decoupling, basket-of-products and waste management indicators is promising and is to be favoured compared to the use of the Domestic Materials

Consumption. Only holistic life-cycle based approach will allow assessing resource efficiency all along the production chain.

Non-integrated individual indicators such as water consumption, energy consumption, GHG emission and resource use are unable to help the consumer to make a reasoned choice. For instance a higher resource indicator may be balanced by a lower water or energy consumption or GHG release as a result of that particular resource use. It is not from the score of the individual indicators that one may deduce the best efficiency option.

6.2 Mandatory recycled/secondary materials content in products

Promoting through voluntary scheme or imposing mandatory content of recycled/secondary materials in products is not necessarily improving the eco-efficiency of the products. While it is sound environmental practice to reduce the waste streams and innovation in this area deserves proper funding, waste collection and recycling process impacts are far from being negligible and have to be carefully assessed and compared with the impact/benefit balance of virgin materials use.

6.3 Taxation of natural resources

Taxation of virgin raw materials to achieve better resource efficiency does not guarantee an actual production of better eco-efficient products. Shifting taxation from labour to resource is an option which has little to do with environmental protection, but may be driven by economic considerations. Public policy requires that taxation is applied on a uniform and fair basis. The resource industry certainly deserves a fair treatment. It is already subjected to income taxes, but should they be subjected in addition to resource taxes, which most probably will not allow for deduction of the capital costs, this will discourage investment in the resource industry in the EU. Rather than improving the access to raw materials in the EU, it will still deprive the European manufacturing industries from a sustainable, secured access to domestic resources. It will prevent the access of many industries, such as construction, paints, plastics, etc., to cheap, environmentally efficient resources they today benefit from. On the long term, it will trigger more transportation of ponderous materials across Europe, with the associated unfavourable consequences on the environment, as well as the delocalisation of many manufacturing industries outside the EU.

6.4 Funding of R&D and Innovation

As already mentioned above, financing R&D and Innovation projects related to resource efficiency will allow for progress. However it is essential to attract around the innovation projects all concerned partners, large, medium and small enterprises, and to address in a wide perspective all the aspects of resource efficiency from exploration, extraction, to processing, manufacturing, usage, end-of-life and finally recycling.



Industrial Minerals Association – Europe A.I.S.B.L.

To conclude: Resource Efficiency requires an integrated approach

Reduction of resource use per se makes no sense for non-critical, non-scarce resources which may play a major role in the attainment of low-carbon, environmental friendly solutions. Resource efficiency for industrial minerals is a much integrated concept which does not limit itself to the reduction of the consumption of the minerals, but takes into consideration the full life-cycle of the end-applications from cradle to cradle.

Resource Efficiency should not be limited to “using less”, it should promote “using better”.

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