



Raw materials

EU policy to secure access and improve use-efficiency

As global demand for resources continues to grow, the EU, as an importer of raw materials, needs a coherent strategy to ensure reliable access at fair market prices.

The Commission's Raw Materials Initiative, recently updated, attempts to lay out the EU's strategy in this important area. Beyond defining a list of critical raw materials, a number of policy directions are mentioned, including the use of trade policy, stockpiling, 'urban mining' and substitution.

But this strategy does not make clear how raw materials diplomacy will fit in with other trade policy goals, such as promoting human rights, poverty reduction and the environment.

Stakeholders have also criticised EU rules that hinder the EU's mining industry, leading to import dependency.

In terms of EU internal policy, the issue can also be addressed through better resource management. Stockpiling could help overcome short-term volatility in some markets, while better use of 'urban mining' and other recycling techniques could cut the EU's dependence on new materials imports.

Finally, investment in research for alternative materials and new applications can help diversify the EU's raw materials mix, helping competitiveness, as well as the environment.



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Molybdenum is used to create alloys for aircraft and industrial engines. Strong demand in China has pushed up global prices since 2006.

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Issue definition

As the global economy continues to grow, there is ever increasing pressure on the earth's resources. Not only oil and other energy sources, but also a large number of relatively obscure metals are essential ingredients for modern, high-tech economies.

In many cases supply is not at risk. There are numerous mines and extensive mineral reserves throughout the world. However, for some 'critical' raw materials, supply is either limited, or heavily concentrated in just one country. Political instability could threaten to destabilise the global market for these materials.

Raw materials and the EU

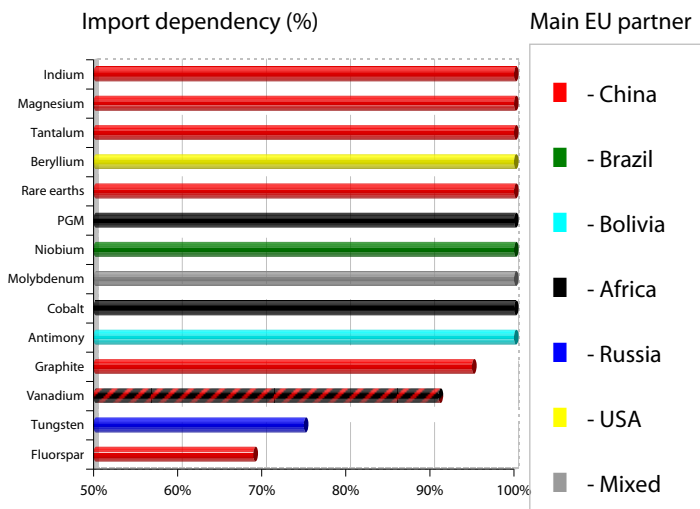
The EU has the largest economy in the world, but lacks the mineral wealth needed to sustain it. This is why the EU depends on imports of many critical raw materials (see figure 1).

It is vital that firms operating in the EU can count on a reliable supply of raw materials at a fair market price.

But as the developing economies which produce these minerals (such as China) seek to encourage expansion of their own industrial capacities, they have every

incentive to favour domestic firms, at the expense of supplying EU-based companies.

Figure 1 - Europe's import dependency on, and main source of imports of, critical raw materials (2008)



Sources: European Commission, Bundesanst. für Geowissen

Current EU policy on raw materials

The European Commission published its new, integrated [strategy](#) for raw materials in November 2008. The strategy, known as the Raw Materials Initiative (RMI), suggested three pillars for EU policy to ensure access to global resources:

- Improving commercial access for European firms to global markets for raw materials
- Improving conditions for extracting raw materials within the EU
- Improving the efficiency of raw materials consumption - notably through recycling and investment in efficient technologies.

In early February, the Commission [updated](#) the RMI, including further raw materials it identified as 'critical', in terms of supply risk. Here great emphasis is again placed on the use of trade policy to ensure reliable supply from third countries. The communication also evokes, for the first time, the possibility of a stockpiling programme at EU level¹.

Criticism

The Raw Materials Initiative (RMI) has come under criticism for failing to clearly give priority to those policies which reduce Europe's dependency on imported raw materials – namely recycling and substitution. Instead, the RMI gives equal importance to foreign policy and trade initiatives.

More generally, some commentators have criticised the RMI for a lack of coherence. While its section on trade argues for an end to export tariffs on all raw materials, no account is taken of the EU's development or environmental goals for less developed countries². Thus, revenues from tariffs which are used by developing countries to meet development targets or mitigate environmental damage could be lost.

Industry stakeholders have also criticised the EU's REACH Regulation for adding costs and bureaucratic difficulty to the processes used to extract secondary metals from base metals³.

'Raw materials' diplomacy

As the largest trading bloc in the world, the EU has considerable leverage in negotiating trade agreements with third countries and regions. However, until recently, the EU has made only limited use of its trade power. It has not, for instance, used it to gain preferential access to vital third-country markets, by means of favourable free trade agreements.

In this sense, the RMI, which calls for 'raw materials' diplomacy in the form of 'trade discipline', represents a departure from past EU trade policy, which focused more on market openness and development policy goals.

The EU and China

Recent tensions have erupted following China's decision to restrict exports of rare earth elements (REEs), a group of metals vital to the production of many high technology

products. Western sources have accused China of distorting competition to favour Chinese firms which use these metals.⁴

Role of the WTO

In November 2009 the EU, joined by Mexico and the US, called for the establishment of a WTO trade panel to investigate export restrictions imposed by China on certain key raw materials. A panel was formed in 2010 and is expected to conclude its work by April 2011.

This is seen as a test case of the WTO's powers in the area of export restrictions. Analysts believe this is an area of international trade law which is still underdeveloped. Under current rules, countries have wide discretion to cite development or environmental policy to justify export controls⁵.

Even given this, evidence suggests that failure to conclude the [Doha round](#) 'has meant raw materials' diplomacy – along with other elements of trade policy – increasingly being conducted in the framework of bilateral trade agreements between countries or regional blocs. The focus of the EU's RMI is in line with this trend.

The EU and Latin America

Compared with other trade blocs such as the EU or North America, Latin America is more fragmented. Its countries rely on bilateral trade agreements to a greater extent. The EU is Latin America's second largest trade partner, accounting for 14.5% of trade in 2007.

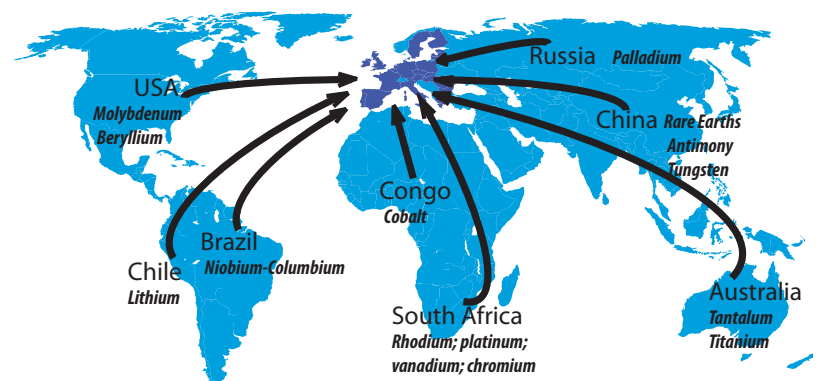
Among the crucial raw materials exported from Latin America is lithium, used extensively in lithium-ion batteries. A reliable supply of this material is seen as vital to the development of the electric car industry. Chile and Argentina together account for 50% of world exports of lithium, and Bolivia has recently issued permits for new mining operations. Fierce competition for these permits between French and German firms –

as well as Asian interests – has shown a lack of coordination among EU partners.

Trade policy and the GSP

The 2011 update to EU trade policy on raw materials comes at a time when the EU's current [Generalised System of Preferences](#) (GSP) Regulation is due to expire⁶. The GSP provides developing countries unilateral, privileged access to EU markets for a wide range of products. An enhanced GSP, GSP+, allows for further trade incentives to promote human rights and the protection of the environment for countries defined as 'vulnerable'⁷.

Figure 2 - Major global producers of select high-tech metals (2006)



Data source: World Mining Data (2008)

Despite the fact that six of the 16⁸ countries listed as major producers of critical raw materials under the RMI are also listed as 'vulnerable' countries under GSP+, the new RMI makes no mention of GSP whatsoever.

Criticisms of resource diplomacy

The use of trade policy to ensure access to raw materials may undermine other foreign policy goals to which the EU is committed, some development NGOs have argued.

Stockpiling

While stockpiling clearly cannot ensure security of supply in the long term, it can help smooth price fluctuations in volatile markets. In other words, if an EU-level stock of raw materials exists, supply shocks which are sudden and temporary (e.g. due to a natural disaster) can be overcome. The



stockpile can then be replenished again, when conditions normalise.

In addition to reducing volatility, stockpiling may also give the EU more *buyer power*. By coordinating the purchase of raw materials at EU level, Europe may be in a stronger position to negotiate supply contracts, rather than disparate firms acting individually from within the EU. As such, stockpiling can also be seen as a complementary measure to a more forceful approach to raw material diplomacy.

Possible designs

The RMI hints at a stockpiling programme similar to the one in place for oil. That is, an EU directive which mandates quotas each MS must keep. The stocks would then have to be held by designated central stockholding entities (CSE). Such CSE would be non-profitmaking, one per MS.

An alternative model would be to mandate a regulatory and incentivised structure of stockholder permits, which each MS could distribute to commercial entities operating on its territory, in order to fulfil its stockpiling quotas. A landmark economic study on the stockpiling of grain in the US in the 1970s favoured this approach, on the basis that it would be more cost efficient⁹.

Risks and limitations

An obvious risk to stockpiling is that in the short term, it will put upward pressure on prices, as the EU seeks to reach its stockpile quota. Also some materials can go 'bad' over time.

There are also concerns over how and when to decide to release the stockpiled material. It is not clear what level of price increase should trigger an intervention into the normal supply flow. In a sense, this pits the interests of buyers (who wish to see the

stockpile released) against those of suppliers (who wish to see the market price prevail).

Urban mining

The term urban mining is used to refer to resource extraction from waste. As such, the concept is closely linked to recycling. However, urban mining can be broader, as it includes, for instance, extraction of resources from closed landfill sites which predate modern recycling practices.

In addition to reducing the EU's dependence on imports, urban mining has considerable

potential to improve the environmental balance of the raw materials sectors. For example, extracting aluminium from primary sources is very resource intensive, and so recycling of aluminium has the potential to reduce the industry's carbon footprint by up to 95%.¹⁰

The higher the cost of carbon, therefore, the more cost-efficient urban mining will become vis-à-vis primary mining.

The DRC and cobalt

Cobalt is one of the critical raw materials identified by the RMI. Its production is heavily concentrated in just one country, the Democratic Republic of Congo (DRC). The DRC has seen much recent conflict, and although production of cobalt is conducted by Western companies via stable and long-standing contracts with the DRC, civil war and turmoil represent an ongoing threat to supply.

What is the potential for urban mining in the EU?

At present, much of the EU's electronic waste (or e-waste) is shipped to third countries, where the percentage of metals recovered is often low due to lack of technologies.

REEs, much in discussion lately, are difficult to extract via urban mining. However, current technologies allow for easy extraction of other critical materials – such as lithium and platinum – from the e-waste stream.

Although comprehensive figures are not available for the EU as a whole, individual studies in MS indicate there is considerable potential to expand urban mining within the EU.



A recent study indicates that over 50% of Germany's annual consumption of aluminium could be covered from urban mining of closed landfill sites. For iron and copper, the figure is 124% and 142% respectively¹¹.

For cobalt, another important raw material used in mobile phones, 25% of current annual production could be met through urban mining, if all waste phones were properly recycled.

On a policy level, industry stakeholders have argued the EU could aid the nascent urban mining industry by streamlining the provisions of the [Waste Electrical and Electronic Equipment \(WEEE\) Directive](#). New rules to permit access to closed landfill sites may need to be adopted in some MS, and could be coordinated at EU level through amended regulation.

Beyond this, there is broad agreement by industry and stakeholders that government investment in more efficient recycling could yield benefits both for competitiveness and for the environment.

Substitution

The ability to easily substitute one raw material for another is seen as a key element in any sustainable raw materials policy. Substitution provides four main advantages:

- **Flexibility**, which can insulate industry from the risk of sudden supply disruptions.
- **Cost savings**, which can allow industry to find more cost-efficient raw materials, and hence remain competitive.
- **Weaken monopoly power**. In cases where a single supplier country controls the market for a given raw material, the ability to substitute, even for other imports, breaks the monopoly power and puts the buying country in a stronger position to negotiate trade agreements on behalf of its industries.

- **Environmental benefits**. Often new substitute materials are synthetics which require less resource input to process. This reduces the product's carbon footprint.

Much focus has been placed on the integration of substitution strategies into the development of new technologies, for example for electric cars or wind turbines, which tend to make extensive use of rare earth magnets.

It has been noted, too, that the EU's policy focus so far has been more directed towards recycling and reuse, while in the US, raw materials policy has been more directed towards support for research into substitutes.

However, scientific evidence suggests there are few opportunities for substitution of some raw materials, given current technologies. These include the rare earth elements, which are used extensively in computers and mobile devices.

When considering the use of potential substitutes, analysts argue, it is essential to take into account the ethical and supply chain considerations, as well as the physical properties of the material. For instance, platinum is one critical raw material used in the production of semi-conductors, for which substitution has proven difficult. Research has thus focused on reducing the *thickness* of the platinum layers used. Although this has short-term benefits for producers, it makes recycling more difficult, and hence in the long term may turn out more costly.

Main references

[EurActiv Raw Materials: Towards a global resource war?](#), EurActiv.com, 3 March 2011.

[Material Scarcity](#), Wouters H and Bol D, Materials Innovation Institute, 2009.



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Endnotes

- ¹ Although the Commission does not go into detail as to what such a programme might entail, the Communication does allude to the EU's oil stockpiling programme (Council Directive [2009/119/EC](#) of 14 September 2009), which obliges MS to maintain minimum stocks of petroleum.
- ² [Analysis of the EU Raw Materials Initiative](#), Sydow J, Fuhr L, Straub U, Heinrich Böll Stiftung, 2011
- ³ [Written evidence](#) by the Minor Metals Trade Association to the Select Committee on Science & Technology House of Commons, 2011
- ⁴ For more details, see this recent Library Briefing on the subject: [Rare Earth Elements](#).
- ⁵ [Export Restrictions and the WTO Law: "Regulatory Deficiency" or "Unintended Policy Space"](#), Karapinar B, World Trade Institute, University of Bern, 2010.
- ⁶ On 26 May 2010, the Commission submitted a proposal to the EP for an extension of the existing GSP, due to expire in December 2011, up to December 2013. The proposed extension would give time for due consideration of more substantial changes to the GSP. The EP voted in plenary to [accept the extension](#) on 24/03/2011. Under the Lisbon Treaty, GSP Regulations are now decided under ordinary legislative procedure.
- ⁷ For the full list of countries defined as vulnerable see the [Commission Decision of 9 December 2008](#),
- ⁸ Bolivia, Congo, Mongolia, Mozambique, Zambia, Zimbabwe.
- ⁹ [The Economics of Grain Stockpiling](#), Stein J P and Smith R T, Rand, 1977.
- ¹⁰ [Aluminium: the dullest of metals gets interesting](#), Falconer I, 2011.
- ¹¹ [The Resource Potential of Landfill Mining](#), Franke M and Faulstich M, 2011.