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The Critical Raw Materials Act: what does it mean for domestic production?

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One of the most important objectives of the Critical Raw Materials Act (CRMA) is to reduce the EU's dependence on third countries for supplies of critical and strategic raw materials. A quota of 10% relative to the demand is required for mine production in EU member states in 2030. To determine the future demand for raw materials, the Joint Research Centre (JRC) has developed demand scenarios for 5 strategic sectors and 15 technologies. The sectors are: renewable energy, E-mobility, energy-intensive industry, ICT (information, communication and digital technologies), aerospace and defence. Although the 15 strategic technologies will likely grow more than others, their current share of the production is surprisingly low for most raw materials. The ratio between the demand of a given raw material for strategic technologies in 2020 was calculated relative to the 2020 production. Sixteen raw materials have shares greater than 5%, led by tellurium and terbium with up to 88 %. For a number of important materials, the share needed by strategic technologies was quite low in 2020: copper 3.6 %, steel 1.2 %, aluminium 0.6 %, phosphorous 0.4 %, concrete 0.15 %, iron 0.13 %. However, for cobalt, lithium, nickel and graphite, a very high future demand is predicted. An increasing demand can partly be compensated by savings in other sectors with less demand. The development of these "other sectors" (e.g. chemical industries, construction, infrastructure, steel production) in the future has not been taken into account in the JRC report. JRC calculated the demand for raw materials used in the 15 strategic technologies using a low- and a high-demand scenario. In the low-demand scenario, highest growth rates are expected for phosphorus, zirconium, fluorspar, graphite, lithium, nickel, cobalt, ruthenium, and platinum. In the high-demand scenario, extreme growth rates are postulated for germanium, phosphorus, fluorspar, graphite, lithium, platinum, zirconium, and yttrium. The demand for lithium in strategic technologies in 2050 will be 14 to 19 times higher than the global production in 2020, that of graphite 7 to 9 times, and of cobalt 4 to 5 times.

According to the World Mining Data, production of critical and strategic raw materials in EU member states in 2022 reached the following shares of the world production: <1% for cobalt, manganese, tantalum, bauxite, lithium, tin, PGE, graphite, phosphates; 1-5% for nickel, chromium, tungsten, copper, indium, lead, zinc, and fluorspar. There was no EU production of magnesium, borates, niobium, titanium, vanadium, gallium, germanium, rare earth elements, and zircon. However, demand is estimated in the range of 15-25% of the world for most commodities. Assuming demand of 20% for each raw material, current production would only suffice for Cu to fulfil the 10% benchmark.

Therefore, EU member states need to provide strategies to increase domestic production of mineral raw materials. Resources exist for most of the critical and strategic materials; however, the decline in exploration activities within the past 40 years has meant that economically recoverable reserves for many raw materials are not known. This, together with the widespread lack of social acceptance and political support, will make it difficult to reach the 10% target of the CRMA.

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