Growth analysis
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The EU's Rare-Earth Predicament: Reconciling Collective Interests with Local Costs

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Europe's dependence on rare earth elements

Rare earth elements are essential inputs for the green, digital and security transitions. They are used in permanent magnets for electric vehicles and wind turbines, advanced electronics and telecommunications, as well as defence and aerospace applications. Despite their strategic importance, the EU remains heavily dependent on imports from China. This dependence is particularly pronounced in the downstream stages of the value chain, where rare earth elements are separated, refined and converted into metals, alloys and permanent magnets.

In 2025, China accounted for 95.6 per cent of EU imports of rare earth metals and 91.5 per cent of imports of permanent magnets. The EU's strategic vulnerability therefore concerns not only access to mineral deposits, but the entire value chain from mining to finished magnets.

The report's starting point is that Europe's dependence is not primarily the result of geological scarcity. Europe has substantial identified rare earth resources, particularly in Sweden, Norway and Greenland. Project-based estimates suggest a combined resource base of approximately 50 million tonnes of rare earth oxides. These estimates should not, however, be equated with economically recoverable reserves. Nor do they indicate which individual rare earth elements are present in different deposits or whether sufficient capacity exists for separation, refining and further processing. The central challenge is therefore to turn identified geological resources into projects that are technically feasible, economically viable, financed, permitted and locally accepted.

A collective-action problem

The report characterises this as an implementation-related collective-action problem. The benefits of a more resilient European supply of rare earth elements are distributed across the EU. Member States, businesses and consumers benefit from reduced vulnerability, greater security of supply and stronger industrial resilience. The costs of the projects needed to achieve these objectives, however, are often geographically concentrated. Mines, processing facilities and associated infrastructure may entail environmental risks, changes in land use, impacts on water resources and biodiversity, and conflicts with local economic activities and established rights.

In northern Sweden, such developments may also affect Sámi reindeer husbandry, culture and established rights. This geographical asymmetry between widely distributed European benefits and locally concentrated costs can weaken the incentives of individual regions and communities to bear the costs of projects whose strategic benefits are primarily realised at EU level.

The problem is reinforced by the EU's system of multilevel governance. Through legislation and common programmes, the EU can formulate strategic objectives, establish benchmarks, designate strategic projects, coordinate financing and support market development. The Union is not,

however, a general permitting authority for individual mines or processing facilities.

The principles of conferral, subsidiarity and proportionality laid down in Article 5 of the Treaty on European Union define the scope and exercise of EU competences. Decisions concerning land use, environmental assessment, water resources, consultation and, where relevant, Indigenous rights therefore remain embedded in national and regional legal and administrative systems, which must take account of both national law and applicable EU law. Consequently, the EU's strategic priorities must be implemented through the institutions responsible for assessing individual projects and their specific environmental, social, legal and economic consequences.

There is also a mismatch in timing. The EU's economic security agenda calls for rapid diversification and reduced dependence on individual external suppliers. At the same time, developing new mining projects often takes between ten and twenty years from exploration to operation. Reconciling political time horizons with actual project development times can therefore be difficult in practice.

Three Swedish case studies

The three Swedish case studies — Per Geijer, Norra Kärr and Olserum — illustrate how these challenges can arise at different stages of project development.

Per Geijer, near Kiruna, is the largest of the three deposits and has a distinctive economic structure. Iron ore is the project's primary product, while phosphorus-bearing minerals and rare earth elements could potentially be recovered as by-products. Revenues from iron ore and other products could therefore help cover shared infrastructure, operating and processing costs, improving the economic prospects for rare earth extraction compared with stand-alone projects. Per Geijer has been designated a Strategic Project under the Critical Raw Materials Act (CRMA).

At the same time, the deposit lies within the traditional reindeer-herding lands of the Gabna Sámi community, in an area already heavily affected by mining activities. The project thus illustrates how major European security-of-supply interests can coincide with locally concentrated land-use conflicts and questions concerning Sámi rights.

Norra Kärr, near Gränna, contains significant quantities of heavy rare earth elements, including dysprosium and terbium, which are particularly important for high-performance permanent magnets. The project has faced longstanding environmental and permitting challenges, partly because of its proximity to Lake Vättern and Natura 2000 sites. In 2016, Sweden's Supreme Administrative Court annulled the existing exploitation concession because the assessment had been too narrowly defined.

The project design was subsequently modified to reduce its environmental impact, and in June 2026 the government granted a new 25-year exploitation concession. Mining cannot, however, commence without further environmental assessment and authorisation. The case demonstrates that the strategic importance of mineral extraction can be taken into account in decision-making, but does not replace the requirements for a comprehensive and legally sound environmental assessment.

Olserum, near Västervik, is at an earlier stage of development. The deposit contains both light and heavy rare earth elements and has been designated an area of national interest for valuable minerals and materials. The project illustrates that implementation challenges can arise well before formal permitting begins. Questions concerning radioactive residues, waste management, future land use and local acceptance already emerge during the exploration phase.

Taken together, the three cases demonstrate that the barriers to project development are not of a single kind. They may be technical, financial, environmental, legal or social, and vary according to the project's location, design and stage of development. They become strategically important because they are addressed through national legal and administrative systems that determine

whether identified deposits can ultimately be brought into production.

EU policies reduce risks

In recent years, the EU has strengthened its policy framework through the CRMA and RESourceEU. The CRMA establishes benchmarks for 2030: the EU should have the capacity to extract at least 10 per cent of its annual consumption of strategic raw materials within the Union, process at least 40 per cent and recycle at least 25 per cent. At the same time, no more than 65 per cent of the EU's annual consumption of a strategic raw material at any relevant stage of processing should come from a single third country.

The legislation also provides Strategic Projects with administrative priority and shorter permitting timelines. RESourceEU complements these measures through additional initiatives relating to financing, market support, stockpiling, diversification and capacity development further downstream in the value chain. Together, these instruments can help reduce several of the commercial and supply-related risks that would otherwise fall on individual businesses, investors and Member States.

Three complementary policy options

The analysis identifies a remaining asymmetry. EU policies have developed an increasing number of mechanisms for collectively addressing strategic, commercial and financial risks, but considerably fewer mechanisms for managing the environmental, social and land-use costs concentrated in the communities and regions where projects are actually implemented.

The report therefore identifies three complementary policy options:

- Give greater weight to the Union's strategic security-of-supply interests in relevant decision-making processes.
- Reduce the need for new primary extraction within Europe through recycling, substitution, greater material efficiency, strategic stockpiling and more diversified external supplies.
- Internalise local costs to a greater extent through preventive measures, reduced environmental impacts, locally adapted benefit-sharing arrangements and, where appropriate, compensation for remaining burdens.

None of these options is sufficient on its own. Giving greater priority to strategic interests may facilitate the development of certain projects, but does not eliminate their local environmental, social or land-use costs. Recycling and diversified imports can reduce the need for new European mines, but cannot entirely eliminate dependence on external suppliers. Moreover, reducing extraction within Europe means that a larger share of the environmental and social costs will instead arise in producer countries outside the EU. Greater benefit-sharing and cost internalisation can help achieve a more balanced distribution of some costs, but not all environmental, cultural and rights-related consequences can be compensated. Nor can financial compensation replace legally sound procedures, meaningful participation or the protection of established rights.

Experience from Canada, Australia and the United States shows that similar tensions between national strategic objectives and locally concentrated costs also arise in other resource-producing economies. Although institutional arrangements differ, these examples highlight the importance of consultation, rights protection, harm mitigation and various forms of local participation in the benefits of development.

At the same time, lessons from other infrastructure sectors, such as energy production and electricity grid expansion, demonstrate that broad support for overarching policy objectives does not necessarily translate into acceptance of individual projects.

The report concludes that EU security of supply should not be equated with complete self-sufficiency. A more realistic strategy is to combine selective European extraction and processing with recycling, diversified external supply chains, strategic stockpiling and stronger capabilities in separation, metal production and permanent magnets. At the same time, local impacts need to be addressed through participation, harm prevention, rights protection and, where appropriate, local benefit-sharing.

The report's analysis suggests that such a combination may be more realistic and feasible than a one-sided strategy focused either on expanding mining or on continued dependence on imports.

ChatGPT was used to translating the Swedish summary into English. The translation was reviewed and quality-assured by the report authors.