



The use of foresight methods in strategic raw materials intelligence - an international review

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Foresight methods are systematic attempts to look into the longer term future of science, society, economy and technology. There is a range of tools and techniques that can be used individually or combined, most commonly classified into qualitative, quantitative or semi-quantitative methods, that follow an exploratory or normative approach. These tools can help to identify the longer term visions, orienting policy formulation and decisions, triggering actions, among other objectives.

There is an identified lack of European strategic foresight knowledge in the raw materials domain. Since the European Raw Materials Initiative was launched in 2008, the EU has been attempting to overcome challenges related to the future access of non-energy and non-agricultural raw materials. In this context, the ongoing H2020 project, MICA (Mineral Intelligence Capacity Analysis, Grant Agreement No. 689648), has been launched to answer to stakeholders needs by consolidating relevant data, determining relevant methods and tools, and investigating Raw Materials Intelligence options for European mineral policy development, all tailored to fit under the umbrella of a European Raw Materials Intelligence Capacity Platform (EU-RMICP).

As part of the MICA activities, an assessment of best practices and benchmarks of international raw materials foresight case studies has been carried out in order to review how EU and non-EU countries have employed foresight. A pool of 30 case studies has been collected and reviewed internationally, one third of which were selected for detailed assessment. These were classified according to their background and goals, in function of methods employed, and to the purpose of each method in the study: a total of 12 different methods were identified in these studies.

For longer time frames, qualitative predictive methods such as Scenario Development have been repeatedly observed for mineral raw materials foresight studies. Substantial variations were observed in terms of use and deployment of the scenarios. Pre-defined global scenarios can be used to explore futures thinking over a given theme - a step in the process - whereas the development of specific scenarios can be the main element of the study. The former was used to consider future strategies at different levels and how different futures influence the sector, whilst the latter was preferably used as means of assessment of sector capabilities and the current readiness for future challenges. Other methods such as SWOT, STEEP (Social, Technological, Economical, Environmental and Political scanning) and Brainstorming can be observed supporting the Scenarios, helping to provide either input for its development or post-processing its outcomes towards overall objectives. The volatility of the mineral raw materials sector presents a natural inclination towards more explorative and creativity-based methods. Such methods can address the necessity of understanding how different factors may play out in the future, where critical uncertainties can dictate a range of possible futures. Therefore, having a solid backdrop for alternative paths is extremely useful for policy and decision-makers to propose actions and respond in a timely manner to the future challenges of the sector.