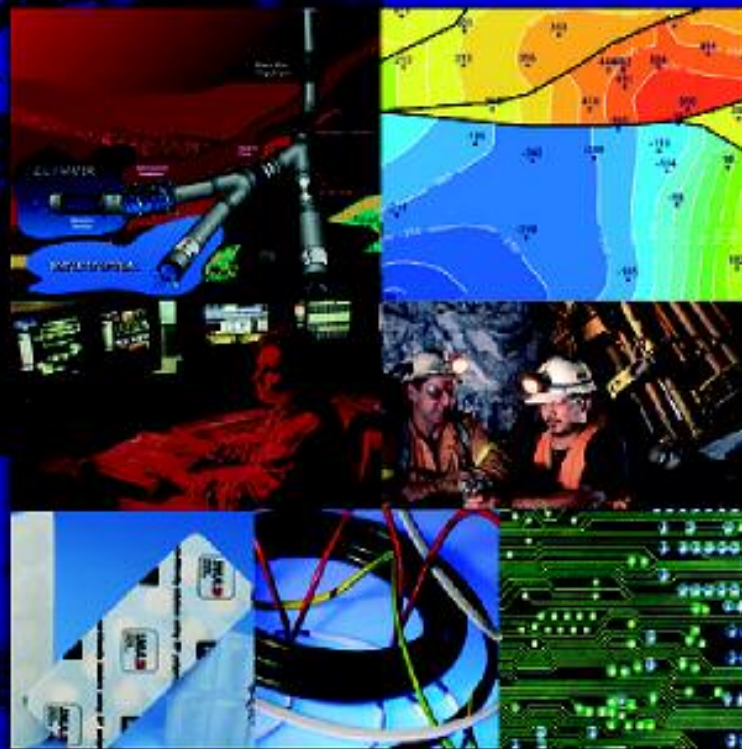


European Technology Platform on Sustainable Mineral Resources



A Policy Contribution

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1. ETP-SMR, an industry-led initiative

The ETP-SMR started to develop in March 2005.

The HLG represents the vast majority of entities and companies in the EU minerals industry and its supporting organisations. In addition several other organisations, academic and research institutes follow the initiative with a less formal stakeholder status. The management of the ETP SMR is done by a Steering Committee with members from the HLG group.

| | | |
|---|---|--|
| <p>Companies:</p> <ul style="list-style-type: none"> – BHP Billiton – Boliden – Deutsche Montan Technologie – Gralex – K + S AG – LKAB – Luzenac Group – Meed – Outokumpu Technology – Deutsche Steinkohle AG – Rio Tinto – S & B Industrial Minerals – SGL Carbon – Technip – Tecnicas Reunidas <p>Geological surveys:</p> <ul style="list-style-type: none"> – BRGM (France) – GTK (Finland) | <p>Associations:</p> <ul style="list-style-type: none"> – EneRG, the European Network for Research in Geo-energy – EURACOAL, the European Association for Coal and Lignite (23 members) – EuroGeoSurveys, the Association of the European Geological Surveys (29 members) – EUROGIF, the European Oil and Gas Innovation Forum (15 members) – Euromines, the European Association of Mining Industries – EUROROC, the European and International Federation of Natural Stones Industries – IMA-Europe, the European Industrial Minerals Association (300 members) | <p>Associations (continued):</p> <ul style="list-style-type: none"> – MINFO, the Swedish Mineral Processing Research Organisation (14 members) – MITU, the Swedish Mineral Industry Research Organization (4 members) – Polish Non Ferrous Metal Platform – UEPG, the European Union Association of Aggregate Producers (19 national Federations of producers) <p>Academia:</p> <ul style="list-style-type: none"> – University of Technology Lulea, Sweden – RWTH University of Aachen, Germany |
|---|---|--|

Table 1 – Members of the ETP SMR High-Level Group, as per 2005

2. Why this initiative?

“**Delivering stronger, lasting growth and creating more and better jobs**”, as defined in the revised Lisbon Strategy¹ and **Sustainable Development**, as defined at the 2001 Göteborg EU Summit rank among the highest objectives on the EU policy-making agenda. During the last quarter of 2005 these priorities were developed in four interlinked European Commission Communications:

- “*Implementing the Community Lisbon Programme: A policy framework to strengthen EU manufacturing - towards a more integrated approach for industrial policy*”²,
- “*On the review of the Sustainable Development Strategy. A platform for action*”³
- “*The Thematic Strategy on the Sustainable Use of Natural Resources (TSSUNR)*”⁴
- “*The Thematic Strategy on the Prevention and Recycling of Waste (TSPRW)*”⁵

In addition to the 6th Environment Action Programme⁶ and to the Environmental Technologies Action Plan⁷ they provide the European policy reference framework for the ETP SMR.

The European minerals industry⁸ provides vital inputs to Europe's economy and social well-being. In their great diversity, minerals and their derived products are necessary for almost every aspect of life. Housing, transport, energy supply, health, information and communication technologies, space technologies, for instance, would either be non-existent or suffer greatly, without steady mineral supplies to the EU economy.

Minerals are highly diverse, providing the economy with an extremely wide range of physical and/or chemical functions as well as a multitude of derived products. Construction minerals, including sand and gravel, represent the largest single flow through the EU economy. According to Eurostat⁹, in 2002 they represented 40% of the Direct Material Inputs into the EU economy while mineral fuels (oil, gas, coal, lignite, peat and uranium) represented another 25%.

¹ COM(2005) 24 “Working together for growth and jobs A new start for the Lisbon Strategy”

² COM(2005) 474, published on 05/10/05

³ COM(2005) 658 published on 13/12/05

⁴ COM(2005) 670, published on 21/12/05

⁵ COM(2005) 667, published on 21/12/05

⁶ DECISION No 1600/2002/EC of the European Parliament and of the Council, , published on 10/09/02

⁷ COM(2004) 038, published on 28/01/04

⁸ The term “Minerals” used in the context of the European Technology Platform designates all subsurface resources, with the exception of groundwater, resulting from geological processes. It comprises metallic and industrial minerals, construction minerals, fossil fuels and geothermal energy resources.

⁹ EUROSTAT - 2002. Material Use in the European Union 1980-2000: Indicators and analysis. Theme 2., Economy and finance; Luxemburg

While needing to continuously enhance its competitiveness, the European minerals industry is committed to the ethic of sustainable development. Jointly with the Commission, its non-energy extractive segment developed periodically updated Sustainable Development Indicators. The “*EU non-energy extractive industry sustainable development indicators 2001-2003*”¹⁰ were recently published. The report includes the most factual description of the relevant industry segment. A first attempt to provide an assessment of the environmental footprint of the EU's raw materials was produced by EUROSTAT (op. cit.) and MOLL et al.¹¹ and reviewed by the stakeholder group on resource supply to the EU economy that was set up by the European Commission in preparation of the Thematic Strategy on the Sustainable Use of Natural Resources¹².

3. Issues to be addressed

In the framework of competitiveness and sustainable development the EU minerals industry has to address the following key issues:

- **Supply issues:** while abundant geological resources and technological progress remove fears of scarcity, the future availability of the diversity of minerals the EU economy requires is not guaranteed. Within Europe access to available resources (“**access to land**”) is tending to become increasingly problematic and in many countries minerals exploration has been very limited in the last two decades (“**limited knowledge about EU minerals potential**”). This gives hope to discover deep deposits. The EU is highly dependent on imports of energy and of metallic minerals from outside its borders. Table 1, from Taylor et al. (2005, based on 2001 data)¹³ lists the EU share of the world production of a series of non-ferrous metals of importance to its economy. While the EU-25 internally produces less than 10% of the world production of the listed metallic ores, it generally uses 25 to 30% of their production. The dependence of the EU on energy supply imports¹⁴ is also strong and expected to grow further, to reach 70% by 2030! In the industrial minerals segment this dependence is much less, Europe being an important producer of a wide range of industrial minerals such as magnesite, gypsum, kaolin, bentonite and Fuller's earth, perlite, potash and talc. The EU is self sufficient in construction minerals.

The dependence issue, and the particular vulnerability of Europe to imports and to the related geo-strategic issues, is likely to become of rising strategic importance as the coming decades will see a significant increase of the world population, while some highly populated developing countries such as

¹⁰ Available for download here: http://europa.eu.int/comm/enterprise/steel/non-energy-extractive-industry/final_report_2001_2003.pdf

¹¹ Moll S. et al. - 2003 - Zero Study: Resource Use in European Countries - An estimate of materials and waste streams in the Community., including imports and exports using the instrument of material flow analysis - European Topic Centre for Waste and Materials Flow - European Environmental Agency - Copenhagen, Denmark

¹² Christmann P. - 2004 – Towards a Thematic Strategy on the Sustainable Use of Natural Resources – Report of Working Group 1: Supply of resources” - European Commission, DG Environment – only available as electronic download from: http://europa.eu.int/comm/environment/natres/pdf/final_report_wg1.pdf

¹³ Taylor L.E., Benham A.J., Chapman G.R., Hillier J.A., Hobbs S.F., Naden J., Edwards C.E., Pakkanen J. - 2005 - European Mineral Statistics 1999-2003 - British Geological Survey - Keyworth, UK

¹⁴ The Green Paper ‘Towards a European strategy for the security of energy supply’ (COM(2000) 769 final of 29 November 2000)

China and India are rapidly developing their industry and their infrastructure, hence creating a huge demand for minerals and intensified competition for these resources (“**excessive dependence on imports and vulnerability to related geopolitical issues**”). A recent Commissions Report on four years of European initiatives¹⁵ related to energy even speaks of “the alarm bells ringing”.

Consequently efforts are necessary, for instance through domestic exploration and enhanced cooperation with countries having a high geological potential, to broaden the accessible resources base. For metallic minerals this involves developing technologies to explore for deep concealed deposits that can be mined with much less environmental impacts than outcropping or near-surface deposits.

| <i>Metal</i> | <i>% world</i> | <i>EU25 countries with >1% of world output in 2004</i> |
|---------------|----------------|---|
| Silver | 10,24 | Poland (7%), Sweden (1,7%) |
| Zinc | 9,1 | Ireland (4,8%), Sweden (2,1%), Poland (1,6%) |
| Titanium (*) | 8,59 | Norway (8,59%) |
| Lead | 5,7 | Ireland (2%), Poland (1,7%), Sweden (1,7%) |
| Copper | 5 | Poland (3,7%) |
| Tungsten (*) | 4,55 | Austria (3%), Portugal |
| Chromium (*) | 3,3 | Finland (3,3%) |
| Bauxite | 2,1 | Greece (1,6%) |
| Iron (*) | 1,97 | Sweden (1,7%), Austria |
| Nickel | 1,7 | Greece (1,5%) |
| Gold | 0,9 | - |
| Manganese (*) | 0,2 | Hungary, Italy |
| Tin | 0,07 | - |

EU production of selected metallic minerals in % of world production 2004 data, from World Bureau of Metal Statistics;

(): 2003 data from World Mineral Production, British Geological Survey*

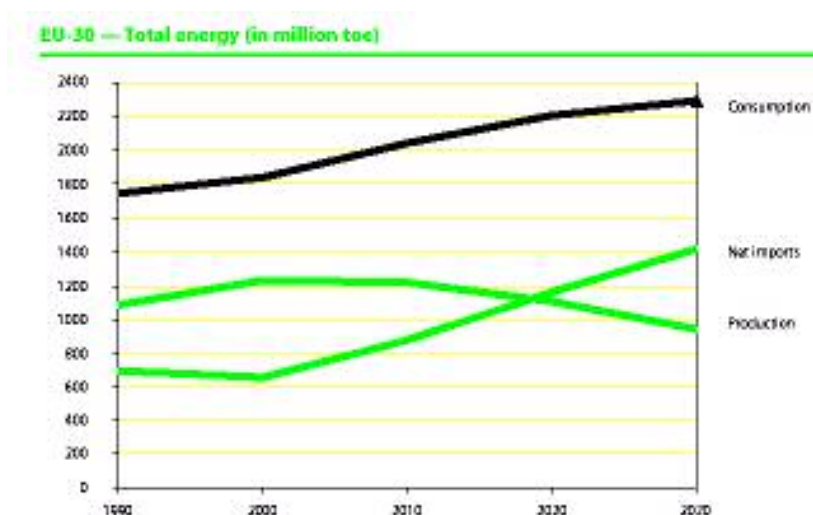


Fig. 1 – Growing EU dependence on energy imports (source: The Green Paper ‘Towards a European strategy for the security of energy supply’ (COM(2000) 769 of 29 November 2000)

15 Energy and Transport DG, European Commission: Report on the Green Paper on Energy: Four Years of European Initiatives. Office for Official Publications of the European Communities, Luxembourg 2005

- **Competitiveness:** the EU minerals industry is not only an important supplier to the EU economy, it is also a world leader supplier of services, technology, engineering, consultancy, finance and equipment. Because of the high environmental standards and the often challenging geological conditions prevailing in Europe, European extractive technology has a leading position and holds about 50% of the relevant world market. Hence Europe is home to world-class companies in these fields. The health of this sector of the EU industry is essential for Europe's growth. Pre-competitive cooperative R&D on a European scale, engaging the industry, academia and research as well as other stakeholders for research on the environmental and social sustainability issues is needed. This should overcome the fragmentation of the research capacities in a domain of high importance to the EU economy and should further develop the products and processes needed to competitively supply Europe and the world, take advantage of the globalisation, foster growth. Among the challenges it has to meet, the industry has to continuously adapt to technology and regulatory shifts and, the phasing out of some types of production while facing sudden changes in the demand for new products¹⁶; it has to confront growing energy costs and to address a major skills issue due to a rapidly ageing population of professionals resulting from mine closures in the last three decades and industrial restructuring. In its screening of the opportunities and challenges for 27 separate sectors of the EU manufacturing and construction industry¹⁷, the European Commission identified the European Technology Platform for Sustainable Mineral Resources as one of the sector-specific initiatives for the implementation of the Lisbon agenda.

- **Decoupling growth from environmental footprints:** while in Europe extractive activities comply to strict regulations, most of the environmental footprint related to the extraction of minerals occurs outside the EU borders. Many of the minerals and metals used by Europe are imported, including from developing countries that need support to develop extractive activities with high social and environmental standards in support of their sustainable development. Technological developments are necessary for the continuous reduction of the potential impacts of extraction and downstream activities, including lowering the amount of energy and water used per unit produced, the economical exploitation of lower-grade ores, increasing the recovery of all valuable components of the extracted materials and phasing out hazardous components in the waste and in the emissions generated by the production process (hence making the waste directly usable for other economic processes). The development of substitute materials with better environmental characteristics is also needed. As stated by the European Commission in the recently revised EU Sustainable Development Policy¹⁸: *“By taking a lead in finding innovative solutions to a better management of resources, the EU can promote a more resource efficient economy and position itself as a world leader in eco-efficient technologies.”* The development of the know-how and of the technologies needed to achieve decoupling will also benefit developing countries.

To address these issues the industry and its related organisations, as well as relevant academic and research institutions developed, with the support of the European Commission's 5th Research and Technology Development Framework Programme a European Thematic Network named “Network on European Sustainable Mining Industries (NESMI)”, the forerunner of the ETP SMR initiative.

¹⁶ for instance the production of tantalum for the mobile information and communication systems.

¹⁷ COM(2005)474 “Implementing the Community Lisbon Programme: A policy framework to strengthen EU manufacturing - towards amore integrated approach for industrial policy”

¹⁸ COM(2005) 658

4. The ETP SMR Strategic Research Agenda (SRA), an outline.

To address the issues mentioned above, the SRA is structured in 5 Focus Areas (FAs) covering the value chain, from the initial stage of exploration and extraction of the resource (FA1) to the marketed products and materials for the future (FA4), as shown in fig. 2. A fifth Focus Area, of a transverse nature, addresses mineral economics, sustainability indicators and societal issues.

The detailed SRA is under continuous development. The details of the following schematic presentation are elaborated in the Strategic Research Agenda.

Each focus area shall deliver complementary results that altogether are focused on the objectives of security of supplies, competitiveness and decoupling. In addition to research, an active dialogue needs to be pursued, as an important component of the outreach action and in direct support of the Thematic Strategy on the Sustainable Use of Natural Resources, with the relevant European institutions (European Commission, European Parliament, European Economic and Social Committee) and the relevant national authorities on sectoral policy issues that need to be addressed complementarily to the RTD effort. Special attention should also be given by the promoters of ETP SMR, as well as by the European Commission and national authorities, to involving developing countries in the activities of the ETP SMR through joint research and to assisting the International Panel on Sustainable Use of Natural Resources in defining capacity building and institutional strengthening actions within the framework of the TSSUNR.

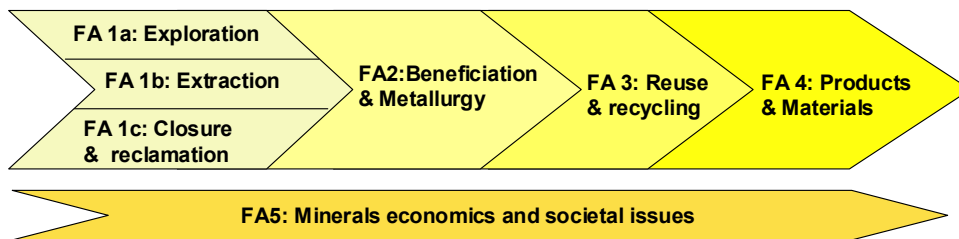


Fig. 2 – Structure of the Strategic Research Agenda

The ETP SMR initiative is listed by the European Commission as one of the actions to implement the Community Lisbon Programme [COM(2005) 474]. It needs to be supported in the Work Programmes of the European Commission for the 7th (and later) Research and Technological Development Framework Programme (RTD FP), since the members of the ETP SMR High Level Group and the RTD FPs will be the key sponsors of the initiative.

The initiative also proposes to link its activities with other important initiatives announced in European Commission Communications. These envisage setting-up in the near future of a High Level Group on Research and Competitiveness [COM(2005) 474], of an International Panel on the Sustainable Use of Natural Resources, of a High-Level Forum for the development of natural resources policy in the EU member states, and the development of a Data Centre for policy-makers to enhance and improve the knowledge base on resource use and its environmental impacts [COM(2005) 670].