



In collaboration with



COST Office
Avenue Louise 149
1050 Brussels, Belgium
t: +32 (0)2 533 3800
f: +32 (0)2 533 3890
office@cost.eu

www.cost.eu

Brussels, 13 November 2013

Press Release | Global Shortage of Materials an Increasingly Pressing Issue

Between Monday 18 November and Wednesday 20 November 2013, scientists and policymakers from across the world will come together at TU Delft to search for solutions to the global shortage of raw materials. The conference, organised by COST (European Cooperation in Science and Technology), will provide an excellent opportunity to develop a broad understanding of this increasingly pressing problem.

The earth's crust

Modern society has become utterly dependent upon affordable access to raw materials. These are used to manufacture high-tech materials for applications in all kinds of areas: transport, electronics, the power supply, medicine and construction. But the combination of dwindling supplies, an expanding global population and sharply growing consumption in the developing world are putting the availability of materials under huge pressure. In theory, the earth's crust does indeed contain enough atoms of every element to satisfy global demand for a very long time, but in practice, there are substantial limits due to economic, geopolitical, social, technological and environmental factors.

A global issue

Finding solutions for the sustainable extraction and exploitation of raw materials is the global issue that will be addressed by the COST conference on *Materials in a Resource Constrained World*. TU Delft researcher Dr Erik Offerman is coordinating the event in collaboration with COST: 'We're bringing together policymakers and scientists from various disciplines to analyse the problem of global scarcity of materials and to explore potential solutions. The speakers come from every part of the world and are not only from universities and research institutions, but also from industry (including Siemens, Tata Steel, Rolls Royce, and Deutsche Telekom) and from institutes such as Clingendael and The Hague Centre for Strategic Studies (HCSS).'

Critical metals

Together, these speakers offer both a global and a geopolitical perspective on the materials problem. In addition to the technological perspective, this is of vital importance. Offerman points for example to the availability of critical metals. 'Substances such as neodymium, cobalt, indium, and niobium are crucial in our society. Niobium is used in high-strength, 'work-horse' steels. Indium forms part of the substance indium-tin-oxide, which is used in modern touchscreens. Critical metals will also play a key role in our sustainable power supplies in the future. Neodymium is a critical element in the strongest permanent magnets used in wind turbines. By using so-called nickel-based super alloys in power station components, we can make them run five per cent more efficiently. This gain alone would be much larger than what is



currently produced from wind and solar energy put together. However, these super alloys contain the critical metal cobalt from Congo.'

Opportunities

'The supply of rare earth metals like neodymium is dominated by China, The platinum-group metals are predominantly mined in Russia. Niobium-mining is mainly performed by Brasil. China officially restricts the export of rare metals for environmental reasons, but there may also be geopolitical reasons involved – meaning that the availability of these materials is not guaranteed and the prices fluctuate rapidly,' says Offerman. 'The search for new materials that are less dependent on these critical raw materials, better recycling possibilities, sustainable mining, and design for the circular economy are thus a matter of real urgency for Western countries and it's also a great opportunity for our economy and our environment.'

'Materials in a Resource-Constrained World' is an international COST conference organised under the aegis of COST's Materials, Physics and Nanosciences Domain Committee chaired by Dr Anthony Flambard, and will be held from 18-20 November 2013 at TU Delft.

For more information on the event see www.cost.eu/events/materials.

For more information on activities in the domain of Materials, Physics and Nanosciences at COST see www.cost.eu/domains_actions/mpns/in_detail

Notes for Editors

COST is Europe's longest-running intergovernmental framework for cooperation in science and technology. Its mission is to enable breakthrough scientific developments leading to new concepts and products, and thereby contribute to strengthening Europe's research and innovation capacities.

As a precursor of advanced multidisciplinary research, COST plays a very important role in building the European Research Area (ERA). It anticipates and complements the activities of the EU Framework Programmes, constituting a "bridge" towards the science and technology communities of emerging countries. It also increases the mobility of researchers across Europe and fosters the establishment of scientific excellence in nine key domains:

- Biomedicine and Molecular Biosciences
- Food and Agriculture
- Forests, their Products and Services
- Materials, Physics and Nanosciences
- Chemistry and Molecular Sciences and Technologies
- Earth System Science and Environmental Management
- Information and Communication Technologies
- Transport and Urban Development
- Individuals, Societies, Cultures and Health

In addition, Trans-Domain Proposals allow for broad, multidisciplinary proposals to strike across the nine scientific domains.

More information on COST is available at www.cost.eu.

Media Enquiries

Media enquiries about the conference and about COST in general should be directed to communications@cost.eu.