
# In Germany, Europe, worldwide: Producing and processing primary raw materials

The German economy and German society depend on primary raw materials. Gravel, sand, natural stone and other building materials go into the construction of our buildings. Industry, production processes, infrastructure and electromobility all create enormous demand for resources such as iron ore and cobalt. At present, though, we cannot pretend that the extraction and use of these resources is sustainable. What is needed is a raw material transition which, like the energy transition, puts the supply of raw materials on a sustainable footing.

Germany has virtually no metal resources of its own, and in Europe as a whole very few deposits are currently being mined. Even within Europe, the extraction of natural resources often causes severe human and environmental damage, but in developing and newly industrialising countries the social and ecological impacts are far greater. Health and safety standards are sometimes rudimentary or non-existent; toxic substances may leach unfiltered into soils and drinking water.

The European countries must therefore fulfil their due diligence obligations and promote the sustainable sourcing of raw materials. The environmental impacts of resource extraction and efforts to improve the social and socioeconomic situation of people in mining communities are increasingly becoming a focus of attention in the German, European and international debate on primary commodities. Resource policy and resource conservation must go hand in hand.

Careful husbanding of natural resources requires a variety of approaches: because different raw materials involve different sets of problems, objectives must be resource-specific (read more here). However, it is not sufficient to concentrate solely on resource extraction. Recycling is an essential aspect of a sustainable resource policy. And within the circular economy it is important to pay attention both to resource-related practices in the national and international context (read more here) and to the aspects specific to certain types of materials (read more here).

## Raw material extraction in Germany

In Germany, the extraction of non-renewable raw materials is regulated mainly by the Federal Mining Act (Bundesberggesetz, BBergG). The Act sets out conditions that must be met before mining operations are approved. The aspects covered include environmental considerations, post-closure site restoration requirements and the interests of local residents.

Nevertheless, landscapes and ecosystems are still being lost to resource extraction in Germany, as elsewhere. Open-cast lignite mining provides a particularly vivid illustration of this, but environmental damage is also being caused by the mining of gravel, sand and other building materials and the extraction of minerals such as rock salt, potash, quartz sand, quartz gravel and fluorspar for the chemical and fertiliser industries. Environmental policy therefore aims to ensure that resources are used with their conservation more in mind.

## Approaches to conserving resources in their utilisation

In 2012 the federal government adopted the German Resource Efficiency Programme (ProgRess), in which it set out guidelines on using primary resources in more eco-friendly ways. An updated programme, ProgRess II, was adopted in 2016 and considers material and energy flows together. The draft of the next update, ProgRess III, was published in December 2019. Following submissions by the federal states (Länder) and stakeholder groups, this is currently under consultation.

Central to the guidelines is the emphasis on global responsibility, on which national resource policy should be based. Environmental burdens such as greenhouse gas emissions, the destruction of ecosystems, biodiversity loss and the pollution of soils, water and air must be minimised wherever possible, as must adverse social and economic impacts. To reduce the demand for primary raw materials, it is important to boost resource efficiency in production, adopt a more resource-sparing approach to products and their consumption, and establish a resource-efficient circular economy.

## Measures inadequate – responsibilities unclear

Both the council of experts and environmental associations criticise ProgRess II as inadequate and insufficiently concrete. The proposed measures and instruments do not meet the need for action. Initial opinions indicate that ProgRess III, too, does not do enough to bring about the urgently needed transition to an absolute reduction in resource consumption (rather than a reduction relative to economic growth).

In Germany, responsibilities for the various measures and instruments lie at different levels. For example, the construction and maintenance of infrastructure is often a municipal responsibility but sometimes the task of the federal states, which can set out rules on resource-saving construction and resource-efficient infrastructure and provide impetus. However, definition of the framework at national level is crucial here. To boost resource efficiency, this framework therefore needs to be bolder. The federal level is also responsible for strategic developments in relation to numerous raw materials and monitoring of global supply chains.

## Europe emphasises resource transparency

The prudent use of natural resources has been enshrined in the EU Treaty since 1997. Resource conservation is one of the seven flagship initiatives in the European Commission’s Europe 2020 Strategy, which was published in 2010. In the strategy the EU looks to Europe-wide measures to improve the circular economy and recycling. An important issue is the strengthening of resource aspects in product design (Ecodesign Directive).

Resource conservation also plays an important part in the European Green Deal of 2019. A sustainable production policy should result in product manufacture using lower material inputs. Another key feature of industrial policy is the circular economy, for which the European Commission has presented an action plan.

## Europe must assume global responsibility

Globally the European Union is focusing mainly on the negative social impacts of the primary resource extraction of certain minerals. For example, tin, tantalum, tungsten and gold are often mined in crisis regions. The revenue from informal small-scale mining is often used to finance armed conflict. In 2017 the EU therefore issued a Conflict Minerals Regulation that requires European companies to undertake due diligence in their supply chains.

As a next step, there are plans to extend the regulation to other raw materials and to focus more strongly on environmental impacts. Overall, the role of the EU in international agreements and negotiations is an important one. If it takes a strong stand on prudent resource use, this has an influence on other regions of the world.

## International guidelines

The EU Conflict Minerals Regulation laying down supply chain due diligence obligations is in turn based on principles drawn up by the Organisation for Economic Co-operation and Development (OECD). Companies that import minerals from conflict-affected areas must:

- establish strong company management systems
- identify and assess risk in the supply chain
- design and implement a strategy to respond to identified risks
- carry out an independent third-party audit of supply chain due diligence, and
- report annually on supply chain due diligence.

From 1 January 2020 the regulation will also apply to small- and medium-sized enterprises. The competent authority in Germany for EU due diligence in mineral supply chains is DEKSOR, which is located within the German Federal Institute for Geosciences and Natural Resources (BGR).

The Oeko-Institut and its partners have developed the "Due Diligence Ready!" portal for the European Commission. It helps companies source minerals and metals responsibly. The EU regulation affects small- and medium-sized enterprises (SMEs) in particular. The portal is therefore designed to help them fulfil their due diligence obligations effectively.

## The environmental limits of primary resource extraction: The OekoRess project

The German Federal Environment Agency (UBA) commissioned researchers at the Oeko-Institut, the Institute for Energy and Environmental Research (IFEU) and the Projekt-Consult GmbH consultancy to develop a method of assessing the environmental hazard potential of the extraction of abiotic primary raw materials. The aim was to support resource and raw material policy by providing information on more eco-friendly resource extraction, supply and use.

Where are the planetary boundaries, and what are the critical load thresholds for important global ecosystems? The availability of sought-after resources is often restricted not by the limited extent of deposits but by the human and environmental consequences of exploiting them.

For OekoRess the research team analysed 40 case studies of mining projects and used the results to develop and test a location-based assessment matrix. From the findings of the location assessments they produced a resource-related evaluation model for five representative raw

materials. In contrast to the supply risk aspects considered in criticality analyses, this model looks at the environmental hazard potential of mining and the vulnerability of the resource-using system.

*Erörterung ökologischer Grenzen der Primärrohstoffgewinnung und Entwicklung einer Methode zur Bewertung der ökologischen Rohstoffverfügbarkeit zur Weiterentwicklung des Kritikalitätskonzeptes (ÖkoRess I)* [Examination of the environmental limits of the production of primary raw materials and development of a method of assessing environmentally viable raw material availability for the purpose of refining the concept of criticality (ÖkoRess I)]: A study of the concepts involved produced by the Oeko-Institut, IFEU and Projekt-Consult GmbH on behalf of the German Federal Environment Agency

## Strategic dialogue on sustainable raw material extraction: The STRADE project

As part of the European Commission's Horizon 2020 programme, Oeko-Institut researchers worked with various partners in the Strategic Dialogue on Sustainable Raw Materials for Europe (STRADE).

The project collated science, practical experience, legislation, best-practice technology and know-how in the following areas:

- Strengthening the European raw materials sector
- Developing a cooperative strategy for resource-rich countries
- Sustainable production and supply of raw materials on a global basis

Over a three-year period the research team held numerous dialogues and workshops in Europe, South Africa, China and Latin America and then produced recommendations for policy-makers on how European and non-European countries can reach agreement on secure and sustainable resource supply.

Website of the Oeko-Institut's Strategic Dialogue on Sustainable Raw Materials for Europe (STRADE)

STRADE brochure "Towards New Paths of Raw Material Cooperation – Renewing EU Partnerships"

STRADE summary brochure

### RE-SOURCING: Setting up a platform for resource conservation

Building on the STRADE project, a consortium of twelve project partners, coordinated by the Institute for Sustainability at the Vienna University of Economics and Business, is now setting up an international platform for responsible resource management. The project "RE-SOURCING – A Global Stakeholder Platform for Responsible Sourcing" aims to bring international experts together in order to exchange information and experience and thus enlarge the global knowledge base.

The experts are also striving to develop a globally accepted definition of sustainable raw material extraction and use it to underpin responsible sourcing. The project partners aim to ensure that the issue is repeatedly included in the policy debate and to promote socially sustainable management.

Global Stakeholder Platform for Responsible Sourcing: Project description on the website of the European Commission

The European innovation partnership (EIP) on raw materials: Topic page on the website of the European Commission

## Further information

*Deutschland 2049 – Auf dem Weg zu einer nachhaltigen Rohstoffwirtschaft* [Germany 2049 – Transition to a sustainable use of raw materials]: Final report of the Oeko-Institut's self-funded project

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