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Germans consume too many high-tech metals

Will scarcity of raw materials soon put the brakes on economic development?

Germany must be much more economical in its use of natural resources and raw materials, says the Federal Environment Agency (UBA). "A daily per capita consumption of 200 kilos puts Germany in the global lead. This not only harms the environment, it is also dangerous for our international competitive ranking. The costs for materials in the manufacturing industry are already about 43 per cent of net value added. If prices for raw materials continue to rise, that percentage is also sure to go up," said UBA President Jochen Flasbarth at the opening of a three-day international resources conference in Berlin. Economic development might also stall as a result of the global demand for raw materials. So-called rare earths, which are special high-tech metals such as neodymium, are becoming scarcer and more expensive. The electromagnets of a modern, gearless offshore windmill can require up to one tonne of neodymium, depending on its output. Over the past seven years, the price of neodymium has risen from 25,000 dollars/ton to nearly 700,000 dollars in 2012. Automotive manufacturers also require large volumes of neodymium in electric vehicles. Over 97 per cent of the global sources of rare earths are presently in the People's Republic of China.

UBA President Flasbarth believes it is short-sighted to rely on good trade relations with foreign depots for the sake of securing cheap raw materials. "We need to conserve raw materials use in Germany and to implement recycling to the highest degree. For the sake of protecting the environment and the climate and in light of rising world market prices - especially for many metals - it is both an ecological and economic must." Several approaches can be taken to reduce raw material consumption. "Why not adopt what is practiced in the area of energy efficiency and establish a minimum standard for the resource and material efficiency of products and facilities? Durable and reusable products that are easy to service and recycle will help to increase value added while reducing the consumption of resources. It is also conceivable to use the device which is most efficient in material and resource consumption as a benchmark for all devices in its class. This would promote technical innovation, conserve the environment and cut costs", said Flasbarth.

UBA is encouraging consumers to use electric and electronic devices efficiently and to dispose of waste equipment properly. "We estimate that the material value of the many millions of mobile phones in Germany which are lying about in cupboards and drawers amounts to at least 65 million euros. This is a veritable raw materials warehouse. The producers of mobile phones ought

to be interested in recycling as many used phones as possible instead of purchasing raw materials for every new device at high cost on the world market," said Flasbarth. It would also relieve the strain on the environment: the recovery of a ton of copper from used mobile phones consumes half the energy required to extract the virgin material. Furthermore, it produces 50 per cent less slag. The toxic sulphuric acid needed to process crude copper would not be produced at all. In addition to copper, mobile phones and smartphones also contain precious metals such as silver, gold and palladium. The extraction and processing of silver or gold also have a severe impact on the environment because it requires the use of toxic cyanide solutions.

The recycling rates for some raw materials are already quite high in Germany: 45 per cent of steel is reused, 50 per cent of non-ferrous metals and up to 94 per cent of glass. Although it lowers the demand for virgin materials considerably, this is not enough. There must be an easier system for households to return used products. Although waste products can now be returned to the recycling stations in cities and communities for free, many consumers find it impractical, and all the more so for the elderly and ill. This is why there are still too many raw materials landing in "grey" household bins even though much of it could be recycled. Recycling could be made more attractive by a system of collection that is as close to the home as possible.

In addition to metals, the high demand for building materials such as stones, earth and wood also increases Germany's per capita rate of raw material consumption. "In terms of raw materials, it is less costly to remediate an old house than to build a new one. Remediating an old house will save about two-thirds of building materials. Germany should therefore invest more into its building stock instead of in new construction. It would work if we decided against allocating more and more greenfield area as new settlement areas and made old city centres more attractive," said UBA President Flasbarth. This would also put the brakes on the high consumption rate of the resource land - an area in which Germany is also in the lead. Nearly 87 hectares of land are sealed every day - an area as large as 124 football pitches.

Nearly 70 billion tons of raw materials are extracted and consumed worldwide every year. This is a volume that is about one-third more than it was in 2000 and twice as high as in the late 1970s. The continued rise in the world population and galloping economic growth in emerging economies will further increase the demand for resources. The per capita consumption of raw materials in Europe is about four times as high as Asia's and five times as high as in Africa. Although the industrialised nations produce the majority of global value added, developing countries must bear the brunt of the ecological and social consequences of resource use.

Intensive consumption of raw materials will have dire consequences for the environment, ranging from emissions of greenhouse gases and air, water and soil pollution, to impairment of ecosystems and biodiversity. UBA President Jochen Flasbarth said: "The consumption of natural resources already clearly outstrips the Earth's ability to regenerate itself. This is why preservation and the efficient use of natural resources will become a key competence of the societies of the future. Increasing resource efficiency will curb pollution, strengthen the competitiveness of the German economy, create new jobs and secure long-term employment."

Further information and links:

The Federal Environment Agency is launching the European and national resource efficiency forum in Berlin today (12 November 2012). EU Commissioner for Environment Janez Potocnik and Federal Environment Minister Peter Altmaier will be speaking at the opening event:

<http://www.umweltbundesamt.de/ressourcen-e/veranstaltungen.htm>

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