

# Resource Efficiency Policies Worldwide

*This policy brief was compiled within the project “Monitoring International Resource Efficiency Policies” by the Institute for Energy and Environmental Research (ifeu), Heidelberg, on behalf of the German Environment Agency (UBA) financed by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, in cooperation with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.*

Global raw material extraction has more than tripled since 1970. According to the UNEP International Resource Panel, 84 billion tons of raw materials were extracted worldwide in 2015, on average 11.45 tons per capita. Resource use is often linked to negative social and environmental impacts along all stages of the lifecycle. The rise in global resource use has intensified environmental problems such as climate change, soil degradation and the loss of biodiversity. With an increasing world population and continuing economic growth, material use is projected to rise to 180 billion tons in 2050 if current trends continue<sup>1</sup>. This would contribute to an even further increase of global and local environmental impacts, potentially beyond planetary boundaries.

In response, activities to reduce raw material use have been initiated on the multinational and the national level. The benefits of resource efficiency are evident: If less raw material is extracted for achieving the same purpose, negative environmental and social impacts of resource use are reduced and less waste is being created. At the same time, resource efficiency contributes to economic growth, job creation and innovation. Recognizing this, various coun-

tries and supranational organizations have reacted by formulating policies promoting raw material productivity and material efficiency.

1)

## Policies for resource efficiency at the multinational and national level

The G20 Resource Efficiency Dialogue was launched in 2017 aiming to exchange good practice examples, to enhance knowledge of policy options and to improve their scientific basis.<sup>2</sup> The G7 put resource efficiency on its agenda in 2015, and since then, it has become an established work stream of the G7. The OECD provides policy advice for resource efficiency and implements several projects to inform countries on resource efficiency potentials. In addition, the OECD extensively models global resource use. The EU published a Roadmap to a Resource Efficient Europe<sup>3</sup> with milestones to be reached by 2020 and an EU action plan for the Circular Economy<sup>4</sup> that addresses recycling and product lifetime. The International Resource Panel launched by UN Environment in 2007 advises governments and regularly publishes reports on trends in raw material use. It consists of 34 renowned international scientists.<sup>5</sup>

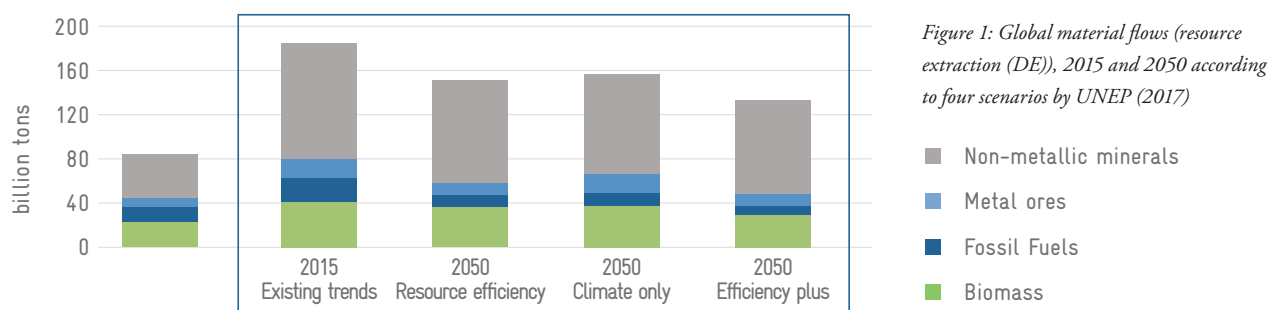


Figure 1: Global material flows (resource extraction (DE)), 2015 and 2050 according to four scenarios by UNEP (2017)

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## Best available technologies and benchmarking (Russia)

The Russian government has created a list of critical areas for which environmental impacts of technologies are assessed and described in specific BAT inventories. Since 2014, the concept of Best Available Technologies (BAT) has been promoted by legislative amendments and subsidies. To implement the project over a period from 2015 to 2040, economic instruments are used, such as incentives (reduction of environmental taxes for companies) and penalties for breaching the implementation plan (fees for environmental pollution).<sup>7</sup> The newly created Bureau of BAT, located in the Chamber of Commerce, is responsible for the implementation.

While countries such as Austria, Germany, Switzerland, Japan and the European Union were pioneers in implementing strategies for resource efficiency<sup>6</sup>, by now a large number of countries have become aware of the benefits of resource efficiency for economic competitiveness and reaching climate targets. Many have started to develop and implement their own policies to unlock resource efficiency potentials. As in other policy areas, approaches for promoting raw material productivity and material efficiency are diverse in scope and level of ambition. While in some countries, e.g. in Russia or Brazil, policies target individual sectors or specific sections of the lifecycle only, other countries, such as South Africa or China, formulate policies that are more comprehensive as part of an overarching sustainability strategy. The focus set by the respective country reflects their situation regarding raw material supply, the economic orientation and environmental problems and challenges faced by the country. This policy brief shows several good examples of policies and instruments for resource efficiency in different countries all over the world.

## Green credit card (South Korea)



The Korean Ministry of the Environment and the Korea Environmental Industry & Technology Institute (KEITI) are pursuing a unique approach to provide an incentive for resource-efficient consumption in South Korea. By using the Green Credit Card, consumers can collect so-called Eco Points when they purchase environmentally friendly products, save energy or use public transport. The points can be used either as cash-back at participating companies or for reduced entry into public institutions. As of December 2016, a total of 15 million Green Credit Cards had been issued and 1,957 products from 224 companies were registered.



2)

## Policies to unlock resource efficiency potentials

### Production

Instruments used by governments to promote resource efficiency in production are diverse. Among others, they include economic incentives for resource-efficient production, the definition of “Best Available Technologies” for new industries or infrastructure projects (e.g. by the EU) and the provision of training for companies with tools and manuals. Indonesia bestows a “Green Industry” awards to innovative and resource-efficient companies. India promotes the use of secondary building materials with its building certification programs and ranks the environmental performance of companies with the “Zero Effect Zero Defect” (ZED) program. In Mexico, the government supports green business startups with the aim of increasing the volume of sustainable production.

### Sustainable Industrial Areas

Industrial areas are drivers of economic development. Nevertheless, they frequently concentrate environmental pollution and ineffective resource use. Sustainable Industrial Areas (SIA) turn these challenges into opportunities: The spatial proximity between different companies facilitates not only pooling of state-of-the-art environmental infrastructure as zero-emissions plants and sharing of ser-

vices and social infrastructure. Such clusters can also be a breeding ground for industrial symbiosis in which the residues of one company become raw material of another. Having to consider the economic, ecological and social dimension in an integrated manner, such industrial areas require particular management structures, enhancing communication and collaboration.

### Consumption

Resource-efficient consumption can be facilitated in different ways. Labels and standards allow consumers to identify resource-efficient products. Information campaigns raise awareness. Incentives, such as the possibility to gain eco-credit points, can nudge consumers to choose resource-efficient products. Finally yet importantly, the government itself is an important consumer. With sustainable public procurement policies, governments steer their own consumption towards resource efficiency.

### Circular economy and recycling

Circular economy approaches attempt to minimize resource input and waste by closing material loops. Instead of throwing away products that were used for a short time, products are constructed to achieve longer life spans and if necessary, they are repaired and resold. Instead of depositing waste, it is sorted and raw materials are recycled. Almost all 45 countries under study foster the recycling of waste, as it is a simple and reasonable way to reduce the amount of deposited waste. The extent of the efforts, however, varies. Recycling is mainly promoted through quotas, technology funding, extended producer responsibility and, in exceptional cases, additionally by export restrictions. Especially in Asia (e.g. China, South Korea, Japan), comprehensive circular economy approaches are widespread. One systematic approach is industrial symbiosis, a cooperation of industries with the waste of one being a resource for another.

### Overarching strategies

In many countries, resource efficiency is addressed as part of an overarching framework in the areas of sustainable development or green growth. Examples are the National Green Growth Strategy in Israel, the plan for Green Growth and Climate Resilience in Rwanda and the Low Carbon, Green Growth Program in Korea. Furthermore, institutions and networks for resource efficiency are created such as the Resource Panel in India or the Global Network for Resource Efficient and Clean Production (RECPnet)<sup>8</sup> with members from approximately 60 countries.

### Industrial Symbiosis (South Africa)

Industrial Symbiosis is an association between several companies to pass unused resources and byproducts of one company (e.g. raw materials, energy, water, waste, assets, expertise, etc.) to another. The National Cleaner Production Center South Africa (NCPC-SA) manages the South African Industrial Symbiosis Programs. The approach is based on the UK program of the same name and was implemented in 2005.<sup>9</sup> Three regional programs are currently operating – in Western Cape, Gauteng and KwaZulu-Natal.<sup>10</sup> The Western Cape Industrial Symbiosis Program (WISP) was founded in 2013 and is implemented by the non-profit agency GreenCape. Now, it consists of 300 companies sharing their resources. According to their website, the program has prevented 1,752 tonnes of waste and 5,000 tonnes of carbon emissions.

### Indian Resource Panel (India)

The Indian Resource Panel launched in 2015 is a group of ten experts advising on and promoting resource efficiency in the Indian government.<sup>11</sup> Members include former Ministers of Environment, representatives of NGOs, business and scientists. With its focus on resource efficiency, the panel is the first of its kind on the national level. Its main role is to advise the Indian Environment Ministry (MoeFCC) and the national planning commission NITI Aayog on the design and implementation of a national resource efficiency policy. A Roadmap Strategy on Resource Efficiency<sup>12</sup> was adopted in November 2017. It includes a short- and medium-term action plan 2018–2020 with action points on material flow indicators, eco-labelling, standards for recycling, best practices for green mining, industrial clusters, sustainable public procurement, information sharing and awareness generation.



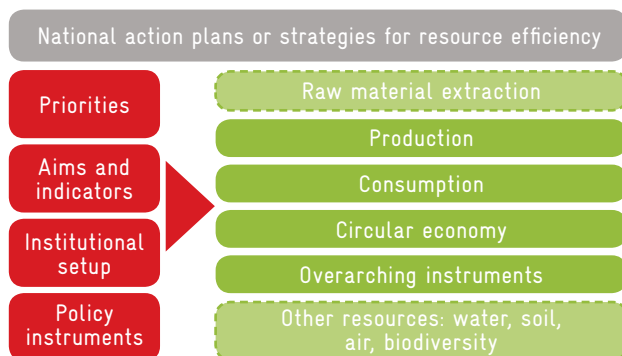




## Project “Monitoring International Resource Efficiency Policies”

The policy brief was compiled within the project “Monitoring International Resource Efficiency Policies” on behalf of the German Environment Agency. Aim of the project is to generate a detailed and up-to-date synthesis of international policies and activities in the field of resource efficiency. Based on an initial screening of 45 countries, ten countries were selected for regular monitoring. Detailed country profiles describe the main policies and drivers. Interviews with experts on resource efficiency provide in-depth information and depict the development during the monitoring period. The findings are summarized in regular reports with an overview of country-specific developments, outstanding policies and best practice examples to support an exchange between governments on resource efficiency.

Figure 2: Monitoring framework of the project “Monitoring International Resource Policies”



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