Resource efficiency, concepts and indicators

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In industrial societies material abundance and waste of natural resources is not anymore a privileged of the rich. Industrialization and economic growth allowed the whole society to participate to a large extent in a lifestyle, which is characterized by a high degree of material wealth. The economic growth model was the basis for the social reconciliation between capital owners and the working class. In industrialized countries it was coupled with a growth of material flows of geological proportions as, for example, in the United States of America. In the beginning of the 20th century the US economy required about 200 million tons of raw materials. In the end of the century the US economy consumed more than 17 times more resources: About 3.5 billion tons of minerals, metals, biomass, sand, stone and other materials are consumed to keep the US economy running. More than the growth of the US population it was the increased productivity of the economy during the 20ies century which required more raw materials. The American Way of Life allowed the average citizen a standard of living unprecedented in history. The economic growth went along with a series of technological innovations. Synonym of the “Modern Times” of capitalism (as portrayed for example by Charles Chaplin) became not only the products of the car manufacturer Ford, but also the production method of the Ford company itself: the so-called Fordism. More and more raw materials could be turned with increased efficiency into more and more consumer goods.

The mechanization of the production process was mirrored by the technological inventions which improved considerably the life and working conditions within each household. Washing machines, refrigerators, different generations of ovens (from coal to microwave) and a multitude of electronic helpers allowed a degree of comfort which was in the centuries only accessible to the nobles. Yet, even the most powerful emperor could not enjoy the luxury offered by what have become standard consumer goods such as a TV set, a water closet or vehicles powered by the equivalent of dozens of horses.

The speed of material innovations was as remarkable as the speed with which people took them for granted. Unprecedented innovations and their material basis became the fundament of prosperity and progress, but the assumption of their infinite and growing disposal is risky.

It is quite remarkable that within the framework of the growth-oriented Europe 2020 Strategy for a smart, sustainable and inclusive economy the European Commission has launched a so-called flagship initiative for a resource efficient Europe. The President of the European Commission, Manuel Barroso stated in the accompanying press release: "Continuing our current patterns of resource use is not an option. They put too much pressure on our planet and make our economy more dependent on external supplies. A smarter use of scarce resources is therefore a strategic necessity, but also an economic opportunity. Through more resource-efficiency, clearer long-term policies and joint investments in green innovation, we are strengthening the basis for growth and jobs for our citizens and delivering on our climate and energy objectives."

With the flagship initiative the European Commission intends to create a common vision to support a long-term perspective for an efficient use of natural resources. The Commission plans to launch strategies and effective measures in the areas climate change, energy, transport, raw materials, agriculture, fisheries and biological diversity.

The cross-cutting approach of the European Commission seems to reflect the findings of the state of the environment and outlook report of the European Environment Agency which reveals an "enhanced understanding of the links between environmental challenges combined with unprecedented global megatrends. This has allowed a deeper appreciation of the human-made system risks and vulnerabilities which threaten ecosystem security, and insights into the shortcomings of governance". Finally, the EEA and the European Commission seem to turn away from incremental environmental analysis and repair towards a more profound investigation of root causes and eventually a system transition of the EU economy. The fact that the flagship initiative is not only launched by the environmental General Directorate, but by the President of the Commission who has announced initiatives across different policy-areas seems to be a promising start. It remains to be seen whether the European Commission can actually muster the necessary competences and leadership resulting in a resource efficient Europe. The ultimate proof will be whether the EU will actually manage to decouple resource use from economic development to such an extent that it decreases the pressure on the global environment in absolute terms. So far, the various EEA assessments of the State of the Environment have revealed that the European Union has developed consumption and production patterns which impose unsustainable levels of pressure on ecosystems in Europe and other parts of the world. The flagship initiative promises to "define medium and long-term objectives and means for achieving them with the main aim to decouple economic growth from resource use and its environmental impact". The coupling of economic growth and resource use has become an essential part of our industrial history, our way of life and the economic development as we know it. Thus, the flagship initiative seems to introduce something new and even revolutionary.

How can we measure resource use and decoupling? What is the knowledge base for resource efficiency? What is the role of GDP and economic growth? For answering these questions, we will introduce preliminary results of an European research project for the Development of a System of Indicators for Resource Efficiency.