

Brief for GSDR 2015

Towards sustainable development: Global targets for a sustainable use of natural resources

Christina Buczko and Fritz Hinterberger, Sustainable Europe Research Institute (SERI), Vienna*

Introduction

It is widely recognized, that the availability of natural resources as well as the absorption capacities of our planet are limited. At the same time, the issue of equal access for people and economies all over the world to resources is gaining growing attention. Worldwide sustainable development will be closely linked to our ability to limit the use of natural resources within natural boundaries of our planet. In many countries the contribution of natural resources extraction is crucial to progress in macroeconomic policies, such as monetary and external debt balances, as well as in social policies aiming at food security or poverty alleviation. But resource extractive and especially mining activities also led to an increasing number of social and environmental conflicts all over the world. The **safe and fair use of natural resources on the global level** will have to be essential part of a **positive vision of our future as humanity** (O'Brien et al 2014), a notion which is also being reflected in the ongoing negotiation process of the future Sustainable Development Goals. In this brief we argue for the elaboration of scientifically derived suggestions for global resource targets as an important building element for sustainable and resilient societies, discuss the need for further differentiations and highlight the main environmental, social, economic and political aspects and implications.

Unsustainable trends in global resource use

Today, global levels of material extraction are beyond 70 billion tonnes each year (see figure 1). This stands for an increase of more than 80% since the year 1980 and about a factor 8 since the year 1900 (Krausmann et al. 2009).

Since 2003 growth rates were significantly higher than in the 20 years before and raised up to 3.7 % annually compared to 1.7 % per year before 2003.

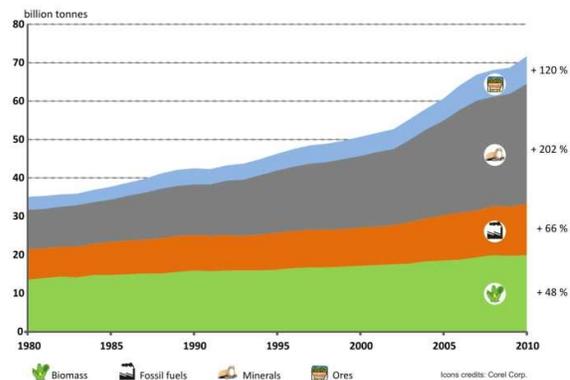


Figure 1: Global resource extraction until 2010. Source: SERI 2013, www.materialflows.net

Growth has been observed in all major material categories, mostly pronounced for industrial and construction minerals and metal ores (Dittrich et al., 2012). Without effective countermeasures global extraction of biomass, minerals, fossil fuels and metals is projected to rise up to 180 tons until 2050 (Ditttich et al 2012). The global use of freshwater has been increased more than twice the rate of population growth in the 20th century. In many world regions reliable water services can no longer be delivered or are seriously in danger. The UN projects that by 2025 up to eight billion people could be affected by water scarcity. Until 2014, according to FAO about 805 million people are chronically undernourished (FAO 2014). Main drivers of these global trends include population growth, economic growth, especially in emerging countries, growing middle classes and increasing political interest in raw materials (Giljum et al. 2014).

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Environmental aspects of resource targets

When considering environmental issues, it is essential to distinguish the input- and the output perspective. The input perspective addresses environmental impacts related to human activity, i.e. extraction and use of resources. On a global scale, increasing material demand leads to accelerated environmental change, with varying local and regional effects. As environmental impacts are always more apparent than the underlying usage or consumption of resources, most policies are targeting at the anthropogenic impacts of resource use (Giljum et al., 2014). On the policy level, especially the consequences of unsustainable water use and land-system change have recently gained importance. The output side to resource use encompasses the issue of limited absorption capacities of waste and emissions. This environmental perspective calls for targets in order to reduce the outflows of waste and emissions back to nature. Fischer-Kowalski et al. (2010) find both climate considerations and biodiversity protection considerations suitable to legitimize resource target setting.

Socio-economic implications of resource targets

Global equity and quality of life are central aspects within the discussion of resource targets and resource policy. Both of them are closely related to the political goal of sustainable, inclusive and auto-determined development. Any discussion about targets for reduced resource consumption at the global level cannot leave out the question of equity and fair share, and hence, adequate mechanisms for compensatory financial support of poorer economies. This perspective also recalls existing limitations in the access to or availability of natural resources as well as internationally recommended minimum standards for basic human, social and economic development needs. Especially land and biotic resources as well as water are widely recognized as direct requirements for the fulfilment of basic human rights and sustainable development (Buczko et al. 2014).

From an economic point of view, resource scarcities and price volatilities as well as resource efficiency as possible economic drivers are the two most important

topics in the discussion about resource policy and target setting. From 1990 to 2012 global economy has doubled to 69 trillion USD. In order to sustain GDP growth resource productivity needs to be enhanced significantly, at least by a factor 5. International trade, since 1950, has grown more than twice the rate of economic growth, although significantly slowing down since the beginning of the economic crisis in 2008 (UNCTAD 2013). Trade policies can be considered as one “missing link” within the debate on sustainable development and resource standard/ target setting. Taking into consideration the high degree of interdependence of all countries through international raw material trade and supply chains reveal the international dimension of resource targeting and the need for future collaboration and coordination (Kanthak/ Golde 2014).

Equally reduced resource dependency could contribute to increased economic resilience at the local, national and/or regional levels.

Suggestions for thresholds and targets

The limited ecological capacities of our planet have been the starting point, amongst others, for the concept of environmental space (Wetering et al. 1994) and Rockström et al.s framework of planetary boundaries. With regard to the latter, the further inclusion of social boundaries resulted in the concept of a “safe operating space for humanity”, which aims at the identification of feasible pathways towards sustainable development and social justice (Rockström et al 2009, Steffen et al. 2013). The challenge of the 21st century lies in protecting the Earth system as a whole, including all its sub-systems (Biermann 2012).

Several visions have been developed by different actors aiming at the decoupling of economic growth from material consumption or the achievement of a sustainable economy and increased quality of life (O'Brien et al. 2014). Any vision will have to be translated into concrete targets. The establishment of global resource targets could provide an effective instrument for achieving their sustainable use of and support economic transition towards sustainability. The derivation of these targets could be based on

Material Flow Accounting and Analysis (MFA) and appropriate environmental indicators, measuring the progress towards these targets. Considering the extraction of materials, Total Material Consumption (TMC) could be the headline indicator for its evaluation and measuring on a global level (Stricks et al. 2014).

Key challenges and governance responses

For the development of globally accepted, qualitative and quantitative targets for the sustainable use of natural resources several aspects have to be considered. **Targets and limits in terms of absolute resource extraction on a global scale can provide a solid basis for further target derivations and the further need for a regional, temporal etc. differentiation.** A further distinction at the local or regional levels for example will have to be considered, where geographical exposition, climate or socio-economic issues etc. play a major role for the dimension of the environmental degradation and sustainable development perspectives (Stricks et al. 2014).

In general, the **principles of equal rights and the self-determination of peoples** will require differentiated targets for high-consuming industrialized countries, high-consuming emerging countries and newly developing countries which make up only a small percentage of the global material consumption. Therefore, our knowledge about the boundaries of the Earth's system and the environmental impacts of material use for economic activities still needs to be turned into binding agreements as well as into international and national policies.

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