

## **Abstract**

### **Decoupling resource consumption and economic growth: Insights into an unsolved global challenge<sup>1</sup>**

In the face of climate change, global demographic developments, and growing resource use, natural capital not only in the form of resources but also sinks (e.g. the atmosphere as a dump for GHG emissions) is becoming increasingly scarce. Therefore, the decoupling of resource consumption from economic growth (i.e. less used natural resources per unit of economic output) and impact decoupling (i.e. reduced environmental impact of resource use and economic activities) are necessary conditions for sustainable development. To this day, there exists no agreed solution for this challenge, despite the increasing risks of irreversible changes of the global earth system (“tipping points”). To minimize these risks, politics, business, and civil society have to take considerably more action than they have done until today. Although unsustainable trends have driven the world economy “beyond the limits” (Meadows et al. 1992) and an overshoot of “planetary boundaries” (Rockström et al. 2009) is threatening mankind, a “resource efficiency revolution” in combination with “sufficiency policies” could be a promising step towards a solution.

Scenarios for the energy sector globally (e.g. WWF et al. 2011) and for specific countries like Germany (e.g. Hennicke et al. 2011 for a comparison of scenarios) have clearly demonstrated the technical feasibility for absolute decoupling of GDP from primary energy consumption up to 2050. Thus theoretically we know enough on technological options how to solve the climate problem, “simply by scaling up”. (Pacala / Sokolow 2004<sup>2</sup>). This might create much technological optimism. However, based on past experience of only relative decoupling, there is much evidence that technological progress has to be accompanied by

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<sup>1</sup> This abstract is based on a background paper for the Indo-German Expert Group on Green and Inclusive Economy, see: Development Alternatives / Wuppertal Institute, forthcoming.

<sup>2</sup> „Humanity can solve the carbon and climate problem in the first half of the century simply by scaling up what we already know to do.“ (Pacala / Sokolow 2004, p. 968)

radical socioeconomic transformation to break the nexus between GDP growth and the use of nature. Thus more research on the social context of implementing “GreenTec” and of the socioeconomic drivers of “lead markets” (e.g. for energy and resource efficiency, sustainable mobility, recycling technologies or renewable energies) is needed. “Scaling up” is not all “simple”. It might even be the core of the problem.

The paper argues that there is no realistic alternative strategy to ambitious improvements of resource efficiency on a global scale because of manifold reasons: The increasing scarcity of resources (e.g. biodiversity loss, scarcity of critical metals, overfishing and acidification of oceans, stress on water, scarcity of arable land) and the associated resource conflicts could trigger worldwide crises on a similar scale as climate change. And the frightening perspective is that all these components of a global ecological, economical and societal crisis are getting more and more interlinked (Hennicke & Schneidewind 2012).

Thus the inconvenient truth is: Transferring the pattern of consumption and production of the global North to a worldwide population of projected 9.6 billion people by 2050 (UN 2013) is impossible on account of the associated economic, environmental, and social problems.

Hence, there is an imperative to foster decoupling by the increase of resource productivity.

Moreover, not taking the opportunity of improved resource efficiency *now* means huge lost opportunities and economic losses *in the future*. Increasing the scarcity of natural capital and global competition can drive more and more countries into a race of being the most resource efficient global player. “Green” technology can lead to falling material costs and therewith an improved competitive position; it can lower the dependence on imports and prices and improve raw material security. But we are running out of time: due to barriers and market failures politics must take the lead to establish supporting frame conditions to foster a “Great Transformation” (WBGU 2011, Distelkamp et al. 2010).

In Germany as well as in other countries there is an influential new debate in the research community and civil society on the topic of “Limits of Growth” or “Post-Growth Society” (Seidl and Zahrt 2010). The debate started in the 1970s with Meadow’s Report to the Club of Rome, but its revival is currently much more differentiated and policy oriented. Based on

historical evidence of only *relative* decoupling in even the most resource efficient countries (cf. ETC & SCP 2011) some “anti growth”-advocates argue that also in the future an absolute decoupling will not be probable or even might be impossible (e.g. Tim Jackson 2011; Seidl and Zahrt 2010). Their claim in short: Climate and resource protection strategies will not work as long as efficiency gains are eaten up by growth. This thesis is mainly based on the assumption that macroeconomic rebound effects cannot be avoided even with strongest efforts to raise energy, material and resource productivity in specific products and production processes, if economic growth will not be reduced and stopped later on.

The problematic impact on public opinion of this simplified thesis can be that it is used as an argument against any ambitious efficiency strategies, be it focussed only on raising energy efficiency or – at a broader scale – on resource productivity. There is no doubt, that for the Global South a “resource efficiency revolution” combined with economic growth is an imperative for alleviating poverty and rising living standards though the patterns of growth should be changed as much as possible in favour of green sectors. In the global North fostering renewables, resource efficiency and other “green sectors” (e.g. sustainable mobility, recycling, social services etc.) and at the same time reducing “brown sectors” (e.g. the fossil-nuclear industrial complex) might be an imperative as well. With this background the existence of rebound-, growth- and comfort effects is not an argument against resource efficiency strategies but in favour of smarter policies and measures (including sufficiency policy) to reduce counterproductive effects as much as possible.

Thus it is necessary to critically analyse the “No decoupling possible” thesis for specific countries and using appropriate modelling tools (e.g. dynamic Input-Output-Models). For example, the Wuppertal Institute for Climate, Environment and Energy in cooperation with 30 partners from research and business conducted a comprehensive study of decoupling in Germany on behalf of the Ministry of Environment on “Material efficiency and resource consumption” (MaRess)<sup>9</sup>. This project also contributed to pave the way to establish a governmental strategy “Program Resource Efficiency“ (ProgRess).

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<sup>9</sup> See the project website at: <http://ressourcen.wupperinst.org/en/home/index.html>

The paper implicitly links the concept of sustainable consumption with the *systemic* aspects of sustainable production as well as resource and sufficiency *policies*. This understanding of sustainable consumption goes beyond individual behaviour changes. If there is an urgent necessity in the future of absolute decoupling two questions have to be answered: Is it possible and if yes, how far can democracies go to change consumption patterns by policy interventions? And: How much should policy interventions be focussed on sustainable production to enable shifts of sustainable consumption? It seems to be that there are many undiscovered fields of interdisciplinary research to answer these questions.

**Literature:**

Skipped here because of constrained amount of words.