Chapter 15
Towards a More Sustainable Use of Resources: A View from the World Resources Forum

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15.1 Background

The global consumption of limited natural resources is rising at a fast pace. In spite of the remarkable success attained in solving some environmental problems, today's economic and environmental policies have not been able to solve other problems which pose serious threats to the life-supporting services of nature.

Currently at around 60 billion tonnes each year, human extraction and use of natural resources has increased by 50 % in the last 50 years (SERI and GLOBAL 2009, p. 9). These figures are expected to grow further, with an estimated 80 billion tonnes of resources extracted by 2020 (OECD 2008, p. 37). Furthermore, these activities are connected with a substantial environmental burden: extraction namely disrupts habitats as well as ecosystems and alters landscapes in the region where it takes place.

As Fig. 15.1 shows, increasing resource extraction in the last few decades has been closely correlated with demographic as well as economic growth. Between 1980 and 2007, world GDP (in constant prices) rose by 120 % while global population increased by more than 50 %. Over the same period, resource extraction followed this trend closely with a 62 % increase (SERI 2010).

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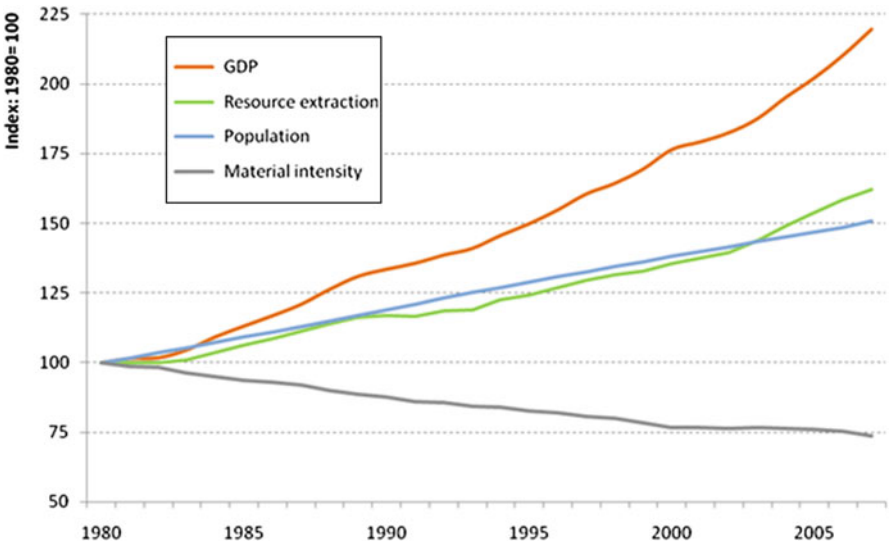

Fig. 15.1 Trends in global resource extraction, GDP and material intensity (SERI 2010)

According to the latest UN statistics, the world population is expected to grow constantly in the coming decades, reaching 9.3 billion in 2050 and peaking a bit later (United Nations Department of Economic and Social Affairs/Population Division 2010; medium scenario).

Less developed countries especially are expected to face dramatic demographic growth. In order for them to ensure rising individual wealth and quality of life, GDP per capita will need to continue growing as well. This is a legitimate requirement in less industrialized countries but it will go along with higher resource use and higher environmental impact.[1]

And even though material intensity has been falling since 1980, meaning that today's world economy needs significantly fewer natural resources to raise GDP than it did 30 years ago (SERI 2010), several concerns still remain.

One problematic aspect of global resource use is that many resources, e.g. fossil fuels and metal ores, are non-renewable. Another challenge is the fact that despite diminishing material intensity, environmental pressures have declined only relative to economic activity but not in absolute terms (see Fig. 15.1).

Therefore, to be able to reconcile the need for economic development with the imperative of environmental sustainability, two types of decoupling will be required (UNEP 2011a, pp. 1–6). On the one hand, resource use will have to grow at a much

[1] Krausmann et al. (2009) and Brigezu and Bleischwitz (2009) deal extensively with GDP growth and corresponding increased resource use and environmental impact.

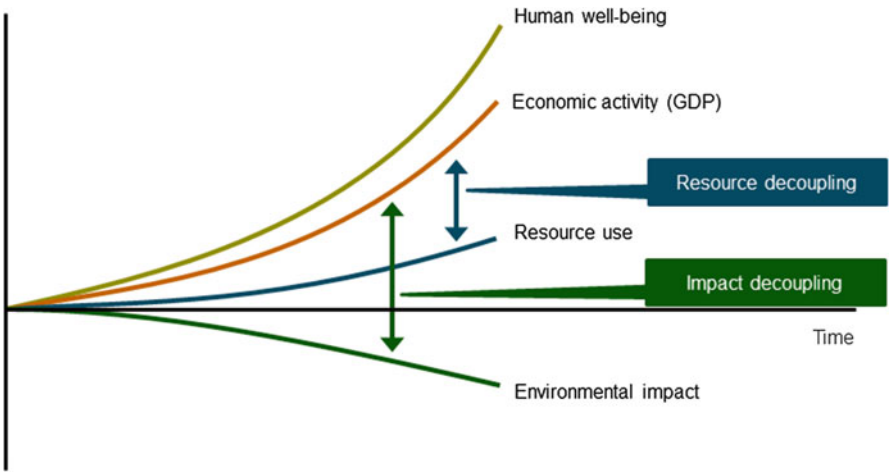

Fig. 15.2 Stylized representation of resource decoupling and impact decoupling (UNEP 2011a, p. 5)

slower pace than GDP. This is what the UNEP International Resource Panel[2] has coined *resource decoupling*. On the other hand, resource use will also need to be decoupled from environmental impact, that is, *impact decoupling* will be required as well (Fig. 15.2).

Reports by UNEP[3] explore the idea of decoupling in depth and provide some examples on how to implement it. Governments and businesses need to understand this concept and incorporate it in their policies and strategies.

In addition to this, decoupling will also require further increases in resource productivity, which can only effectively address the challenges at hand if they are supported by concrete actions from the international community:

- Policy developments need to be supported by *quantitative targets* as real change is only possible if it can be measured. These targets are crucial for encouraging consumers and businesses to partake in sustainable consumption and production.
- National and international governing bodies need to develop and implement *concrete roadmaps*, along with *clear plans* for transforming legal frameworks and shifting fiscal pressure towards resources and pollution and away from labour.

[2] The UNEP International Resource Panel was officially launched in 2007. It is expected to provide the scientific impetus for decoupling economic growth and resource use from environmental degradation. The overall objective of the Resource Panel is therefore to provide independent scientific assessment of the environmental impacts due to the use of resources over their full life cycle, and advise governments and organisations on ways to reduce these impacts (UNEP 2010c).

[3] See UNEP (2010a, b, 2011a, b) on decoupling and sustainable options for natural resource management.

- Radical change and ground-breaking *innovations* are needed in developing countries and emerging economies as *resource efficiency* is essential for poverty eradication.
- Individuals need to be *empowered* to take action and be supported by an ethical framework which addresses both the environmental and social impact of consumption.

15.2 Shaping the Future of Natural Resources

The Swiss Federal Laboratories for Materials Testing and Research (Empa), part of the prestigious ETH Domain, has with much success (co-)organised international conferences on recycling and re-use of resources (R-conferences) since the early 1990s. In 2009 these conferences were upscaled and mainstreamed to become the World Resources Forum, resulting from an initiative of Prof. Dr. Friedrich Schmidt-Bleek (Factor Ten Institute) and Dr. Xaver Edelmann (Empa). The initiative became an independent association early 2012, led by former UN diplomat Bas de Leeuw as its Managing Director.

The WRF is the global science-based platform for sharing knowledge about the economic, political, social and environmental implications of global resource use. WRF promotes innovation for resource productivity by building bridges among researchers, policymakers, business, SMEs, NGOs and the public. Flagship activity is the annual WRF Conference.

For that purpose, the WRF brought together an interdisciplinary network of scientists, engineers and economists who recognize the necessity of establishing economic principles that respect the physical properties of resources and the laws of nature. The WRF serves as a neutral, international platform for debate on global resource consumption issues and as an advocate of innovation for resource productivity. The forum develops recommendations for practical steps to be taken towards a sustainable economy.

The specific approach of the first WRF in 2009[4] was to bring together two separate, but interlinked discourses on global resource consumption, one among natural scientists and engineers and the other among economists. This encounter led to the formulation of a joint declaration[5] which advises to seek international agreements on world-wide per-capita targets for natural resource extraction and consumption, the overarching objective being to bring about an absolute decoupling between economic development and resource use.

The participants further urged to introduce effective policy measures that greatly enhance resource productivity and curb demand over time. Examples of such measures are standards, cap and trade mechanisms or higher taxes on natural resource use. This also means that the framework conditions of the economy should be reshaped

[4] September 16, 2009 in Davos/Switzerland.

[5] See: www.worldresourcesforum.org/wrf_declaration

to account for the scarcity of natural resources. On the same note, the plenary agreed that research and development needed to focus on increasing resource productivity.

Moreover, a societal consensus on ecological and economic indicators[6] – beyond GDP – that are in tune with the laws of nature needs to be reached. The participants acknowledged the necessity to seek a dialog with the business community to help redesign business models so that revenues increasingly derive from quality of services rather than from selling material products. At the same time, the plenary recognized the need for extraction and sale activities to promote an environmentally sustainable development of the countries in which they take place.

The participants of the WRF 2009 discussed about initiating a process to rethink lifestyles and help develop consumption patterns based on sufficiency as well as careful use of natural resources. Education should help raise awareness for resource limitations, especially among economists, and foster the ability of decision-makers to analyse long-term, systemic trends as well as to implement sustainability-driven innovation.

15.3 Fourteen Steps Towards the Green Economy

During the WRF 2011[7] over 400 participants from more than 40 countries and various backgrounds exchanged their views on best practices, policy options and research concerning natural resource management as well as the promotion and implementation of the Green Economy. They called upon the hosting Government of Switzerland and others to inform the Rio +20 process about the outcomes of the Forum and agreed to review progress of implementation at the next WRF to be held in 2012 in China.[8]

The participants especially urged governments, businesses and civil society to take immediate action in order to accelerate progress towards a green economy, to double the current level of resource productivity by 2020 and to reach at least a fivefold increase by 2050. Although change is underway, the implementation of activities needs to be drastically speeded up and existing fears of change need to be overcome.

The WRF 2011 concluded:

1. There is an urgent need to take effective steps towards achieving a resource-efficient, climate-resilient Green Economy. A true sense of urgency that is magnified by numerous crises[9] should be translated into concrete actions.
2. Economies are locked in unsustainable consumption and production behaviour. Radical change in developed countries as well as leapfrogging in developing countries is needed. For developing countries, resource efficiency is essential for the eradication of poverty.

[6] At micro-, meso- and macro-levels.

[7] September 19–21, 2011 in Davos/Switzerland.

[8] October 21–23, 2012 in Beijing, China.

[9] Financial, food, climate change.

3. For developing countries, technology transfer, access to resource-efficient technologies and financial support for making the transition is necessary, as well as effective governance, resource-efficient infrastructure and education. Higher prices of resources provide an opportunity for commodity-exporting developing countries to address those critical challenges. Using these resources in an unsustainable way could pose risks to social stability and environmental sustainability. In addition, security, social and economic challenges relating to natural resources in fragile states were identified as an emerging issue. Unfair international trade rules need to be firmly addressed.
4. Data and indicators should be improved, since one cannot manage what one cannot measure. Overconsumption of the rich needs to be addressed and basic needs of the poor satisfied. Concrete roadmaps should be established, with clear plans for implementing financial and legal instruments. Individuals, particularly the poor and vulnerable, need to be empowered to take action. An ethical framework for consumption (addressing both environmental and social impacts) should be part of a new global plan on resource efficiency.
5. Housing, sanitation, mobility and food are key sectors. Critical metals require urgent attention due to their potential for essential sustainable technologies and products. International governance structures for resource efficiency, including for minerals and metals, need to be strengthened.
6. Resource productivity is expected to become a key driver for economic development in the next decades. Key instruments for developing resource-efficient economies include establishing clear indicators and goals, as well as taxing resources and pollution instead of taxing labour. Ecological, water and carbon footprints are emerging concepts that can also encourage transparency towards the consumer.
7. New paradigms and ways of thinking are needed, since one cannot solve the problems with the same kind of thinking one used when creating such problems, and 'business as usual' is not an option. Improvements of resource efficiency by a factor 2, 5, 10 or even 50 are possible. More research to underpin these targets is needed, but at the same time, immediate action to move towards these goals is urgent.
8. Circular economy approaches require not only technical but also institutional changes and social innovation. Eco-design and upgrading products and production processes and product service systems will boost a transition to a green economy and strengthen the competitiveness of industries concerned.
9. The Green Economy can only be accomplished through the measurement of performance and transparency as well as through partnerships between governments and businesses, and businesses and civil society. Governments also need to create a framework for innovation.
10. At the same time, it has to be recognized that not everything that can be counted counts and not everything that counts can be counted. Values, emotions, mind-sets, and underlying driving forces for consumption, such as status, need to be taken into account as well.

11. Youths need to be equally involved in the discussions about the future of our natural resources. Intergenerational dialogue such as that which took place at this WRF should be encouraged. Youths, and in particular young women in developing countries, should be empowered to be part of the solution.
12. It was felt that although change is underway, the implementation of activities should be accelerated with the greatest sense of urgency, and increasing demand for change should be transformed into action.
13. Considering all of the above, the Davos World Resources Forum calls on governments, businesses and civil society to take immediate action to double the current level of resource productivity by 2020 and reach at least a fivefold increase by 2050.
14. This recommendation is not only directed towards governments, business and civil society, but also serves as a commitment to ourselves in our capacity as individuals and the most valuable resources of the planet.

15.4 Towards an International Platform for Resources Governance

Governments need to be alert to the growing spider web of bilateral resource agreements, in particular those involving developing and emerging countries. This was the main message of WRF 2012, held in Beijing, China, from 21 to 23 October 2012, with the support of the Chinese Academy of Sciences (CAS). Over 700 participants coming from more than 50 countries discussed this and other priority issues.

Better international resource governance, they concluded, is beneficial for all, since it leads to more stability and lower prices. Establishing a neutral international platform for resources comparable to the existing International Energy Agency (IEA) should be considered. Unlike the IEA which was built up by OECD countries, this platform should from the start involve developing and emerging countries, such as China. The recommendation is part of the chairman's summary, which along with a full meeting report and all presentations can be accessed online.[10]

There was consensus that the topic of resources and environment is a common problem facing all countries in the world, with serious challenges for economic development, consumption and production patterns, and poverty eradication. Scarcity of resources, increasing prices, and unsustainable use of resources can hinder economic development, lead to poverty and social unrest and poses risks for global stability.

The Chinese approach of a harmonisation of economy and ecology, and similar international initiatives by other countries, need to be implemented and followed by all. Phasing out or drastically diminishing dependencies on fossil fuels, in particular

[10] See www.worldresourcesforum.org/WRF-2012

the global economy's addiction to oil and coal, was considered to be technically and economically feasible for the next decades, with each country choosing its own path. Policies for sustainable resource management and changing consumption and production patterns need to be based upon solid research, not only engineering but also behavioral oriented scientific findings.

Cities were seen as very important actors of change for decoupling strategies, as well as for preserving biodiversity and increasing the quality of life for its citizens at the same time.

As can be concluded from the recent WRF conferences, resource challenges and the necessity to implement a resource-efficient green economy is gaining increasing attention. New ways of interdisciplinary joint research as well as policy making and governance options have been suggested. Particular attention needs to be paid to accelerating the integration of scientific research and findings in global policy programs, which will continue to be discussed in the next annual conferences as well as targeted workshops, held in Davos, Switzerland, and throughout the world.

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