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HOW CAN SUSTAINABLE CONSUMPTION AND PRODUCTION BE BOTH LIMITED AND SUFFICIENT AT THE SAME TIME?

Facing multiple crises of today, considering and implementing policies and measures that **go beyond the current toolbox** are becoming more and more evident. At this document we present a new tool aiming to tackle production and consumption patterns and their harmful social, economic and environmental consequences. After analyzing the facts, as well as coming to the conclusion of its validity, we start detailed description of the tool at page.

ADDRESSING THE GROWING GREED

During the past decades humanity has been living in the era of **consumerism** that encourages the purchase of goods and services in ever-greater amounts. A continuous need for growth and possession drives natural resource exploitation, which has impacted the environment more extensively than in any other period in human history. As a consequence of unsustainable consumption and production, the **scarcity** of natural resources such as oil, on which our present society is heavily based, is already becoming a reality. Moreover, the impacts of unsustainable resource use are already being felt through a growing number of **economic, environmental and social troubles** such as: economic tension because of resource depletion and unequal access to scarce resources; climate change and biodiversity loss; and health problems due to pollution.

Just as the current production and consumption patterns introduces new and exacerbates old socio-economic challenges, slow economic development[1] and weakened social cohesion reduce the political and fiscal space needed for robust, creative responses to regional and global ecological challenges. Governments everywhere face difficult tasks of doing more with less. Economic growth and unsustainable consumption and production patterns are the main drivers or the root causes of rising global resource demand. This,—in combination with climate change—could lead to increasing pressure on the so called ecosystem or natural services[2] all humans are dependent on. Hence, more and more argue that **deeper changes are urgently needed[3] in the way societies produce and consume and such changes are indispensable for achieving global sustainable development.** We also need to move beyond the perception that sustainable development will decrease our quality of life. It is possible to imagine high quality of life and healthier societies in a sustainable future, where planetary boundaries are recognized.

Many think that the MDGs did not adequately take into account the sustainability of human development gains. In the post-MDG development agenda, all countries need to effectively address essential and cross sestoral issues such as sustainable consumption and production (SCP) **using policies and measures that go beyond the current toolbox**.

GROWING RESOURCE USE, EFFICIENCY AND INEQUALITIES

Global resource extraction grew more or less steadily over the past three decades, from around 38 billion tones in 1980 to around 68 billion tones in 2008, representing an aggregated growth rate of 78%. However, growth rates were unevenly distributed among the main material categories. Particularly the extraction of Industrial and construction minerals increased (by more than 133%), indicating the continued importance of this resource category for industrial development.

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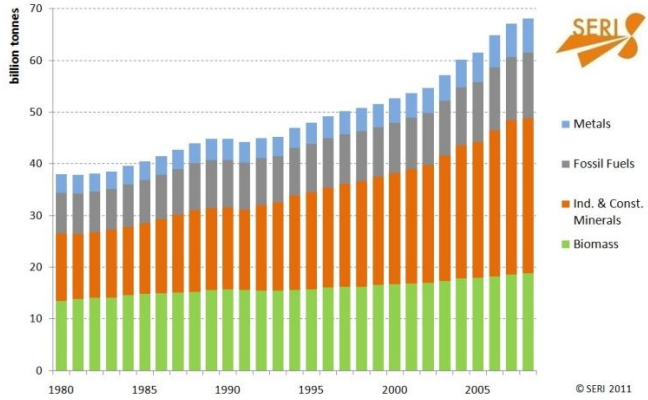
[1] We use the term economic development instead of economic growth, since in a finite system such as the Earth the economy can not grow unlimitedly. At the same time development, which means being more complex, diversified and thus better adapted to the changing environment, can be unlimited.

[2] Humankind benefits from a multitude of resources and processes that are supplied by ecosystems. Collectively, these benefits are known as ecosystem services and include products like clean drinking water and processes such as the decomposition of wastes.

[3] Building more inclusive, sustainable and prosperous societies in Europe and Central Asia – A common UN vision for the post-2015 development agenda.

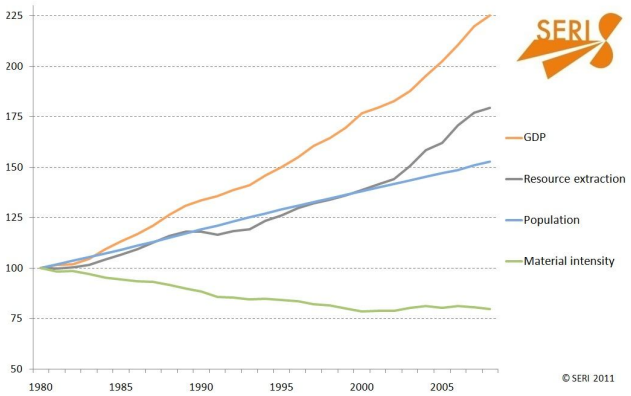


Grap 1.: Global resource extraction by material category 1980-2008[4]

If the world economy continued to grow following its current development path, i.e. a "business-as-usual" scenario, global resource extraction would significantly grow in the future. Worldwide extraction of natural resources in the year **2030** could be as high as **100 billion tonnes**, which means almost a doubling of extraction compared to 2005. However, in the light of such strong growth scenarios, one has to question whether such growth will actually be possible or whether the world economy will face physical limits to grow in the (near) future.

Several international agreements listed in the preparatory document[5] including 10 Year Programme of Work emphasize the role of resource efficiency and decoupling economic growth from environmental degradation and resource use in ensuring SCP without analysing thoroughly the facts.

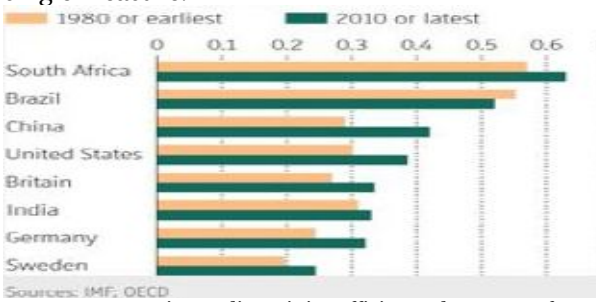
Even with enhanced efficiency, resource use is on the rise. This graph shows that even though material intensity has been decreased, resource extraction has been accelerated worldwide causing environmental and social problems. This phenomenon is the so called relative decoupling and can be observed in the case of energy efficiency too due to the so-called **rebound effect**, which refers to the behavioural or other systemic responses to the introduction of new technologies that increase the efficiency of resource use. These responses tend to offset the beneficial effects of the new technology or other measures taken.



Graph 2.: Trends in global resource extraction, GDP and material intensity 1980-2008[6]

Therefore, enhancing energy efficiency alone does not result in energy use reduction. In order to reach sustainable levels of production and consumption, including those of energy, the International Resource Panel developed its *Tough contraction and convergence* scenario.[7] This scenario requires far-reaching **absolute resource use decoupling and reductions** in the industrialized countries, by a factor of 3 to 5. Countries classified as 'developing' in the year 2000 would have to achieve 10–20% reductions in their average metabolic rates.

One can assume that growing resource use causes enhanced well-being for all. This is however far not the case. Many countries, including Britain, Canada, China, India, USA and even egalitarian Sweden, have seen a rise in the share of national income taken by the top 1%. The numbers of the ultra-wealthy have soared around the globe. The concentration of wealth at the very top is part of a much broader rise in disparities all along the income distribution. The best-known way of measuring inequality is the Gini coefficient. It aggregates the gaps between people's incomes into a single measure.



Grap 3. : Income inequality, Gini coefficient, where 0=perfect equality, 1=perfect inequality[8]

If everyone in a group has the same income, the Gini coefficient is 0; if all income goes to one person, it is 1. The level of inequality differs widely around the world. Emerging economies are more unequal than rich ones. Scandinavian countries have the smallest income disparities, with a Gini coefficient for disposable income of around 0.25.

At the other end of the spectrum the world's most unequal, such as South Africa, register Ginis of around 0.6. (Because of the way the scale is constructed, a modest-sounding difference in the Gini ratio implies a big difference in inequality.)

[4] http://www.materialflows.net/trends/analyses-1980-2008/global-resource-extraction-2005-2030/

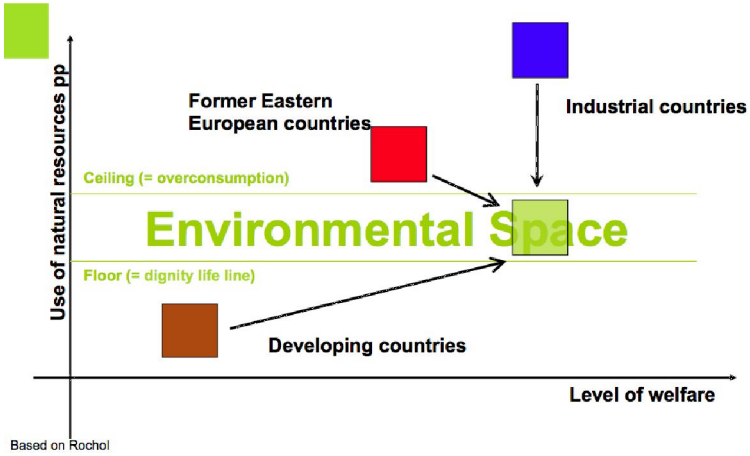
[5] TST Issues Brief: Sustainable Consumption and Production, including Chemicals and Waste

[6] http://www.materialflows.net/trends/analyses-1980-2008/trends-in-global-resource-extraction-gdp-and-material-intensity-1980-2008/

[7] Decoupling Report of UNEP's International Resource Panel

[8] For richer, for poorer, www.economist.com

Based on these facts, sustainable consumption and production in the SDG framework should not only focus on green consumption, but has to **consider boundaries of our planet and ensure equal as well as sufficient share of resources it provides.** Thus, every human being needs to fit in the environmental space, limited at the rate of overconsumption and underpinned by the level for dignity of life.



Graph 4.: Environmental space[9]

FROM THE 'END-OF-PIPE' SOLUTIONS TO TACKLING THE DRIVERS

Consumption and production patterns of today cause social, economic and environmental crises, which are clearly interrelated. However, until now we have been focusing on problems within the established sectoral framework, developed separate solutions. We have continued to apply 'end-of-pipe' solutions without tackling the drivers behind social, economic and environmental challenges. However, as drivers remain unchanged, they continuously regenerate the problems.

The Future We Want recognized that "poverty **eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base** of economic and social development are overarching objectives of, and essential requirements for, sustainable development". Based on the Rio+20 outcome document, developing Sustainable Development Goals **gives the momentum** to change this trend and has the potential to reveal the importance of applying holistic approaches instead of sectoral ones. It is crucial that the members of the Open Working Group on SDGs **look beyond the pressures and consider the driving forces behind them**. These driving forces are threefold:

- **Structural drivers** include production and consumption patterns as well as urban and spatial structures leading to environmental pressures such as pollution, habitat degradation or the exploitation of natural resources. Besides creating environmental pressures, resource intensive production processes also require less human labour and thus increase unemployment.
- **Institutional drivers** determine the structural ones. These are the current legislative and economic regulatory frameworks, such as the national budget, economic regulations, the institutional structure, which enable energy intensive products and services to flourish due to unlimited access to cheap natural resources. Consequently, the loss of natural heritage is able to continue without any compensation.
- **Cultural drivers** provide the basis for the two above. These include our history, common believes, customs, behaviour, etc. All of them are determined by societal values, of which by far the most dominant is the value placed on material wealth and the continuous growth of GDP. This is often at the expense of other values such as a healthy environment, family, community relationships or security. According to recent indices the more balanced people's values are (i.e. when values are taken into account equally), the happier they are. Societies with more balanced values would contribute to achieving a fair distribution of resources, which in turn would lead to greater global environmental and social equity. Ecological justice would also have a positive effect by cutting the ecological debt from the "north" to the "south", caused by centuries of social and economic exploitation.

WHY CAPPING ENERGY USE IS THE FIRST STEP TO ENSURE SCP?

Our current energy system is unsustainable, unjust, and harming communities, workers, the environment and the climate[10]. Current global annual energy use is 400 exajoules. **Coal is still the predominant** fuel for electricity generation In 2012, global primary energy consumption was broken down between different energy sources as follows[11]: oil 33%, coal 30%, gas 24%, hydroelectricity 6%,

[9] ANPED. The Future we want to work on! (European) Think piece for the SDG-framework from NGO point of view.
[10] Good Energy, Bad Energy, http://www.foei.org/en/good-energy-bad-energy
[11] BP Statistical Review of World Energy (June 2013).

nuclear 5%, renewables 2%. Every year, the equivalent of **400 years'** worth of plant growth is burned in the form of coal, oil and gas. Today, coal, oil and gas supply the equivalent of plant mass from well over 1.25 billion hectares. The total land area taken up today by the global extraction, processing and transportation of fossil fuels, as well as the generation and transmission of thermal electricity, amounts to 3 million hectares worldwide, 400 times less[12].

The destructive energy sources on which the world currently relies are driving many social and environmental problems and conflicts, including land grabbing, pollution, deforestation and the destruction of ecosystems, human rights abuses, health problems and premature deaths, and unsafe, insecure jobs and the rupture and collapse of local economies. This needs to be changed immediately in order to build a climate-safe, just and sustainable energy system which ensures the basic right to energy for everyone and respects planetary boundaries.

Considering these facts and analysing the **complex system of structural, institutional and cultural drivers behind the current consumption and production patterns, it becomes clear that introducing energy use cap would change their course** as well as ensure that every human being fit into the environmental space. As a result of legally set limits, fewer natural resources would be used across the globe, which would lead to an increase in products and services with low energy and natural resource demand. At the same time human labour would become more competitive and more jobs would be created in different sectors such as agriculture, forestry or fishery. Moreover, people would start consuming less, and would appreciate ecosystems more for delivering indispensable services, and thus material wealth would become relatively less important in their set of values.

Because of the rebound effect and as per recommendations of the International Resource Panel on the need of absolute resource use reduction, an exact order for promoting energy related policies is needed. Such order would be the following[13]:

1. **energy saving**

Saving in this case means saving over and beyond technical and technological efficiency solutions – or to put it simple: it is the energy saved by not using it at all. These occur when someone uses less energy (e.g. reduces car use) either due to conviction or enforced by the regulatory system. Wasting energy is not an inherent characteristic of people, but it is embedded in their habits when they buy goods, or when they use services. For this reason, it is important to have a regulatory instrument that clearly indicates the right set and weight of values, and which ensures that the proper consumer behaviour is rewarded.

2. **energy efficiency**

When the full potential of energy saving has been used, further opportunity is given by energy efficiency. The potential of efficiency is huge. Efficiency needs to be improved over the entire lifespan of energy resources, beginning with the exploitation of primary energy resources through burning or transforming, transporting, as well as the end use. The rate of efficiency can be improved by developing more efficient tools for the whole lifespan or by enhancing the grid itself, including right set-up, control and distribution of grid elements, as well as by creating smart grids. New technological and social inventions and eco-businesses[14] will contribute towards catalysing energy efficiency, too.

3. **energy substitution**

Improving efficiency shall be followed by the substitution of non-renewable energy resources with renewables, but the knowledge for fully replacing non-renewable energy resources is still insufficient. Due to the availability of cheap non-renewable energy in the market, enhancing this knowledge has not been forced and due to the lack of high demand, the techniques of full substitution have not been developed either. However, as mentioned above, lower energy use will create better conditions for substitution. On the other hand using renewable, but depletable energy sources can be sustainable only when applying them with great precaution and respecting their regeneration time and needs. Therefore we do not recommend including industrial biomass utilization in the range of preferred energy resources.

The presently known substitution options are definitely inseparable from fossil energy use, since raw materials, their transportation, and most of energy generation related activities require their use. This situation will persist until sufficient amount of alternative energy is available, which is a strange paradox. When the cost of non-renewable energy is low, alternative resources are not competitive and

[12] Energy Transitions: History, Requirements, Prospects (2010), p117, op. cit.

[13] Proposed Climate Change Act for Hungary based on energy quota system

[14] Climate-KIC, an EU-funded public-private innovation partnership focused on climate change, supports strart-ups based on climate innovation and social change. http://www.climate-kic.org

thus not exploited. When non-renewable energy becomes expensive, alternative resources become competitive, but we will not be able to finance their exploitation. Therefore, strong state policies supporting the breakthrough of substituting resources and making them part of the system is inevitable.

NON-RENEWABLE ENERGY ENTITLEMENT SCHEME

Developing and implementing energy use cap worldwide would contribute not only to achieving SCP, but also to attaining biodiversity, climate, energy and employment related SDGs. The proposed regulatory system is based on 3 + 1 pillars.

Pillar 1: The Energy Entitlement
The use of fossil and nuclear energy sources shall be reduced through direct savings, increasing efficiency, or shifting to renewable energy sources. An effective tool for realizing this reduction is the energy entitlement system. Energy consumption entitlements of annually decreasing quantities would be allocated among the individual consumers and public and private consumer groups. Those, who save a part of their allocated entitlements, can sell their remaining entitlements through the entitlement managing organization to those who have consumed more than their allocated consumption entitlement. The entitlement managing organization sells the entitlement in the national currency, and buys the remaining entitlement for entitlement money.

Pillar 2: The Market for Environmental Goods and Services
The market for environmental goods and services is an open market operating according to environmental and ethical rules including aspects of sustainability and market considerations. The entitlement money received from selling energy entitlements could be exchanged to products in this eco-labelled secondary market.

Pillar 3: The Revolving Fund
The Revolving Fund provides the opportunity for everyone, both energy producers and consumers, to be able to achieve savings through energy efficiency and renewable energy investments. The Revolving Fund provides interest free loan in entitlement money with a payback period adjusted to the energy savings or income generation realised through the investment.

Pillar +1: Advisory Service
The Advisory Service aims to provide advice on lifestyle, planning, social and environmental issues, as well as information on the functioning of the scheme to consumers.

ENVIRONMENTAL, SOCIAL AND ECONOMIC BENEFITS OF THE ENERGY ENTITLEMENT SCHEME AND THEIR LINKS TO THE SDGS CLUSTERS

Economic benefits	SDGs clusters[16]
Reducing dependency on non-renewable energy through the reduction of their use	Conflict prevention related to energy resource scarcities and availability
Increasing the competitiveness of businesses, as on one hand they become more efficient in the operation, and on the other hand they can develop more resource and energy efficient products for the global market	Sustained and inclusive economic growth
Providing the necessary investment capital also for SMEs to invest in energy efficient operation, as well as to develop goods and services with high energy efficiency	Sustained and inclusive economic growth
Providing the necessary investment capital for households to realise energy efficiency investments	Sustainable cities and human settlements
Boosting the demand for energy efficient goods and services as a result of the entitlements	Sustainable consumption and production, Food security and Nutrition / Sustainable Agriculture
Boosting the demand of environmentally friendly goods (e.g. organic products) and services through the use of entitlement money on the secondary market	Sustainable consumption and production, Food security and Nutrition / Sustainable Agriculture
Freeing up funds from the state and international budget, such as ODA for other social purposes, as after the kick-off stage the revolving fund and the scheme itself is fully maintained by the public and private	Sustainable development financing

[16] http://sustainabledevelopment.un.org/index.php?menu=1565

consumers directly (no need for continuous expensive investments for energy efficiency from state budgets)	

Social benefits	**SDGs clusters**
Creating green jobs directly (in renewable energy and housing sectors, R&D, etc.)	Employment, decent work and social inclusion
Creating jobs indirectly in the more labour intensive sectors through the need to reduce non-renewable energy use (as a substitution of human labour in production)	Employment, decent work and social inclusion
Reducing the expenses of households, especially of the poor (those consuming less energy)	Employment, decent work and social inclusion
Transforming values and consumer behaviour through creating personal interests with the entitlements	Sustainable consumption and production, Food security and Nutrition / Sustainable Agriculture
Greater access of consumers to environmentally friendly goods and services with the use of entitlement money, which contributes to well-being (in)directly	Sustainable consumption and production, Food security and Nutrition / Sustainable Agriculture, Employment, decent work and social inclusion

Environmental benefits	**SDGs clusters**
Radically reducing non-renewable (also fossil) energy use at a scale necessary to limit global warming to 2°	Climate change
Effectively mitigating climate change with the use of an input side regulatory tool (which covers all sectors in the economy preventing carbon leakage)	Climate change
Indirectly reducing resource use through the reduction non-renewable energy use, a main environmental pressure leading ecosystem degradation and biodiversity loss	Forest and biodiversity Desertification, land degradation and draught

The detailed version on the Non-renewable energy entitlement scheme and how it can be implemented at EU level can be downloaded at: www.ceeweb.org/wp-content/uploads/2012/03/non_renewable_energy_entitlement_RCC.pdf.

Humanity is now facing intertwined crises, such as emerging resource use or increasing inequalities, which are driven by the reliance on fossil fuels to power economic growth and to maintain the current unsustainable consumption a production patters; fundamental changes in international policy responses are urgently needed. We need to ensure that all human being fits in the **environmental space** capped by overconsumption and underlined by the level of dignity. Therefore, **energy use limitation** should be put in place worldwide in line with the proposals of the *Tough contraction and convergence* scenario proposed by the UN International Resource Panel, which **would lead to an economic transformation from fossil fuel-based system to a sustainable model.** Therefore, CEEweb urges the Steering Committee, Members and Contributors of the 7th Meeting of the Open Working Group **to consider in the SCP related debates energy use limitation and the proposed Non-renewable energy entitlement scheme** as the starting point for how the necessary absolute reduction can be achieved globally.