



## **Options for sustainable growth**

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### Introduction

The concept of sustainable growth may be understood in different ways. On the one hand, it can be described as the activity leading to sustained growth without creating significant problems that would weaken it. Whereas according to the definition of the European Commission, sustainable growth is the activity which leads to improved resource efficiency, building green but competitive economy and that entails<sup>1</sup>:

- “protecting the environment, reducing emissions and preventing biodiversity loss
- capitalising on Europe's leadership in developing new green technologies and production methods
- introducing efficient smart electricity grids
- harnessing EU-wide networks to give our businesses (especially small manufacturing firms) an additional competitive advantage
- improving the business environment, in particular for SMEs
- helping consumers make well-informed choices”.

A phrase “sustainable development” is also used, meaning a plan of action aiming at achieving balance in the use of resources and incorporating the needs of future generations in the decision making process, following the principle of intergenerational justice. This involves ensuring decent living conditions to the present and future generations as well as very efficient use of resources, along with shifting from non-renewable to renewable resources and taking into account the necessity to ensure integrity, sustainability and beauty of natural biotic systems.

Bearing this in mind, one can propose three different approaches, options or scenarios for implementing the concept of sustainable growth. The first one begins with adopting an assumption that the ecological footprint<sup>2</sup> cannot exceed the nature’s ability to

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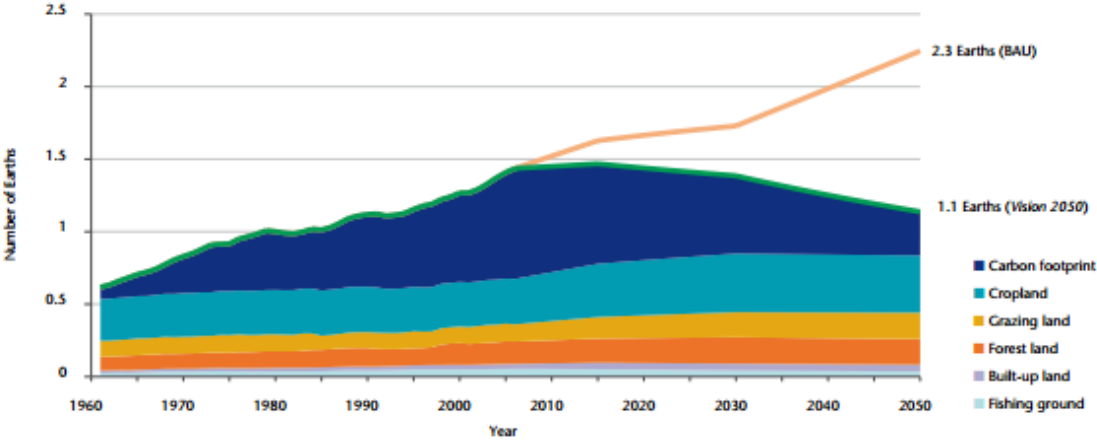
<sup>1</sup> [http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/sustainable-growth/index\\_en.htm](http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/sustainable-growth/index_en.htm)

<sup>2</sup> “The Ecological Footprint has emerged as the world’s premier measure of humanity’s demand on nature. This accounting system tracks, on the demand side (Footprint), how much land and water area a human population uses to provide all it takes from nature. This includes the areas for producing the resource it consumes, the space for accommodating its buildings and roads, and the ecosystems for absorbing its waste emissions such as carbon dioxide. These calculations account for each year’s prevailing technology, as productivity and technological efficiency change from year to year. The accounting system also tracks the supply of nature: it documents how much biologically productive area is available to provide these services (biocapacity ). Therefore, these accounts are able to compare human demand against nature’s supply of biocapacity”.  
[http://www.footprintnetwork.org/en/index.php/GFN/page/footprint\\_basics\\_overview/](http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_basics_overview/)

regenerate, that is, the biocapacity. The second one means building green economy. The third one involves the so called closed cycle economy.

**Vision 2050**

A very interesting initiative was presented by the World Business Council for Sustainable Development in its report entitled *Vision 2050: The New Agenda for Business – in Brief* (2010). The starting point for the proposals put forth in that report was both the size of the human population in 2050, projected at 9 billion (which means new consumers for businesses), as well as the dwindling natural resources and climate change (which means the necessity to shift from a consumption lifestyle to a more responsible one), which should in turn influence the consumption goods market. This concept was developed by the leaders of multinational corporations in collaboration with experts. It was assumed that the needs of such a huge population must be met within the limits imposed by the finiteness of the planet and its resources. At the same time, the adopted priorities included substantial improvement in such spheres of life as: access to education and healthcare; mobility; meeting the basic human needs of food, water, energy, and shelter; and the availability of other consumption goods. It was also postulated that in 2050 the ecological footprint of the planet’s inhabitants should be significantly lower than today and practically within the limits of biocapacity at 1.1 (*Vision... 2010*) (Fig. 1).

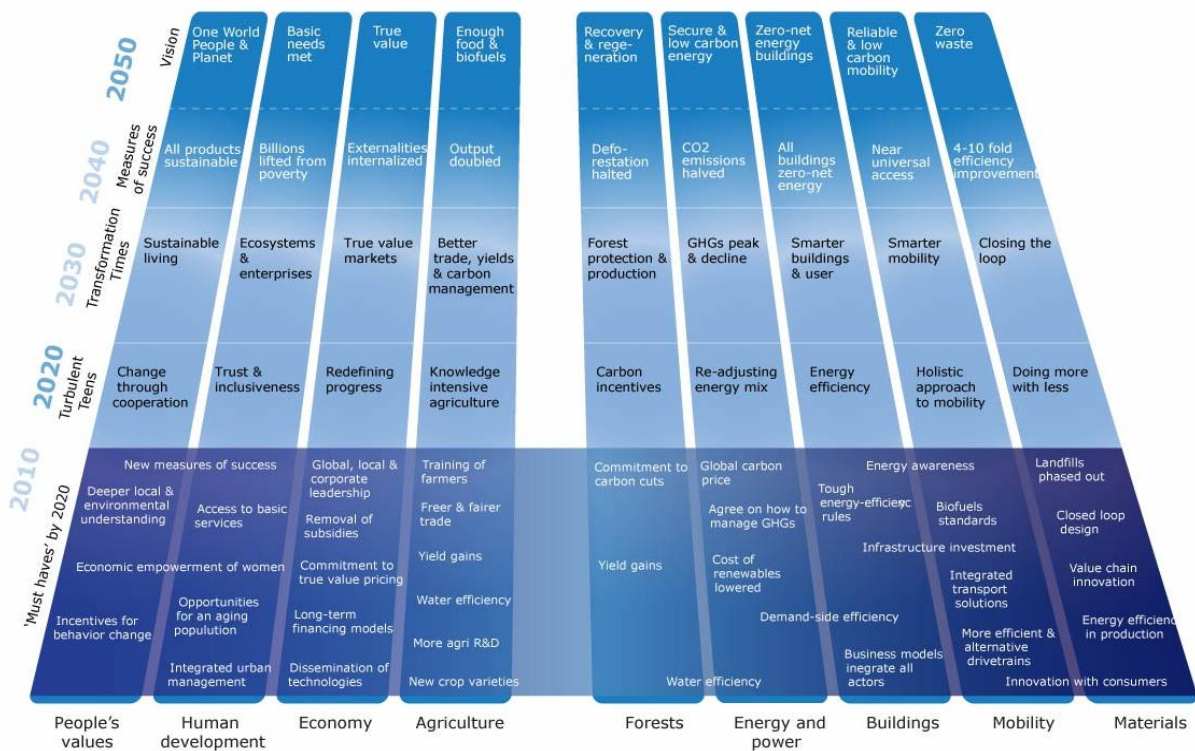


Source: *The New Agenda for Business – in Brief*. World Business Council for Sustainable Development. 2010.

**Fig. 1. Vision 2050 ecological footprint against business-as-usual – How many Earths do we use?**

The joint agenda included 9 spheres (human values, social development, economy, agriculture, forests, energy, housing, transport, and resource management) for which critical pathways were developed in terms of attaining a sustainable future. The proposed changes concern water, food, and energy management and imply a modification of social behaviors and the introduction of innovative technological solutions. The vision was developed in an integrated way, using a holistic approach. The following objectives were set (fig. 2):

- ♦ ensuring access to education for 9 billion people, enabling economic empowerment, particularly of women, and developing radically more eco-efficient lifestyles;



Source: *The New Agenda for Business – in Brief*. World Business Council for Sustainable Development. 2010.

Fig. 2. From business as usual to sustainable World in 2050

- ◆ incorporating the cost of externalities in economic calculations, starting with greenhouse gas emissions and ecosystem services;
- ◆ doubling of food production without increasing the amount of cropland or water used;
- ◆ halving deforestation and increasing forest planting;
- ◆ halving greenhouse gas emissions by 2050 (relative to 2005 levels) through a shift to low-carbon energy systems and highly improved demand-side energy efficiency;
- ◆ introducing low-carbon mobility solutions;
- ◆ delivering a four-to-tenfold improvement in the productive use of resources and materials.

The authors believe that it is possible to develop a low-carbon economy, cities that do not generate waste, and transport and infrastructure operating within the limits of biocapacity and ecosystem services, which would add up to a good quality of life and decent living standards (*Vision... 2010*).

## Green Economy

The World Wide Fund for Nature proposes to develop a green economy through focusing on six interrelated areas (*Living... 2010*):

1. A change in the definition and measurement of prosperity. The traditional measure of gross domestic product should be complemented with some other, equally important indexes, such as the Human Development Index, the Gini coefficient (an index of social inequality), the Living Planet Index, indexes concerning ecosystem services, and the ecological footprint. At the same time, development planning should be conducted within the limits of available resources and environmental capacity of pollution absorption. An example of such an approach is a publication issued by the Institute for Sustainable Development entitled “An Alternative Energy Policy for Poland Until 2030: A Technological and Methodological Report” (Alternatywna ..... 2009).

2. Investment in natural capital:

- ◆ increasing protected areas up to the level stipulated by the Convention on Biological Diversity, that is, 10% protection for each ecological region (although the World Wide Fund for Nature and other organizations postulate to raise the quota to 15%);
- ◆ undertaking measures for the three key biomes,<sup>3</sup> that is, forests, freshwater and oceans;
- ◆ in terms of forests: meeting the obligations following from the above-mentioned convention, that is, achieving zero net deforestation by 2020; undertaking an effort involving not only traditional means (protecting forest areas), but also new initiatives (REDD+);<sup>4</sup> and promoting best practices in forest management and wood supply chains;
- ◆ in terms of freshwater: better policies for keeping water use within nature’s limits and avoiding the fragmentation of freshwater systems; this also means providing everyone with clean water as a basic human right, optimizing water in agriculture, and designing, constructing, and operating dams and other in-stream infrastructure to better balance nature and humanity’s needs;
- ◆ in terms of oceans: conforming to fishing limits to avoid the overfishing of particular species; radically decreasing capture of non-target marine life – in the short term, this implies reducing the capacity of commercial fishing fleets, but, as fish populations recover, this should permit higher, longer-term harvesting limits;
- ◆ investing in biocapacity (of ecosystems): besides investing in the protection of natural areas, it is necessary to invest in increasing biocapacity; this means enhancing the productivity of ecosystems, restoring degraded land, improving management of biologically active land and crops; it is necessary to enhance the effectiveness of management leading to the reduction of the ecological footprint and higher ecosystem efficiency, using a certification scheme for sustainable production practices that maintain ecosystem integrity and long-term productivity;
- ◆ recognizing the economic value of biodiversity and ecosystem services: we need a system for measuring the value of ecosystem services to guide land use and permits;

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<sup>3</sup> A biome is large area defined by a given type of climate, characteristic vegetation, and specific animal life.

<sup>4</sup> *Reducing Emissions from Deforestation and Forest Degradation (REDD)* means creating economic value related to sequestering carbon in biomass, providing incentives for developing countries to reduce emissions related to forest land and investment in sustainable low-carbon development. The “REDD+” initiative goes even further, that is, calls for the protection and sustainable management of forests and increased carbon retention in forest biomass.

governments should start with valuing biodiversity and ecosystem services and account for them both in their decision-making processes and in changing the behaviors of market actors; the costs of externalities (such as water, carbon absorption, and restoring degraded land) should be included in product prices.

3. Adequate provision of energy services and food. Research shows possibilities for meeting the energy demand using renewable energy combined with increased energy efficiency of buildings and means of transport. At the same time, it will be necessary to eliminate fossil fuels to avoid greenhouse gas emissions. Such energy solutions require investment in innovation technologies; they also may and should create so-called green jobs. In terms of food, not only malnutrition and over-consumption should be tackled, but also equitable access to food ought to be ensured. This implies a radical revision of our expectations regarding food products.

4. Adequate land use and land-use planning. The key question is whether we will be able to feed and accommodate the growing number of inhabitants of our planet taking into consideration the preservation of biodiversity and ecosystem services. According to the Food and Agriculture Organization of the United Nations, a 70% rise in agricultural output would be sufficient to feed the planet. At the same time, it should be noted that due to the gradual departure from fossil fuels, more and more land will be allocated to biofuel and biomaterial production. However, despite this increase in demand for plant and animal products, the above postulate may still be met provided that we develop a global solution to the problem (taking into account the different biocapacity levels of individual countries). For instance, Canada and Australia may increase their land use without exceeding the ecological footprint limit, while Singapore and Great Britain may not.

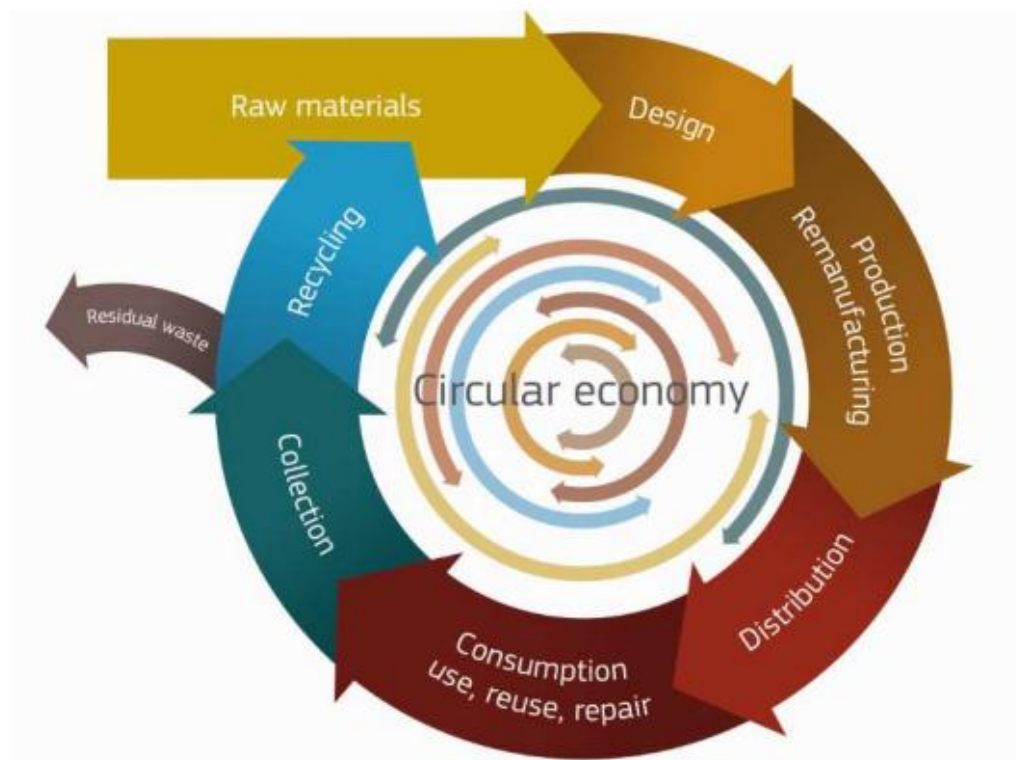
5. Sharing limited and unevenly distributed resources. In a situation of limited availability of resources – due to their physical finiteness or limited renewability – it becomes necessary to find a tool for ensuring equitable access to energy, water, and food for all countries and populations. One solution would be to determine the amount of available resources in the form of national budgets, as it has been done in the case of emissions trading, which is based on a permissible budget (volume) of emissions within which economic and social development must be contained. It is also necessary for governments, companies, local authorities, households, and individuals to change their behaviors in respect of the scale and kind of consumption – those who consume a lot, and waste part of what they consume, should enhance consumption for those who consume less, often below decent living standards, but within the limits of available resources.

6. Institutional, decision-making, and governance changes. The current system of managing the natural environment has failed, and the failure is attributable both to governments and markets. There is a need for change, or transformation. Far-sighted governments must see the opportunity to foster economic and social development through valuing nature and allocating resources in a manner that ensures societal prosperity. It is of utmost importance to undertake international efforts to eliminate anti-environmental subsidies and to foster global sustainability by coordinating international, local, regional, and sectoral actions. It is vital to develop a new financial mechanism that would give rise to a market economy that recognizes environmental resources and ecosystem services as economic values. In this change of perspective, an important role is to be played by enterprises.

## Circular economy

A new approach, which has been recently gaining recognition and interest, is the circular economy. It consists in minimizing the waste already at the design stage of the value chain and not at the end of the product life-cycle. The idea of a closed cycle economy (circular economy) provides an alternative to the linear economy, which is based on the assumption that we produce, use and throw away (Fig. 3). This means that we:

- ◆ Do not waste resources – raw materials, but we use them more efficiently;
- ◆ Give products a second life;
- ◆ Do not have to own everything but we should rather share with others (e.g. a public bike).



Source: COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. Towards a circular economy: A zero waste programme for Europe. EUROPEAN COMMISSION. Brussels, 2.7.2014. COM(2014) 398 final

**Fig. 3 Idea of circular economy.**

According to the European Commission it includes (COMMUNICATION ....2014) :

- ◆ “reducing the quantity of materials required to deliver a particular service (lightweighting);
- ◆ lengthening products’ useful life (durability);
- ◆ reducing the use of energy and materials in production and use phases (efficiency);
- ◆ reducing the use of materials that are hazardous or difficult to recycle in products and



- production processes (substitution);
- ◆ creating markets for secondary raw materials (recyclates) materials (based on standards, public procurement, etc.);
  - ◆ designing products that are easier to maintain, repair, upgrade, remanufacture or recycle (ecodesign);
  - ◆ developing the necessary services for consumers in this regard (maintenance/repair services, etc.);
  - ◆ incentivising and supporting waste reduction and high-quality separation by consumers;
  - ◆ incentivising separation, collection systems that minimise the costs of recycling and reuse;
  - ◆ facilitating the clustering of activities to prevent by-products from becoming wastes (industrial symbiosis); and
  - ◆ encouraging wider and better consumer choice through renting, lending or sharing services as an alternative to owning products, while safeguarding consumer interests (in terms of costs, protection, information, contract terms, insurance aspects etc)."

## Summary

Firstly, the man and his economy function within a social system which is inextricably bound to the natural environment or the ecological system. This means that any changes in one or the other are interrelated. It is not possible to grasp the dynamics of the operation of one system if we analyse it in separation from the other. Economists use economic models, sociologists analyse the behaviour of societies and life scientists try to understand the functioning of nature, of individual ecosystems. They all contribute to our understanding of the functioning of the world but each does it only partially. They work on individual components and not on the system as a whole. That is why an interdisciplinary approach, using a system-oriented way of thinking is so important in research as well as in politics.

Secondly, regardless of the adopted approach, option or scenario, the key challenge to be considered in the long-term is to ensure the functioning of the life-sustaining Earth systems (e.g. the global climate). They will determine the existence of the natural conditions for the functioning of human civilisation and the economy, which is a part of it. Sustainable growth is not a tool for reaching a compromise between its three components: the society, the economy and the nature, but it is a platform for integration and equal treatment of those three components, assuming that the limits of this platform are set by the systems which sustain life on the Earth. It is the condition for the survival of the human species to ensure the operation of those systems and as such it cannot be subject to any compromise.

## References

- Alternatywna polityka energetyczna Polski do 2030 r. Raport techniczno-metodologiczny.* Instytut na rzecz Ekorozwoju. Warszawa. 2009.
- Living Planet Report 2010: Biodiversity, biocapacity and development.* WWF International, Gland. 2010
- Vision 2050: The New Agenda for Business – in Brief.* World Business Council for Sustainable Development. 2010.



COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. Towards a circular economy: A zero waste programme for Europe. EUROPEAN COMMISSION. Brussels, 2.7.2014. COM(2014) 398 final