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Resource-efficient Food Systems

Challenges

- Food systems depend on natural resources, such as land, soil, water, biodiversity (including marine resources), minerals and fossil fuels. Currently these resources are often not managed sustainably or efficiently, leading to degradation or depletion of resources and thus to risk for future food security.
- Food production also has a considerable adverse impact on the environment, for example due to greenhouse gas emissions and nutrient losses.
- Globally, 800 million people are hungry, while 2.5 billion people are overweight or obese.
- Global food production will need to increase by 60% – and by an even higher percentage in developing countries – by mid-century in order to feed a future population of 9 billion people, with only limited potential to achieve this through further expansion of cultivated land area.
- The key question is how governments, together with private actors, can stimulate more Resource-efficient Food Systems, while at the same time contributing to better outcomes in terms of food security, nutritional quality and human health.

International Resource Panel

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Responses

- Enhancing the sustainable and efficient use of natural resources in **food production**, both at the level of farms and fishery operations, **as well as in food processing, transporting and retailing**.
  - Increasing crop yields in a sustainable way, thus making more efficient use of land. There is considerable potential for this especially in developing regions (notably sub-Saharan Africa), but also in developed regions. For instance, new high-yielding and pest and disease resistant varieties of food crops have and are being developed, which are efficient in water use and require little or no use of chemical fertilizers or pesticides. More research is needed, however, to adapt these technologies to local conditions.
  - Increasing the efficiency of water use, for example by reducing losses in irrigation systems, by applying more efficient application techniques and precision irrigation.
  - Reducing nutrient losses, in crop production (mainly relevant for nitrogen), as well in livestock production and especially by promoting the recycling of nutrients in the feed – manure – crop production loop. In parallel, this will lead to lower nutrient losses to the environment. Another important route is to improve the recycling of nutrients in the food system, for example by composting waste from households, restaurants and food processing facilities.
  - Better matching land use with land potential. Different crops and crop production systems are more productive and sustainable on different soil-climate combinations.
  - Giving more attention to land and soil quality, for example by managing soil to increase soil carbon content and improve soil biodiversity; and the maintenance of certain landscape elements to prevent soil and water erosion.
  - Balancing water extraction from aquifers with replenishment, to prevent lowering of groundwater tables.
  - Limiting fish yields to a level that is ecologically sustainable, to prevent overexploitation of fish stocks.
- **Reduction of food waste**. For example, in the United States, 31% of the available food supply at the retail and consumer levels in 2010 went uneaten.

- **Changing eating patterns towards healthier and less resource-intensive diets**, especially with moderate consumption of meat and dairy products. Livestock is an important source of protein and nourishment, as well as a livelihood for many poor people in Africa, Asia, and Latin America. However, in affluent regions, average consumers have a too high intake of saturated fats and red meat. Limiting the intake of meat and dairy products, primarily in industrialised countries, can have a positive impact on the resource efficiency of all resources. A means of reducing demand for more resource intensive and unsustainable sources of food is by labelling food as to the sustainability of its mode of production.

Examples

Courtauld Commitments convened by UK's WRAP

What?

- The Waste and Resources Action Programme (WRAP) is funded by the UK government.
- WRAP coordinates the Courtauld Commitments, a set of voluntary agreements among the industry and retail sectors aimed at increasing resource efficiency and reducing waste.

Success factors

- WRAP works in the space between governments, businesses, communities and innovators and brings actors together around initiatives for sustainable resource use.

Results

- Household food waste was cut by 2.9 million tonnes between 2005-2012, saving consumers around £4.9 billion, and preventing 8.1 million tonnes (CO_2e) of greenhouse gas emissions.
- Between 2010-2012 almost 4% less household food and drink was wasted, while packaging waste reduced by circa 10%.

Marine Stewardship Council (MSC) and the Netherlands

What?

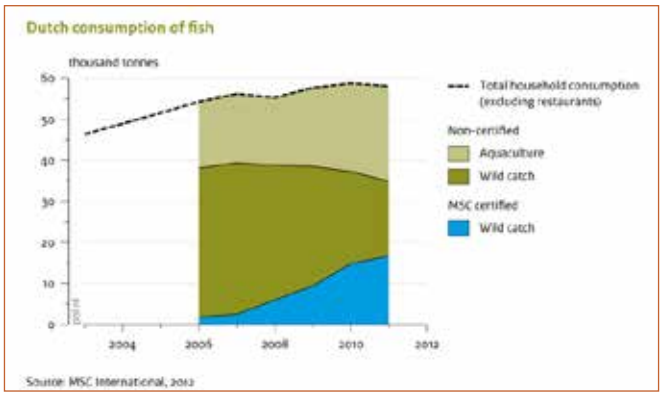
- The Marine Stewardship Council (MSC) was founded in 1997 as a joint project between the World Wildlife Fund (WWF) and Unilever.
- MSC developed a set of criteria for sustainable and well-managed fisheries, used from 2002 onwards as a label on products.

Success factors

- Higher price enabled fishermen to adopt new, less harmful fishing techniques.
- A positive side-effect is that the new techniques require less fuel.
- The Dutch government subsidised the cost of developing the certification scheme, and provided fiscal support for investments in new, less damaging, fishing gear.

Results

- By the end of 2011 around 85% of Dutch supermarket fish was MSC-certified, or comparable.
- Overall, MSC products rose from 6% of consumption in 2007-2008, to almost 40% in 2011-2012.



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The International Resource Panel was established in 2007 to provide independent, scientific assessment on the sustainable use of natural resources and the impacts of resource use over the full life cycle.