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The Global Competition about the Supporting Services of Soils

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Soil productivity in this presentation is understood as the relationship between the supporting and regulating services of soils and the provisioning services which soils support, as described in the Millennium Ecosystem Framework. According to the Millennium Ecosystem Assessment, during the last 50 years the continuously increasing supply of provisioning services has been mainly achieved on the costs of regulating and supporting ecosystem services, for which soils are the major resource. Nevertheless, little research has been conducted since the release of the Millennium Ecosystem Report on the relationship between the various types of ecosystem services. To make a contribution to this topic, the balance which is analyzed here is therefore the one between provisioning services and their consumption by social units on the one hand, and the supporting and regulating services supplied by soils on the other hand. This serves as a starting point to assess the demand which the supply of provisioning and regulating services – such as food, wood, fibre, water, present to the regulating services of soils such as climate adaptation, biodiversity, water and nutrient cycle regulation and their sustaining and supporting services such as soil formation. A major emphasis is given to provisioning services from agriculture, however, as part of the global ecosystem earth, ecosystem services for and from agriculture cannot be analyzed isolated from other ecosystem services. Naturally, provisioning services cannot be sustainably supplied without the maintenance of corresponding soil services. Therefore, both the consumption of provisioning services as well as the demand for regulating services have to be in a balance with the soil supporting services they are competing about. This implies certain challenges to lifestyles, consumption levels and distributional issues in societies. The major concepts used for the analysis are the Millennium Ecosystem Approach, the Planet Boundary Concept of the Stockholm Resilience institute and some inputs from ecological economics and thermodynamics. A framework will be presented as well as some case studies from Europe and East Africa to highlight the problem of balance in this context.