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TOWARDS A DEFINITION OF SUSTAINABLE LAND USE

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***Summary**: In article discussing differences between a strong and a weak concept of sustainability and explaining the role of «natural capital» and «reproduction» in the context of land use.*
***Key words**: sustainable, land use.*

Problem statement. «Sustainability» or «sustainable development» are omnipresent terms, appearing in every single policy and economic sector and prevalent in our every-day life. Fair trade, green economy, sustainability reporting and strategies, green innovation etc. are all terms whose use range from global politics to specific marketing strategies and basically originate from the fundamental idea of sustainable development. Their success also displays the weakness of the concept, since «sustainability» and most of its associated terms are poorly defined and automatically lead to a myriad of different interpretations in different contexts.

Therefore, you should try frame a definition of «sustainable land use» in a pragmatic way.

Research material. The very origin for defining «sustainable development», which is commonly quoted in any texts referring to sustainability as a framework, is the definition of the Brundtland Commission of the United Nations from 1987, saying «sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs»/ From a theoretical viewpoint, there are mainly three implications stemming from this definition: living human beings do have obligations towards future generations; there is both an inter- as well as intra-specific dimension of justice; sustainability must be seen as a process rather than a status.

A concept was established, which still dominates most strategies and activities referring to sustainability: the three pillars of sustainability consisting of the social, environmental and economic dimension.

The general idea behind the three pillars is that with sustainable development, neither the social, environmental nor the economic dimension can be compromised, but synergies between the three should be found.

This concept actually paved the way for the various and often misleading interpretations of sustainable development, because it implies no prioritization between the three pillars and does not indicate a minimum level of achievement

The concept of strong sustainability builds on the assumption that the economy is a subsystem of the environmental system rather than a separate one. Thus, nearly all economic activities rely on the extraction of (finite) natural resources, which directly bonds economic growth to a their further depletion.

Advocates of weak sustainability tend to be more optimistic. Not acknowledging the incorporation of the economic sphere in the environmental, they would accept

a further reduction of natural capital as long as this leads to an increase (by investing) in knowledge, capacities, and more efficient technologies etc. They would not reject nature conservation, but would see them as measures for increasing overall human benefits rather then a required investment in natural capital.

For a definition of sustainable land use it seems crucial not only to determine the amount of natural capital to be maintained and to what extent it can be replaced by other forms of capital, but also about the qualitative state of the natural capital.

Strong sustainability is more sensitive for the quality of natural capital than weak sustainability, because its perspective draws on indicators of the physical environment rather than understanding natural capital as a mere stock, which provides a continuous flow of services to humans.

Natural capital is often differentiated in stocks and funds. Stocks can be consumed, which means that their use implies their depletion in the long run (such as oil or coal). Funds, however, have the ability to replenish, which means that their use by human beings might harm their functionality but does not necessarily lead to their depletion. Funds are further differentiated in living and non-living funds. Soil is an illustrative example for a non-living fund as we can use it ever again as long we do not destroy its ability to regenerate.

Investments in natural capital are mainly associated with omissions, in other words: not doing anything, which undermines the maintenance of natural capital or the ability to replenish, probably best applied by nature conservation.

While concepts exist for sustainable agriculture, forest (management) or biomass use, there are surprisingly few concepts dealing with sustainable land use as a whole. The complexity of applying sustainability to land use pose significant challenges, which already appear for a specific sector such as agriculture.

The question «Sustainability of what?» has multiple facets:

• Consistency between scales: how do land use decisions on a local scale effect the national or even global scale and how should this be evaluated?

• Difficulty of measurement: to find adequate indicators for sustainable land use that provide sufficient data and measurability.

• Competing objectives: is, for example, maximizing carbon sequestration always compatible with increasing biodiversity while at the same time land rights are preserved and cultural values are maintained?

• Uncertainty: one could argue, that uncertainty is a common companion of most decisions. However, land use decisions depend on a wide range of variables with a comparably high degree of uncertainty and are often long-term and irreversible (especially in the forest sector).

Sustainable land use combines technologies, policies and activities aimed at integrating socio-economic principles with environmental concerns so as to simultaneously:

- maintain or enhance production/services;
- reduce the level of production risk;
- protect the potential of natural resources and prevent degradation of soil and water quality;

- be economically viable;
- and socially acceptable.

The discussion on sustainable land use at global scale raises several new questions than those tackled by the described concepts, for example:

• the ratio of fertile land available in a country and the demand of land based products and related to this context: the unequal distribution of land footprints between industrialized and developing countries;

• role of and rules for international trade of commodities from agriculture and forestry;

• leakage effects, not only in terms of land taking in other countries to meet domestic demands but also the «export» of negative social and environmental impacts to other countries and the import of virtual water;

• the question of foreign investment in land and the consequences for land access, ownership and distribution (land concentration).

The central idea of this is to agree at a multilateral level to halt overall land degradation by avoiding degradation, where possible and to restore land where degradation cannot be avoided (off-setting).

While the land restoration component might resemble the investments in natural capital, which is a key aspect in strong sustainability, the possibility to compensate for a loss in natural capital with degradation in one place and restoration in another objects in two ways: firstly, a full substitution of the quality of natural capital is assumed and secondly, the amount of natural capital was not increased. In principle, a zero net degradation goal could be compatible with strong sustainability as it implies a certain amount of natural capital (undegraded land), which has to remain constant. However, within the concept it is not yet clear, when a piece of land can be considered «degraded» or «restored» and where a respective reference point could be set. Hence, for determining if natural capital is kept constant under the zero net land degradation goal, a desired reference condition for the land would have to be defined. Moreover, it has to be considered that degradation is a relative term describing a process rather than a status, which implies a temporal dimension. How, for example, should a process be judged, in which a piece of land faces (a certain level of) degradation over a certain period of time, when it is left for regeneration at a later stage - not to mention the huge effort of measuring and balancing such processes.

References.

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