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"World Food System —
A Contribution from Europe"

Assessing and Compensating the Biodiversity Impacts of Agricultural Products in the North-South Context — "myEcosystem"

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Abstract

Many products consumed in industrialised countries (the Global North) originate from developing and emerging nations (the Global South). Multi-faceted environmental impacts occur along the production chain. Among the most severe is the loss of biological diversity, which frequently occurs in the country of origin and is not reflected in the market price. Agricultural products are responsible for a major share of this impact through land and water use. Competition between energy production (*e.g.* biofuels), higher standards of consumption (*e.g.* fodder for livestock) and meeting food security needs (*e.g.* staples and subsistence farming) places more and more pressure on natural ecosystems and the services they provide. The project "myEcosystem" aims to develop novel methodologies to assess biodiversity loss associated with agricultural products from the Global South. We apply Life Cycle Assessment (LCA) to estimate these impacts and transfer the information along the value chain (*e.g.* as a "biodiversity footprint"). Land-use impacts on biodiversity will be assessed on an ecoregion scale using global data on species diversity and combining them with cause-effect relationships between specific land use classes and biodiversity loss derived from meta-study. Water use impacts on biodiversity are explored on watershed scale using available data on groundwater and vegetation characteristics such as rooting patterns, as well as information on groundwater-dependency of key fauna (*e.g.* birds). This will supply decision-makers with the necessary tools to evaluate such environmental impacts, to define strategies for reduction, and finally to compensate remaining impacts through North-South payments for biodiversity conservation. Such payments would reward local land stewardship, strengthen and enlarge protected area coverage and restore critical habitat in the affected areas. Yet questions on the appropriate scale, metrics of measurement, and socioeconomic effects make this an extremely challenging task. In the poster we will elaborate the "myEcosystem" framework using a set of regional case studies, developing more detailed methodology based on higher quality land, water and biodiversity data. The outcome is expected to provide a possible model in which biodiversity loss and conservation may be integrated with agricultural production and trade.

Keywords: Agriculture, biodiversity, compensation, ecosystem, land, North-South, water

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