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# Conceptual basis for development of the European Sustainability Footprint

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ABSTRACT

Sustainability is central to the policy objectives of the European Commission (EC), but a widely accepted integrated sustainability assessment framework in support of policy analysis and development is currently lacking. Here, we sketch the conceptual basis for the proposed European Sustainability Footprint (ESF) – an integrated sustainability assessment framework for establishing a baseline and tracking trends with respect to the sustainability of European production and consumption (at both micro- and macro-scales). Specifically, it is proposed that the European Sustainability Footprint to be comprised of a selection of life-cycle based indicators (environmental, social, and economic) for production and consumption at product, sector and economy-scales. The indicators will subsequently be assessed against defined sustainability targets or thresholds in each domain. Such an approach is necessary for monitoring the relationship between, as well as progress with respect to, the twin EC policy objectives of (1) green growth and (2) ensuring that the EU economy develops so as to respect planetary boundaries and resource constraints.



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## 1. Introduction

The organizing principle of governance in the twentieth century was the overarching priority of economic growth (McNeil, 2000). In face of the ongoing economic crisis in Europe and globally, and the attendant political responses at regional and international levels, it is clear that growth remains imperative for policy makers and governance institutions. For the European Commission, this has manifested as the Europe 2020 Strategy for "Smart, Sustainable and Inclusive Growth" (COM, 2010).

At the same time, a variety of scholars have cautioned against over-reliance on green growth in support of sustainability objectives. For example, Bina and La Camera (2011) evaluate international responses to the global financial and climate crises in order to identify the underpinnings of the "green turn" in policy choices. Specifically, they examine policy documents from the European Commission, the Organisation for Economic Co-operation and Development, the United Nations Economic and Social Commission for Asia and the Pacific, and the United Nations Environment Programme. According to their analysis, the new green growth paradigm that underpins the responses of each of these leading international organizations is based on the same neoclassical economic precepts that are, themselves, at the root of the twin crises. This analysis complements earlier observations by Luke (2005) and Pelletier (2010a), both of whom argued that green growth measures alone must not be mistaken as equivalent to sustainable development but, rather, may lead to precisely the opposite outcome if the environmental costs associated with absolute increases in economic activity outweigh relative efficiency gains.

Since the 2001 Gothenburg Summit, sustainability has been adopted as a guiding principle and objective for policy development by the European Commission (European Council, 2001). The Europe 2020 Strategy for "Smart, Sustainable and Inclusive Growth" provides the policy agenda and headline indicators for tracking progress in several domains relevant to sustainability (COM, 2010). Within this context, the Roadmap to a Resource Efficient Europe (COM, 2011, p. 21) also establishes that, by 2050, the European Union (EU) economy shall have developed in such a way as to accommodate resource constraints and planetary boundaries. However, the extent to which the former (green growth) is compatible with the latter (respecting environmental constraints) policy objective, and how this relationship will be monitored, has not yet been resolved.

The "footprint" concept is increasingly adopted as a heuristic device for communications regarding the demands placed by human activities on the natural environment. The notion of the footprint implies a measure of appropriation of limited available ecological space, along with the goal of reducing the footprint to a sustainable level. Indeed, the use of this concept in terms of environmental assessment has its origin in the Ecological Footprint, which is a measure of the bioproductive "global hectares" required to provide the resources and assimilate a subset of the wastes associated with a given population and level of consumption (Wackernagel and Rees, 1996; Wackernagel et al., 1999; Wackernagel and Silverstein, 2000). This tool has become a widely adopted framework for coarsely estimating human demands on a subset of ecosystem goods and services relative to global biocapacity. At the same time, the importance of considering a broader suite of environmental criteria than is accommodated by the Ecological Footprint method in order to prevent unintentional burden-shifting points toward a necessary expansion of the footprint concept. This recognition is already reflected in the current emphasis on "life cycle thinking" in EC policies, supported by multi-criteria, supply chain assessment methods, as a basis for improved environmental management. However, indicators for numerous relevant social and economic, in addition to environmental objectives, are also necessary, along with targets or thresholds at appropriate scales, in order to provide a more comprehensive and integrated account of the sustainability of activities and policy alternatives (Ökoinstitut, 1987; Wolf et al., 2001).

Here, we describe a proposal for a life cycle-based integrated sustainability assessment framework called the "European Sustainability Footprint" (ESF). This framework is intended to provide for (1) a baseline assessment of the sustainability performance of European production and consumption, at both micro (i.e. product-level) and macro (i.e. Member State and EU-28) scales (2) the capacity to track trends and, (3) scenario evaluation of the impacts of alternative policy regimes on sustainability objectives. The framework is complementary to previous proposals for integrated sustainability assessment such as that of the Coordination Action for Innovation in Life-Cycle Analysis for