

Environmental footprint family to address local to planetary sustainability and deliver on the SDGs

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Abstract

The number of publications on environmental footprint indicators has been growing rapidly, but with limited efforts to integrate different footprints into a coherent framework. Such integration is important for comprehensive understanding of environmental issues, policy formulation and assessment of trade-offs between different environmental concerns. Here, we systematize published footprint studies and define a family of footprints that can be used for the assessment of environmental sustainability. We identify overlaps between different footprints and analyse how they relate to the nine planetary boundaries and visualize the crucial information they provide for local and planetary sustainability. In addition, we assess how the footprint family delivers on measuring progress towards Sustainable Development Goals (SDGs), considering its ability to quantify environmental pressures along the supply

chain and relating them to the water-energy-food-ecosystem (WEFE) nexus and ecosystem services. We argue that the footprint family is a flexible framework where particular members can be included or excluded according to the context or area of concern. Our paper is based upon a recent workshop bringing together global leading experts on existing environmental footprint indicators.

Keywords: environmental footprints, planetary boundaries, sustainable development

1. Highlights

- We define a family of environmental footprints.
- We identify overlaps between different footprints.
- We analyse how they relate to the nine planetary boundaries.
- We discuss the relation with SDGs, WEFE nexus and ecosystem services.
- We argue that the footprint family is a flexible framework.

2. Published paper

This contribution concerns the presentation of the paper Vanham et al. (2019).

This paper is based upon a recently organized workshop at the Joint Research Centre (JRC) in Ispra, Italy, which brought together, for the very first time, 23 global leading experts on existing footprint indicators, from 17 different institutions.

4. INI2020

We would be very happy to present our paper at the 8th Global Nitrogen Conference in Berlin. The nitrogen footprint is one member of the environmental footprint family. Our paper brings clarity in the crowded field of footprint indicators.

The JRC recently published a news item on this paper: <https://ec.europa.eu/jrc/en/science-update/environmental-footprint-family-bringing-clarity-crowded-field-footprint-studies>

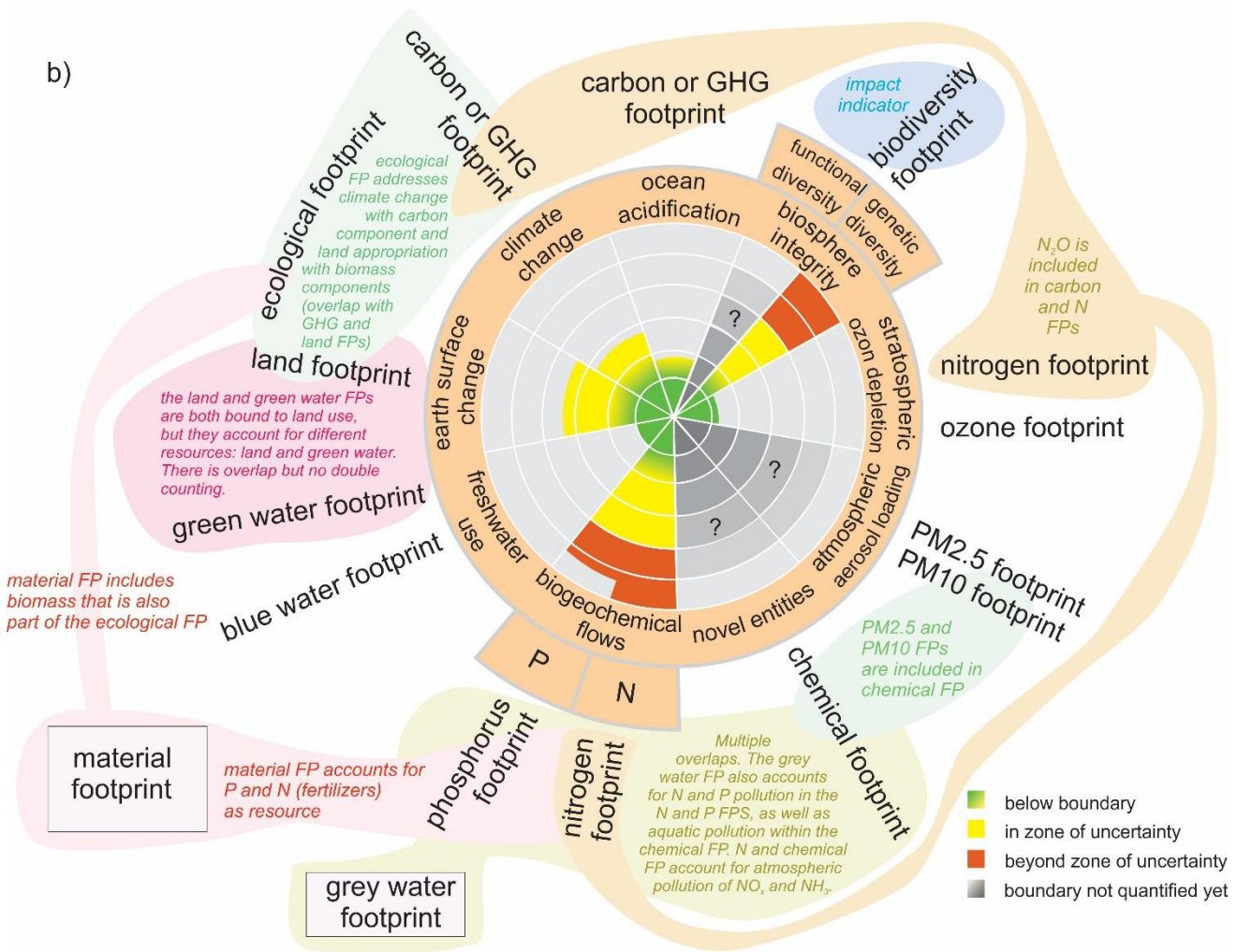


Fig. 1: Correspondence of existing footprint indicators with the nine planetary boundaries, with visualization of overlap between different footprints. (Vanham et al., 2019)

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References

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