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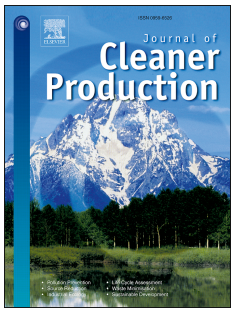

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Mapping the international flows of GHG emissions within a more feasible consumption-based framework

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Abstract

During the last two decades, the scientific literature has focused on the allocation of emissions embodied in international trade by implementing accounting procedures based on consumer-oriented perspective. While the Multi Regional Input-Otput analysis has been accepted by the scientific community as an alternative to the IPCC accounting, some concerns arise from the feasibility and the actual implementation of this methodology. In this paper, we apply a simplified framework recently introduced by Caro et al. (2014a), called NCI (National Carbon Intensity) method, and estimate the total CO_2 emissions due to consumption in 175 countries during the period 2008-2012, with a focus on the Mediterranean area. We estimate CO_2 emissions embodied in trade, assigning emission responsibility on the basis of each country's demand. Globally in 2012, 8129 Mt CO_2 emissions were related to goods produced in one country and consumed outside its boundaries. A relevant example is the export from China to consumers located in the USA, Japan, and Germany. A focus on the Mediterranean area, that resulted as a net importer of CO_2 embodied in traded goods, identifies the export of emissions from Italy and Spain to France and from Libya and Algeria to Italy as the dominant flows. The NCI method provides a realistic picture of emissions due to consumption that differs from high resolution Multi Regional Input-Output database by less than 10%. The method can be largely adopted as a more feasible preliminary step towards consumption-based emission accounting and responsibility assignment.