City Environmental Footprint

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To date, more than one person out of two is living in urban areas and projections say that two thirds of human beings will live in cities by 2050. The subsequent resource and energy demands are great, as well as the related environmental impacts. The density of people, energy and economic activities pose big challenges, but also opportunities for cities to be a driver for change, if properly addressed. Current methodologies available to measure environmental performances are however not completely appropriate for these purposes.

The goal of this research is to identify a new systemic and systematic approach (City Environmental Footprint, City EF) to assess the environmental impacts of cities, taking into account the heterogeneity of the urban space and avoiding the risk of burdens shifting. The City EF shall be able to identify major hotspots and subsequent sources of impacts, as well as priorities of measures for the reductions of such impact. The development of the proposal started from an extensive analysis of the most important and innovative researches on the topic and from the study of methodologies currently available to identify negative and positive key features for application at the urban level. The methodologies considered are: UM, Input-Output Analysis, Carbon and Water Footprint, LCA.

The City EF proposed comprises five main steps, iterative and customizable according to the needs and the specific reality of the urban context considered. The qualitative approach aims at providing an overview of the dynamics inherent to the city, while the quantitative approach is mainly LCA based and includes specific refinements for application to the urban context (functions of the system and functional unit, system boundaries, allocation procedures). The proposal is still under development and is focusing primarily on the identification of urban categories and priority entities, and specific impact assessment procedures.

Keywords

Urban Sustainability; Life Cycle Assessment; Urban Metabolism; City Environmental Footprint