

Title: Measurable, Reportable and Verifiable Greenhouse Gas Emissions: New Challenges when Downscaling Global to Urban Inventories

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Abstract:

Urban areas, which emit up to 70% of global greenhouse gases, can greatly contribute to climate change mitigation policies and sustainable energy use. Comparable emission inventories at city level are needed to better understand the relation between emissions and institutional, socio-economic and demographic characteristics and to allow for the definition and implementation of efficient local policies for emission reduction. Global greenhouse gas emission grid maps from the EDGARv4.3 (Emissions Database for Global Atmospheric Research) dataset and the resulting urban totals per sector, as calculated bottom-up (with activity data and emission factors in a consistent way for all world countries) will be presented. They will be compared at national level to a review of city inventories collected in Europe in the frame of the Covenant of Mayors (CoM) initiative. The CoM initiative is the mainstream European movement involving local authorities voluntarily committing to meet and exceed the European Union 20% CO₂ reduction objective by 2020. In order to demonstrate such commitment, the Covenant signatories (towns, cities and regions) must prepare and submit a Sustainable Energy Action Plan which is based on the results of baseline energy consumption and CO₂ emission inventories. The “CoM sample 2013” collection of harmonized inventories, including small to very large cities, has been carefully checked to ensure its internal consistency and its congruity with respect to internationally accepted guide values for emission factors. It will be compared, at per capita level, to EDGAR emission (and IEA energy) global data, for the buildings and the transport sectors. The analysis of the consistency and heterogeneity of the results with respect to the applied methodologies, as well as the potential of CoM derived-indicators for the downscaling of global to urban inventories will be discussed.