



## Uncertainties in city greenhouse gas inventories

Martin Wattenbach (1), Richard Redweik (1), Stefan Luedtke (1), Chang Deng-Beck (2), Lutz Ross (3), and Claus Nagel ()

(1) Helmholtz Center Potsdam GFZ - German Research Centre for Geosciences, Hydrology, Potsdam, Germany (martin.wattenbach@gfz-potsdam.de), (2) ICLEI - Local Governments for Sustainability, World Secretariat, Bonn, (3) virtualcitySYSTEMS GmbH Berlin

In 1993 mayors from 50 cities in 20 countries gathered at the UN in New York under the umbrella of the International Council for Local Environmental Initiatives (ICLEI) to issue a declaration aimed at cutting carbon dioxide emissions from cities. By today 465 cities report their GHG emissions in ICLEI's carbonn Cities Climate Registry (cCR). Many cities worldwide are on the route to implement the combined new standard for city-based GHG accounting and reporting, named the Global Protocol for Community-Scale GHG Emissions (GPC). These extensive data sources offer the unique chance to better understand, manage and reduce city GHG emissions. However, many cities are already reporting or have reported their GHG emission in non GPC conform tools. This heterogeneous data source raises the question on how these data could be potentially transferred to a GPC conform level. For the transfer process it is very important to understand and quantify the potential losses of information and increase or decrease in uncertainty due to class conversions and associated recalculations of GHG data.

Here we compare existing GHG reports from different sources based on the use of different tools. We look at data from the carbonn Registry by ICLEI, the CDP, C40 and the Ecoregion tool. Using examples of existing data from cities in Europe we demonstrate potential information losses and inconsistencies leading to increased uncertainty. We also illustrate the potential mapping schemes for the data structures and identify uncertainties from using alternative mappings.

In conclusion it is essential to develop consistent data structures in order to allow the use of city GHG data for time series analysis and city intercomparison.