

**Global Covenant of Mayors
Common Reporting Framework**

**Version 6.0**

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## 3. Greenhouse Gas Emissions Inventory

The following GHG reporting framework is built upon the Emission Inventory Guidance, used by the European Covenant of Mayors and the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), used by the Compact of Mayors. Both refer to the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories[[1]](#footnote-1).

Local governments **shall** submit their greenhouse gas emissions inventory to GCoM[[2]](#footnote-2) within two years upon joining GCoM. Every subsequent two years, or as set by regional GCoM offices, a more recent greenhouse gas emissions inventory **shall** be submitted to GCoM. Greenhouse gas emissions inventories **shall** cover a consecutive period of 12 months.

## 3.1. GHG Accounting Principles

In addition to the general reporting principles mentioned in section 2.2 above, local governments **shall** follow the GHG accounting principles outlined below:

* The inventory shall be relevant to the local and regional (where relevant) situation: reflecting the specific activities and policy-making needs of the city; taking into account its capacity and regulatory context.
* Local governments **shall** consider all categories of emission sources and report all emissions that are significant. Exclusion of emission sources **shall** be disclosed and justified, using the notation keys[[3]](#footnote-3) in the reporting template.
* Local governments **shall** compile GHG inventories on a regular basis, to enable monitoring and tracking the impact of climate actions, also to ensure continuous improvement in data quality, resulting in a clearly defined inventory boundary, improved data sources and defined methodologies that **shall** be consistent through the years (e.g., clarify where there is an evolution, e.g. population growth), so that differences in the results between years reflect real differences in emissions and mitigation efforts by the local government and the city.
* Local governments **shall** ensure sufficient accuracy to give local decision makers and the public reasonable assurance of the integrity of emissions reported. Efforts **shall** be made to reduce uncertainties and make improvements over time.
* To the extent possible, all relevant activity data[[4]](#footnote-4), data sources, methodologies, assumptions, exclusions and deviations **shall** be documented and reported, to allow for review, replication of good practice, and tackling challenges identified (e.g., lack of access to data in country X).

## 3.2. Notation Keys

Notation keys **may** be used to accommodate limitations in data availability and differences in emission sources between local governments. Where notation keys are used, an accompanying explanation **shall** be provided.

The following are the descriptions on how to use the notation keys:

* **“NO”** (not occurring): An activity or process does not occur or exist within the city. This notation key may also be used for insignificant sources.
* **“IE”** (included elsewhere): GHG emissions for this activity are estimated and presented in another category in the same inventory, stating where it is added. This notation key may be used where it is difficult to disaggregate data into multiple sub-sectors.
* **“NE”** (not estimated): GHG emissions occur but have not been estimated or reported, with a justification why.
* **“C”** (confidential): GHG emissions which could lead to the disclosure of confidential information, and as such are not reported publicly.

Further guidance on the use and application of notation keys will be provided in the implementation phase.

## 3.3. Emission Sources

Local governments **shall** report GHG emissions from at least three main sectors, namely stationary energy, transportation, and waste. The detailed reporting requirements are described in the following subsections.

Local governments **should** also report GHG emissions from Industrial Processes and Product Use (IPPU) and Agriculture, Forestry and Other Land Use (AFOLU) sectors[[5]](#footnote-5) where these are significant.

Additionally, local governments **may** report GHG emissions from upstream activities, such as material extraction, or other out-of-boundary sources.

Further guidance on the reporting of emissions from IPPU, AFOLU and other sources will be provided in the implementation phase.

**(1) Stationary energy**

* All GHG emissions from fuel combustion and the consumption of grid-supplied energy, in stationary sources within the city boundary **shall** be reported.
* The emissions data **shall** be disaggregated by residential buildings, commercial buildings and facilities, institutional buildings and facilities, industry[[6]](#footnote-6) and agriculture, forestry, and fisheries.
* GHG emissions from sources covered by a regional or national emissions trading scheme (ETS), or similar, **should** be identified.
* All fugitive emissions within the city boundary **shall** be reported.

**(2) Transportation**

* All GHG emissions from fuel combustion and use of grid-supplied energy for transportation within the city boundary **shall** be reported and disaggregated by mode: on-road, rail, waterborne navigation, aviation, and off-road.
* Waterborne navigation, aviation, and off-road are unlikely to occur or be significant in most cities. Where they are significant sources, GHG emissions **shall** be included, unless they occur as part of transboundary journeys, in which case the notation key "Included Elsewhere" (IE) may be used (see below for more details). Where these sources do not occur, the notation key “Not Occurring” (NO) **shall** be used; where they are not significant, the notation key “NO” **may** be used (see section 3.2. for more details on the notation keys).
* Local governments **should** further disaggregate road and rail travel by fleet type: municipal fleets, public, private and commercial transport.
* Local governments **may** use the fuel sales, geographic (territorial), resident activity and city-induced methodologies[[7]](#footnote-7) to estimate activity. They **should** identify the methodology used. Depending on the methodology used, data availability, and where such activities occur, local governments **may** choose to report GHG emissions from the inboundary component of domestic and/or international waterborne navigation and aviation (such as the landing and take-off cycle for aviation), or assume these are all out of boundary emissions and use the notation key “Included Elsewhere” (IE, see section 3.2) instead.

Further guidance on the use and application of transport system data collection methodologies will be provided in the implementation phase.

**(3) Waste**

* All GHG emissions from disposal and treatment of waste and wastewater generated within the city boundary **shall** be reported and disaggregated by treatment type.
* Where waste is used for energy generation[[8]](#footnote-8), GHG emissions do not need to be reported. Instead, the notation key IE **should** be used (see **section 3.2.** for more details on the notation keys). Instead, these GHG emissions will be captured in the inventory through the use of heat or electricity generated from the treatment of waste.

## 3.4. Energy generation

Additionally, local governments **shall** report GHG emissions from energy generation activities. To avoid double counting, these **shall** not form part of the GHG emissions inventory total, and will be reported under an “Energy Generation” sector, where:

* All GHG emissions from generation of grid-supplied energy within the city boundary, and all GHG emissions from generation of grid-supplied energy by facilities owned (full or partial) by the local government outside the city boundary **shall** be reported and disaggregated by electricity-only, combined heat and power (CHP), and heat/cold production plants.
* GHG emissions from sources covered by a regional or national emissions trading scheme (ETS), or similar, **should** be identified.
* In addition, local governments **should** report all activity data for distributed local renewable energy generation.

## 3.5. Activity Data and Emission Factors

In addition to GHG data, the reporting framework requires local governments to report activity data and emission factors as follow:

* Local governments **shall** report activity data (in MWh, PJ, etc.) and emission factors for all sources of emissions, disaggregated by activity/fuel type.
* Local governments **should** use activity-based emission factors (also referred to as IPCC emission factors), though **may** use Life-Cycle Analysis (LCA) based emission factors where this is required for GHG emissions reporting at the national level. Where local governments use LCA emission factors, they **shall** also consent to GCoM recalculating and reporting their inventory using standard activity-based emission factors to enable the comparability and aggregation of city inventories. Local governments **shall** specify whether the emission factor used to estimate GHG emissions from the consumption of grid-supplied electricity is locally estimated or covers a regional, national or supranational grid. In all cases, the emission factor used **shall** be fully referenced.
* Local governments **shall** account for emissions of the following gases: carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O)[[9]](#footnote-9).
* GHG emissions **shall** be reported in metric tonnes of CO2 equivalent (CO2e)[[10]](#footnote-10). Where possible, local governments **should** report CO2e emissions by individual GHG.
* Emissions from biogenic carbon are not required to be reported. Where they are reported, this **shall** be categorized separately and will not be counted in emissions totals.
1. Considering that the IPCC is busy revisiting the 2006 IPCC Guidelines, changes will also be studied and accommodated for the GCoM, as relevant. [↑](#footnote-ref-1)
2. Inventory should be submitted to the GCoM secretariat where a Regional or National Covenant does not exist. [↑](#footnote-ref-2)
3. Notation keys should be used when an emission source is not occurring, included elsewhere, not estimated, or confidential. [↑](#footnote-ref-3)
4. Activity data is a quantitative measure of a level of activity that results in GHG emissions taking place during a given period of time (e.g., volume of gas used, kilometres driven, tons of solid waste sent to landfill, etc.). [↑](#footnote-ref-4)
5. Please refer to 2006 IPCC Guidelines for National Greenhouse Gas Inventories for more details on these sectors. [↑](#footnote-ref-5)
6. This includes all emissions from energy use in industrial facilities, construction activities, and energy industries, except emissions from the generation of energy for grid-distributed electricity, steam, heat and cooling. [↑](#footnote-ref-6)
7. Please refer to the *Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)* or the *European CoM* Guidebook for further details on these methodological approaches. [↑](#footnote-ref-7)
8. For example, household waste sent for incineration; or sludge from wastewater. [↑](#footnote-ref-8)
9. When reporting IPPU, it will include hydro fluoro carbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3). [↑](#footnote-ref-9)
10. CO2 equivalent can be determined by multiplying each gas by its respective global warming potential (GWP). The IPCC Assessment Report used for the GWP factors should be clearly referenced (i.e. FAR; SAR; TAR; AR4; AR5). [↑](#footnote-ref-10)