Background of GHG Protocol and the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC)

Wee Kean Fong
Project Manager, GHG Protocol City Project,
World Resources Institute

Core Partners:

www.ghgprotocol.org/city-accounting
Presentation outline

1. Background of the GHG Protocol
2. The GPC initiative
3. Why conducting city-scale GHG inventories?
1. Background of the GHG Protocol
The GHG Protocol

Launched in 1998.

"The foundation for sustainable climate strategies"

GHG Protocol standards are the most widely used accounting tools to measure, manage and report GHG emissions.

www.ghgprotocol.org/city-accounting
Quick facts about GHG Protocol

- Standards: 4 Major Standards
- Tools: 25+
- Tool downloads: 1000+ per month
- Newsletter subscribers: 8,500+
- Registered website users: 55,000+
- Programs based on GHGP: 50+ worldwide
History of the GHG Protocol: 2001-2005

2001

Climate Leaders
U.S. Environmental Protection Agency

2002

California Climate Action Registry

2004

The Greening of the Protocol

2005

ISO
International Organization for Standardization

defra
Department for Environment, Food and Rural Affairs
Global programs based on GHG Protocol

Government-led GHG Programs
- U.S. Department of Energy (1605b)
- UK Emissions Trading System
- U.S. EPA Climate Leaders Initiative
- METI, Japan
- Brazil GHG Program
- Mexico GHG Program
- EU Emissions Trading Scheme
- ISO 14064 Part 1

Non-government GHG Programs
- Carbon Disclosure Project (CDP)
- The Climate Registry
- Dow Jones Sustainability Index
- French REGES Protocol
- Global Reporting Initiative
- International Trade Associations (Aluminum, IPIECA, ICFPA, Cement, Iron and Steel)
- World Wildlife Fund Climate Savers
Widespread adoption of Corporate Standard

The Canadian GHG Challenge Registry

The Climate Registry

US EPA Climate Leaders

European Union GHG Emission Trading System (EU ETS)

China iCET Climate and Energy Registry

Japan’s Voluntary Emissions Trading Scheme (JVETS)

South Korea’s GHG Emission Information System (GEIS)

Israel GHG Program

Australia GHG Challenge Plus Program

New Zealand CarboN Zero Programme
Business use of GHG Protocol

The Carbon Disclosure Project represents investors with assets totalling $41 trillion. It regularly surveys the world's largest companies using the GHG Protocol as the framework.

72% of Fortune 500 companies responded to the survey sent out by the Carbon Disclosure Project in 2008.
Adoption by leading companies
2. The GPC Initiative
Core Partners

- **WORLD RESOURCES INSTITUTE**
  - 30 years experience in promoting sustainability worldwide
- **C40 CITIES**
  - 14 years of GHG accounting standard development experience
  - Represent >60 largest cities from around the world committed to implementing meaningful and sustainable climate-related actions
- **ICLEI - Local Governments for Sustainability**
  - Represent >1200 local government members worldwide
  - Over 20 years experience in addressing urban sustainability issues

www.ghgprotocol.org/city-accounting
Supporting Partners

UN Environment Programme, UN Habitat, World Bank Recognize New Global Protocol for Urban GHG Emissions, Encourage its Use

SUBMITTED BY DAN HOORNIUS ON MON. 2012-05-14 14:54

In March this year, we posted a blog on the draft edition of a global protocol for city-scale GHG emissions, announced jointly by ICLEI – Local Governments for Sustainability, C40, and the World Resources Institute (WRI).

Yesterday, a pilot version of the protocol was released at the UNFCCC climate meetings in Bonn, Germany. And today, UNEP, UN-Habitat and the World Bank expressed appreciation to ICLEI – Local Governments for Sustainability, C40, and WRI for this accomplishment. To learn more about the significance of the protocol, read this news feature.

Moving forward, C40, ICLEI, and WRI will incorporate the pilot test's results and expand the protocol into a more comprehensive GHG accounting standard for community-scale emissions. This will enable local governments to account for how demand for goods and services as well as local innovative technologies can impact a GHG footprint.

I didn’t make it to Bonn for the release event but Anthony Elgio from the World Bank’s Urban Anchor was there. Check out the World Bank’s press release below:

May 15—Two UN agencies and the World Bank today expressed appreciation at the launch of a pilot version of a Global Protocol for Community-scale Greenhouse Gas Emissions, designed to harmonize emissions measurement and reporting process for the world’s cities. The protocol was released at the UNFCCC climate meetings in Bonn by C40 Cities Climate Leadership Group and ICLEI – Local Governments for Sustainability, with input from the World Resources Institute.

The GPC Pilot Version 1.0

Global Protocol for Community-Scale GHG Emissions (GPC)

The “GPC Pilot Version 1.0” was released on May 14, 2012

Pilot Version 1.0 – May 2012

GLOBAL PROTOCOL FOR COMMUNITY-SCALE GREENHOUSE GAS EMISSIONS (GPC)

Photo credit: ICLEI

C40 CITIES | ICLEI | WORLD RESOURCES INSTITUTE

Global Protocol For Community-Scale Greenhouse Gas Emissions (GPC)

www.ghgprotocol.org/city-accounting
Overall Timelines

May 2012: Draft GPC Basic Version

2013: Pilot Testing Draft GPC Basic Version

2013: Draft GPC Expanded Version

2014: Final GPC Basic Version

2014: Final GPC Expanded Version

2015: Final GPC Expanded Version

Phase 1: GPC Basic Version (Scopes 1 & 2)
Phase 2: GPC Expanded Version (Scopes 1, 2, 3)

www.ghgprotocol.org/city-accounting
Pilot Projects

30+ Cities
May-October 2013
3. Why conducting city-scale GHG inventories?
Why conducting GHG inventories?

- Benchmarking
- Low-carbon planning
- MRV
- Financing
- Cross-learning between cities
## Benchmarking

<table>
<thead>
<tr>
<th>Country / City</th>
<th>GHG Emissions (tCO2e/capita)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>7.64</td>
<td>2000</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>3.83</td>
<td>1</td>
</tr>
<tr>
<td>Australia</td>
<td>25.75</td>
<td>2007</td>
</tr>
<tr>
<td>Sydney</td>
<td>20.3</td>
<td>2006</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>0.37</td>
<td>1994</td>
</tr>
<tr>
<td>Dhaka</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>12.36</td>
<td>2007</td>
</tr>
<tr>
<td>Brussels</td>
<td>7.5</td>
<td>2005</td>
</tr>
<tr>
<td>Brazil</td>
<td>4.16</td>
<td>1994</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>2.1</td>
<td>1998</td>
</tr>
<tr>
<td>São Paulo</td>
<td>1.4</td>
<td>2000</td>
</tr>
<tr>
<td>Canada</td>
<td>22.65</td>
<td>2007</td>
</tr>
<tr>
<td>Calgary</td>
<td>17.7</td>
<td>2003</td>
</tr>
<tr>
<td>Toronto (City of Toronto)</td>
<td>9.5</td>
<td>2004</td>
</tr>
<tr>
<td>Toronto (Metropolitan Area)</td>
<td>11.6</td>
<td>2005</td>
</tr>
<tr>
<td>Vancouver</td>
<td>4.9</td>
<td>2006</td>
</tr>
<tr>
<td>China</td>
<td>3.40</td>
<td>1994</td>
</tr>
<tr>
<td>Beijing</td>
<td>10.8</td>
<td>2006</td>
</tr>
<tr>
<td>Shanghai</td>
<td>12.9</td>
<td>2006</td>
</tr>
<tr>
<td>Tianjin</td>
<td>12.2</td>
<td>2006</td>
</tr>
<tr>
<td>Chongqing</td>
<td>3.7</td>
<td>2006</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>14.59</td>
<td>2007</td>
</tr>
<tr>
<td>Prague</td>
<td>9.4</td>
<td>2005</td>
</tr>
<tr>
<td>Finland</td>
<td>14.81</td>
<td>2007</td>
</tr>
<tr>
<td>Helsinki</td>
<td>7.0</td>
<td>2005</td>
</tr>
<tr>
<td>France</td>
<td>8.68</td>
<td>2007</td>
</tr>
<tr>
<td>Île-de-France (Region incl. Paris)</td>
<td>5.2</td>
<td>2005</td>
</tr>
<tr>
<td>Germany</td>
<td>11.62</td>
<td>2007</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>13.7</td>
<td>2005</td>
</tr>
<tr>
<td>Hamburg</td>
<td>9.7</td>
<td>2005</td>
</tr>
<tr>
<td>Stuttgart</td>
<td>16.0</td>
<td>2005</td>
</tr>
<tr>
<td>Greece</td>
<td>11.78</td>
<td>2007</td>
</tr>
<tr>
<td>Athens</td>
<td>10.4</td>
<td>2005</td>
</tr>
<tr>
<td>India</td>
<td>1.33</td>
<td>1994</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>Delhi</td>
<td>1.50</td>
<td>2000</td>
</tr>
<tr>
<td>Kolkata</td>
<td>1.10</td>
<td>2000</td>
</tr>
<tr>
<td>Italy</td>
<td>10.1</td>
<td>2007</td>
</tr>
<tr>
<td>Bologna (Province)</td>
<td>11.1</td>
<td>2005</td>
</tr>
<tr>
<td>Naples (Province)</td>
<td>4.0</td>
<td>2005</td>
</tr>
<tr>
<td>Turin</td>
<td>9.7</td>
<td>2005</td>
</tr>
<tr>
<td>Veneto (Province)</td>
<td>10.0</td>
<td>2005</td>
</tr>
<tr>
<td>Japan</td>
<td>10.76</td>
<td>2007</td>
</tr>
<tr>
<td>Tokyo</td>
<td>4.89</td>
<td>2006</td>
</tr>
<tr>
<td>Jordan</td>
<td>4.04</td>
<td>2000</td>
</tr>
<tr>
<td>Amman</td>
<td>3.7</td>
<td>2008</td>
</tr>
<tr>
<td>Mexico</td>
<td>5.53</td>
<td>2002</td>
</tr>
<tr>
<td>Mexico City (City)</td>
<td>4.25</td>
<td>2007</td>
</tr>
<tr>
<td>Mexico City (Metropolitan Area)</td>
<td>2.84</td>
<td>2007</td>
</tr>
<tr>
<td>Nepal</td>
<td>1.48</td>
<td>1994</td>
</tr>
<tr>
<td>Kathmandu</td>
<td>0.12</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>11.69</td>
<td>2007</td>
</tr>
<tr>
<td>Oslo</td>
<td>3.5</td>
<td>2005</td>
</tr>
<tr>
<td>Portugal</td>
<td>7.71</td>
<td>2007</td>
</tr>
<tr>
<td>Porto</td>
<td>7.3</td>
<td>2005</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>11.46</td>
<td>2001</td>
</tr>
<tr>
<td>Seoul</td>
<td>4.1</td>
<td>2006</td>
</tr>
<tr>
<td>Singapore</td>
<td>7.86</td>
<td>1994</td>
</tr>
<tr>
<td>Slovenia</td>
<td>10.27</td>
<td>2007</td>
</tr>
<tr>
<td>Ljubljana</td>
<td>9.5</td>
<td>2005</td>
</tr>
<tr>
<td>South Africa</td>
<td>9.92</td>
<td>1994</td>
</tr>
<tr>
<td>Cape Town</td>
<td>7.6</td>
<td>2005</td>
</tr>
<tr>
<td>Spain</td>
<td>9.86</td>
<td>2007</td>
</tr>
<tr>
<td>Barcelona</td>
<td>4.2</td>
<td>2006</td>
</tr>
<tr>
<td>Madrid</td>
<td>6.9</td>
<td>2005</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>1.61</td>
<td>1995</td>
</tr>
<tr>
<td>Colombo</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>Kurunegala</td>
<td>9.63</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>7.15</td>
<td>2007</td>
</tr>
<tr>
<td>Stockholm</td>
<td>3.6</td>
<td>2005</td>
</tr>
<tr>
<td>Switzerland</td>
<td>6.79</td>
<td>2007</td>
</tr>
<tr>
<td>Geneva</td>
<td>7.8</td>
<td>2005</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>12.67</td>
<td>2007</td>
</tr>
<tr>
<td>Rotterdam</td>
<td>29.8</td>
<td>2005</td>
</tr>
</tbody>
</table>

Source of data: [http://www.unep.org/urban_environment/PDFs/Representative-GHGBaselines.pdf](http://www.unep.org/urban_environment/PDFs/Representative-GHGBaselines.pdf)
Low-carbon planning

LOW-CARBON CITY PLANNING CYCLE

- GHG Accounting Standard
- Future scenario analysis
- Target Setting
- Action Plan
- Implementation
- Tracking Performance
- Base year inventory

Global Protocol For Community-Scale Greenhouse Gas Emissions (GPC)

www.ghgprotocol.org/city-accounting
MRV

Lei Nº 14.933, De 5 De Junho De 2009
Institui a Política de Mudança do Clima no Município de São Paulo

- Reduce citywide GHG emissions by 30% of 2005 levels by 2012
- Complete a GHG inventory every 4 years

Lei Nº 5248, De 27 De Janeiro De 2011
Institui A Política Municipal Sobre Mudança Do Clima E Desenvolvimento Sustentável, Dispõe Sobre O Estabelecimento De Metas De Redução De Emissões Antrópicas De Gases De Efeito Estufa Para O Município Do Rio De Janeiro E Dá Outras Providências

- To avoid 20% of 2005 GHG emissions by 2020
- Complete a GHG inventory every 4 years

www.ghgprotocol.org/city-accounting
City of Rio and World Bank Launch Ground-Breaking Program for Low Carbon City Development

June 18, 2012

The Rio de Janeiro Low Carbon City Development Program is a business model for green, sustainable cities worldwide

RIO DE JANEIRO, June 18, 2012 – The City of Rio de Janeiro and the World Bank launched today during the Rio+20 Summit a ground-breaking, city-level program to put into action the city’s goals for low-carbon development.

Certified according to ISO standards, the Rio de Janeiro Low Carbon City Development Program will help Rio de Janeiro measure and account for low carbon investments and...
Cross learning between cities

Measurement for Management

CDP Cities 2012 Global Report
Including special report on C40 Cities

Case studies

New York City

Tokyo
Case Study 1: New York City

30% below 2005 level by 2030
*80% by 2050

Boundary
- Scope 1 + Scope 2

Gases
- CO2, CH4, N2O, SF6, HFCs, PFCs

Low-carbon planning

Benchmarking, Projection, Target setting

Information disclosure

- Annual GHG inventory report
- Annual progress report

Source of graphic: Inventory of New York City GHG Emissions December 2012
Performance tracking (1)

Year-to-Year Performance Tracking

- External effects
- Changes to consumption, above impacts of growth and weather
- Changes in utility operations

Millions of metric tons of CO₂e

Source: Inventory of New York City GHG Emissions September 2010

www.ghgprotocol.org/city-accounting
Performance tracking (2)

Tracking Against Base Year Emissions

External effects
Changes to consumption, above impacts of growth and weather
Changes in utility operations

Millions of metric tons of CO₂e

Source: Inventory of New York City GHG Emissions September 2010
Case Study 2: Tokyo

東京都気候変動対策方針
「カーボンマイナス東京10年プロジェクト」基本方針

25% below 2000 level by 2020

Boundary
- Scope 1

Gases
- CO2, CH4, N2O, SF6, HFCs, PFCs

Source: Tokyo GHG Inventory Report 2009. TMG.
Disclosure and performance tracking

Annual progress report

Annual GHG inventory report
Data analysis: Emission by economic sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Emission by fuel type

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Industrial sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Commercial sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Residential sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Residential sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Data analysis: Transportation sector
Data analysis: Transportation sector

Source: Tokyo GHG Inventory Report 2009. TMG.
Conclusion

“You can’t manage what you can’t measure”
Thank You!

Contact us:

Wee Kean Fong, PhD
Project Manager
GHG Protocol City Project
World Resources Institute

wkfong@wri.org
www.ghgprotocol.org/city-accounting