GREENHOUSE GAS PROTOCOL

Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)

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Core Partners:

WORLD RESOURCES INSTITUTE

C40 CITIES CLIMATE LEADERSHIP GROUP

ICLEI Local Governments for Sustainability

www.ghgprotocol.org/city-accounting

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Presentation Outline

1. GPC development process
2. Technical contents

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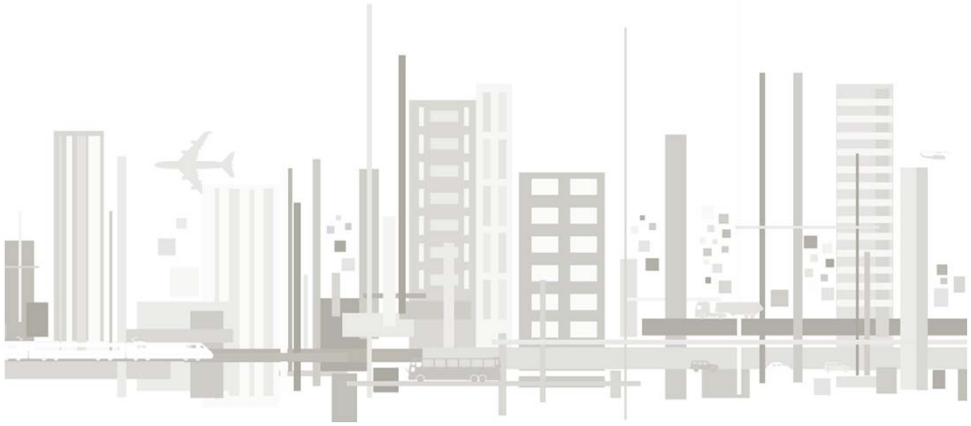

1. GPC Development Process

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Core Partners

WORLD RESOURCES INSTITUTE

C40 CITIES CLIMATE LEADERSHIP GROUP

ICLEI Local Governments for Sustainability

30 years experience in promoting sustainability worldwide

14 years of GHG accounting standard development experience

Represent **68** of the largest cities from around the world committed to implementing meaningful and sustainable climate-related actions

Represent **>1200** local government members worldwide

Over **20** years experience in addressing urban sustainability issues

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Supporting Partners

THE WORLD BANK

UNEP

UN HABITAT
FOR A BETTER URBAN FUTURE

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

SUBMITTED BY DAN HOORNWEG 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 Bigio 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 Groupand ICLEI – Local Governments for Sustainability, with input from the World Resources Institute.

http://blogs.worldbank.org/sustainablecities/ghg-protocol

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Advisory Committee

Advisory Committee

1. Pankaj Bhatia, WRI/GHGP
2. Seth Schultz, C40
3. Yunus Arikan, ICLEI
4. Stephen Hammer, World Bank
5. Robert Kehew, UN-HABITAT
6. Soraya Smaoun, UNEP
7. Matthew Lynch, WBCSD
8. Sergey Kononov, UNFCCC
9. Kiyoto Tanabe, IPCC
10. Junichi Fujino, IGES/NIES
11. Kyra Appleby, CDP
12. Jan Corfee-Morlot, OECD
13. Maria Varbeva-Daley, BSI
14. Michael Steinhoff, ICLEI US
15. Alvin Meijia, Clean Air Asia
16. Carina Borgström-Hansson, WWF
17. Christophe Nuttall, R20
18. Yoshiaki Ichikawa, ISO
19. Adam Szolyak, Covenant of Mayors

Special Invitees

Cities

20. Buenos Aires
21. Arendal
22. London
23. Mexico City
24. Tokyo

National Governments

25. France (ADEME)
26. Indonesia (NCCC)

Foundations

25. CIFF
26. Siemens
27. Bloomberg Philanthropies

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Release of the GPC Pilot Version 1.0

Pilot Version 1.0 – May 2012

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

Pilot Version 1.0 – May 2012

Global Protocol for Community-Scale GHG Emissions (GPC)

C40 CITIES · ICLEI Local Governments for Sustainability · WORLD RESOURCES INSTITUTE

Bonn, May 14, 2012

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Pilot Program

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Stakeholder consultation workshops

Beijing, Apr 2013

Dar es Salaam, Oct 2013

New Delhi, Dec 2013

Sao Paulo, May 2013

London, Sept 2013

Jakarta, Jan 2014

Beijing	Sao Paulo	London	Dar es Salaam	New Delhi	Jakarta
15	28	12	27	23	40
participants	participants	participants	participants	participants	participants

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Timelines

Activities	J	F	M	A	M	J	J	A	S	O	N	D
Revision and drafting												
Public comment												
Revision												
Copyediting, design, printing												
Launch												

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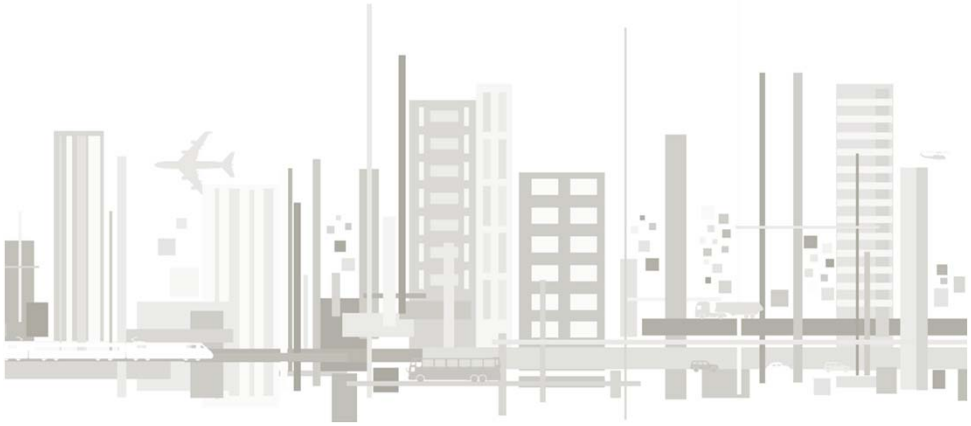

2. Technical contents

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Purpose of the GPC

1. Help cities develop a comprehensive and robust GHG inventory to support **climate action planning**
2. Ensure **consistent** and **transparent** measurement and reporting of GHG emissions between cities
3. Enable cities to report mitigation performance in **national or international framework**
4. Demonstrate the importance of cities in tackling climate change, and facilitate insight through **benchmarking**, and **aggregation**, of **comparable data**

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Relationship to other metrics

The GPC builds upon the knowledge, experiences, and practices of existing standards

IPCC	IPCC Guidelines for National Greenhouse Gas Inventories
ICLEI	International Local Government GHG Emissions Analysis Protocol
UNEP, UN Habitat, World Bank	International Standard for Determining Greenhouse Gas Emissions for Cities
ICLEI-USA	U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions
GHG Protocol	GHG Protocol standards
Covenant of Mayors	Baseline Emissions Inventory / Monitoring Emissions Inventory methodology
BSI	PAS 2070: Specification for the assessment of greenhouse gas emissions of a city

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Key features of the GPC

- Emphasis on both production and consumption-based emissions
- Emphasis on boundary issues to separate inboundary & transboundary emissions (enable data aggregation)
- Reporting:
  - Territorial, compatible with IPCC Guidelines
  - Community-driven activities (inboundary “plus”)
- Use of notation keys and indicative data quality assessment

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Assessment boundaries

- Time period
- Greenhouse gases
- Geographic boundaries
- Emission sources

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Scope framework

Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions
All GHG emissions from sources located within the boundary of the city	All GHG emissions occurring as a consequence of the use of grid-supplied electricity, heating and/or cooling within the city boundary	All other GHG emissions that occur outside the city boundary as a result of activities within the city's boundary

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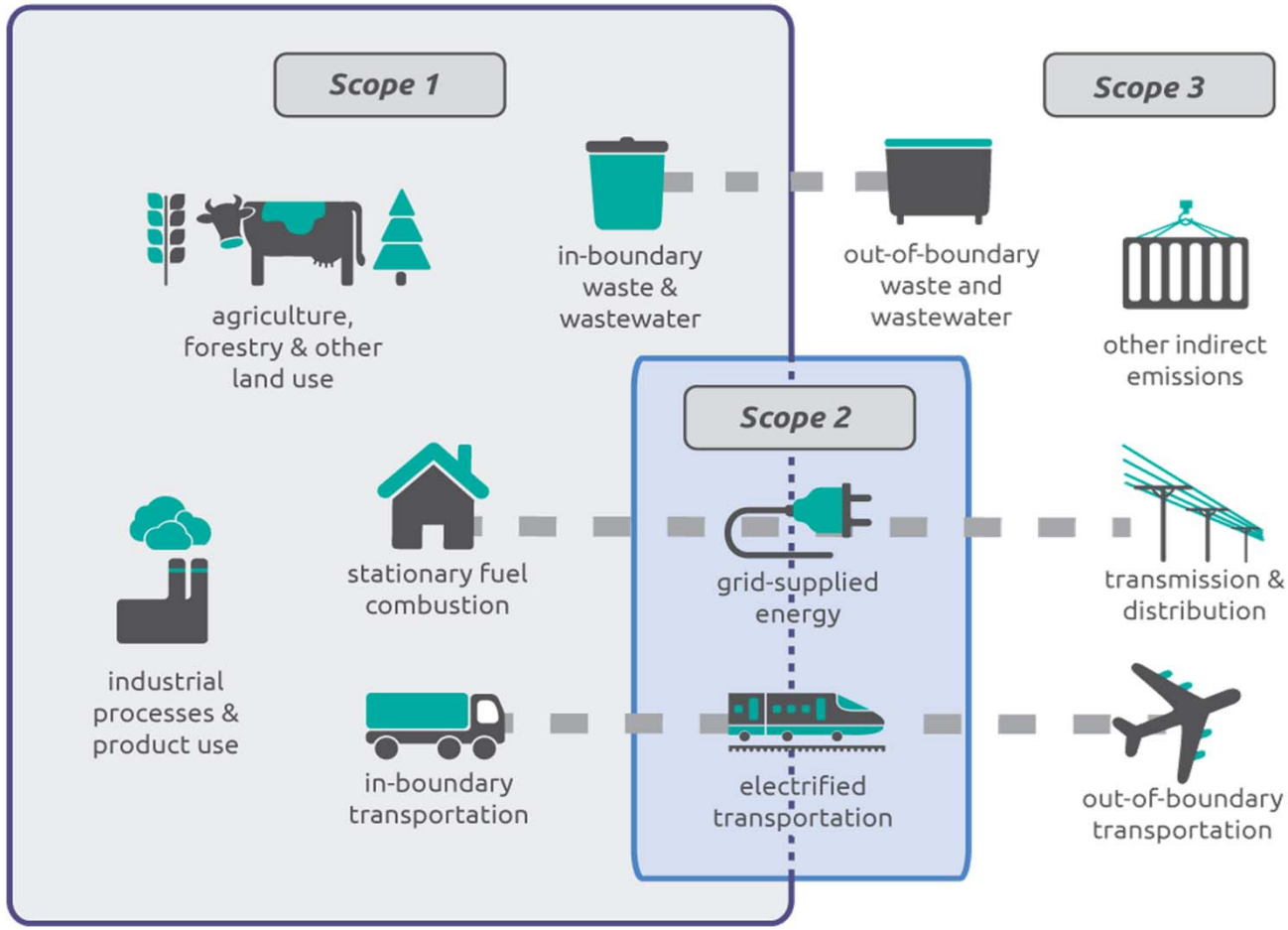
Geographic boundaries and scopes



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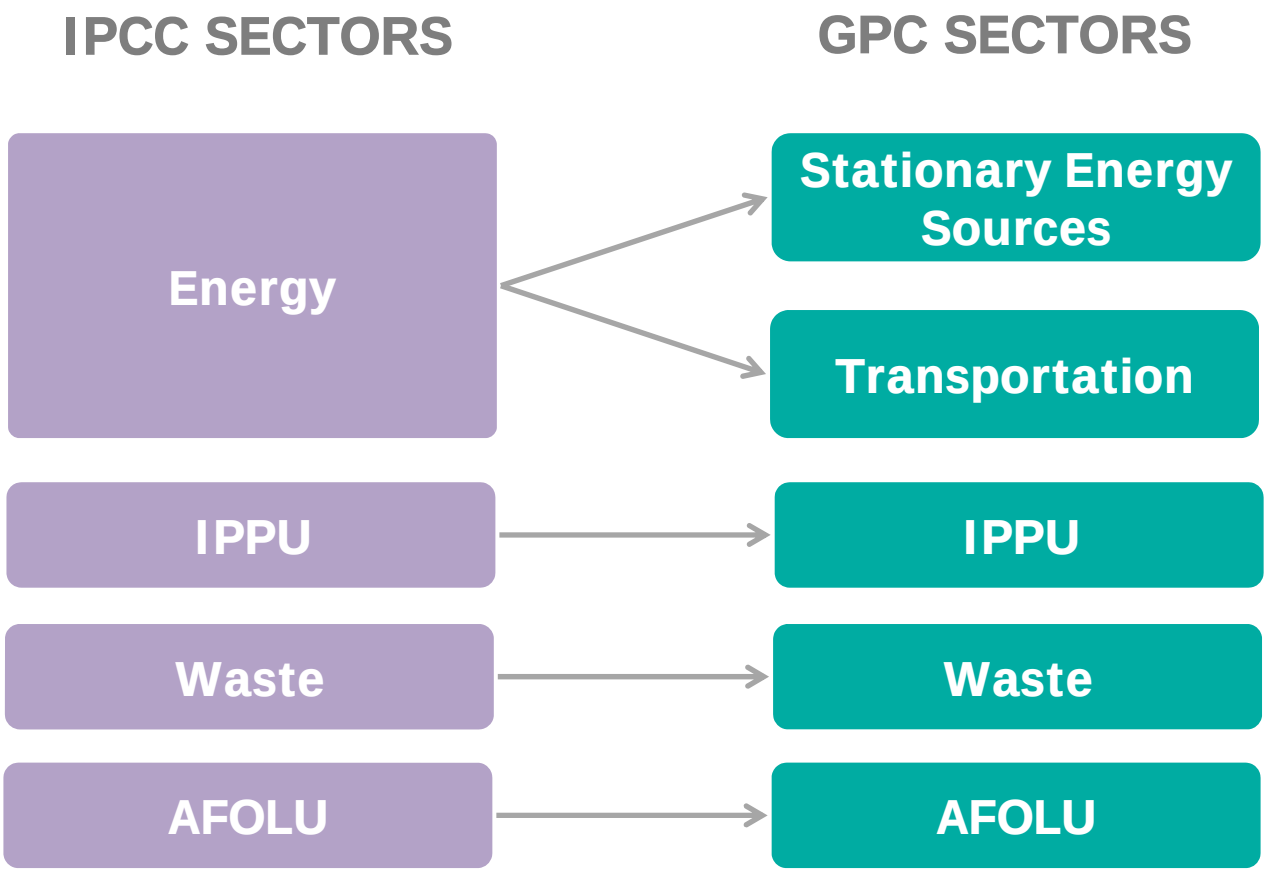
Emission sources



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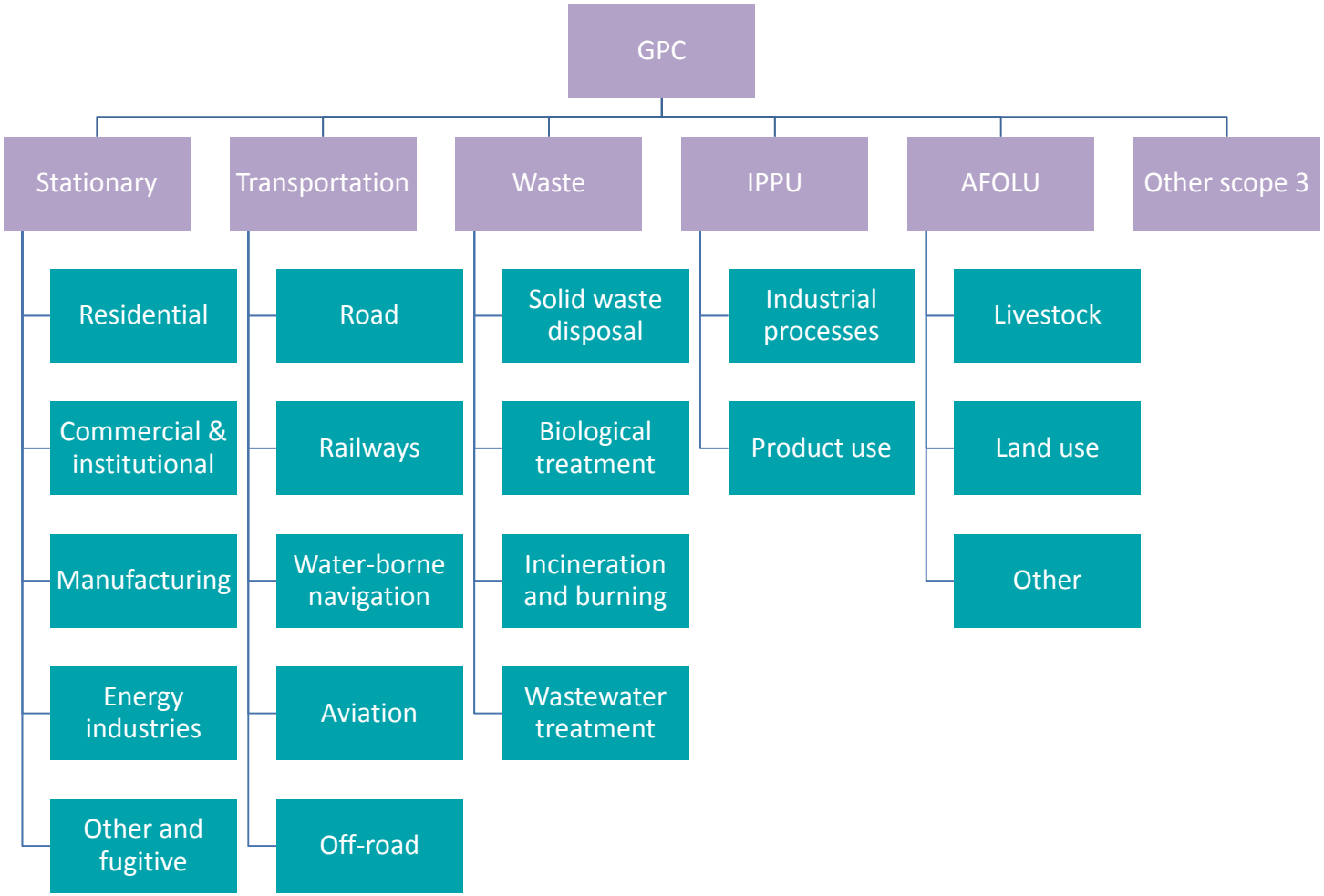
Sub-sectors



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Reporting levels

Basic

Scope 1
- *Energy-Stationary**
- Energy-Transportation
- *Wastes**

Scope 2

Scope 3
- Wastes

Basic+

Scope 1
- *Energy-Stationary**
- Energy-Transportation
- *Wastes**
- IPPU
- AFOLU
- IPPU

Scope 2

Scope 3
- Wastes
- Transportation

Expanded

Full coverage of Scopes 1, 2, and 3

Sectors	Scope 1	Scope 2	Scope 3
STATIONARY ENERGY			
Residential buildings	x	x	x
Commercial buildings	x	x	x
Institutional buildings	x	x	x
Manufacturing industries and construction	x	x	x
Energy industries	x	x	x
Agriculture, forestry, and fishing activities	x	x	x
Non-specified sources	x	x	x
Mining, processing, storage, and transportation of coal	X		
Oil and natural gas systems	x		
TRANSPORTATION			
On-road	x	x	x
Railways	x	x	x
Water-borne navigation	x	x	x
Aviation	x	x	x
Off-road	x	x	
WASTE			
Solid waste disposal	x		x
Biological treatment of waste	x		x
Incineration and open burning	x		x
Wastewater treatment and discharge	x		x
INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)			
Industrial processes	x		
Product use	x		
AGRICULTURE, FORESTRY, AND LAND USE (AFOLU)			
Livestock	x		
Land	x		
Other agriculture	x		
OTHER INDIRECT EMISSIONS			**x**

BASIC

BASIC+

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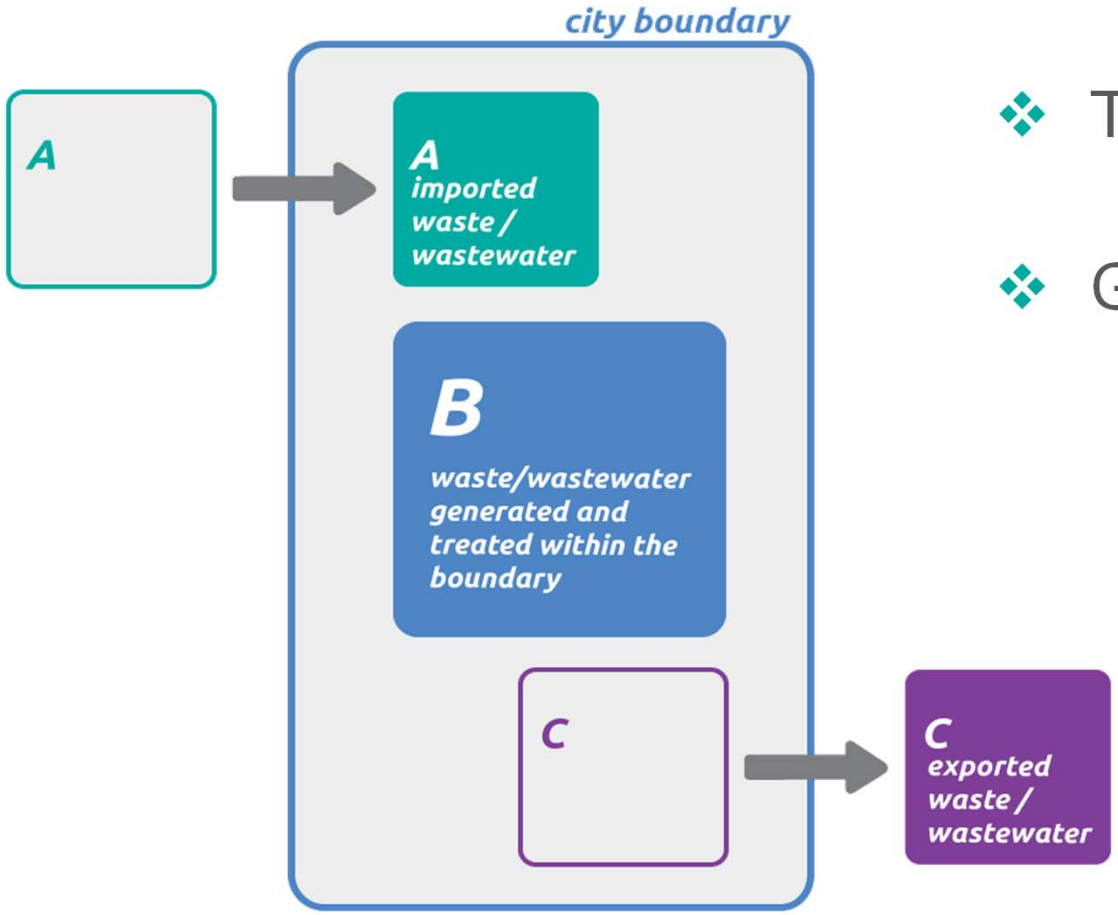
Territorial v GPC Basic



- Territorial = A+B
- GPC Basic = B+C

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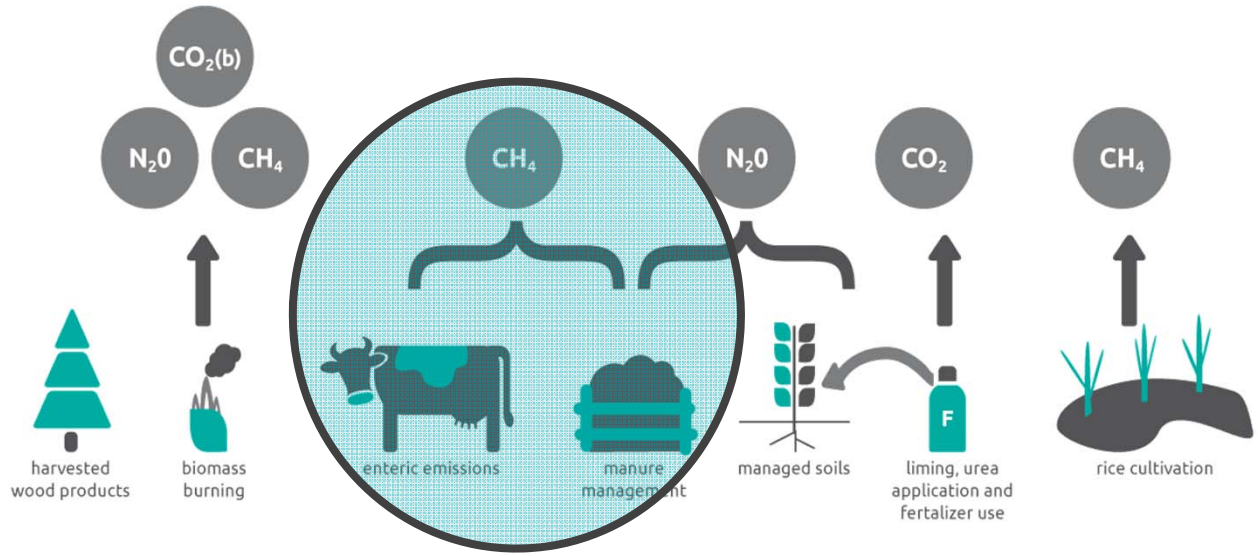
Methodology: Example 1

- CH_4 from enteric fermentation and manure management



- $CH_4 = (N_{(T)} * EF_{(Enteric,\ T)}) + (N_{(T)} * EF_{(Manure,\ T)})$

  where T = species; N = number of animals; and EF = emission factor

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Methodology: Example 2

- CH_4 from solid waste sent to landfill (methane commitment)

Equation 8.2 Methane commitment for Solid Waste sent to landfill			
$CH_4\ Emissions = M_{waste} \times L_0 \times (1-f_{rec}) \times (1-OX)$			
Description			*Value*
CH_4 *Emissions*	=	Total CH_4 emissions in metric tonnes	Computed
M_{waste}	=	Mass of solid Waste sent to landfill in inventory year, measured in metric tonnes	User input
L_0	=	Methane generation potential	See Equation 8.3
f_{rec}	=	Fraction of methane recovered at the landfill (flared or energy recovery)	User input
OX	=	Oxidation factor	0.1 for well-managed landfills; 0 for unmanaged landfills
Source: Adapted from *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories.*			

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Reporting requirements

Assessment boundary	• Geographic boundary and city overview • Emission sources, reporting period and level
Emissions	• Emissions by gas, source, scope • Exclusions
Methodologies & data quality	• Methodologies • Data quality
Emission changes over time	• Base year • Emissions profile over time • Base year emissions recalculation

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Reporting templates

GPC ref no.	Scope	GHG Emissions Source	Notation keys				Greenhouse gas emissions (tCO2e)									Data Quality		Explana-tion
			IE	NE	NO	NA	CO 2	CH4	N2O	HFC	PFC	SF6	NF3	CO2e	CO2(b)	AD	EF	
I		**STATIONARY ENERGY SOURCES**																
I.1		**Residential buildings**																
I.1.1	1	Emissions from in-boundary fuel combustion																
I.1.2	2	Emissions from consumption of grid-supplied energy																
I.1.3	3	Transmission and distribution losses from grid-supplied energy																
I.2		**Commercial and institutional buildings / facilities**																
I.2.1	1	Emissions from in-boundary fuel combustion																
I.2.2	2	Emissions from consumption of grid-supplied energy																
I.2.3	3	Transmission and distribution losses from grid-supplied energy																
I.3		**Manufacturing industry and construction**																
I.3.1	1	Emissions from in-boundary fuel combustion																
I.3.2	2	Emissions from consumption of grid-supplied energy																
I.3.3	3	Transmission and distribution losses from grid-supplied energy																
I.4		**Energy industries**																
I.4.1	1	Emissions from in-boundary production of grid-supplied energy																
I.4.2	2	Emissions from consumption of grid-supplied energy																
I.4.3	3	Transmission and distribution losses from grid-supplied energy																
I.4.4	1	Emissions from in-boundary production of energy used in auxiliary operations																
I.5		**Agriculture, forestry and fishing activities**																
I.5.1	1	Emissions from in-boundary fuel combustion																
I.5.2	2	Emissions from consumption of grid-supplied energy																
I.5.3	3	Transmission and distribution losses from grid-supplied energy																
I.6		**Non-specified sources**																
I.6.1	1	Emissions from in-boundary fuel combustion																
I.6.2	2	Emissions from consumption of grid-supplied energy																
I.6.3	3	Transmission and distribution losses from grid-supplied energy																

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Thank You!

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