GREENHOUSE GAS PROTOCOL

City Greenhouse Accounting
A cornerstone for LCC

International Symposium on "Realizing Low Carbon Cities in North-East Asia: Bridging science, policy and promoting cooperation"

December 5~6, 2013, Beijing

JIANG Xiaoqian
GHGP City Project
World Resources Institute

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Outline

1. Why conduct city GHG inventory?

2. A global standard

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

3. A tool for Chinese cities

GHG Accounting Tool for Chinese Cities

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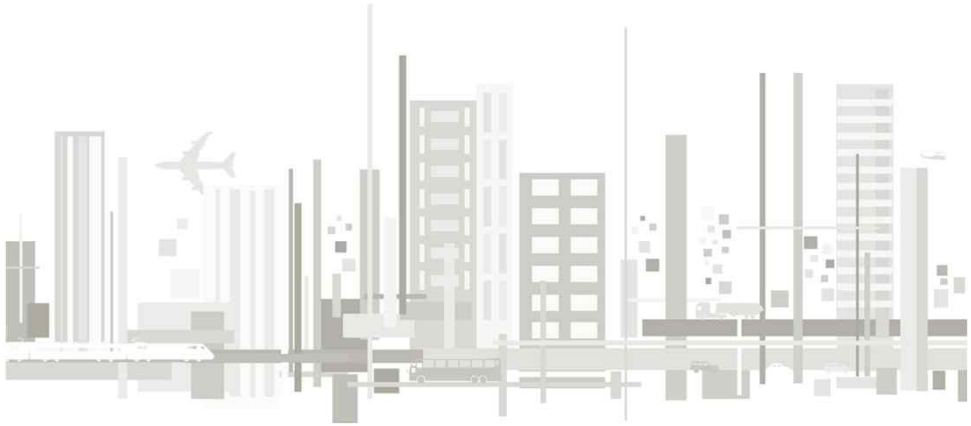

1. Why conduct city GHG inventory?

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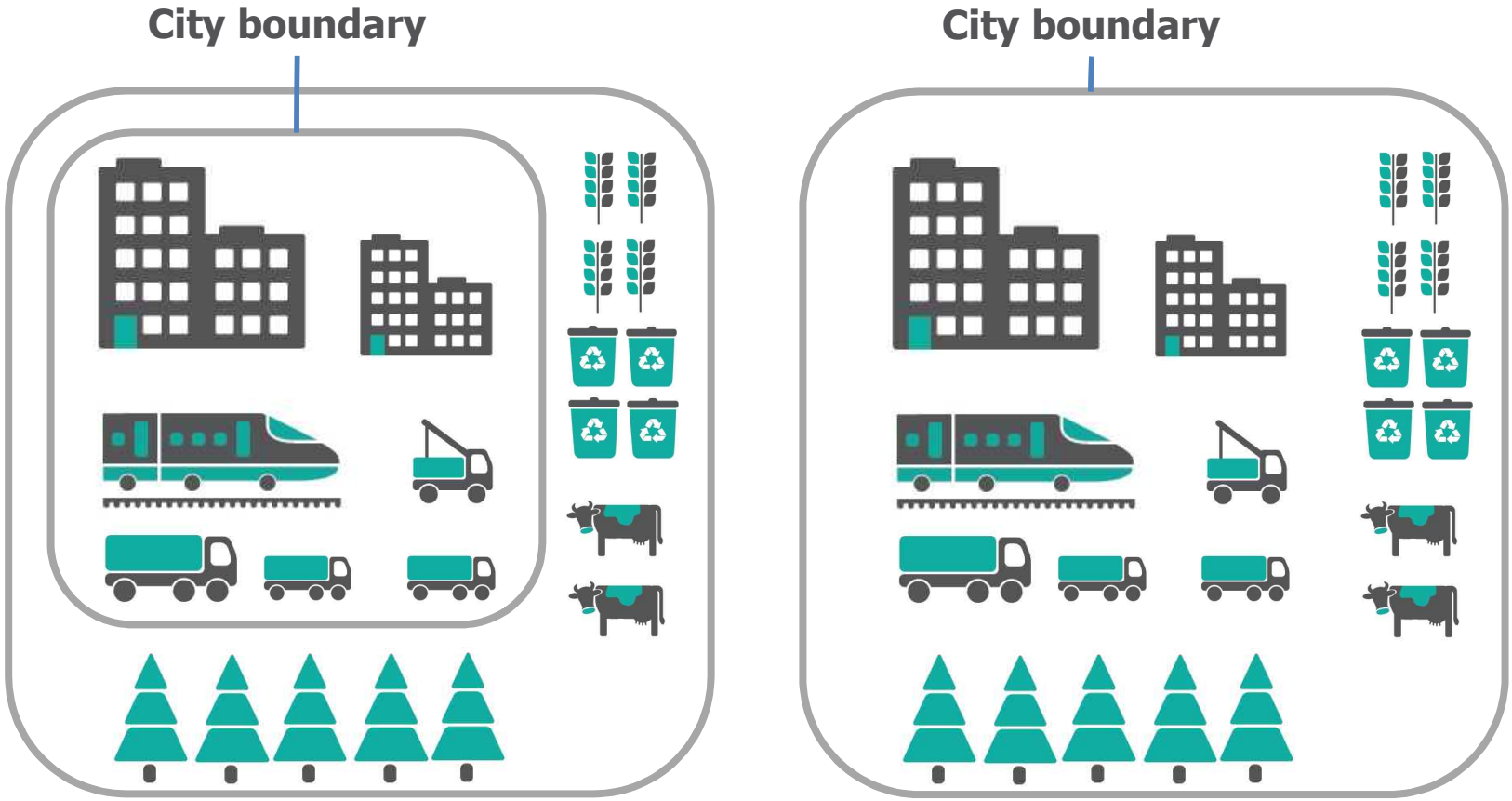
Definition of city



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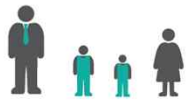
City's role in GHG emissions

		Urbanized area	Administrative boundary
Share of earth surface		<2%	≈29%
Share of population		>59%	=100%
share of energy consumption		≈70%	=100%
Share of human-induced GHG emissions		>70%	=100%

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Questionnaires to 35 cities

28 cities: with existing/past inventories

7 cities: without existing/past inventories

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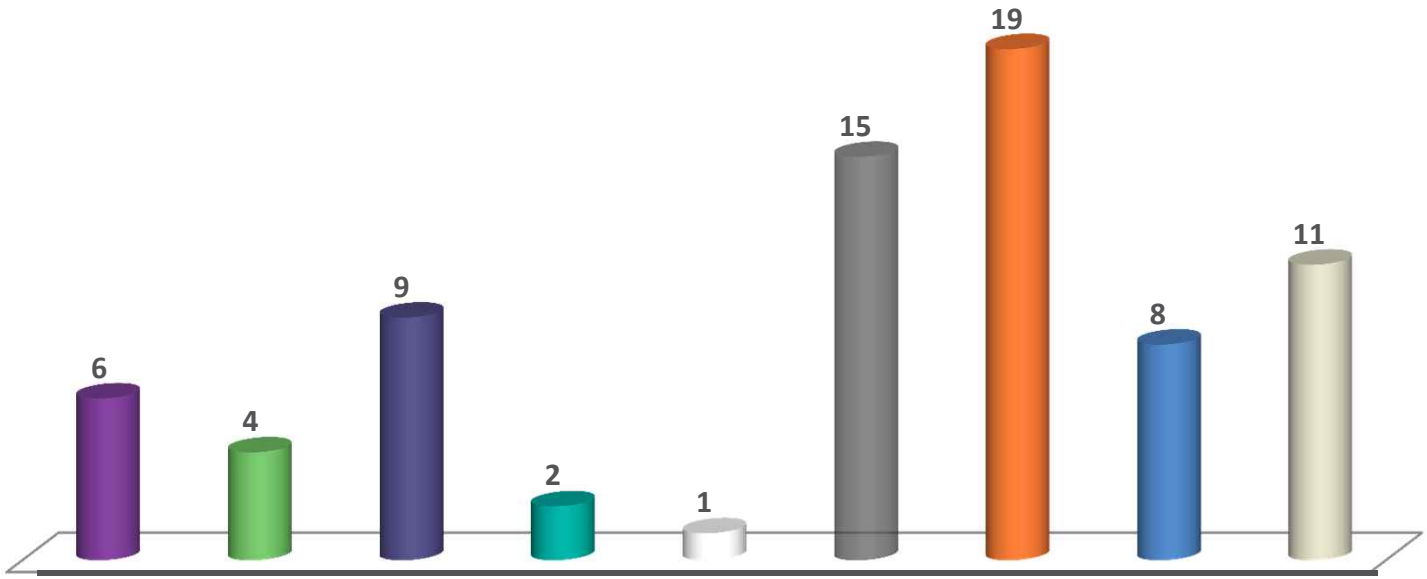
How did they answer?



Required by laws	Required by state/ national government	Participating in GHG reporting programs	Required by donors	Carbon finance/ emission trading	For developing low-carbon development blueprints	Track the effectiveness of mitigation measures	Public disclosure	Others

- Voluntary emissions reduction commitment & action
- Key indicators of city development strategy
- Strengthen capacity building
- Build updated data collection and management system
- Part of research project

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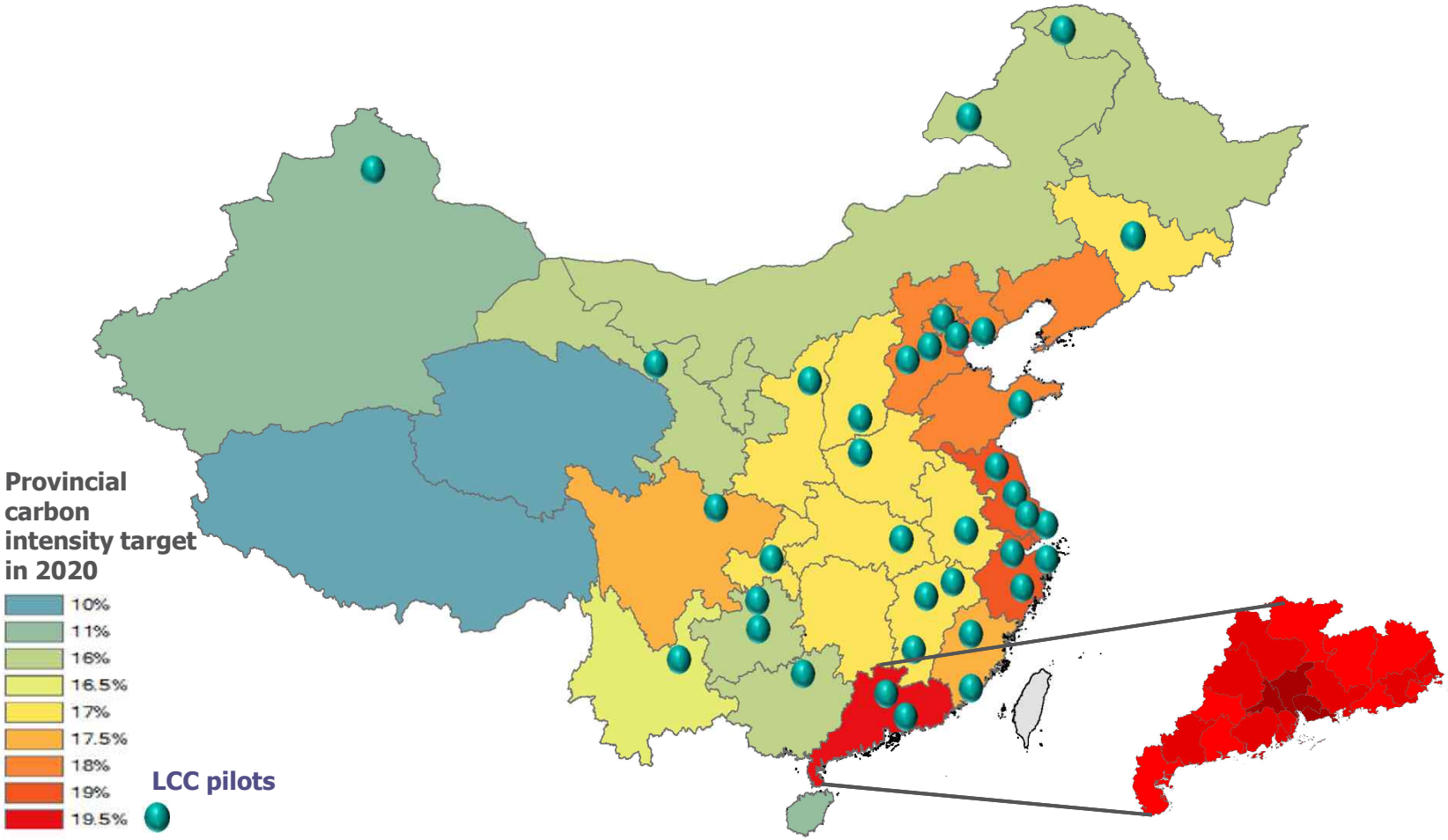
Provincial carbon intensity target & LCC pilots in China



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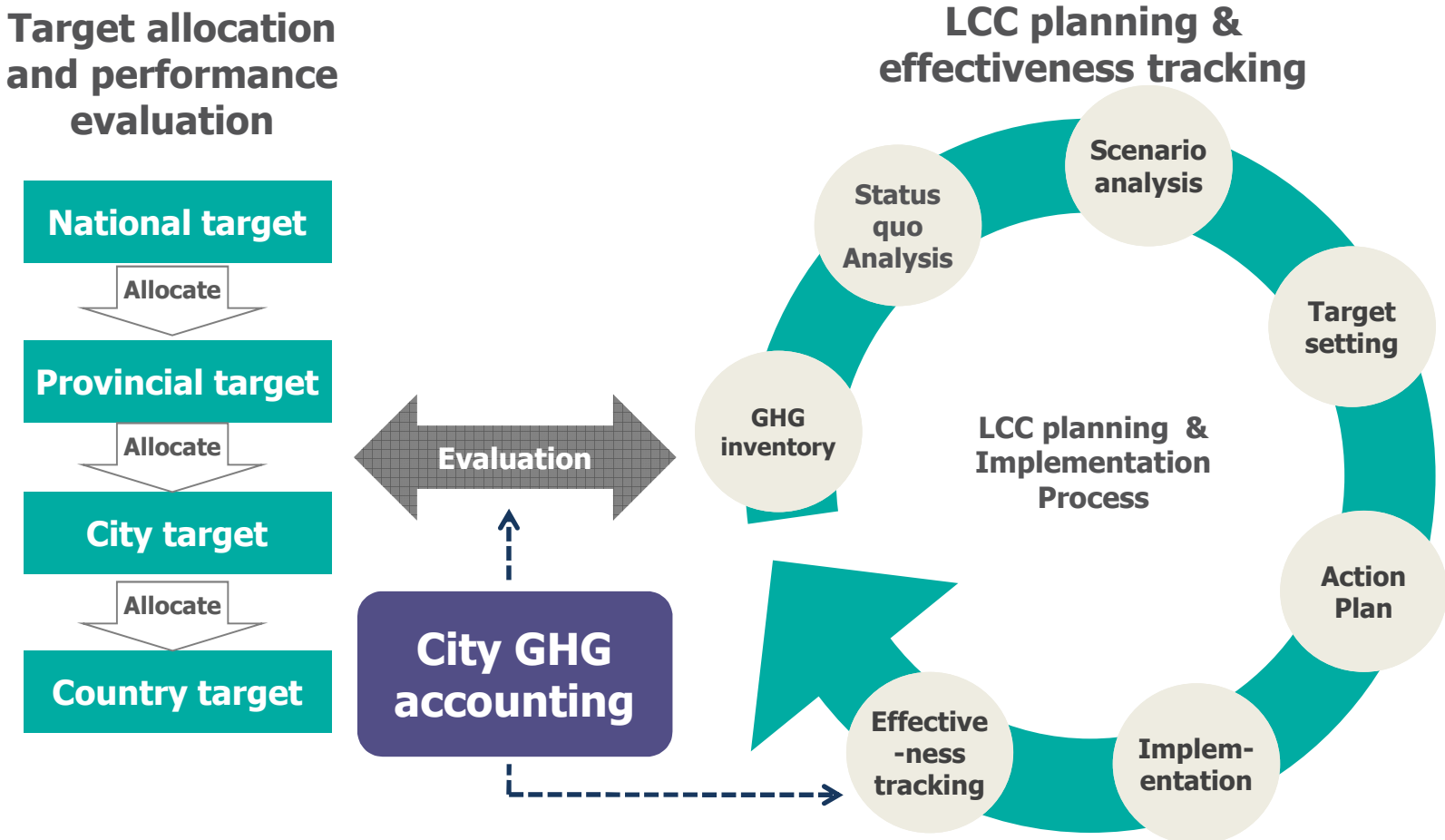
Significance of GHG accounting in China



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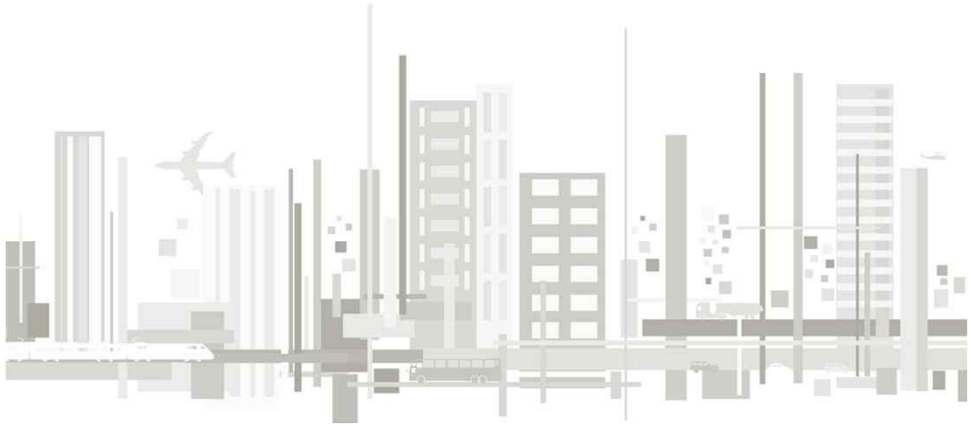

2. A global standard

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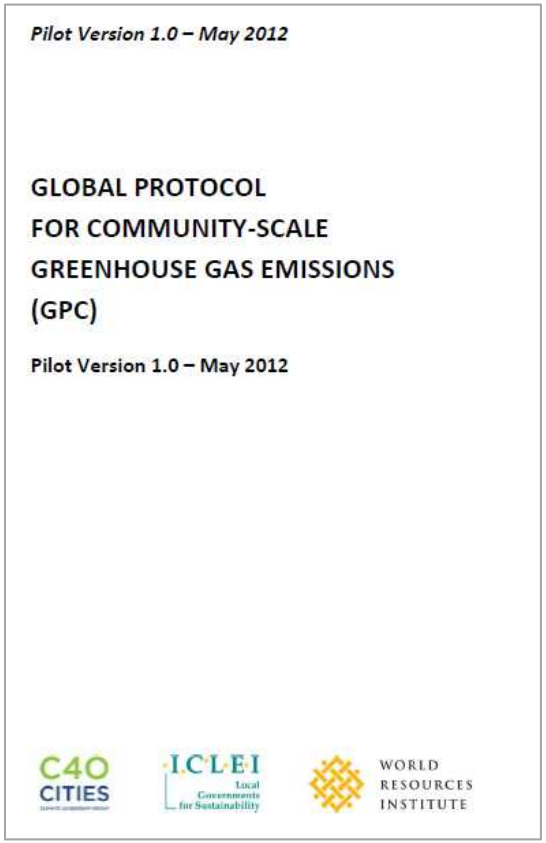
The GPC



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

Core partners

WORLD RESOURCES INSTITUTE

C40 CITIES CLIMATE LEADERSHIP GROUP

ICLEI Local Governments for Sustainability

Supporting partners

THE WORLD BANK

UN HABITAT FOR A BETTER URBAN FUTURE

UNEP

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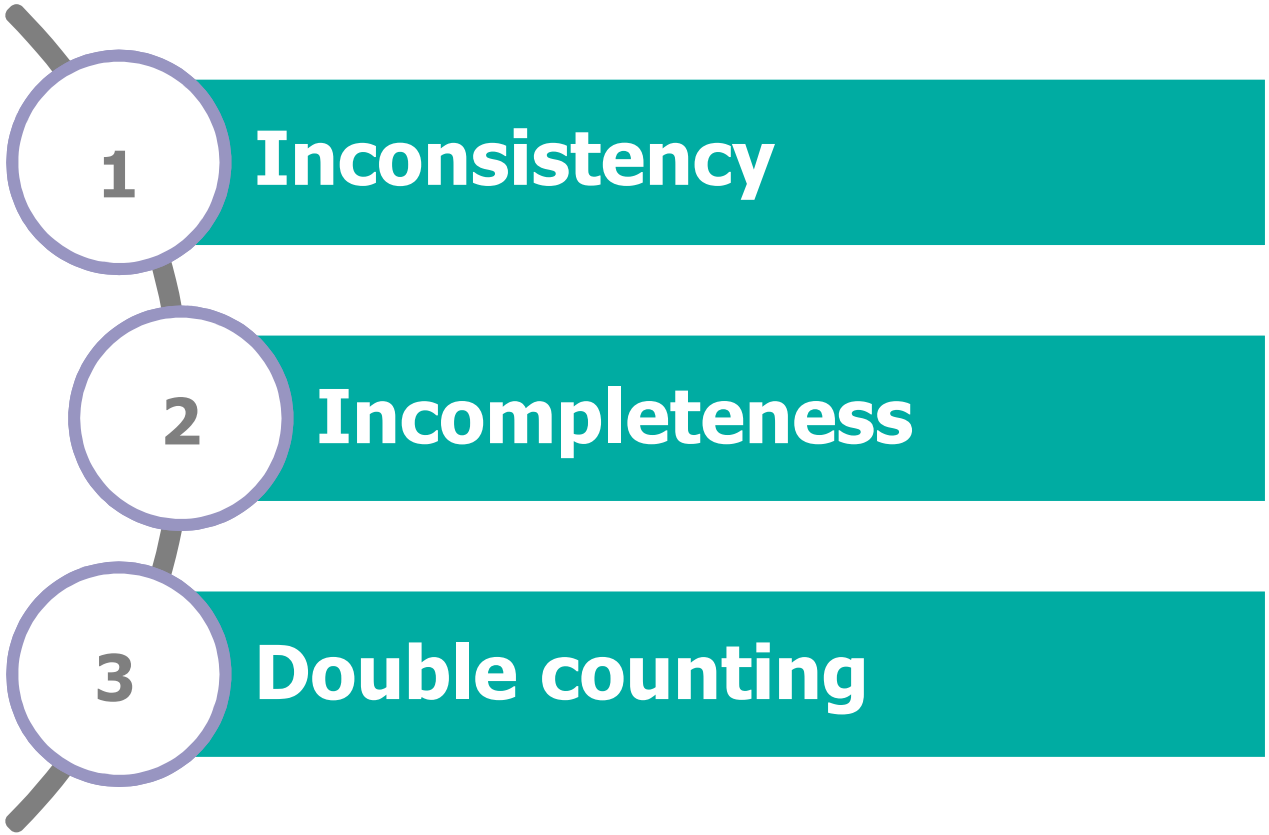
Why a global protocol



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Reporting Requirements

By Sector	•Energy - Stationary Units, Energy - Mobile Units, Wastes, IPPU, AFOLU
By Gas	•CO_2, CH_4, N_2O, HFCs, PFCs, SF_6
By Scope	• Scopes 1, 2, 3

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Boundary Setting

DIRECT EMISSIONS

INDIRECT EMISSIONS

Scope 1 Emissions

Scope 2 Emissions

Scope 3 Emissions

All direct emissions from sources within the boundary

Energy-related indirect emissions from the use of grid-supplied electricity and heating

All other indirect emissions

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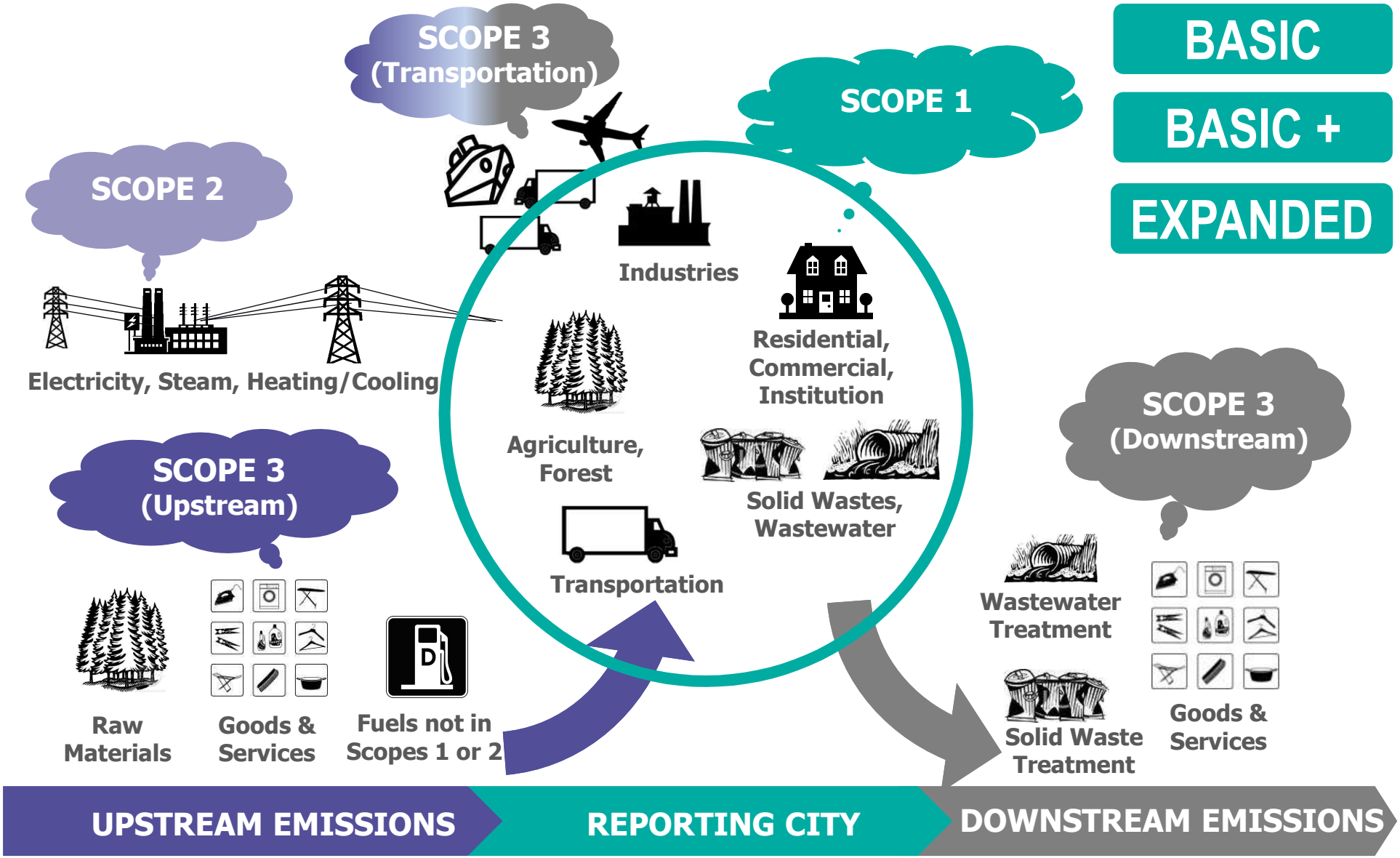
Three Levels of GPC Reporting



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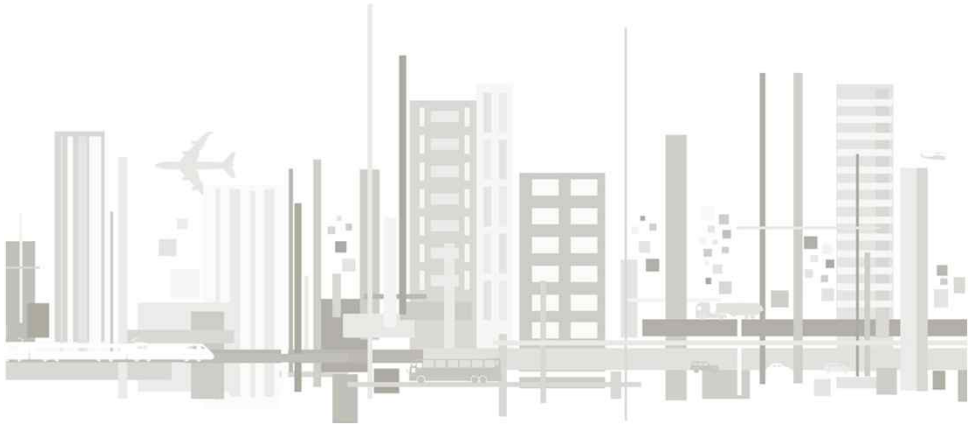

3. A tool for Chinese cities

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Tool development

Greenhouse Gas Accounting Tool for Chinese Cities
(Pilot Version 1.0)

Launch of the GHG Accounting Tool for Chinese Cities (Pilot Version 1.0)
September 12, 2013, Beijing

Partners

WORLD RESOURCES INSTITUTE

Institute for Urban and Environmental Studies, CASS

WWF

INSTITUTE FOR Sustainable Communities

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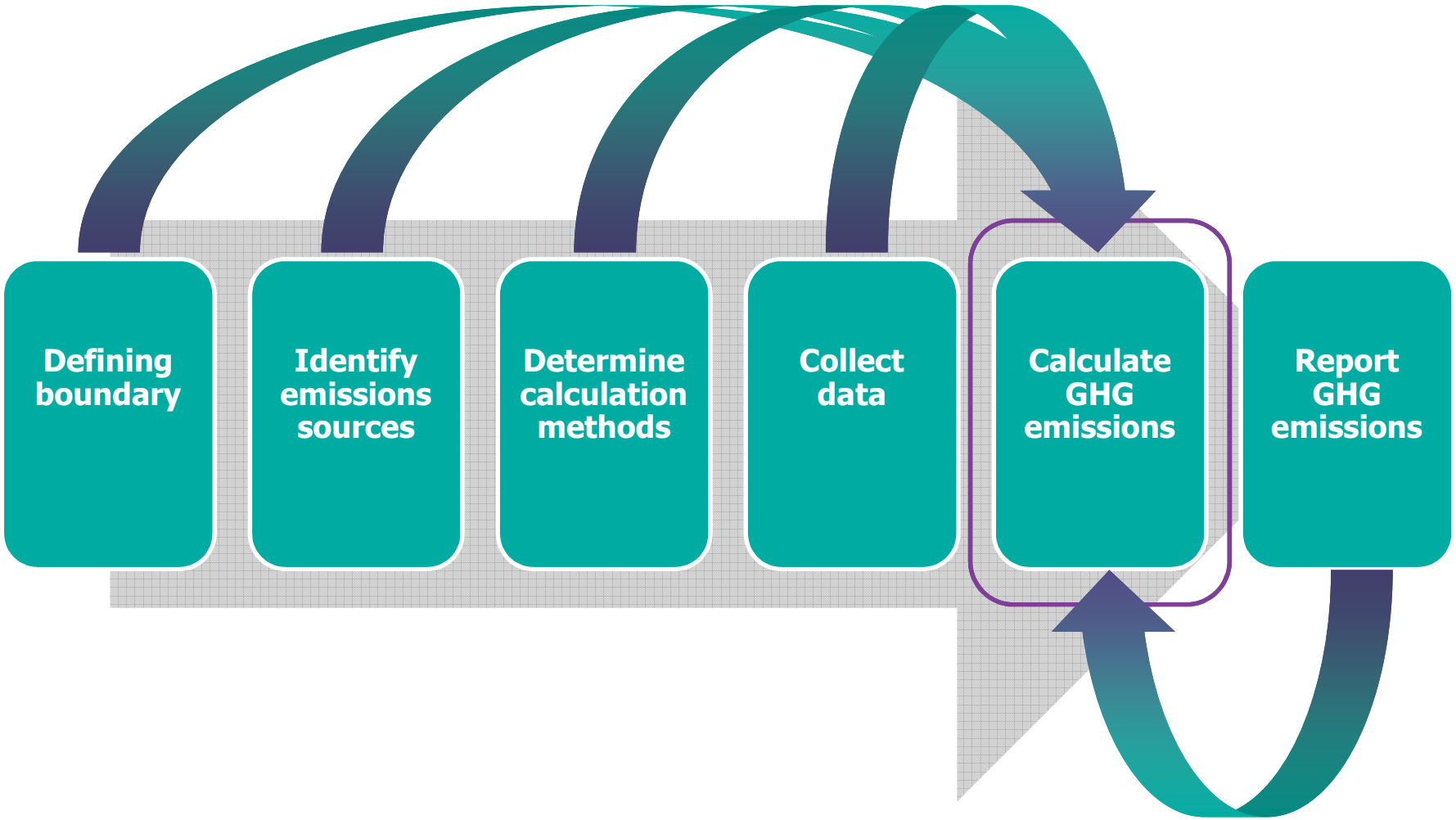
Six steps for city GHG accounting



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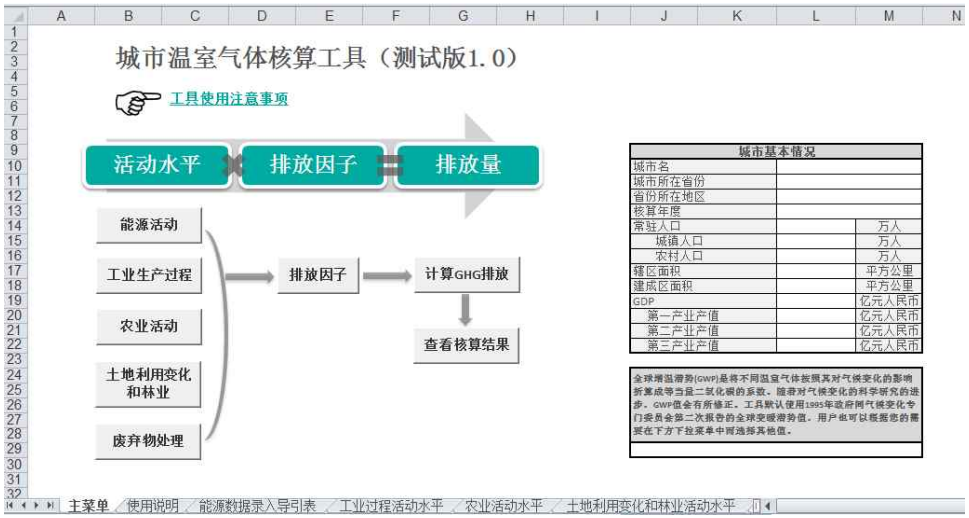
Tools Components



Main menu of the Tool

Tool Guide

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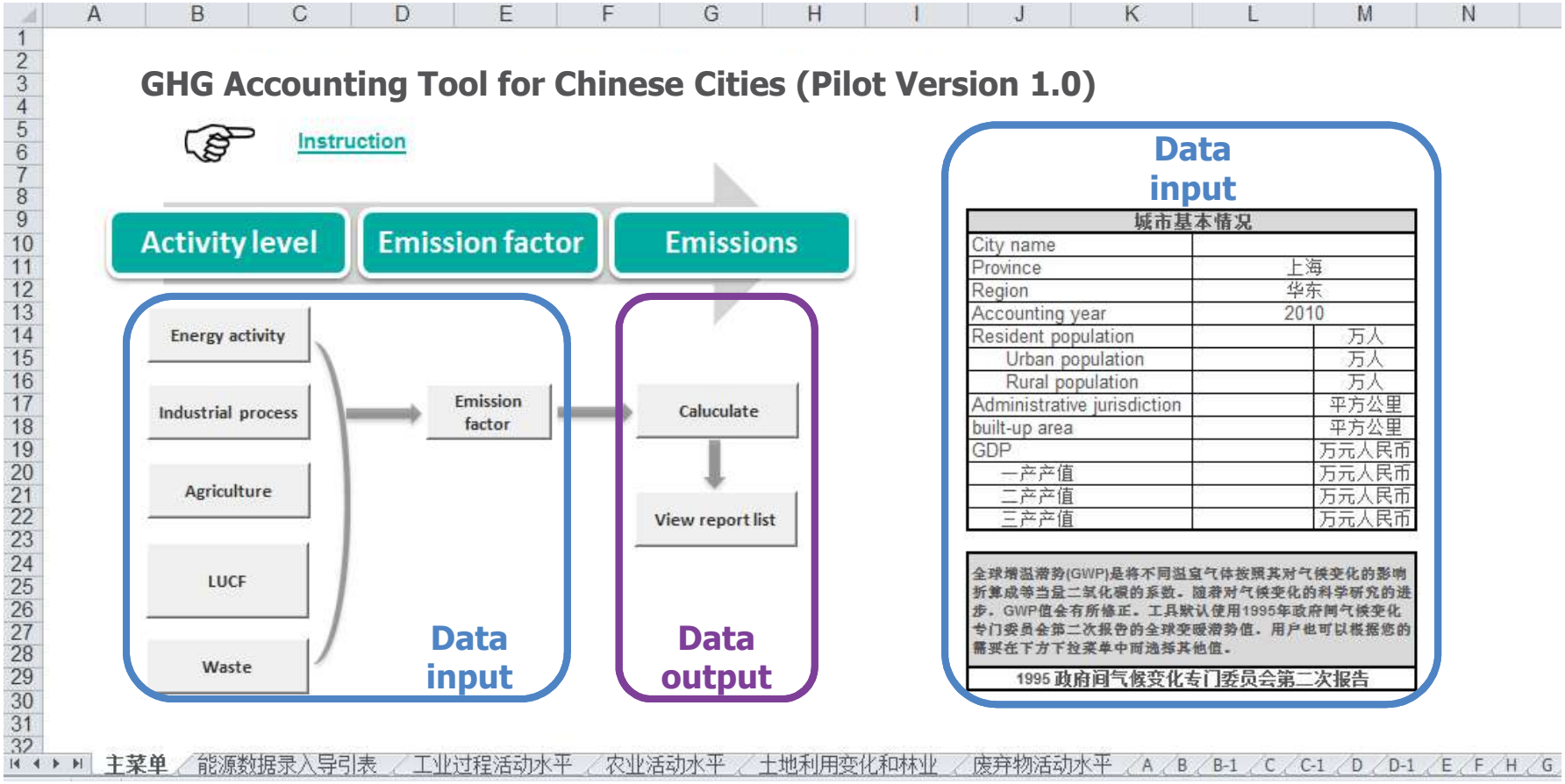
Main menu of the tool



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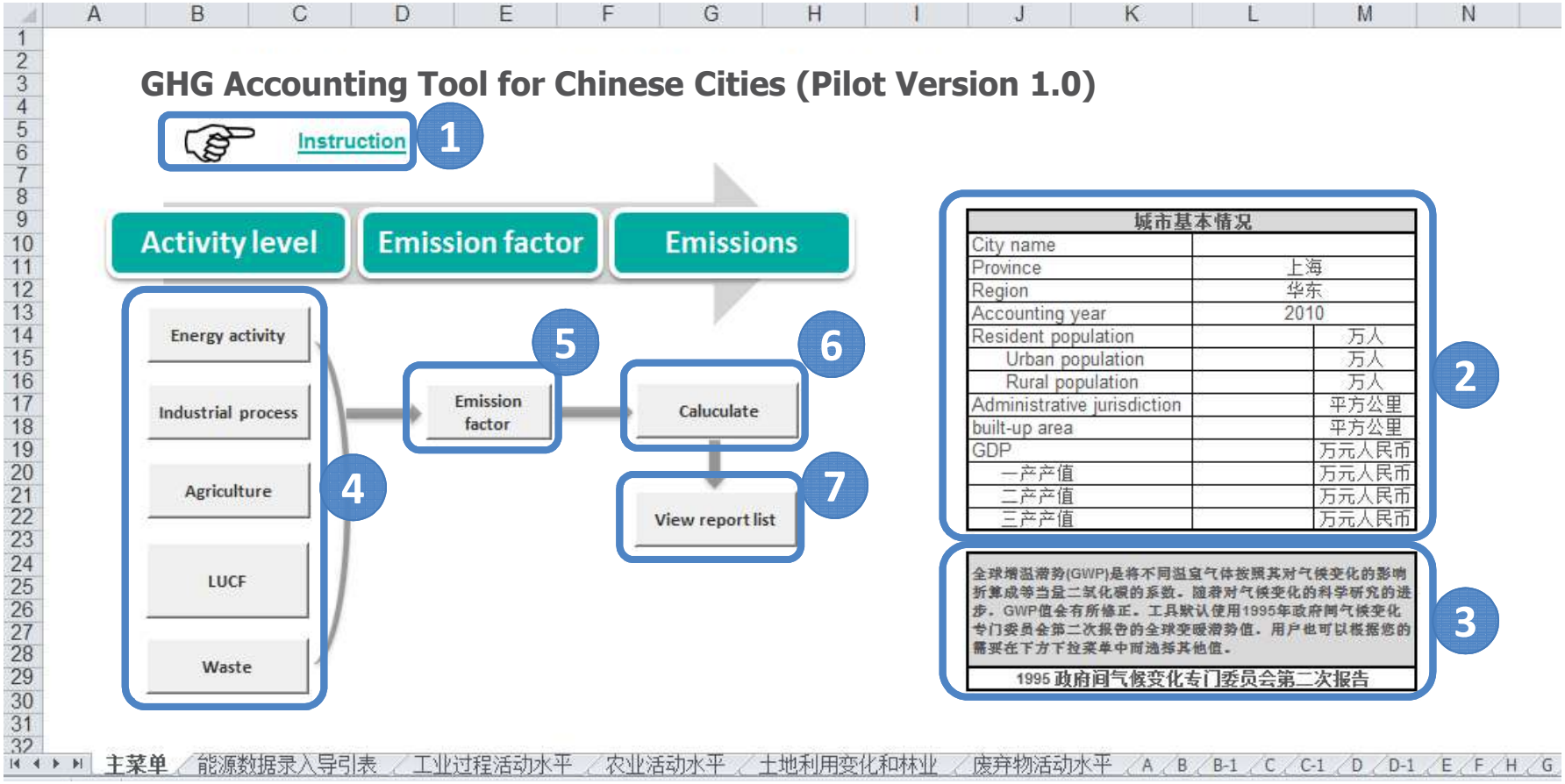
Operation procedure



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Result list of the Tool

Results

Return to main menu

Result table list 	1. Overview of GHG emissions City
	1. GPC format
	2. Provincial format
	3. Key areas
	Industry
	Buildings
	Transport
	Waste
	4. Primary, industry, service and residential
	5. Intensity indicators
	6. Information item

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Key issues in city GHG accounting and how the Tool solves the problems

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Key issue No.1

Consistent with national/state/provincial inventory?

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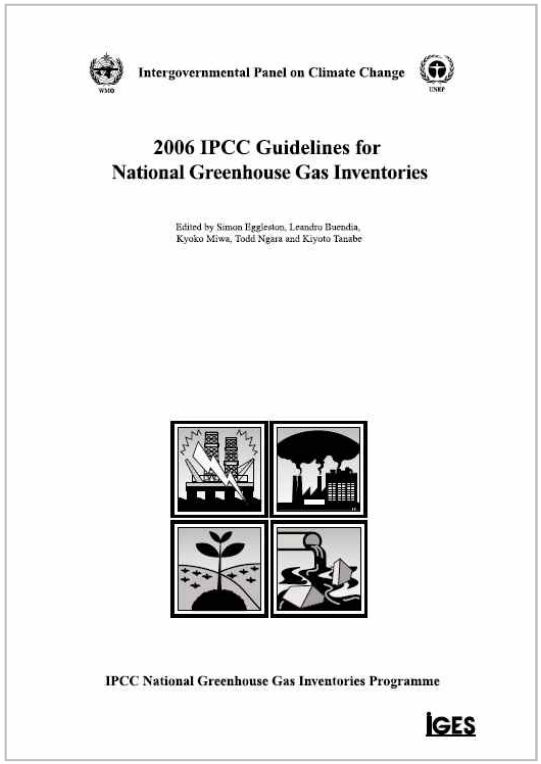
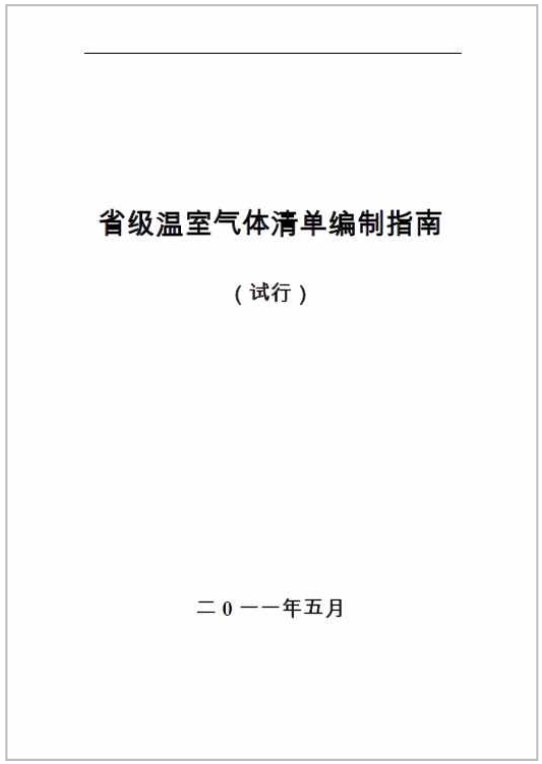
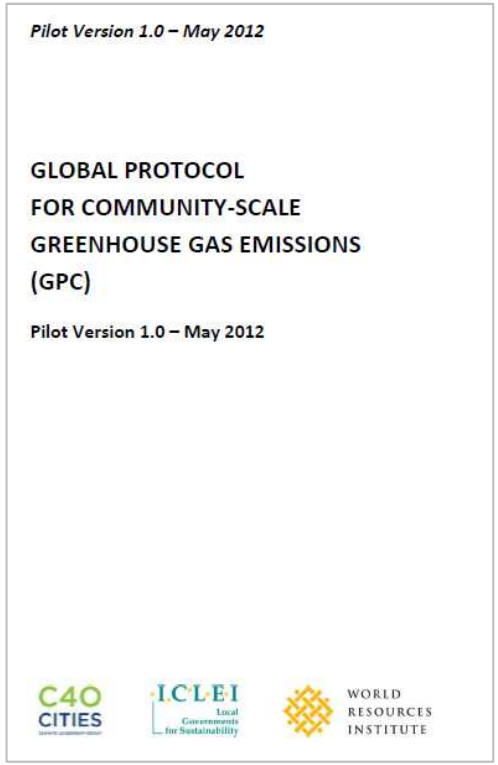
Feature 1: Compatible with provincial and international methods



IPCC Guidelines for National Inventory



Provincial Guidelines for GHG Inventory



GPC

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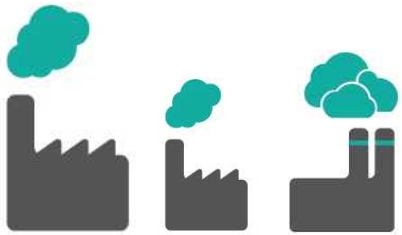
Feature 2: Cover all emission sources

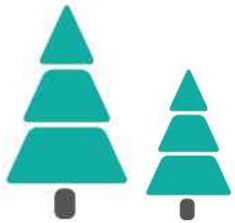
Energy

Industrial Process



Agriculture

Land use change and Forestry



Waste

CO_2, CH_4, N_2O,

HFCs, PFCs, SF_6

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Key issue No.2

Data collection

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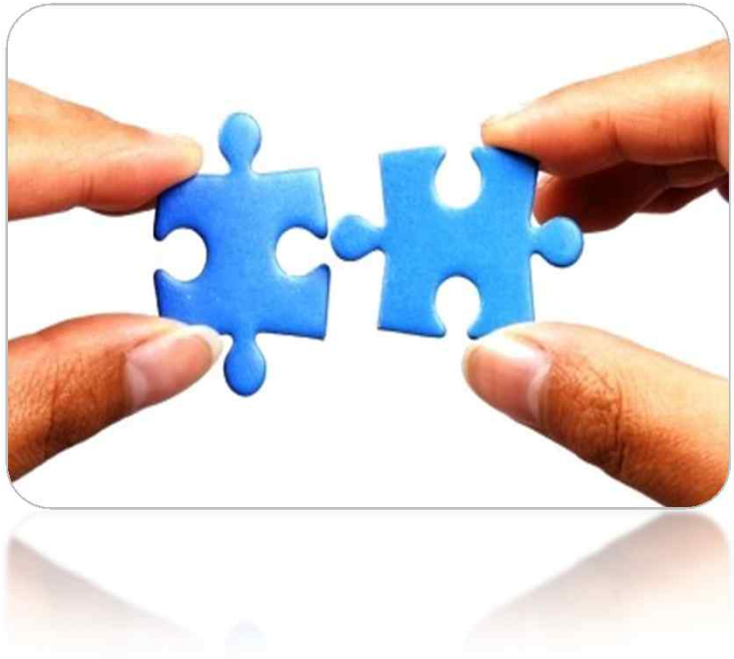
Feature 3: Multiple data collection methodologies



- **Top-down and bottom up data collection methods**
  - **Statistical data**
  - **Sectoral data**
  - **Survey data**
  - **Estimate data**

Graphic: http://www.masternewmedia.org/journalist-guide-to-crowdsourced-data-collection-with-amazon-mechanical-turk/

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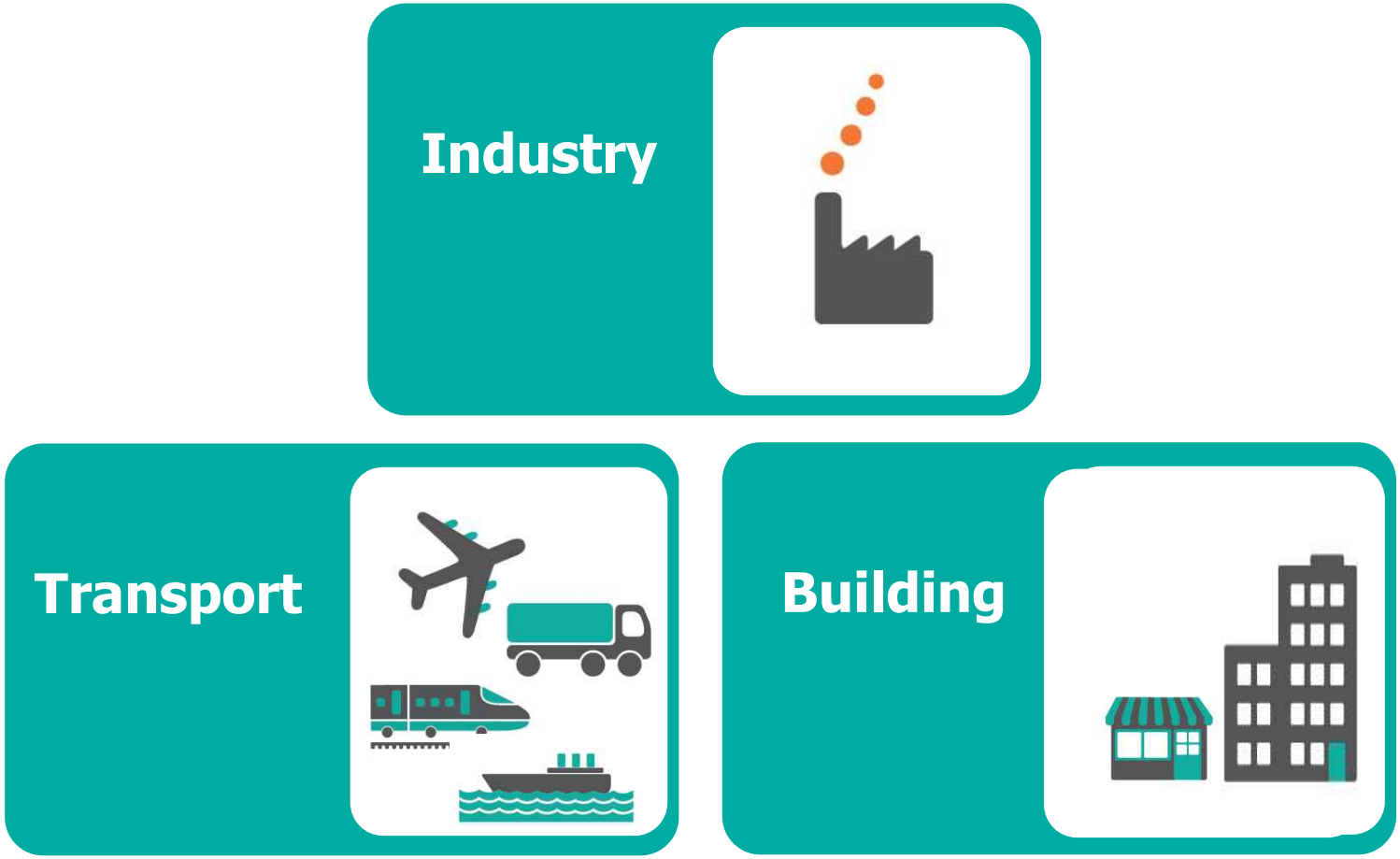
Feature 4: Additional focus on key emission sources



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Key issue No.3

Scope 2 emissions accounting & reporting

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Feature 5: Separate accounting & reporting of scope 2 emissions

Question:

Can we calculate Scope 1+ Scope 2 ?

Answers:

For a city: No

For energy generating industry: No

For energy consumption only: Yes

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Key issue No.4

Scope 3 emissions: Cross-boundary issues

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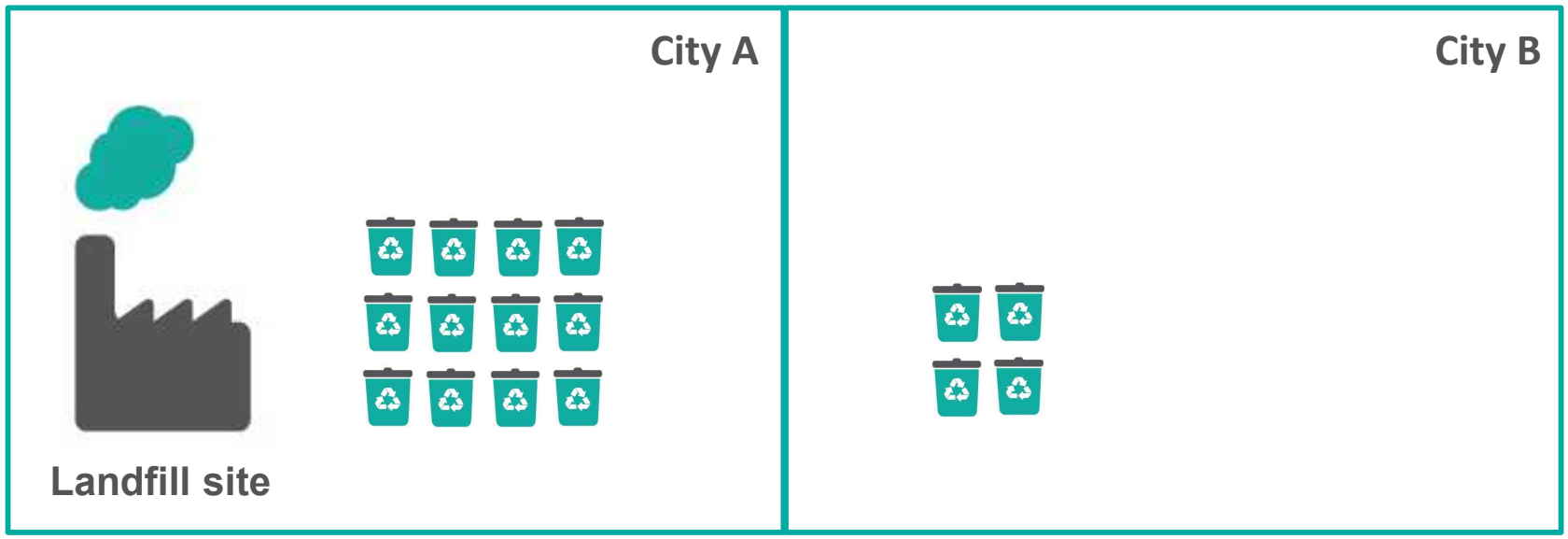
Feature 6: For waste, using Scope 3 & Information item



- City A
  - Scope 1: 12 units
  - Information item: 4 units
- City B
  - Scope1: 0 units
  - Scope3: 4 units

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Feature 7: For cross boundary transport, survey is necessary

	Scope 1	Scope 2	Scope 3	How to measure
On-road	√		√	• Distance (VKT) data (traffic model) • Fuel sale data • Vehicle ownership data
Rail		√	√	• Fuel/electricity consumption • Distance travelled
Shipping	√		√	• Fuel loaded at my port • Distance travelled
Air transport			√	• Fuel loaded at my airport • Distance travelled

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Thank you!

JIANG Xiaoqian

World Resources Institute
Tel: 010-59002566
Email: xqjiang@wri.org

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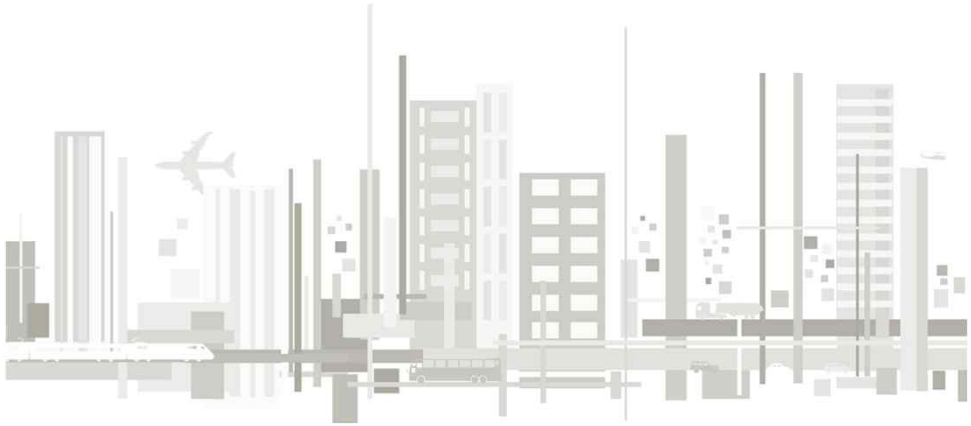

4. Implications

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Implications for a sub-regional partnership

Best practice sharing

Cross-country program

Considering local circumstances