The Importance of Cities in GHG Mitigation

Seminar on Cities and GHG Mitigation

18th January 2018

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Introduction to C40

Why cities matter

Implications of the Paris Agreement

The benefits of inventory development

Inventory principles and the GPC


C40
CITIES

INTRODUCTION TO C40

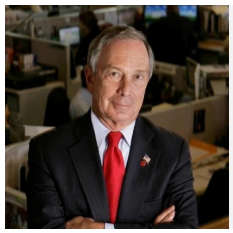
C40: founded by Mayors, for Mayors

C40 was founded in 2005 by then Mayor of London Ken Livingstone, together with representatives from 18 cities.

2005

2006

In 2006, C40 formalized a delivery partnership with the Clinton Climate Initiative.



2008

David Miller, then Mayor of Toronto chaired C40 2008-2010 and created new ambitious visions for the organization.

In 2010, Mayor Michael Bloomberg became Chair and set C40 on a course to become the preeminent city-focused climate organization.

2010

2013

Rio de Janeiro Mayor Eduardo Paes began his tenure as Chair in 2013 and oversaw a rapid expansion of the C40, including new efforts related to City Diplomacy.

2015

2016

Anne Hidalgo, Mayor of Paris, took over as Chair in November 2016.

INTRODUCTION TO C40

92 of the world's leading cities working together to tackle climate change

92
megacities & innovators

650+
million people

>25%
of global GDP

Drive innovation with data • Provide tools, training, technical assistance • Catalyze market transformation • Share trusted advice among peers • Replicate good ideas

INTRODUCTION TO C40

Southeast Asia

Pushing subnational climate action forward

1. Engage mayoral leadership
2. Support cities to prepare robust inventories, targets and plans
3. Accelerate action through peer-to-peer exchange and direct support
4. Remove barriers to city climate action
5. Provide global thought leadership via research, agenda-setting communications and world class events to inspire and transfer knowledge to non-C40 cities

INTRODUCTION TO C40

Global Covenant of Mayors for Energy & Climate

INTRODUCTION TO C40

Opportunity for Significant Global Impact

INTRODUCTION TO C40

Covenant Requirements

Compact of Mayors Compliance Steps

By joining the Compact, a city leader engages in four phases over a three-year period:

- Commitment
- GHG Inventory & Risk Assessment
- Target Setting
- Planning

Each phase has a two-step process: **Mitigation and Adaptation.**

The Covenant Step by Step

Step 1: Signature of the Covenant of Mayors

- Creation of adequate structures
- Development of a Baseline Emissions Inventory, Risk and Vulnerability Assessment, Action Plan

Step 2: Submission of Your Action

- Sharing experience and promoting your local actions

Step 3: Regular Submissions of Implementation Reports

Reporting and Further Information

Carbon*n* Climate Registry

CDP Cities

My Covenant/Covenant Extranet
(EU COM's platform)

www.globalcovenantofmayors.org

info@globalcovenantofmayors.org

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C40 CITIES
CLIMATE LEADERSHIP GROUP

CITIES HAVE THE POWER TO CHANGE THE WORLD

CLIMATE CHANGE CAUSES FINANCIAL DAMAGE TOO

BUT CITIES ARE AS VULNERABLE AS THEY ARE POWERFUL

URBAN GROWTH SHOWS NO SIGNS OF STOPPING

WHY CITIES MATTER

Building Better Cities

WHY CITIES MATTER

Climate Change Impacts

C40 CITIES
CLIMATE LEADERSHIP GROUP

Paris Agreement

International agreement signed by 195 countries to fight climate change

Agreement to keep global temperature rise below **1.5⁰C**

Nationally Determined Contributions

Each countries has supplied NDCs outlining the emissions reductions they are aiming for

To meet national emission reduction targets cities must reduce their emissions

Cities are fundamental

WHY CITIES MATTER

More than half the world's population lives in cities **>50%**

70% of cities are already dealing with the effect of climate change

of global CO_2 emissions come from cities

Cities use **2/3** of the world's energy

Local action can have immediate impact and add up to create global effects

Climate change brings challenges and opportunities **Cities are the Future**

WHY CITIES MATTER

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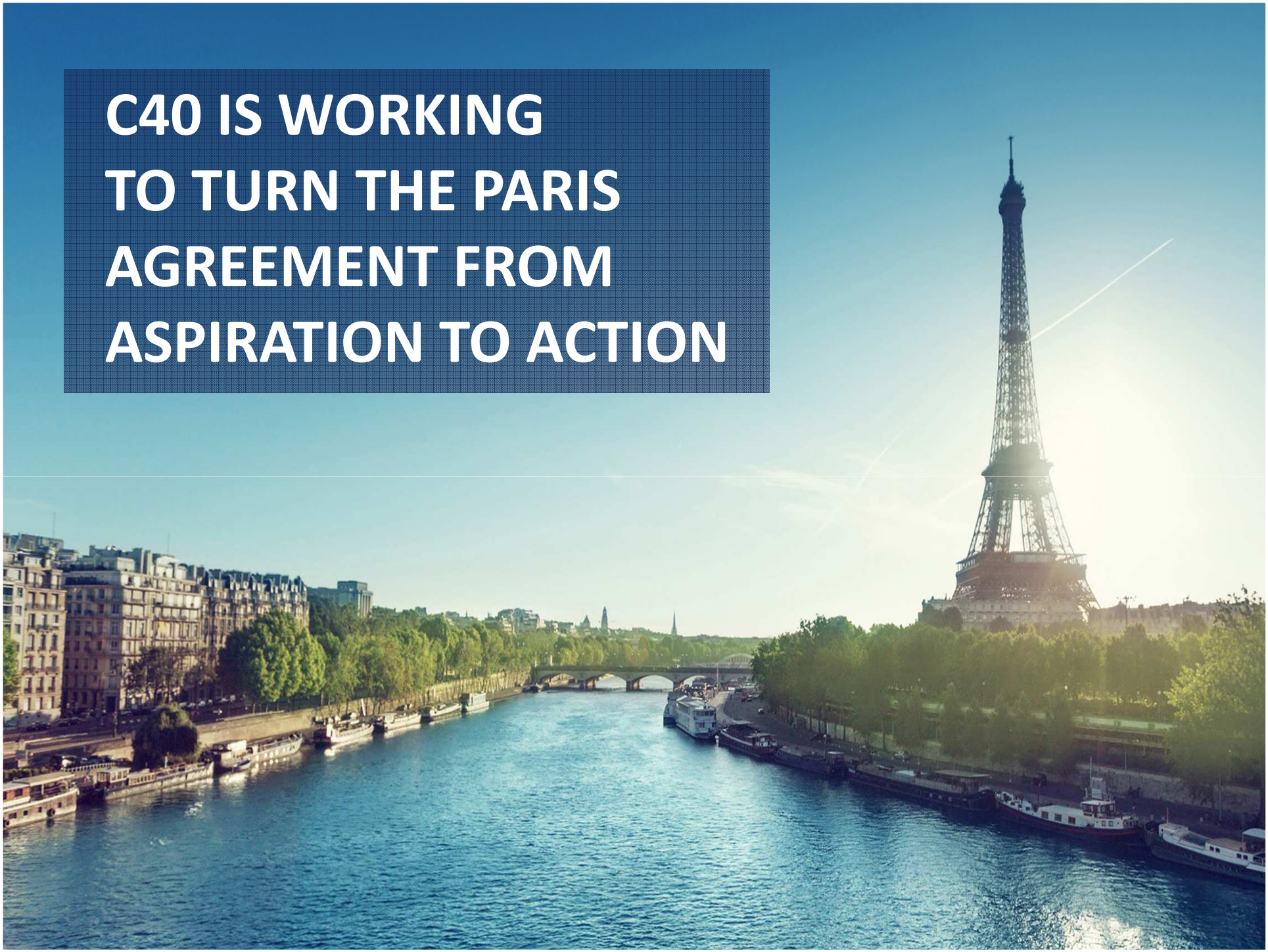
C40 IS WORKING TO TURN THE PARIS AGREEMENT FROM ASPIRATION TO ACTION



IMPLICATIONS OF THE PARIS AGREEMENTS

The first significant roadmap for turning the aspirations of the Paris Agreement into action

IMPLICATIONS OF THE PARIS AGREEMENT

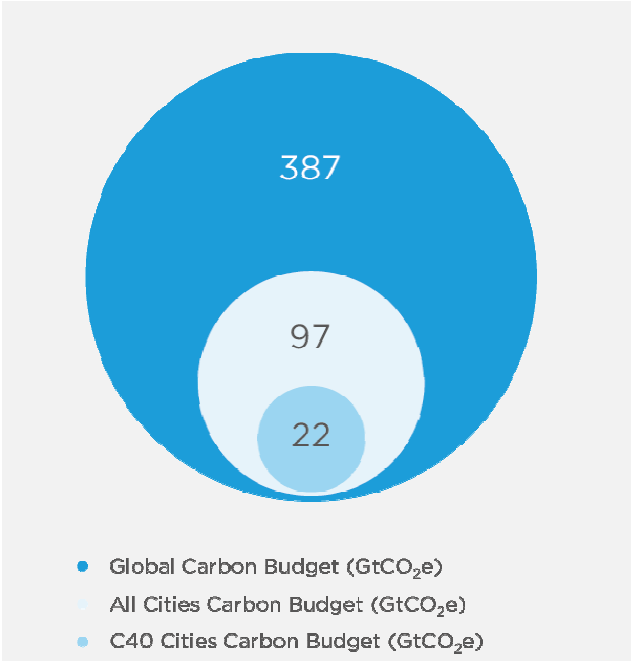
Deadline2020: How cities will get the job done

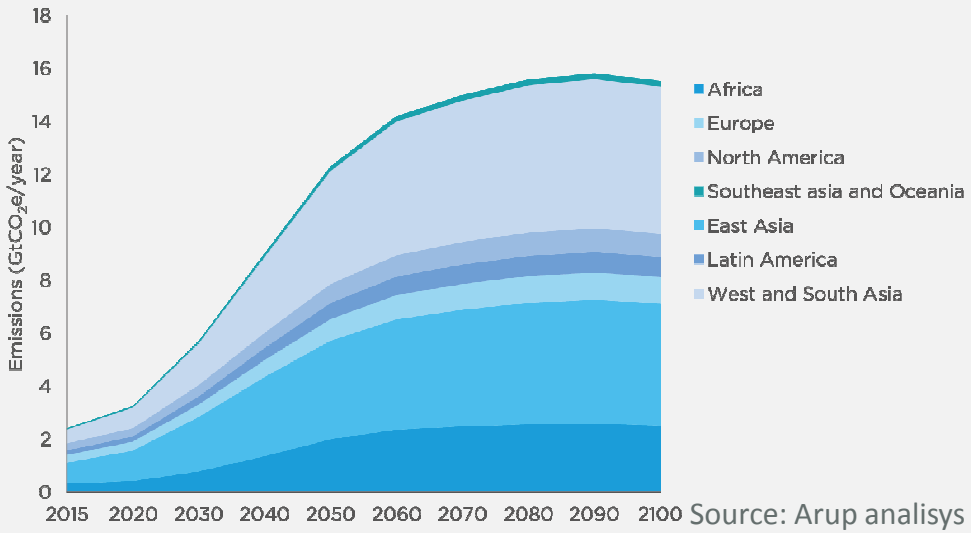
2020: Emissions have to peak **2030:** Decline to an average of 3 metric tons CO_2e per capita **2050:** Hit zero

Every city in C40 must publish a plan, deliver on commitments related to mitigation and adaptation

IMPLICATIONS OF THE PARIS AGREEMENT

Taking stock: The total amount of emissions we can risk putting in the atmosphere





Source: Arup analisys

IMPLICATIONS OF THE PARIS AGREEMENT

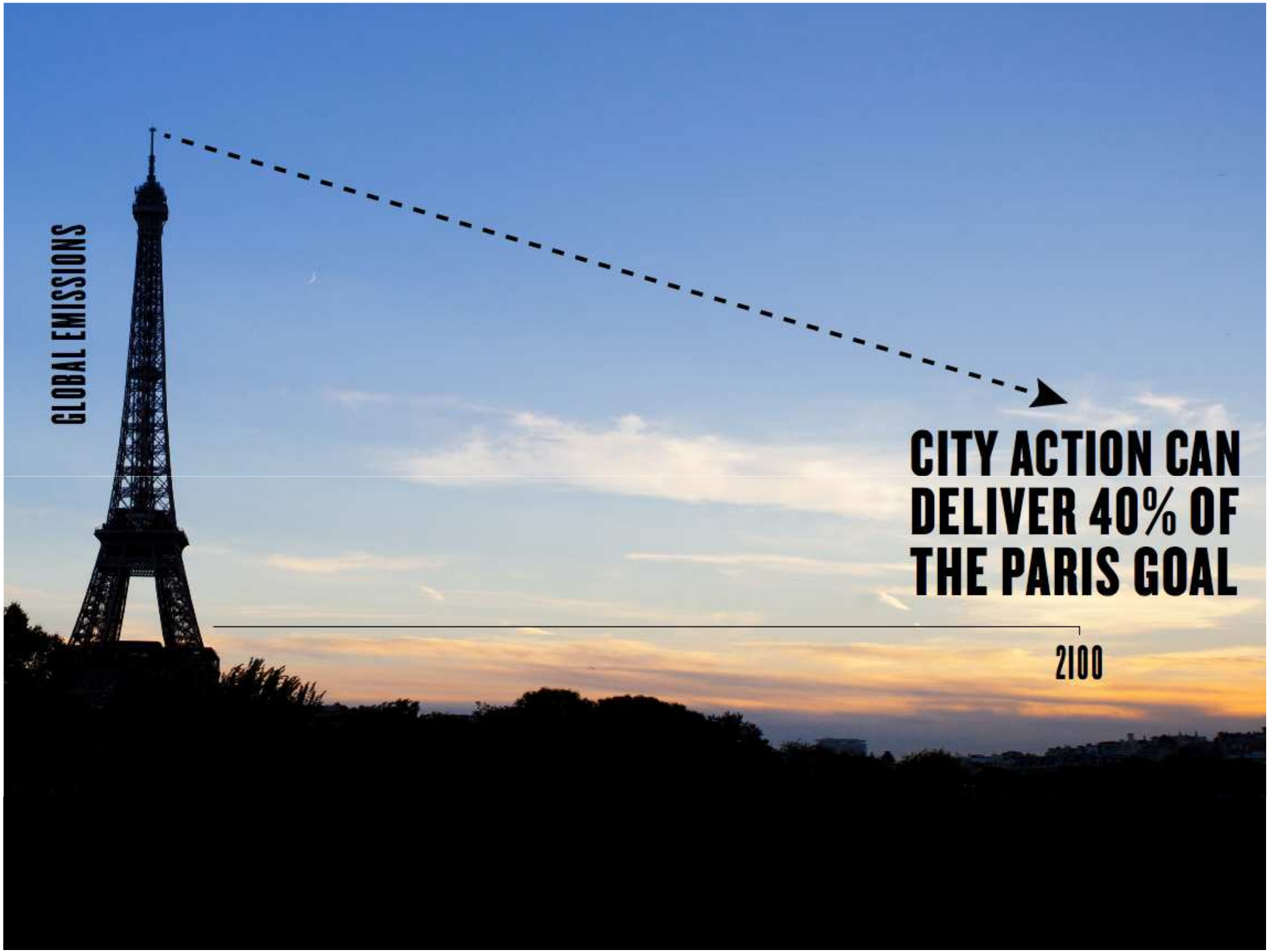
The next four years are critical

IMPLICATIONS OF THE PARIS AGREEMENT

By 2060, C40 cities will have used up not just their own budget, but the entire world's carbon budget for the whole of the century

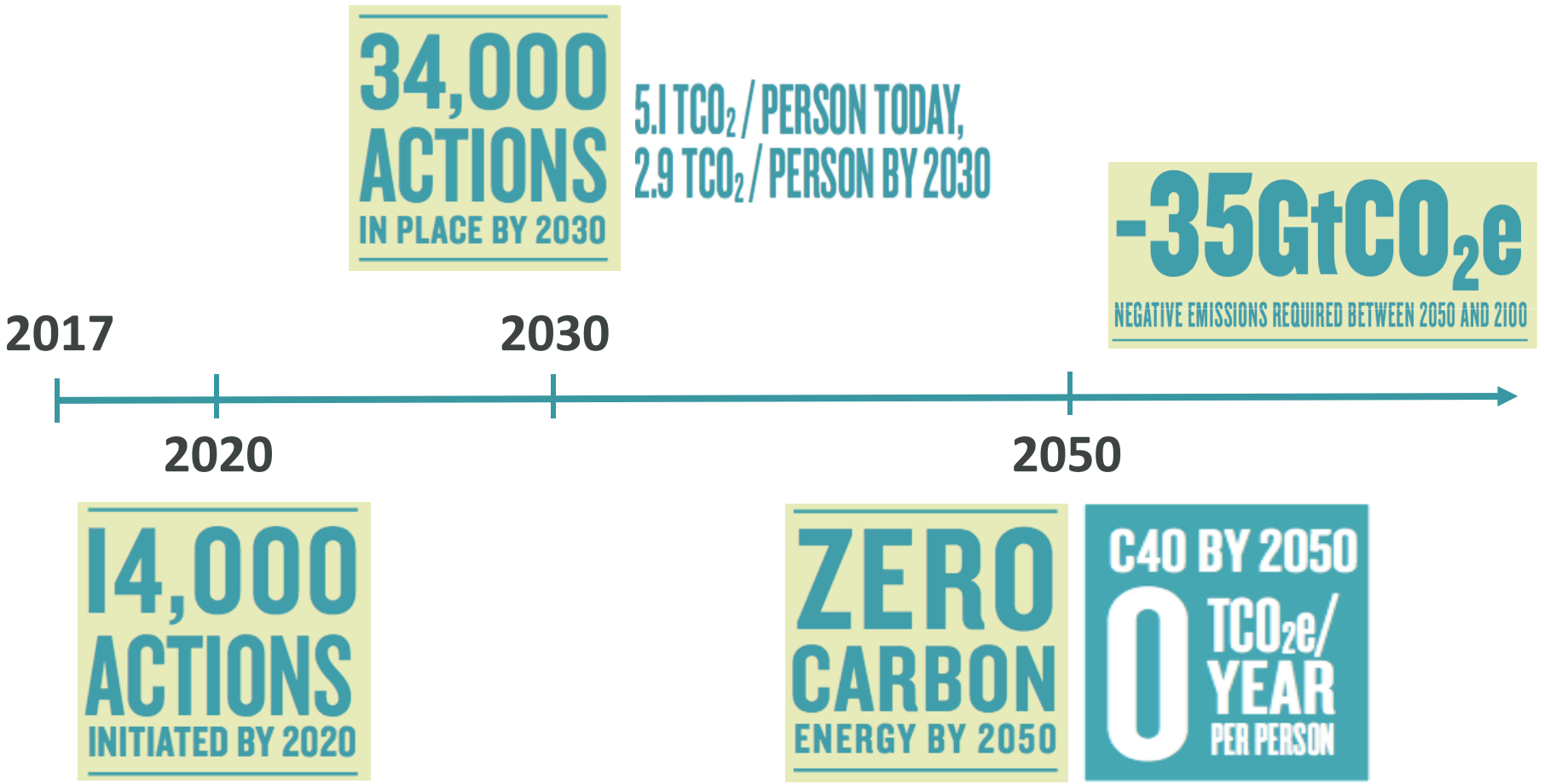
IMPLICATIONS OF THE PARIS AGREEMENT

By 2030, the average CO_2 emissions per capita in C40 cities needs to fall to 3 tonnes


GLOBAL EMISSIONS
CITY ACTION CAN DELIVER 40% OF THE PARIS GOAL
2100

IMPLICATIONS OF THE PARIS AGREEMENT

We now know what cities need to do



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BENEFITS OF DEVELOPING A ROBUST INVENTORY

Support evidence-based climate action planning

1. INVENTORY

Acting on climate change begins with a thorough understanding of greenhouse gas emissions, through a robust inventory developed in line with international best practice (by applying the Global Protocol for Community Scale Greenhouse Gas Emissions Inventories - GPC)

2. TARGETS

A strategic analysis of the current and future emissions under different scenarios and intervention options, allows a city to set the right targets for cutting emissions.

3. ACTION PLAN

Building on this evidence base, a climate action plan is developed to detail precisely how the city will deliver the emission reduction targets it has set.

BENEFITS OF DEVELOPING A ROBUST INVENTORY

Climate action plan definition

A climate action plan will:

1. Develop a pathway to deliver a **net zero carbon city by 2050** at the latest, and set an appropriate interim target for 2030.
2. Demonstrate how the city will **adapt and improve its resilience to climate hazards** that may impact the city now, and in future climate change scenarios.
3. Outline the **wider social, environmental and economic benefits** derived from implementing the plan, and improve the distribution of these benefits throughout the city's population.
4. Outline the **city's governance, powers and partners** who need to be engaged to fulfil the city's mitigation targets and resilience goals.

BENEFITS OF DEVELOPING A ROBUST INVENTORY

Climate action plan definition

The plan will do this by:

A. Considering adaptation and mitigation in an **integrated** way, identifying interdependencies to minimise investment risk, leverage complementarity and maximise efficiencies.

B. Setting an **evidence-based, inclusive, deliverable and timely** plan for achieving mitigation and adaptation based on an understanding of the city's powers, influence and wider context.

C. Establishing processes to **monitor progress**, evaluate achievements and refresh climate action planning in line with (city) governance and reporting systems.

BENEFITS OF DEVELOPING A ROBUST INVENTORY

Why measure emissions at the city level?

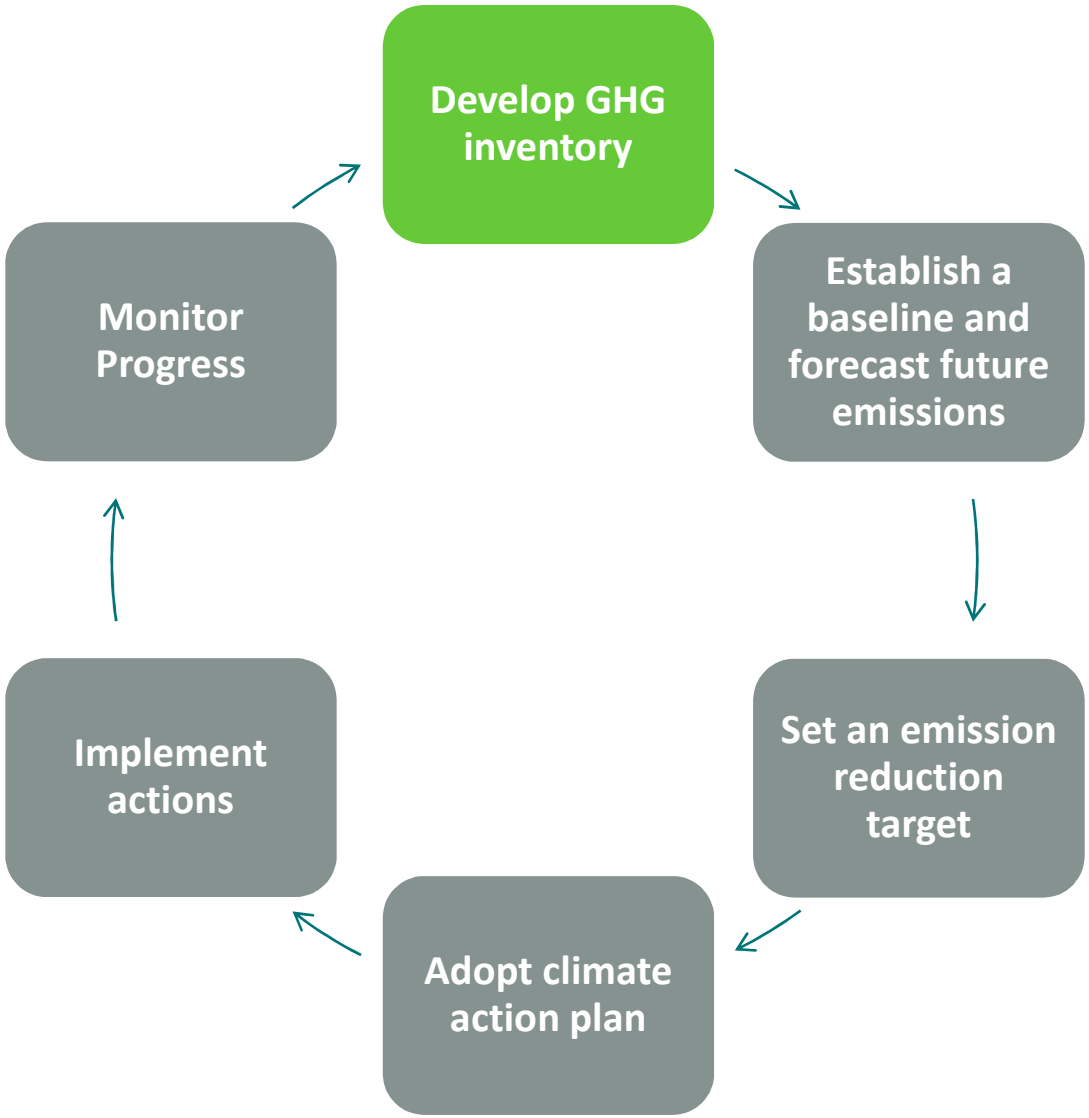
Planning for climate action begins with a GHG inventory:

- Strategic policy, planning and target setting
- Project development and support
- Co-benefits
- External commitments
- City leadership and reputation
- Facilitates international collaboration
- Improve inter departmental and agency cooperation

BENEFITS OF DEVELOPING A ROBUST INVENTORY

Why measure emissions at the city level?

- A key tool for decision making
- Starting point for planning mitigation actions and assessing policy impacts



Inventory Reporting Software

City **I**nventory **R**eporting and **I**nformation **S**ystem

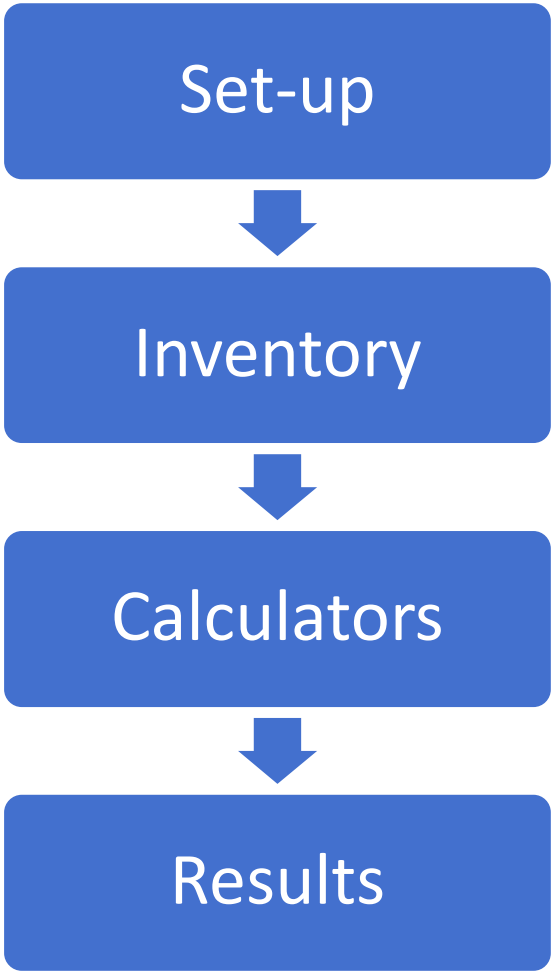
- Excel-based reporting template and calculators
- Captures all required data for a GPC compliant inventory
- Available on **www.c40.org/programmes/ciris** and via CDP

CIRIS is:

- Accessible
- Easy to use
- Flexible
- Transparent
- Able to combine reporting and analytics

BENEFITS OF DEVELOPING A ROBUST INVENTORY

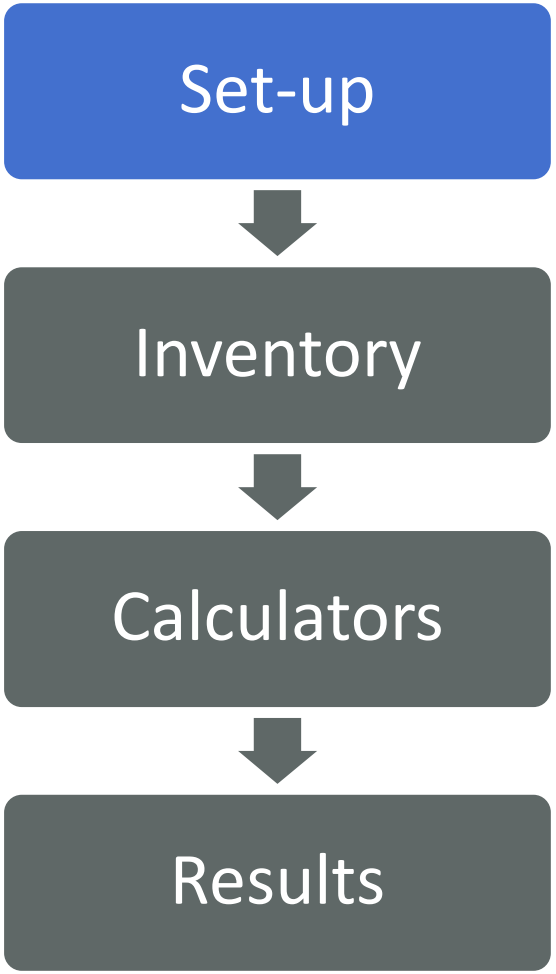
Features



Slide 36

MW4 Analysis module do not currently exist.
Molly Wang, 27/3/2560

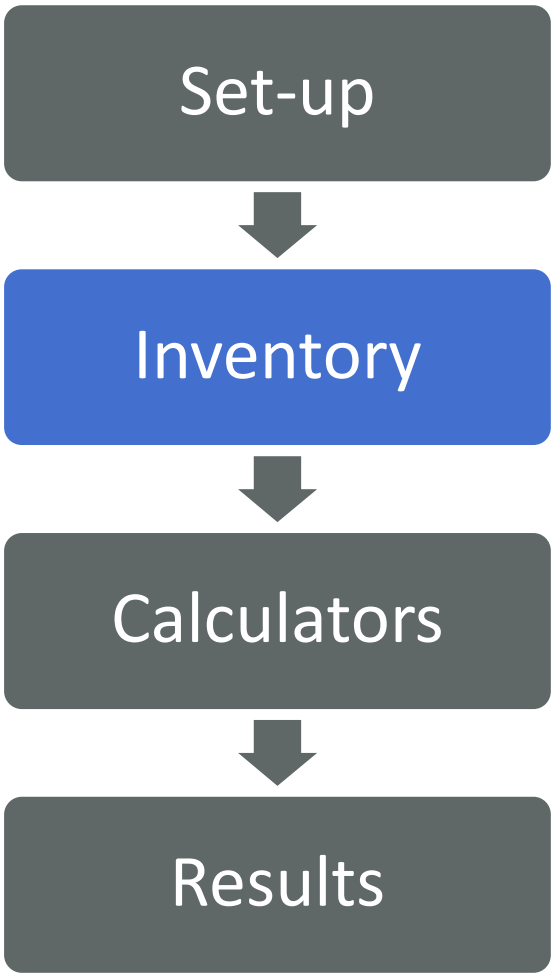
Features



- Define the inventory boundary
- Provide supporting background information, such as population and land area
- Record all data sources and emission factors to be used in the inventory

BENEFITS OF DEVELOPING A ROBUST INVENTORY

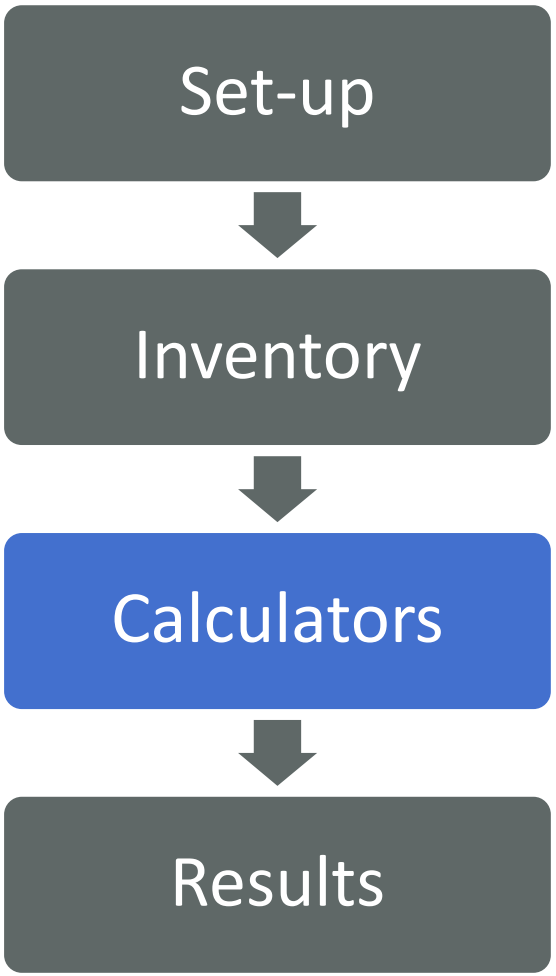
Features



- Record activity data.
- Using the emission factors defined in the Set-up, emissions are calculated according to the GPC reporting framework.
- Stationary energy, Transportation and Waste must be completed for a BASIC inventory. IPPU and AFOLU are additional required for a BASIC+ inventory.

BENEFITS OF DEVELOPING A ROBUST INVENTORY

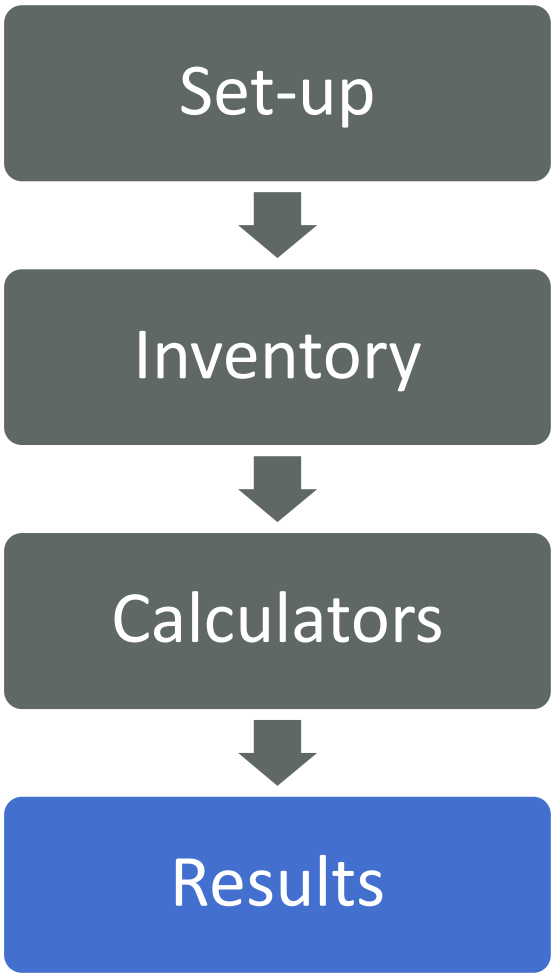
Features



- Five calculators are included:
  - Fugitive losses from gas distribution
  - Solid waste landfill
  - Biological treatment of waste
  - Waste incineration
  - Wastewater
- Calculations are based on IPPC Guidance and use default factors.
- Should only be used if no other data is available.

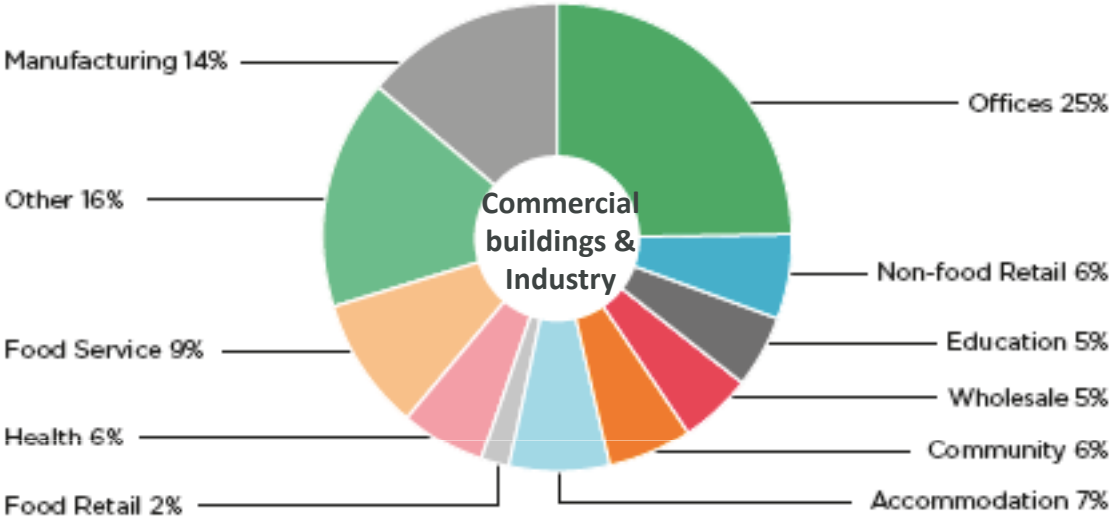
BENEFITS OF DEVELOPING A ROBUST INVENTORY

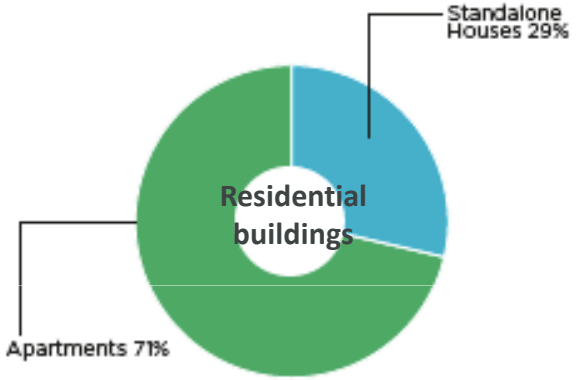
Features

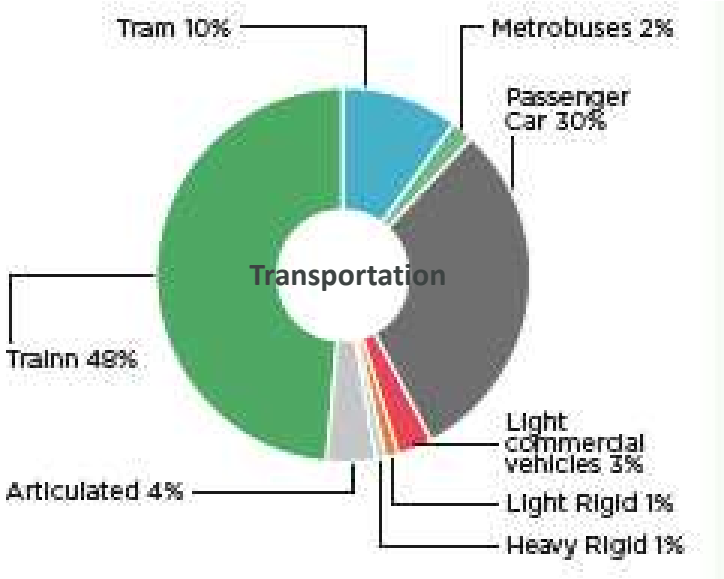


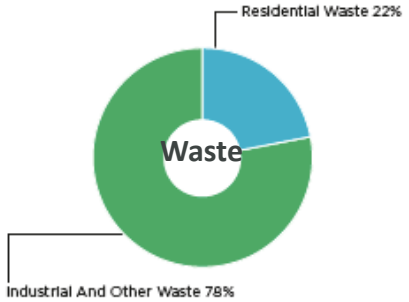
- This section shows the inventory results and presents total emissions in various ways
- Historical emissions data for benchmarking
- Option to record emission credits to estimate a city's net emissions

Detailed analysis of emission sources to support climate action planning



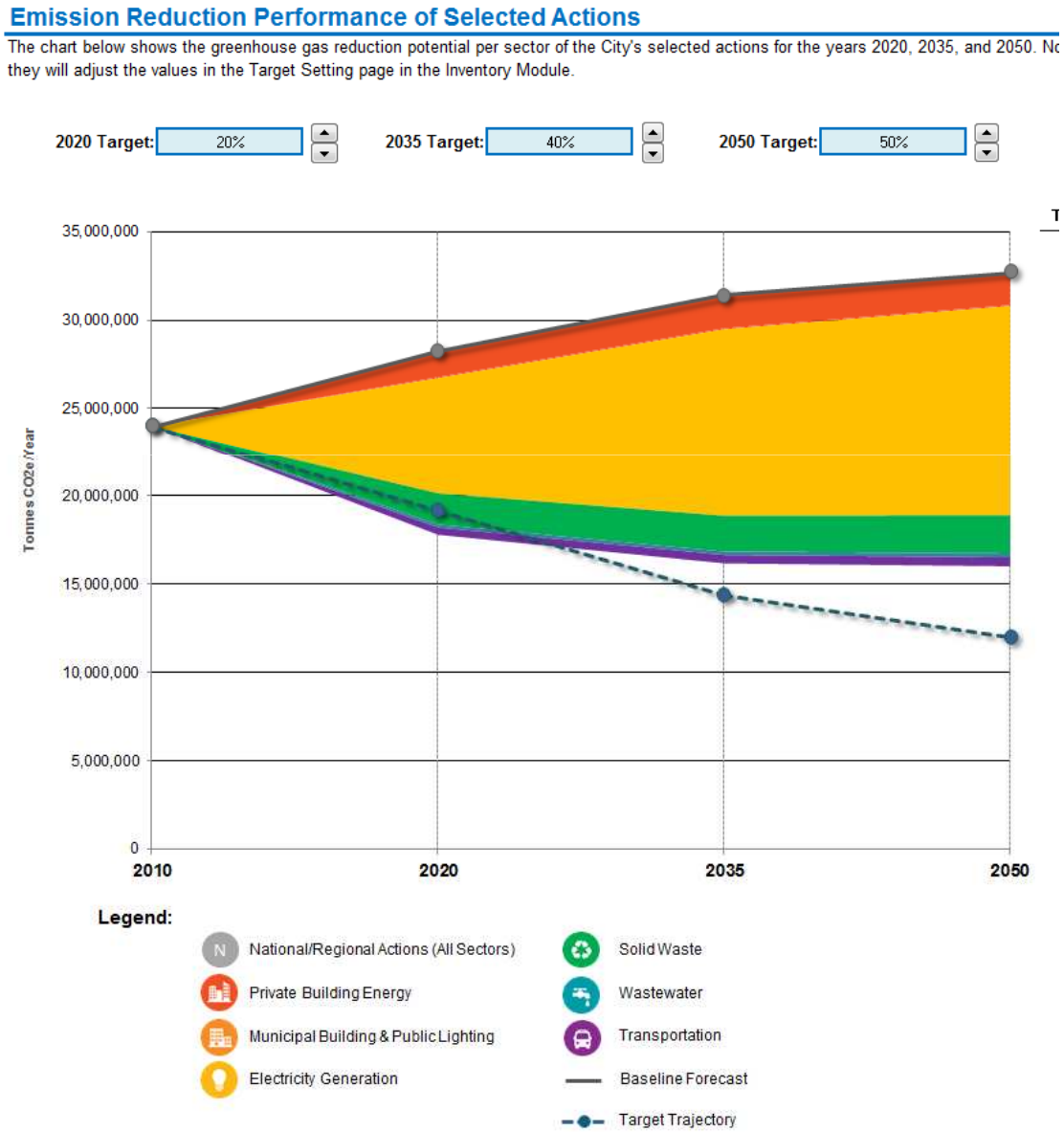






BENEFITS OF DEVELOPING A ROBUST INVENTORY

GHG inventory as the basis for scenario planning



CURB Tool

Climate Action for Urban Sustainability

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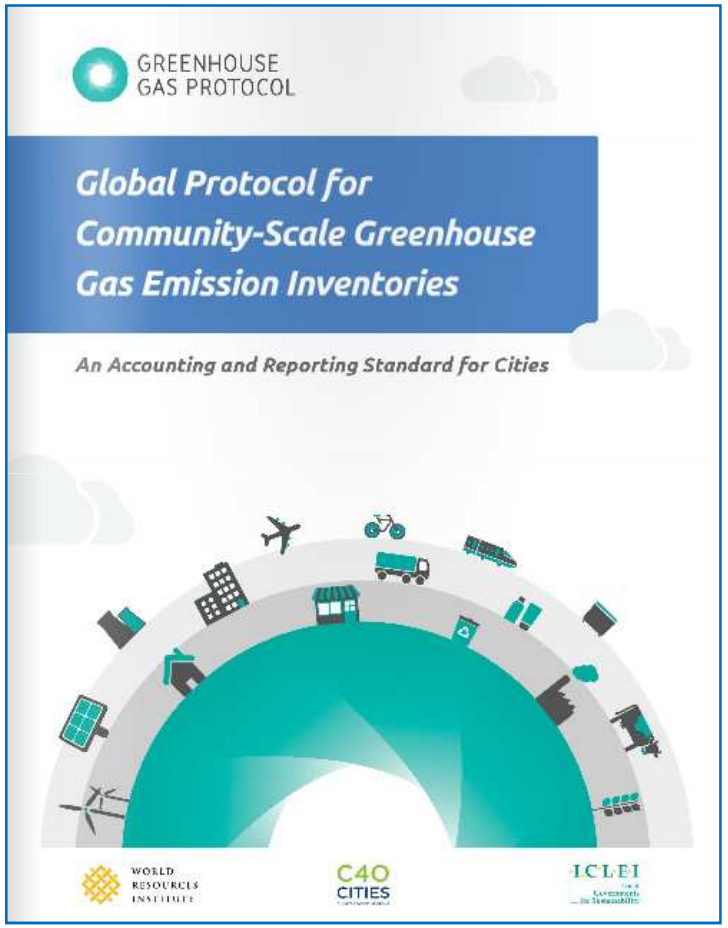
INVENTORY PRINCIPLES AND THE GPC

What is the GPC?

- The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) is an **accounting and reporting standard** for cities.

- Offers cities a robust, transparent, consistent and globally-accepted framework to identify, calculate and report on city-wide GHG emissions.



WORLD RESOURCES INSTITUTE

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ICLEI Local Governments for Sustainability

Before and after the GPC

Different types of measurements

One measurement

Account for only a portion of emissions

Consistently account for all emissions

Unable to relate to national climate action

Can measure city's contribution to national climate efforts

GPC accounting principles

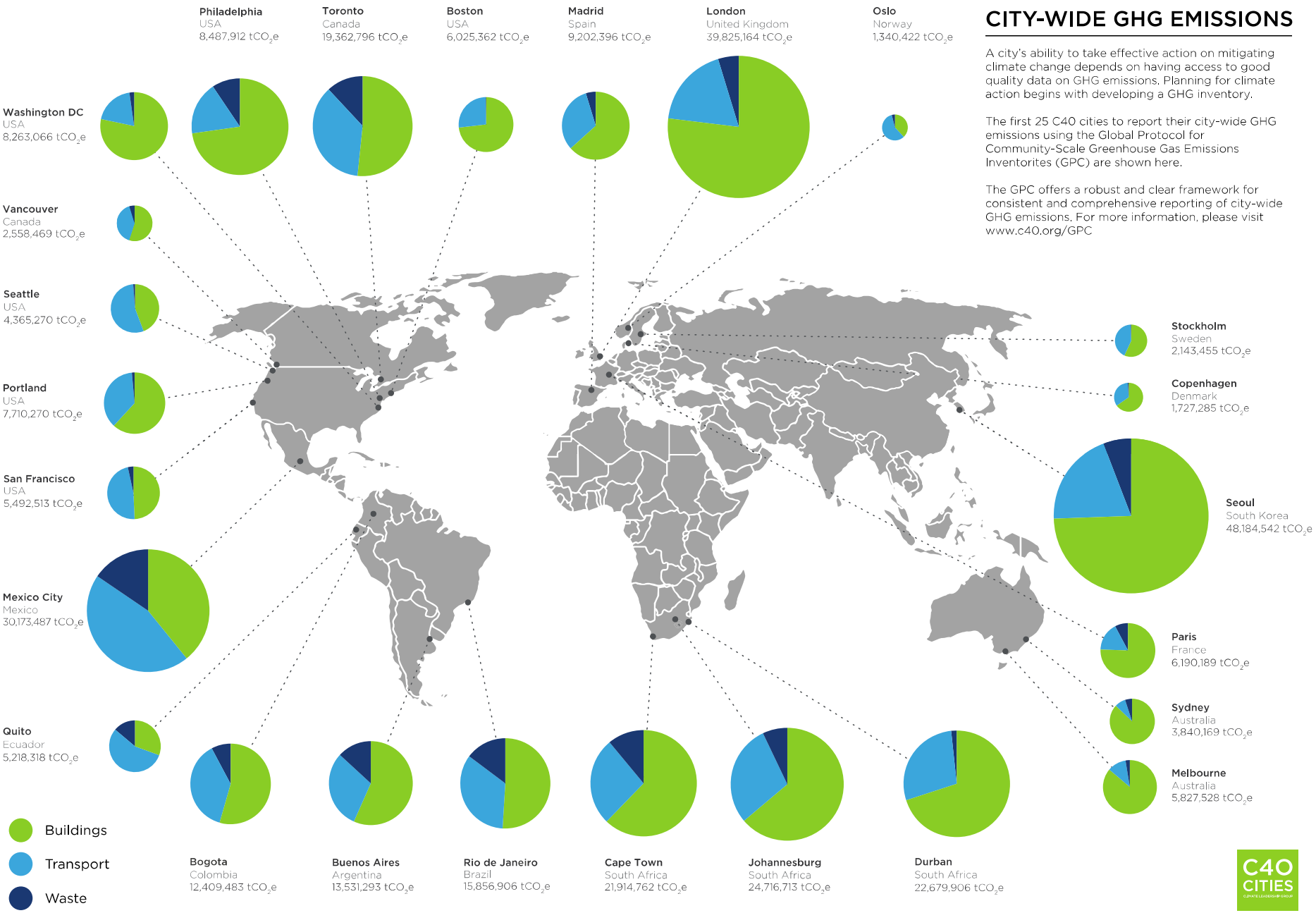
Principle	Description
Relevance	Prioritisation of activity data and reported emissions to the activities and priorities in the city
Completeness	Ensuring all sectors and sources are included, or explained if not
Consistency	Ensuring consistency in approach, boundaries, data sources, assumptions and methodologies, with the GPC, and within and between years
Transparency	Clear documentation and disclosure of data sources, assumptions and methodologies
Accuracy	Ensuring integrity of data, assumptions, and calculations, so results are neither under- or over-stated

CITY-WIDE GHG EMISSIONS

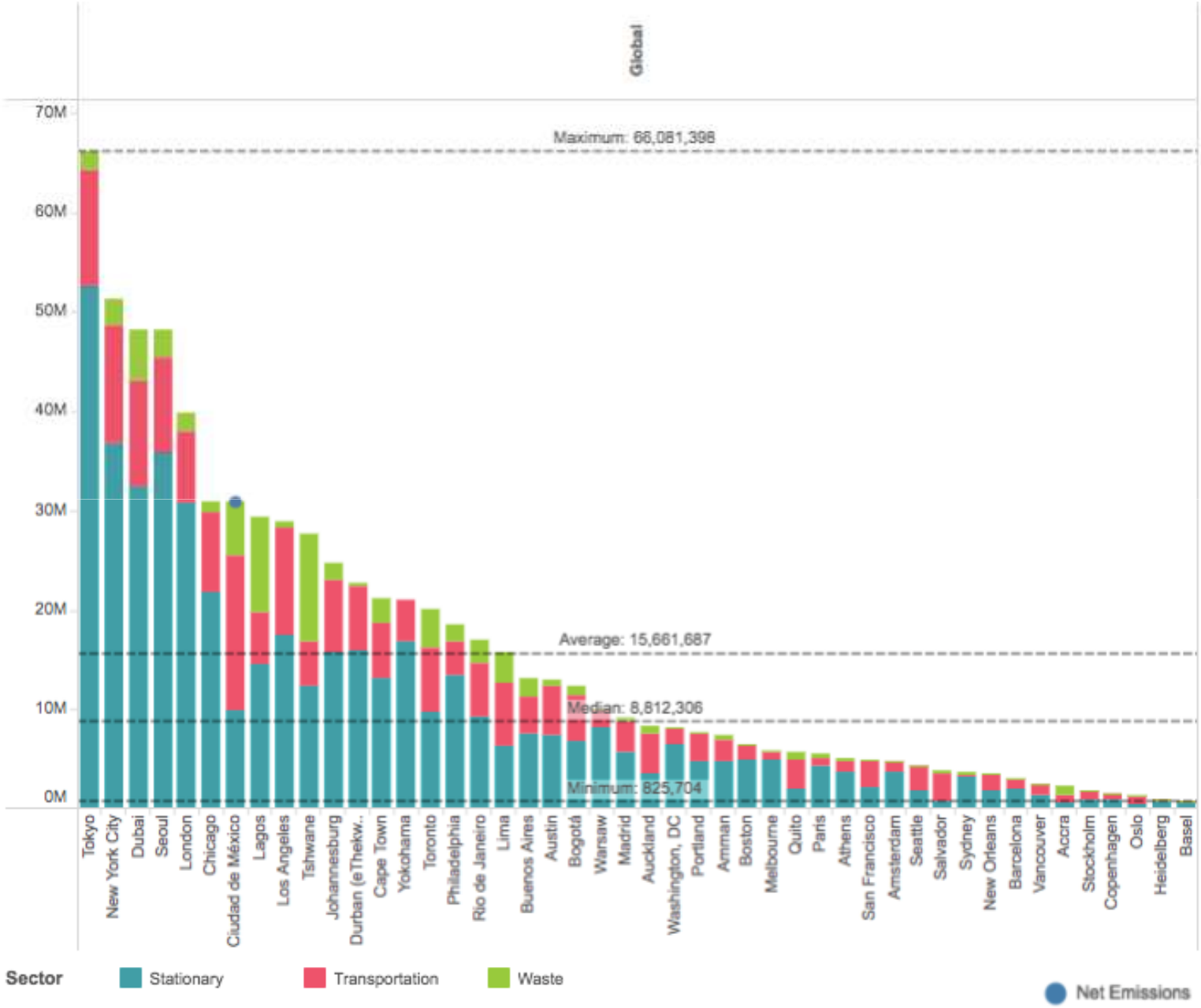
A city's ability to take effective action on mitigating climate change depends on having access to good quality data on GHG emissions. Planning for climate action begins with developing a GHG inventory.

The first 25 C40 cities to report their city-wide GHG emissions using the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventorites (GPC) are shown here.

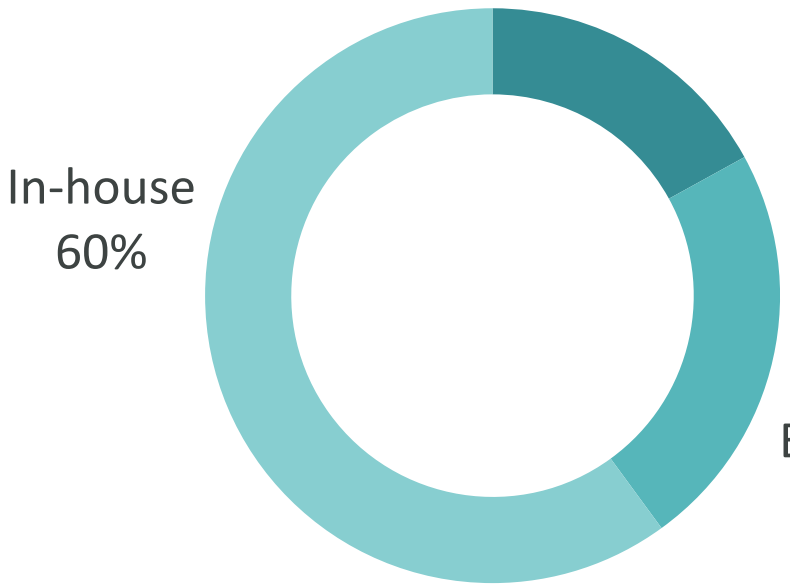
The GPC offers a robust and clear framework for consistent and comprehensive reporting of city-wide GHG emissions. For more information, please visit www.c40.org/GPC



INVENTORY PRINCIPLES AND THE GPC



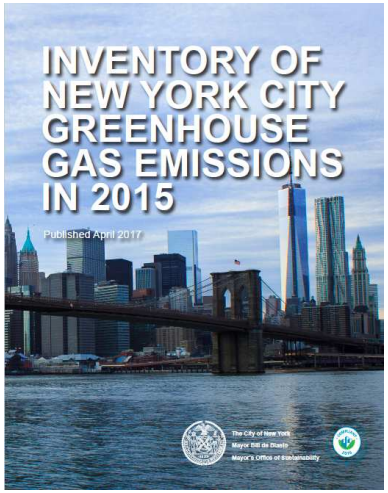
www.c40.org/other/gpc-dashboard

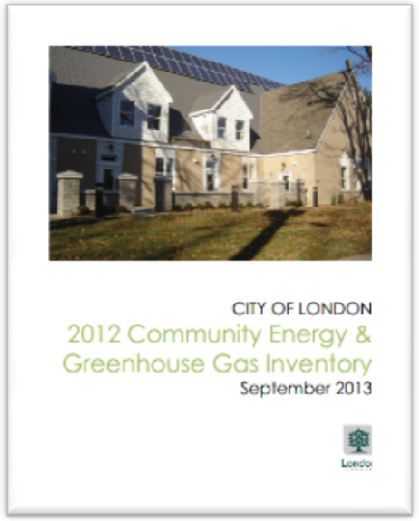


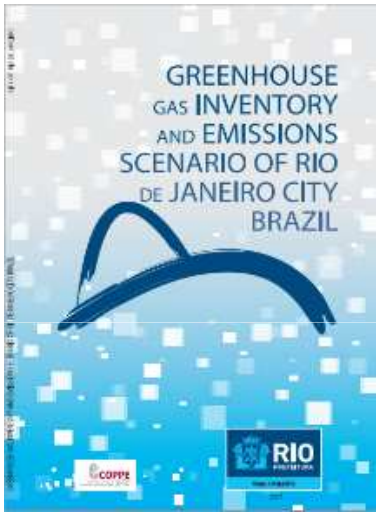
- Cities are increasingly developing inventories in-house
- A better understanding of the data and results will help to develop more effective actions
- Ensure consistency and transparency in data sources and methodologies
- Over time the cost of data collection and processing should decline

The city team is always at the heart of inventory development

INVENTORY PRINCIPLES AND THE GPC







Annually

Biennially

Every 4 years

GPC recommends to update annually

Good practices : Data Collection

Work closely with data providers

- **Engage early** and establish a working group
- Be clear about the **intended use** of the data when requesting
- Identify **co-benefits** for data suppliers
- **Present results and impacts** of collective efforts and give credit
- **Understand** the data provided and how they are compiled

- Establish **contracts or agreements** for regular data supply
- **Confidential agreement** if needed
- Develop **templates for data** and agree on process and frequency
- Offering an initial estimate and **inviting collaboration** to improve estimates
- **Scientific or statistical workshops** on the inventory inputs and outputs

Good practices : Data Gaps

Make the most of limited data

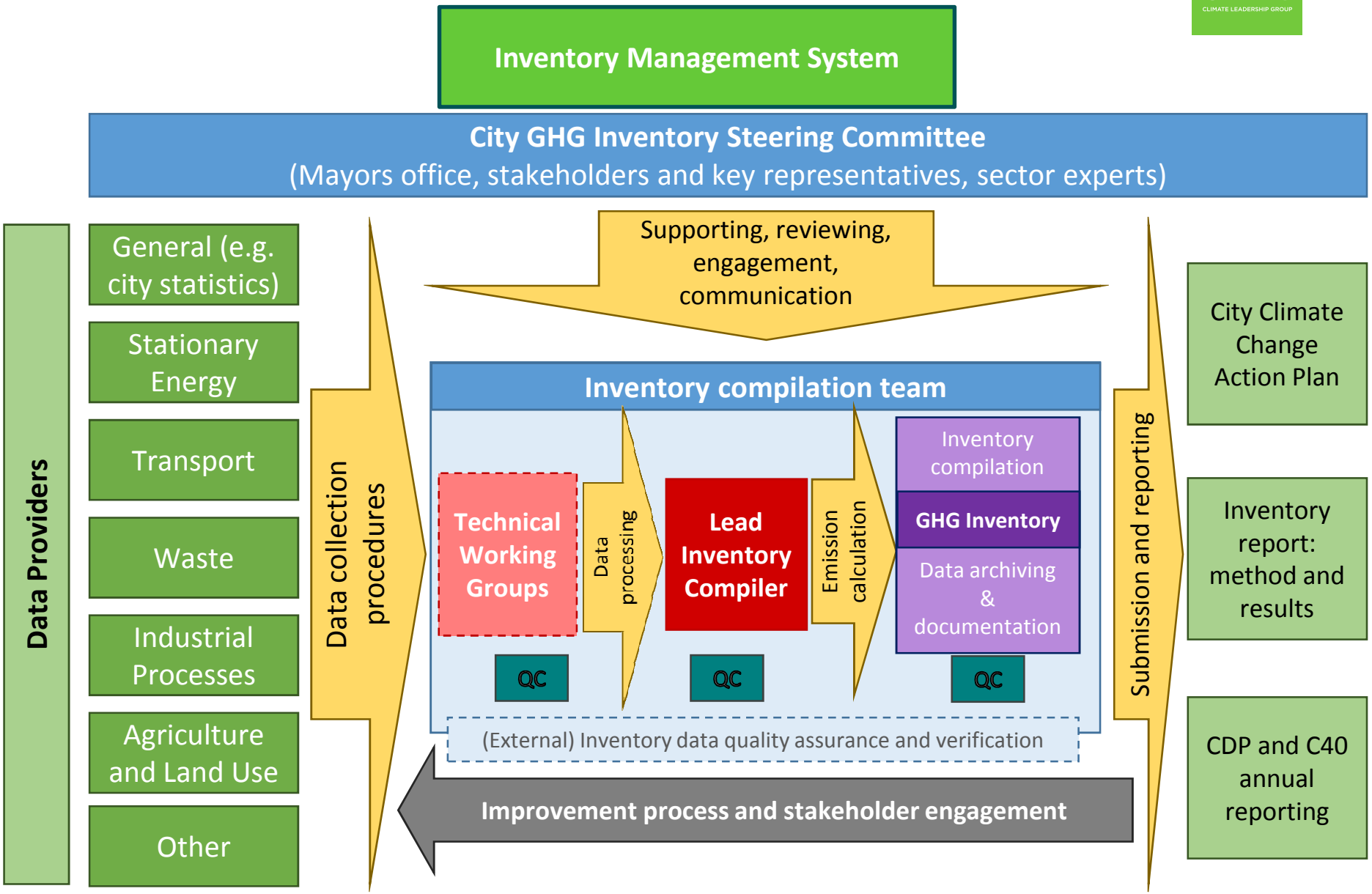
Trade-offs between completeness and accuracy

Use **gap filling** techniques and default/proxy data

Prioritise resources for key categories

Understand and **document** the issue and aim to **improve overtime**

Good practices : Inventory Management



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