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Compatibility Framework and Operationalization

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Summary

The report builds on the findings presented in D1.1. The report outlines our current progress on the compatibility framework for the CCC process, illustrating knowledge to date on how the CCC can complement or be integrated into existing climate initiatives and platforms, including documentation of the selection criteria/ process. This deliverable is connected to T1.1 and T 1.5 in the NZC Grant Agreement. --- Please note that due to overlapping deliverables this is a first attempt at synthesizing how the CCC sits within the wider landscape of EU climate and related initiatives, building on D 1.1 . We might want to explore these in more depth in future outside the deliverables timescales.

Approval

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Compatibility Framework and Operationalization

Deliverable D1.2

Version N°1

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Disclaimer

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Abbreviations and acronyms

Acronym	Description
WP	Work Package
CCC	Climate City Contract
GCA	Green City Accord
ICC	Intelligent Cities Challenge
LGD	Local Green Deal
GHG	Greenhouse Gas
NZC	NetZeroCities

Summary

The report builds on the findings presented in D1.1. The report outlines our current progress on the compatibility framework for the Climate City Contract (CCC) process, illustrating knowledge to date on how the CCC – particularly the Climate Neutrality Action Plan - can complement or be integrated into existing climate initiatives and emissions reporting platforms, including documentation of the selection criteria/ process. This deliverable is connected to T1.1 and T1.5 in the NZC Grant Agreement.

Keywords

Climate City Contracts, Deals, Inventory, Monitoring

Introduction

The Climate City Contract (CCC) is the cornerstone of the European Mission “100 Climate-Neutral and Smart Cities by 2030”, helping shape the Mission Cities’ pathway to climate neutrality by 2030, and engaging actors locally and (where appropriate) through a multi-level governance process. However, most cities are not starting the process with a blank slate and will need to incorporate existing plans, processes, and commitments into their CCC where appropriate. There are also wider considerations for NetZeroCities related to monitoring, reporting, and evaluating CCCs, and how the CCC links to the European Commission’s Mission Label verification programme (currently in development).

This Deliverable starts to explore where Mission Cities are in relation to the parameters set forth in the European Commission’s Info Kit for Cities with regard to their GHG emissions inventory and a common Baseline, how and through which initiatives cities’ local plans, processes, and commitments can be integrated to minimize redundant work (particularly exploring the relationship between the CCC and Local Green Deals), and what operational considerations need to be made between emissions reporting platforms. This work is evolving with new information as the Cities Mission gains momentum and interest, and, more specifically, as the Mission Label programme develops.

1 Methodology

A practical methodology to start assessing where the CCC stands with regards to other related programmes was developed and implemented, including:

- An initial set of relevant climate initiatives at EU level were identified based on NZC D1.1, wider team expertise and desk research
- A set of criteria was developed to review the initiatives in more detail
- The comparison was split in two thematic areas:
 - Governance instruments (i.e. the equivalent “deals” and pacts), such as Local Green Deals, the Green City Accord, and the Climate Pact,
 - Reporting platforms, such as the Covenant of Mayors, CDP- ICLEI reporting track

2 Comparison and compatibility with other European Governance Instruments

2.1 Green City Accord

Both the Green City Accord (GCA) and the Cities Mission challenge cities to take bold and ambitious action to achieve specific objectives before 2030. Aligning the environmental targets of the GCA and the climate-neutral goal of the Cities Mission can enable cities to realise co-benefits and synergies of their strategies and actions, allowing for deeper, more comprehensive actions than would be possible within the constructs of only either the Mission or the GCA.

Additionally, both the GCA and Cities Mission have reporting requirements, and opportunities could be explored to centralise this reporting, which could create beneficial synergies for all involved. Integrating the reporting requirements into one dashboard could be explored so that cities can visualize how their environmental policies and actions support their climate-neutral goal and vice versa. This collaboration and integration could encourage more cities to sign the GCA, and, in return, offer the Cities Mission an opportunity to meet their ‘innovation’ goal within the environmental sector and will capture to the co-benefits of becoming climate neutral.

2.2 Intelligent Cities Challenge – Local Green Deals

The Intelligent Cities Challenge (ICC)¹ is part of a wider EU support system that recognises the importance of delivering on the promises made by the European Green Deal, the digital strategy, and other related EU policies. It looks to move towards a more digital, service-oriented and low-carbon economy, supported by a knowledge-based society, that enables circular economy systems through 'local value loops', evidence-based reskilling, and sustainable investments.

Initiated by EISMEA and DG-GROW, the ICC has introduced the concept of a "Local Green Deal" through their initiative, articulated in the "[Local Green Deals – A Blueprint for Action](#)" publication. Local Green Deals aim for an agreement between the local government and its urban society - specifically key stakeholders including local economic actors, such as SMEs and civil society organisations – to collectively meet the goals of the European Green Deal (i.e., climate-neutrality by 2050). The Local Deals are tailored to each contexts' specificities, building on the commitment of local actors, place inclusivity, accountability and transparency at their core, and cover a range of sustainability areas. Local Green Deals are currently being pioneered in Mannheim (Germany).

A key innovation of both the CCC and the Local Green Deals is to articulate a mutual concrete agreement between the local government and its stakeholders. The aim is to strengthen commitment to action to agreed-upon shared societal responsibilities and to create clearer accountability for each stakeholder's contribution to sustainable development. Therefore, Local Green Deals also should include support from the regional / national and EU levels to address legal and funding barriers, and provide adapted technical, political, and financial support.

Local Green Deals vs Climate City Contracts
<ul style="list-style-type: none"> Both people centered-participatory processes
<ul style="list-style-type: none"> Both operate at multi-level governance level and focus on cross-sector collaboration
<ul style="list-style-type: none"> Both are not meant to replace existing processes but to accelerate and expand these
<ul style="list-style-type: none"> LDGs focus on broader sustainability and the themes of the European Green Deal. The CCC focuses on 2030 climate neutrality for the entire city through a Mission Approach.

Please refer to comparative table in Annex 1 for a more detailed comparison of LGDs and CCCs.

¹ <https://www.intelligentcitieschallenge.eu/>
<https://www.intelligentcitieschallenge.eu/sites/default/files/2021-06/Local%20Green%20Deals-8.pdf>

3 Comparison and compatibility with established Green House Gas (GHG) methodologies and reporting mechanisms

To better understand how the Cities Mission requirements for GHG/carbon accounting (as articulated in the “Info Kit for Cities”) compares to other existing platforms, the CCC was compared to the requirements and/or recommendations from the Covenant of Mayors² Sustainable Energy and Climate Action Plan (SECAP) approach and CDP-ICLEI³ track.

The analytical Greenhouse Gas (GHG) inventory practices (i.e. Covenant of Mayors Europe or Sustainable Energy and Climate Action Plan (SECAP) approach and CDP-ICLEI Track approach) have conceptual correspondence to the Greenhouse Gas emissions requirements of the European Mission “100 Climate-Neutral and Smart Cities by 2030”. Mission Cities currently using one or both of the above-mentioned platforms demonstrate the level of the Greenhouse Gas emissions accounting and target-setting practice experience. Thus, using these two current GHG emissions accounting practices for the purpose of baselining would be recommended.

However, individual city-based methodological adaptation actions at the local level will be necessary to ensure that all GHG in terms of carbon dioxide equivalent (CO_{2e}) are included in a city’s Greenhouse Gas inventory to meet the requirements of the Mission, and all sources and sectors of Greenhouse Gas emissions are accounted for (please see comparative analysis results of using criteria 1-1, 1-2, 1-3, 1-4 and 1-5).

As the Cities Mission doesn’t impose strict requirements on the Greenhouse Gas inventory practices interoperability (please see comparative analysis results of using criteria 2-1, 2-2, 2-3, 2-4 and 2-5) and user-friendliness (please see comparative analysis results of using criteria 3-1, 3-2, 3-3, 3-4 and 3-5), these characteristics should be considered and adopted in line with the design, functionality and operability of the upcoming NetZeroCities platform.

Please refer to the comparative table in Annex 2 for a detailed comparison of the Cities Mission requirements against the Covenant of Mayors Europe (SECAP) and the CDP-ICLEI Track.

3.1 Common GHG Inventory Baseline for the Cities Mission

Another important compatibility and operationalization measure to consider is a common GHG baseline for Mission Cities. To assess the progress made by Mission Cities on their path to climate neutrality, analyse achievements, and enable learning, it is important to monitor and evaluate performance. To measure the progress towards climate neutrality by 2030, cities need a starting point – a baseline for indicating an initial state of Greenhouse Gas (GHG) emissions, how far the city has come and how much longer it will take to become Climate-Neutral and Smart.

To support Mission Cities in developing a baseline for indicating an initial state of climate action and measure the progress towards climate neutrality by 2030, it is important to explore and understand the cities’ current GHG emissions accounting practices. For this purpose, practice-based research uses the information gained through the European Commission’s Call for Expressions of Interest addressed to cities to join European Mission on Climate-Neutral and Smart Cities by 2030. An analysis of Mission Cities’ Expression of Interest (Eol) data revealed the following findings:

² <https://www.covenantofmayors.eu/support/reporting.html>

³ <https://www.cdp.net/en/guidance>

Out of 112 selected Mission Cities, 108 (96.4%) have developed an inventory of GHG emissions since 2003 (included), 3 cities (2.7%) do not have an inventory of GHG emissions, and 1 city (0.9%) is currently preparing its GHG inventory.

The standards/ methodologies applied for compiling the GHG inventory also differ between the different European cities that have been selected as the EU Mission Cities. Thirty-three of 108 EU Mission Cities (30.6%) that have developed an inventory of GHG emissions since 2003 use the Covenant of Mayors Europe (Com Europe) methodology for compiling the GHG inventory. Eighteen (16.7%) use the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories for compiling the GHG inventory. Fifteen (13.9%) use the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. Thirteen (12%) use regional or country specific methodology for compiling the GHG inventory. Twelve (11.1%) cities use a city-specific methodology for compiling the GHG inventory. Four (3.7%) use the Global Covenant of Mayors (GCoM) Common Reporting Framework. Thirteen (12.0%) cities use “other standard or methodology” for compiling the GHG inventory. This points to a **huge diversity of methods and subsequent reporting frameworks amongst Mission Cities, and a lack of compliance to date with monitoring requirements as set out in the “Info Kit for Cities”**.

A majority (35.2%) of the Mission Cities that have developed a GHG inventory cover three GHGs (i.e. carbon-dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O)). GHG emissions inventory created by 32.4% of the cities covers only carbon-dioxide (CO₂) emissions. **Only 13% of the EU Missions Cities have developed an inventory that covers all seven GHGs requested by the Mission** (carbon-dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃)). This indicates that using a common GHG Baseline amongst Mission Cities will be challenging and may delay their progress with the Mission. Discussions with the JRC and the EC are ongoing to resolve this discrepancy.

4 Compatibility operationalisation - Case Study: Mannheim, Germany

A few cities in Europe are starting to experiment with Local Green Deals and have asked how that process compares to the CCC process. An example from the City of Mannheim in Germany shows that compatibility is achievable and that this has the potential to create a positive and inspiring journey to 2030. The city successfully applied as a Mission City and included their “Local Green Deal Approach” in their Expression of Interest. As a major industrial city, Mannheim places a special emphasis on projects that transform both industry and energy production as part of a socially just transformation. The Local Green Deal approach allows the widening of the scope. It not only looks at the Climate Action Plan, but brings together all currently ongoing planning for a green, clean and sustainable city and, through this, strives for targeted partnerships to succeed in the entire city society.

“The ambition of a climate-neutral city can only be achieved together, in the spirit of the Local Green Deal.” Lord Mayor Kurz

Initiation, activation and bundling of concrete agreements for a sustainable, just and liveable city inform the spirit behind this goal

The Mannheim SECAP 2030 was updated to support the application building on the local Green Deal and Mission Requirements. Cross-sectoral activities linking to governance, engagement, create based on deals build strong partnerships with businesses and citizens. Applying the Local Green Deal, the City of Mannheim has been able to overcome the fragmentation of strategies and plans creating an integrative approach.



Figure 1: Integrating activities in Mannheim for a better outcome (credit: Agnes Schönfelder, City of Mannheim)



Figure 2: Integrating initiatives into a process (Credit: Agnes Schönfelder)

This approach is an example of a city successfully building upon pre-existing initiatives and experiences. Mannheim designed an integrated approach integrating the SECAP, Local Green Deal, and CCC approach. On a more granular level, the SECAP Action Fields link enabling and reduction measures are combined. For example, in order to achieve the refurbishment rate of 4% in the building stock and the climate-neutral new construction, Mannheim takes action in up-skilling and increasing circularity in the construction industry.

A lesson from this case study is that integrating the reporting and monitoring requirements for the CCC into one dashboard could be explored to allow cities to see how their environmental actions support their climate-neutral goals and vice versa.





5 Conclusions

Results of the comparative analysis highlights the main comparative characteristics of existing climate initiatives that support the implementation of the CCC. Besides the Greenhouse Gas inventory practices available to guide a city's accounting of Greenhouse Gas emissions and demonstrate climate neutrality we looked at similar initiatives using deals.

From the example from the city of Mannheim we conclude that there is potential for cities to successfully integrate a number of initiatives and reporting mechanisms. This is, however, a time-consuming exercise that relies on the presence of dedicated staff with access to the time and resources to do this work. Streamlining EU and other initiatives of similar nature or provide easily accessible communication materials that detail the links between initiatives would likely enable a larger number of cities to benefit from such synergies.




6 Annex 1 – Detailed Comparative Analysis: Governance Instruments

6.1 Table 1. Comparative Analysis Framework - Governance Instruments / Deals

Analysis criteria	European Mission's "100 Climate-Neutral and Smart Cities by 2030"	Local Green Deal	Green City Accord	Climate Pact	
					
Group I – Commitment target					
	<p>The Cities Mission 2030 Climate Neutrality Commitment (the 'Core Contract') captures the outcomes of the co-creation process with local, regional, and national stakeholders to establish new ways of working together to expedite climate neutrality. It includes a shared 2030 ambition as well as the specific commitment(s) to action from stakeholders in the contract, including a political commitment.</p>	<p>Aims at accelerating the transformation towards sustainability by applying new integrated governance and management structures, an approach in which partnerships deliver concrete actions concluding in collaboration agreements, ensuring alignment across strategies and multi-level stakeholder approaches.</p>	<p>The Green City Accord is a movement of European mayors committed to safeguarding the natural environment.</p>	<p>European Climate Pact is an inclusive movement of people united around a common cause, each taking steps in their own worlds to build a more sustainable Europe.</p>	
2030 target	✓	LDGs focus on broader sustainability goals	✓		2050

People-centred processes	✓	By and for citizens	✓	Allows unique tailored approach for involving citizens. Citizens' opinion is fundamental to making the LGD process democratic and capable of sustaining, adjusting and innovating itself based on citizens' needs.	indirect	Primarily political	✓	Citizens and activists pledge to take action and shape a climate friendly society – ranging from small sustainable choices or big, bold projects
Signed commitment	✓	Articulate a mutual agreement between the local government and its stakeholders	✓	Articulate a mutual agreement between the local government and its stakeholders	✓	Political level signatories, the mayor or equivalent after municipal council agreement	✓	Information about the pledge, including a description, key targets, timelines and, if appropriate, a roadmap The duration pledge and frequency of progress updates can be shared online.
Multi-level governance	✓	With the commitment of local, regional, and national stakeholders to establish new ways of working together to achieve climate neutrality faster	✓	Encouraged across the different governance levels	-	City-centered	n/a	
Breaking Silos	✓		✓	Sustainable development across the municipality requires an integrated approach	n/a	Sector and topical focus		





6.2 Table 2. Comparative Analysis Framework – Action Plan Reporting

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030”		Local Green Deal		Green City Accord	
						
Group II – Action Plan Reporting						
	<p>The Cities Mission 2030 Climate Neutrality Action Plan identifies the strengths, insights and gaps of existing strategies, policies and plans, to progressively create, over successive iterations, a co-ordinated and measurable portfolio of interventions across multiple levels of change, to achieve the 2030 ambition.</p>		<p>At the core the LGD asks for creating cooperation and building on existing initiatives: Identifying existing sustainability policies and targets (for example, climate action plan, sustainability strategy, SECAP, etc.), sectoral policies (for example, mobility plan, air quality plan, urban development plan, construction plan, local industrial strategy, social inclusion strategy, etc.) and your administrative policies (for example, procurement strategy, finance policy etc.). Identifying interfaces, gaps, potential trade-offs and synergies is therein key.</p>		<p>Cities are allowed to use existing data and other reporting requirements that they are already engaged in. Cities reporting regularly on air pollution, in the framework of the Ambient Air Quality Directives, could re-use such information or data to fulfil these reporting requirements. The GCA offers the Mission an opportunity for meeting their ‘innovation’ goal within the environmental sector and will capture to the co-benefits of becoming climate neutral.</p>	
Mandatory indicators	Under development	<p>Systemic change levers: Governance innovation Social innovation Finance and funding Learning and capacity</p> <p>Emission domains: Energy system Circular Economy Nature-based solutions Green Industry Stationary environment</p>	n/a	<p>Scaling-up existing policies, regulations, targets and define action fields. E.g.: Public lighting, Stationary energy, Transport & Mobility, Waste, other areas (biodiversity, sustainable economy, healthy food)</p>	Air	<p>PM2.5 concentration levels [highest annual mean observed at (sub) urban background stations] PM10 daily concentration levels [highest number of days exceeding the WHO recommendation of 45 µg/m³ per year, at any (sub) urban background stations] NO2 concentration levels (highest annual mean observed at traffic stations)</p>
		Water			<p>Household water consumption (litres/capita/day)</p>	

					<ul style="list-style-type: none"> – Infrastructure Leakage Index (ILI) Percentage of urban wastewater meeting the requirements of the UWWTD (regarding collection and secondary treatment)
					<p>Nature & Biodiversity</p> <ul style="list-style-type: none"> Household water Percentage of protected natural areas, restored and naturalised areas on public land in municipality Percentage of tree canopy cover within the city Change in number of species of birds in urban area/built-up areas in the city
					<p>Waste</p> <ul style="list-style-type: none"> Municipal waste generated per capita (tons) Recycling rate of municipal waste (%) Percentage of municipal waste landfilled
					<p>Noise</p> <ul style="list-style-type: none"> Percentage of the population exposed to average day-evening-night noise levels (Lden) ≥ 55 dB Percentage of the population exposed to night-time noise (Lnight) ≥ 50 dB Percentage of (adult) population with High Sleep Disturbance
Iteration	✓	12-24 month XX		XX	✓ After set-up renewal all 3 years
Visualisation	Create APIs and allow integrating the reporting requirements of all initiatives into one dashboard could be explored to allow cities to see how their environmental actions support their climate-neutral goals and vice versa.		collaboration and integration		This collaboration and integration could encourage more cities to sign the Accord, and in return offer the Mission an opportunity for meeting their ‘innovation’ goal within the environmental sector and will capture to the co-benefits of becoming climate neutral.

None are meant to replace existing processes but the CCC aims to accelerate and expand these too.

6.3 Table 3. Comparative Analysis Framework – Investment Plan

	European Mission’s “100 Climate-Neutral and Smart Cities by 2030”	Local Green Deal	Green City Accord	Climate Pact
Analysis criteria				
Group III – Investment Plan				
	The 2030 Climate Neutrality Investment Plan identifies the potential costs and associated investments required to reach climate neutrality and strategically mobilises and organises public and private resources in order to orient public, private and civic capital at scale for funding and financing cities’ pathways to climate neutrality	Help identify new funding sources or decrease funding costs for city investment priorities	n/a	n/a
Target	Undefined	Undefined		

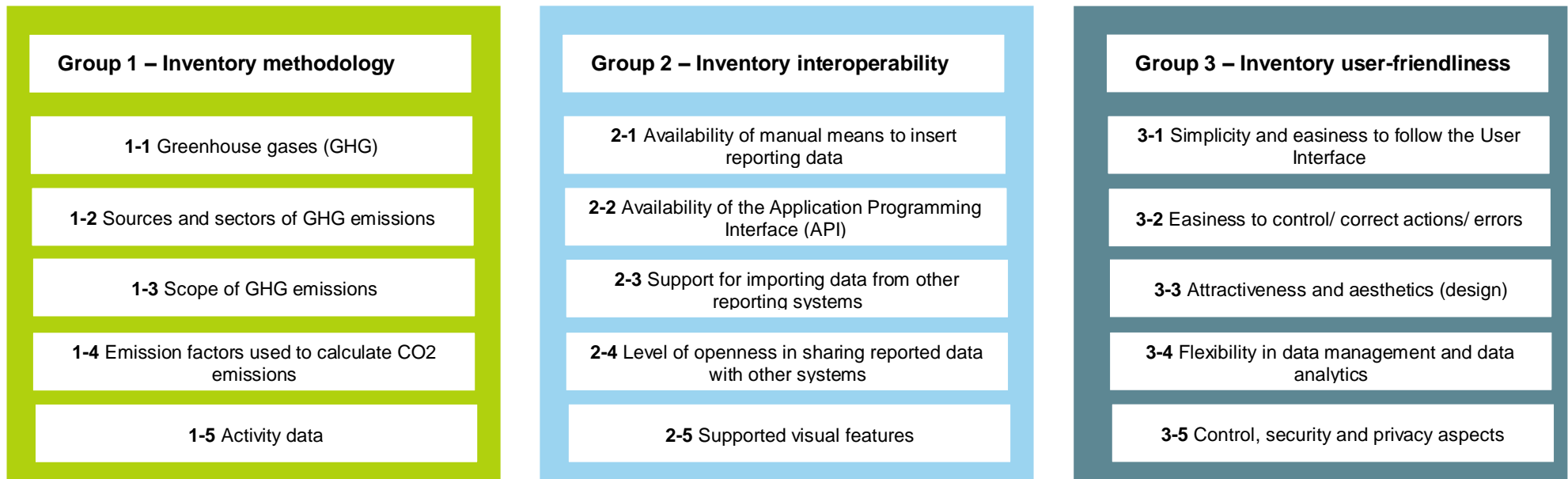
<p>Funding and finance Partnerships</p>	<p>✓</p>	<p>mix of financial mechanisms No information which costs/expenditure will be covered</p>	<p>✓</p>	<p>Cities will need to use a mix of financial mechanisms to cover capital investment, maintenance and operational expenditure. A combination of direct economic incentives (for example, in the form of grants and loans), fiscal measures (for example, tax or subsidies) and co-investment structures (for example, through public-private partnerships) will be required to ensure transformation</p>	<p>n/a</p>
<p>Procurement</p>	<p>✓</p>		<p>✓</p>	<p>Cities public procurement, and investment budgets play a key role in driving demand for sustainable products and services, and impact decisions on infrastructure for energy, transport, and water.</p>	<p>n/a</p>

7 Annex 2 - Climate Action Operationalisation Compatibility




This compatibility analysis compares existing Greenhouse Gas (GHG) inventory practices available to guide a city’s accounting of Greenhouse Gas emissions and demonstrate climate neutrality to discover how they meet requirements of the European Mission “100 Climate-Neutral and Smart Cities by 2030” predefined in the Info Kit for Cities.




Theoretical Framework for Baseline Development




7.1 Comparative Analysis Criteria









7.2 Comparative Analysis Framework – Group 1: Inventory Methodology




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach			
						
Group 1 – Inventory methodology						
1-1 Greenhouse gases (GHG)	Six GHGs should be included in terms of carbon dioxide equivalent (CO ₂ e).	Three main long-lived GHGs might be considered in the Covenant: CO ₂ , CH ₄ and N ₂ O. Inclusion of CH ₄ and N ₂ O depends on whether to reduce also these GHGs are planned in the SECAP, and also on the approach chosen (activity-based or life cycle assessment).	(Question 2.1b) Select the GHGs included in your inventory (select all that apply). The list consists of the main gases as defined by the United Nations Framework Convention on Climate Change.			
	Carbon Dioxide (CO ₂)	✓	Carbon Dioxide (CO ₂)	✓	Carbon Dioxide (CO ₂)	✓ *Select option
	Methane (CH ₄)	✓	Methane (CH ₄)	✓	Methane (CH ₄)	✓ *Select option
	Nitrous Oxide (N ₂ O)	✓	Nitrous Oxide (N ₂ O)	✓	Nitrous Oxide (N ₂ O)	✓ *Select option
	F-gases (hydrofluorocarbons and perfluorocarbons)	✓	F-gases (hydrofluorocarbons and perfluorocarbons)	Not requested	F-gases (hydrofluorocarbons and perfluorocarbons)	✓ *Select option
	Sulphur hexafluoride (SF ₆)	✓	Sulphur hexafluoride (SF ₆)	Not requested	Sulphur hexafluoride (SF ₆)	✓ *Select option
	Nitrogen trifluoride (NF ₃)	✓	Nitrogen trifluoride (NF ₃)	Not requested	Nitrogen trifluoride (NF ₃)	✓ *Select option




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
1-2 Sources and sectors of GHG emissions	Five sources and sectors of GHG emissions should be included in a city’s GHG inventory:		In the context of the Covenant of Mayors initiative, four Covenant key sectors have been defined . They are considered the main sectors where local authorities can influence energy consumption and consequently reduce related CO ₂ emissions.		Cities are asked to provide a breakdown of their emissions by sector depending on the reporting format , e.g. Global Protocol for Community Greenhouse Gas Emissions Inventories, GCoM Common Reporting Framework, etc.	
	Buildings	✓	Municipal buildings, equipment / facilities	✓	Stationary Energy	✓ *Select option
	–	–	Tertiary (non-municipal) buildings, equipment / facilities	✓	–	–
	–	–	Residential buildings	✓	–	–
	Transport	✓	Transport	✓	Transportation	✓ *Select option
	Waste	✓	–	–	Waste	✓ *Select option
	Industrial processes and Product Use (IPPU)	✓	–	–	Industrial processes and Product Use (IPPU)	✓ *Select option
	Agriculture, Forestry, and Other Land Use (AFOLU)	✓	–	–	Agriculture, Forestry, and Other Land Use (AFOLU)	✓ *Select option




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements			Covenant of Mayors Europe approach			CDP-ICLEI Track approach		
									
Group I – Inventory methodology									
1-3 Scope of GHG emissions	The scope of the GHG emissions which should be included in a GHG inventory for the entire city.			Local authorities focus on reducing the energy demand in their territory as well as on matching demand with supply by promoting local energy resources.			Cities are asked to provide a breakdown of their emissions by scope depending on the reporting format.		
	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3
	Buildings			Municipal buildings, equipment / facilities			Stationary Energy		
	✓	✓	Not applicable	✓	✓	–	✓	✓	✓
	–			Tertiary (non-municipal) buildings, equipment / facilities			–		
	–			✓	✓	–	–		
	–			Residential buildings			–		
	–			✓	✓	–	–		
	Transport			Transport			Transport		
	✓	✓	Recommended by 2030	✓	✓	–	✓	✓	✓
	Waste			–			Waste		
	✓	N/A	✓	–			✓	✓	✓
	Industrial processes and Product Use (IPPU)			–			Industrial processes and Product Use (IPPU)		
	✓	N/A	N/A	–			✓	✓	✓
Agriculture, Forestry, and Other Land Use (AFOLU)			–			Agriculture, Forestry, and Other Land Use (AFOLU)			
✓	N/A	N/A	–			✓	✓	✓	




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
1-4 Emission factors used to calculate CO ₂ emissions	Emissions from electricity consumption within the city boundary are calculated using so-called emission factors.		Three approaches can be adopted.		Cities are requested to evaluate and report the quality of the emission factors used for each applicable sector and scope, i.e. (High, Medium, Low). * if the inventory has been developed using the Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)	
	Local, regional, national or European emission factor	✓	National/ sub-national	✓	Local, regional, or country specific sources	✓
	Intergovernmental Panel on Climate Change (IPCC) default factors	✓	Intergovernmental Panel on Climate Change (IPCC)	✓	Intergovernmental Panel on Climate Change (IPCC) default factors	✓
	–		Life Cycle Assessment (LCA) – emission factors for the overall life cycle of each energy carrier	✓	–	
	–		–		Data from the Emission Factor Database (EFDB)17	✓
	–		–		Other standard values from international bodies that reflect national circumstances	✓

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
1-5 Activity data	Buildings	<ul style="list-style-type: none"> • Combustion of fossil fuels associated with heating/cooling buildings. • Consumption of grid-supplied electricity and/or district heating/cooling. 	Municipal buildings, equipment / facilities	Final energy consumption: <ul style="list-style-type: none"> • Electricity. • District heating and cooling. • Fossil fuels (natural gas, liquid gas, heating oil, diesel, gasoline, lignite, coal, other fossil fuels). • Renewable energies (biogas, plant oil, biofuel, other biomass, solar thermal, geothermal). 	Stationary Energy	<ul style="list-style-type: none"> • Energy use. • The use of grid-supplied electricity, heat, steam and/or cooling.
	–	–	Tertiary (non-municipal) buildings, equipment / facilities		–	–
	–	–	Residential buildings		–	–
	Transport	<p>Combustion of traditional fossil fuels in transport activities.</p> <p>Consumption of electricity delivered via the grid (e.g., electricity generation to</p>	Transport	<p>Final energy consumption:</p> <p>Electricity. District heating and cooling, i.e., (*) the use of grid supply electricity)</p>	Transportation	<p>Mode share: Passenger mode share.</p> <p>Freight mode share.</p> <p>Passenger and Freight mode share:</p>




Analysis criteria	European Mission's "100 Climate-Neutral and Smart Cities by 2030" requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
		<p>charge electric vehicles).</p> <p>Production process of alternative clean fuels (e.g., hydrogen).</p>		<p>Fossil fuels (natural gas, liquid gas, heating oil, diesel, gasoline, lignite, coal, other fossil fuels).</p> <p>Renewable energies (biogas, plant oil, biofuel, other biomass, solar thermal, geothermal).</p>		<p>Annual emissions from transport mode (metric tonnes CO2e).</p> <p>Total fleet size per mode.</p> <p>Electric fleet size per mode.</p> <p>Hybrid electric vehicle fleet size per mode.</p> <p>Plug in hybrid electric vehicle fleet size per mode.</p> <p>Hydrogen fleet size per mode.</p>
	Waste	<p>(I) Generation of waste</p> <p>(II) Collection, recovery, disposal and treatment of waste and wastewater:</p>	–	–	Waste	<p>Waste-related data area</p> <p>Amount of solid waste generated (tonnes/year).</p> <p>Percentage of the solid waste</p>




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach	
				
Group I – Inventory methodology				
		<p>On-site energy use within the waste and wastewater facilities (e.g., electricity used for pumping, natural gas for heating, etc.).</p> <p>Energy used for transporting waste to and from the facilities (e.g., diesel used in waste collection vehicles) as well as off-road vehicles operating within the facilities.</p> <p>The decay of solid waste and anaerobic degradation of wastewater in the facilities.</p> <p>Other sub-sectors of waste management:</p> <p>Biological treatment of waste, including composting and</p>		<p>generated that is diverted away from landfill and incineration (%). Percentage of the diverted solid waste generated that is recycled (%).</p> <p>Percentage of the diverted solid waste generated that is utilized for waste to energy (%).</p> <p>Percentage of the diverted solid waste generated that is reused (%). Percentage of waste collected where separation at source is taking place (%).</p> <p>Total annual amount of food waste produced in</p>




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
		<p>anaerobic digestion of organic waste.</p> <p>Waste burning in controlled, industrial process (incineration) as well as open burning.</p> <p>Wastewater discharge into an open body of water or its treatment (either aerobic or anaerobic).</p>				<p>the jurisdiction (tonnes/year).</p> <p>Volume of wastewater produced within the jurisdiction boundary (megalitres/year).</p> <p>Percentage of wastewater safely treated to at least secondary level (%).</p>
	<p>Industrial processes and Product Use (IPPU)</p>	<p>Industrial activities and processes that chemically or physically transform materials, including mineral industry, chemical industry, and metal industry.</p> <p>Greenhouse gas emissions used or contained in products such as refrigerators, foams or aerosol cans.</p>	–	–	<p>Industrial processes and Product Use (IPPU)</p>	<p>Industrial processes (metric tonnes CO2e).</p> <p>Product use (metric tonnes CO2e).</p>

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements		Covenant of Mayors Europe approach		CDP-ICLEI Track approach	
						
Group I – Inventory methodology						
	<p>Agriculture, Forestry, and Other Land Use (AFOLU)</p>	<p>Urban land use efficiency. Spatial planning and urban land use change.</p> <p>Urban green and blue infrastructure. Enlargement or enhancement of natural sinks.</p>	–	–	<p>Agriculture, Forestry, and Other Land Use (AFOLU)</p>	<p>Livestock (metric tonnes CO2e).</p> <p>Land use (metric tonnes CO2e).</p> <p>Other AFOLU (metric tonnes CO2e).</p>

7.3 Comparative Analysis Framework – Group 2: Inventory Interoperability

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group II – Inventory interoperability			
<p>2-1 Availability of manual means to insert reporting data</p>	<p>The Mission doesn’t impose strict procedural and other requirements on the GHG inventory guiding principles. It highlights, that with the relatively short-term nature of the Mission and the associated need for immediate and urgent climate action, cities should not delay their action planning processes on account of overly-detailed GHG inventory processes.</p>	<p>The following Covenant of Mayors for Climate and Energy Reporting Platform supporting guidance documentation is available for the cities:</p> <ul style="list-style-type: none"> • Reporting Guidelines. • Sustainable Energy and Climate Action Plan (SECAP) template – a simplified Excel version of the reporting and monitoring framework. • The short Video tutorials: (1) My Strategy, (2) Emission inventory, (3) Risk and vulnerability assessment, (4) Actions. <p>Guidance materials developed by the COM and the JRC to assist signatories design and implement their strategies and action plans.</p> <ul style="list-style-type: none"> • Guidebook “How to develop a Sustainable Energy and Climate Action Plan (SECAP)”, Part 1, Part 2 and Part 3. • Quick reference guides: “Joint Sustainable Energy & Climate Action Plan”, “Monitoring SECAP implementation” and “Grouped SECAP analysis”. • E-learning platform (available in My Covenant). • Urban Adaptation Support Tool (Urban-AST). • Webinars. 	<p>The following CDP-ICLEI Track supporting guidance documentation is available for the cities:</p> <ul style="list-style-type: none"> • Guide to the Reporting Platform. • Cities Reporting Guidance. • Cities Scoring Methodology. <p>The following additional resources are available for the city support:</p> <ul style="list-style-type: none"> • Cities Questionnaire. • Cities Questionnaire Changes Map. • Cities Framework Alignment Map. • Guidance Note on the Task Force on Climate-related Financial Disclosures Recommendations for City, State, and Regional Governments. • Questionnaire Pathway Map. • Questionnaire Pathways Guidance Note. • Webinars.




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group II – Inventory interoperability			
<p>2-2 Availability of the Application Programming Interface (*) to support automated importing and sharing of reporting data</p>	<p>The Mission highlights that measures to enable and foster digitalisation span three dimensions: technological, policy-driven and funding/ finance. It highlights, that as cities may have different needs, a technology governance framework is required that they can consult and adapt to local circumstances.</p>	<p>Currently there is no evidence about the API available from My Covenant platform. You can extract the data in the comma-separated values (CSV) files but there is no way if you want to build a bridge between the My Covenant platform and the Mission’s platform. Then we will need an API for that. So, it will not be the same that CDP-ICLEI is using with My Covenant or the open API that CDP-ICLEI has at the moment. If we need to integrate data from My Covenant to the Mission platform we will need to build an API.</p>	<p>In terms of API, what we have available right now is an API in CDP-ICLEI platform and it is the same API that is also communicated with My Covenant. It means that when you are reporting to the CDP-ICLEI platform you are also integrating these data in My Covenant platform. This API is open and everyone can use it. You can integrate it with any kind of system.</p>




Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
<p>2-3 Support for importing data from other reporting systems</p> <p>(*) which mechanisms (e.g. file/format, other), which systems</p>	<p>The Mission doesn’t impose strict requirements on the support for importing data from other reporting systems. It highlights that digitalisation can also improve organisational and administrative capacity, enhance operational performance, and help overcome challenges such as excessive bureaucratisation and silo approaches to policy development, which are detrimental to the adoption of integrated and cross-sectoral solutions critical to achieving climate neutrality.</p>	<p>Covenant of Mayors reporting platform has climate action planning document uploading function. Please see Step 3 “Upload action plan document(s)”.</p> <p>To upload documents in My Covenant, it is necessary to implement the following tasks:</p> <ul style="list-style-type: none"> • Go to My Strategy in the Reporting corner. • Click the My Action plan documents tab. • Scroll down to “Documents upload”. <p>All documents should be uploaded in a *PDF format, in the national language, unless an English translation is available.</p> <p>The uploading of at least one action plan document (e.g. mitigation action plan/ adaptation action plan/ integrated mitigation and adaptation action plan) is mandatory. The upload of additional documents is optional.</p>	<p>The following questions of the CDP-ICLEI Track Cities Questionnaire have response data import/ attachment function:</p> <p>Section</p> <ul style="list-style-type: none"> • Emissions Inventory • Community-wide Emissions Inventory Methodology <p>Question (2.1a)</p> <p>Provide an attachment (in spreadsheet format) or a direct link to your community-wide emissions inventory.</p> <p>Community-wide inventory attachment (spreadsheet) and/or link (with unrestricted access):</p> <ul style="list-style-type: none"> • If available it is preferred that the jurisdiction attaches a spreadsheet (i.e., excel) format of city’s emissions inventory. Macro-enabled spreadsheets that use spreadsheets that use the “.xism” format (e.g., CIRIS, earlier versions of the GPC reporting tool) should be saved as Excel workbooks “.xlsx” to be attached to the questionnaire. • Clearpath Users: if the jurisdiction is using the ClearPath tool, then the jurisdiction is asked to attach both extracts. • Clearpath, CIRIS, Snapshot, SCATTER and/or ClimateView Users: if the jurisdiction imports data from CIRIS, Clearpath, Snapshot, SCATTER and ClimateView to the jurisdiction

			<p>response the jurisdiction is still required to attach the inventory itself to this question.</p> <p>Question (2.1b)</p> <p>Provide the following information regarding your latest community-wide GHG emissions inventory. Table column 8 “Has the methodology and/ or boundary used for this inventory changed when compared to the previously reported inventory?”</p> <ul style="list-style-type: none"> • If the jurisdiction most recent emissions inventory that is being reported is based upon a different methodology and/ or boundary than previously reported inventory, the jurisdiction is asked to indicate it. • If the changes are significant enough then it is recommended that the emissions for previous years are retroactively recalculated to reflect the changes. • If this is the case, then the jurisdiction is asked to attach the updated historical emissions where available. The jurisdiction is asked to ensure the historical emissions inventory document(s) is attached in Excel format. <p>Section</p> <ul style="list-style-type: none"> • Community-wide Emissions Inventory Data <p>Question (2.1c)</p> <p>Provide a breakdown of your community-wide emissions by scope. If the inventory has been developed using the Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC) you will also be requested to provide a breakdown by sector.</p> <p>Requested content</p> <p>General</p> <ul style="list-style-type: none"> • If the jurisdiction uses the City Inventory Reporting and Information System (CIRIS) or ClimateOS (ClimateView) tools for managing and reporting emissions inventory data, the jurisdiction can import their response data for
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			<p>selected questions for selected questions for this question. Further guidance on how to import can be accessed in the Guidance for Importing Emissions Data into Questions 2.1c and 2.1d.</p> <p>Question (2.1d) Provide a breakdown of your community-wide emissions in the format of the Common Reporting Framework.</p> <p>Requested content General</p> <ul style="list-style-type: none"> • If the jurisdiction uses the City Inventory Reporting and Information System (CIRIS) or ClimateOS (ClimateView) tools for managing and reporting emissions inventory data, the jurisdiction can import their response data for selected questions for selected questions for this question. Further guidance on how to import can be accessed in the Guidance for Importing Emissions Data into Questions 2.1c and 2.1d. <p>Section</p> <ul style="list-style-type: none"> • Consumption-Based Emissions Inventory <p>Question (2.2) Does your jurisdiction have a consumption-based emissions inventory to measure emissions from consumption of goods and services? The jurisdiction is asked to provide an overview and attach jurisdiction’s consumption-based inventory, along with any supporting methods/ calculations.</p> <p>Section</p> <ul style="list-style-type: none"> • Government Operations Emissions <p>Question (2.3a)</p>
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			<p>Attach your government operations emissions inventory and report the following information regarding this inventory.</p> <p>Requested content</p> <p>Government operations emissions inventory attachment and/ or link (column 1)</p> <ul style="list-style-type: none"> • The jurisdiction is asked to use this field to attach their government operations emissions inventory. • If available it is preferred that the jurisdiction attach a spreadsheet (i.e., excel) format of their emissions inventory. Macro-enabled spreadsheets that use the “.xism” format should be saved as Excel workbooks “.xlsx” to be attached to the questionnaire. <p>Finally, it is important to mention that in addition to the data import/ attachment function some questions of the CDP-ICLEI Track Cities Questionnaire have file (i.e., climate action planning document) attachment function.</p>
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Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group II – Inventory interoperability			
<p>2-4 Level of openness in sharing reported data with other systems</p>	<p>The Mission doesn’t impose strict requirements on the level of openness in sharing reported data with other systems. It highlights that data platforms and the use of open standards and technical specifications to share data across sectors, will also be of importance for the (scaling-up of) digital transformation.</p>	<p>Over the course of 2019, the Covenant for Climate and Energy. Europe framework was aligned with the recommendations of the Global Covenant of Mayors for Climate and Energy (GCoM) Common Reporting Framework and GCoM DATA4CITIES initiative.</p>	<p>The CDP-ICLEI Cities Questionnaire is aligned with the reporting requirements of several frameworks and initiatives including:</p> <ul style="list-style-type: none"> • Global Covenant of Mayors Common Reporting Framework (CRF). • Race to Resilience. • Race to Zero. • Task Force on Climate-related Financial Disclosures (TCFD). • European Climate Pact. • Sustainable Development Goals. • ICLEI initiatives (Green Climate Cities Program, Eco Mobility/ Eco Logistics). • C40 Cities. <p>It will include the Mission in the future.</p>

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
Group II – Inventory interoperability			
<p>2-5 Supported visual features</p>	 <p>The Mission doesn’t impose strict requirements on climate action data visualisation. It highlights the following aspects/ benefits of data visualisation:</p> <ul style="list-style-type: none"> • That digital tools are a powerful instrument for citizen engagement, by presenting data and evidence in a compelling way, and for simulations and visualisations, which can help engage citizens in shaping their city. • Digital twins of a city are considered the next phase in smart city management, as they enable policy-makers to visualise and simulate the impact of their decisions in a test environment, while facilitating the participation of citizens in decisions around urban planning that impact their lives. • Digital technologies can assist with citizen engagement, for example by visualising data in a way which clearly communicates the impact of actions, or for participative planning and decision-making. 	 <p>Covenant of Mayors reporting platform offers users option to indicate the emission factors that they have used for their CO2 emissions calculation. Users can visualise default fuel emission factors in the table. The emission factors are displayed based on the emission factor approach and reporting unit previously selected. If users have used these default values, they can simply select them. Default emission factors for local emission inventories are regularly published by the Joint Research Centre.</p>	 <p>CDP Open Data Portal homepage has eight tiles each containing a key statistic based on the latest cities, states and regions data:</p> <ol style="list-style-type: none"> 1. Governance – datasets containing full responses to the annual questionnaire, lists of governmental organizations reporting through CDP-ICLEI Track, and datasets on the impact of COVID-19 on climate action and climate change. 2. Emissions – all datasets on emissions. 3. Opportunities – datasets on opportunities from addressing climate change, collaboration with businesses on sustainability, and projects seeking financing. 4. Water – datasets on water security risks and water resources management. 5. Climate Hazards – datasets on environmental and climate-related risks, climate risk and vulnerability assessments, and social and health-related impacts of climate risks. 6. Adaptation – datasets on adaptation plans and actions. 7. Mitigation – datasets on emissions reductions targets, plans, and actions. 8. Energy – datasets on energy mix and renewable energy targets.




			<p>Each tile represents a different category covering the main areas of CDP’s work with local governments.</p> <p>CDP Open Data Portal homepage has the data filtering and visualizations creating functions. Using the Filter function in the menu, users can filter data in any of the columns in the dataset by selecting the column users wish to filter and the blue tick box.</p> <p>Users can also create visualizations of the data by selecting Launch New Visualization under the Visualize function in the menu.</p> <p>If users are interested in creating visualizations, Socrata, the website provider for the CDP Open Data Portal, has many useful resources to support users.</p>
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7.4 Comparative Analysis Framework – Group 3: Inventory User-Friendliness

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group III – Inventory user-friendliness			
<p>3-1 Simplicity and easiness to follow the User Interface</p>	<p>The Mission doesn’t impose strict requirements on the quality attributes of the GHG inventory User Interface. It highlights that due to the distributed and heterogeneous nature of the information, creating a digital twin of a city is both technically and organisationally challenging, yet could be a powerful means to break administrative silos and address complex urban challenges. From the perspective of this comparative analysis criteria, climate action data reporting through My Covenant and CDP-ICLEI Track platform can support European cities in systematization of the climate information.</p>	<p>Cities are asked to respond to information requests using the Covenant of Mayors reporting platform – My Covenant. The platform consists of the Sustainable Energy and Climate Action Plan (SECAP) template.</p> <p>There are available Reporting Guidelines for the cities. This document provides step-by-step guidelines to signatories on how to report information in the various sections of the Covenant of Mayors reporting platform. It has been developed by the Covenant of Mayors Europe Office in collaboration with the Joint Research Centre of the European Commission to assist signatories in understanding the Covenant of Mayors reporting framework and successfully completing the reporting process. The guidelines are complemented with practical recommendations and useful resources.</p> <p>The reporting and monitoring process consist of five steps:</p> <ol style="list-style-type: none"> 1. Log in My Covenant – My Covenant is accessible from the European Covenant of Mayors website or via the private space of the European Covenant of Mayors Community https://mycovenant.eumayors.eu/site/landing. To log in, signatories need to use the email and 	<p>Cities are asked to respond to information requests using CDP-ICLEI Track. The platform consists of the Cities dashboard and the Online Response System:</p> <ol style="list-style-type: none"> 1. The dashboard – the dashboard is a portal containing information regarding the Cities questionnaire, the authorities are being requested to respond to, city’s user account page, the Guidance tool and other resources. 2. The Online Response System – the Online Response System is where the city inputs information into its questionnaire(s) and submit its response. <p>There is available guide to using CDP-ICLEI Track for the cities. It provides a comprehensive guide on how to use the reporting platform and explains all of its features. The guide contains sequential and detailed textual and visual information on the following elements and associated functions of the User Interface:</p> <ul style="list-style-type: none"> The basics – (1) Register, confirm and sign in; (2) Join additional projects and initiatives; (3) Choose your questionnaire pathway; (4) Note the deadline; (5) Your CDP-ICLEI Track Dashboard.




		<p>password which they received during registration stage.</p> <p>2. Complete My Strategy, My Inventories, My Actions – the section My Strategy, My Inventories, My Actions are the core of the Covenant reporting and monitoring framework. Reporting Guidelines provides an overview of these sections in My Covenant. They also indicate the respective chapters in these guidelines which explain in detail how to complete the sections.</p> <ul style="list-style-type: none"> • My Strategy – (1) Specify your targets and commitments, administrative structure, involved stakeholders, budget information, etc. • My Inventories – (1) Emission Inventory: specify all mitigation-related data (energy consumption, electricity production, etc.); (2) Risks and Vulnerabilities: specify all adaptation-related data (climate hazards, vulnerable sectors, adaptive capacity, etc.). • My Action – (1) My Actions Overview: specify aggregated data for your mitigation and adaptation actions; (2) My Actions Details: specify details for each mitigation and/or adaptation action, and/or energy poverty, including key actions. <p>3. Upload action plan document(s) – to upload documents in My Covenant, (1) go to My Strategy in the Reporting corner; (2) click the My Action plan documents tab; and (3) scroll down to “Documents upload”. All documents should be uploaded in a *PDF format, in the national language, unless an English translation is available. The uploading of at least one action plan document is mandatory.</p> <p>4. Submit template – only once you have completed the respective reporting sections of My Covenant (Step 2) and uploaded the action plan document(s) (Step 3), it is possible to</p>	<ul style="list-style-type: none"> • Activating your questionnaire – (1) Your dashboard after activating your questionnaire; (2) Joining and reporting to additional projects and initiatives after activation; (3) Projects & initiatives; (4) Guidance tool; (5) My Account; (6) Organization details (Main users only); (7) Changing languages; (8) User types; (9) Adding new users. • The Online Response System – (1) The Online Response System Homepage; (2) Navigating the Online Response System; (3) Accessing guidance; (4) Saving your response; (5) Copy Forward; (6) Audit Log; (7) Cultural settings; (8) Question types and additional question features; (9) Sharing your response; (10) Signing out; (11) To return to the Online Response System; (12) Export your response from the Online Reporting System: Export to Word / Export to Excel; (13) Import your response to the Online Reporting System: Excel import best practice; (14) Guidance for Importing GHG Data to Questions 2.1c and 2.1d / Steps to Import. • Submitting your response – (1) Making your submission choices; (2) How to submit your response (Main User only); (3) Submission trouble shooting; (4) Submission confirmation; (5) Your dashboard after submitting your response. • Amending your response (Main User only) – (1) Change your questionnaire pathway and join additional projects and initiatives during an amendment. • Viewing your response – (1) In the Online Response System as a snapshotted response; (2) As a formatted response from Scores and Responses. • Further help.
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		<p>submit your action plan to the Covenant of Mayors.</p> <p>5. Monitor progress – progress is monitored via submission of a monitoring report every two years after the action plan’s submission date. The aim of monitoring is to assess the progress made towards the targets set in the action plan’s strategy. Monitoring is an integral part of every planning cycle that allows corrective measures to be planned. As such, the monitoring report in My Covenant is not a separate section; instead, the monitoring report is a set of additional fields in the various template sections under Step 2:</p> <ul style="list-style-type: none"> • My Strategy – (1) Indicate progress towards the target, staff capacity allocated for plan implementation, budget spent so far, describe the monitoring process. • My Inventories – (1) Emission Inventory: update energy consumption, production and emissions factors submitting a Monitoring Emission Inventory (MEI); (2) Risks and Vulnerabilities: update, as needed, all the previously reported data; note there are no additional fields for monitoring. • My Action – (1) My Actions Overview: update progress of implementation; (2) My Actions Details: update progress of implementation. 	
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Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group III – Inventory user-friendliness			
<p>3-2 Easiness to control/ correct actions/ errors</p>	<p>The Mission doesn’t impose strict requirements on the easiness to control and correct the GHG inventory actions and errors. It highlights that careful and transparent consideration is needed when addressing issues of public control and ownership of data collected through (new) technologies, particularly in cases where services are outsourced to third parties. Technologies in themselves are neutral – it is how they are managed that will determine the real impact on city life.</p> <p>The Mission indicates that collaboration between cities and communities will be key, even if they have data and digital technologies at their disposal, to increase impact and have more control over the smart solutions they ultimately choose. In order to remain flexible in their choice of technology providers and to create added value from their data for the common good, recent studies suggest that cities should implement interoperable, urban data platforms using a common set of open standards.</p>	<p>My Covenant has an automatic integrated verification system that identifies any errors (matching against value ranges or predefined values), validates the data format (text, number, date, hyperlink, single or multiple choice), and detects missing mandatory information. It has integrated algorithms which reduce the margin for human error, e.g. when calculating the emission inventory. If errors are detected, the system displays notification error messages at the bottom of each respective table in My Covenant.</p> <p>The section “My Overview” indicates whether all required sections in My Covenant have been properly completed, using the following legend:</p> <ul style="list-style-type: none"> • Complete. • Incomplete. • Not applicable. <p>The city will only be able to submit its data after correcting all errors throughout the reporting and monitoring template.</p>	<p>If the Online Response System detects errors or warnings in the city response the “Errors and Warning” box will be flagged for the city to rectify the issue. If the city tries to submit with errors in its response the city will see a red “submit failed” notification in the corner. This will occur if the city tries to submit:</p> <ul style="list-style-type: none"> • Without having completed all mandatory fields. • With fields that have a value that is out of range. • With fields that exceed the character limit. <p>If the city clicks on the errors and warning button, a pop-out box will show the list of errors (red) and warning (yellow). If the city clicks an error or warning it will take the city to that field in the Online Response System for the city to amend. Once the error or warning is resolved it will disappear from the errors and warning list. The city will be able to submit once all errors are resolved. Warning do not prevent the city from submitting.</p>

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group III – Inventory user-friendliness			
<p>3-3 Attractiveness and aesthetics (design)</p>	<p>The Mission doesn’t impose strict requirements on the attractiveness and aesthetics (design) of the GHG inventory framework. It highlights that the Digital Europe Programme will support the creation and validation of a governance scheme and reference architecture for a data space for smart communities, for the secure exchange of public and privately held data at European Union level. The identification of common priority datasets linked to the environment and climate-related challenges will increase the potential for sharing data solutions between communities across borders and sectors and help them meet the objectives of the European Green Deal. The action will contribute to the definition of the technical infrastructure for data sharing across relevant domains (in particular, traffic, electricity, pollution, extreme weather events, water, sewage, waste management, urban infrastructure, etc.), in order to create cross-domain innovation and move towards the Green transition in each local context.</p>	<p>My Covenant reporting and monitoring framework has been developed in consultation with practitioners from local and regional authorities, climate and energy experts and with the methodological support of the European Commission’s Joint Research Centre.</p> <p>In 2018 the new My Covenant section has been developed using inputs from Covenant users and accommodating them in the best possible way in the design, logic and security of the system:</p> <ul style="list-style-type: none"> • The start page – the start page has been changed to accommodate a quick overview of what is considered useful information for the city when logging in. • The reporting corner – the reporting corner has been made more flexible to insert information in cities’ SEAPs / SECAPs and corresponding monitoring reports. • The eye icon – for Covenant coordinators, one of the most useful features is the eye icon. By clicking on the eye icon, the Covenant coordinator will be able to “impersonate” the signatory and see its profile as if the Covenant coordinator was the signatory itself. • The overall layout and design – the overall layout and design of My Covenant has been modernised and simplified, in line with the “feel” of the public Covenant website. 	<p>In 2022 CDP and ICLEI have updated the questionnaire and made it more attractive and user-friendly. The new, streamlined questionnaire replaced the existing one, raising the bar on tracking progress on cities climate action and simplifying the process for reporting cities.</p> <p>For the convenience of the users, the CDP-ICLEI Track Online Reporting System, has eight main features:</p> <ul style="list-style-type: none"> • Exit Online Reporting System – signs the user out of the Online Reporting System. The user can then close that tab or window. The user may still be signed into the dashboard. • Dashboard links – link back to the relevant parts of the user’s dashboard, where the user can perform the action required. • Save, Share and Submit – depending on the user type the user may see all, some or none of these permissions. Using “Save” displays a warning for parts of questionnaire not yet completed, or that have an error. • Import/Export – these buttons allow users to export and import the questionnaire, including all responses entered, as a *Word or *Excel document.

			<ul style="list-style-type: none">• Audit Log – this button takes the user to the audit log. It allows the user to track all changes made in the Online Reporting System by any user.• Floating blue progress bar – this indicates the number of questions the user has saved an answer for so that the user can track his/her progress. Depending on the user answers, the total number of questions may fluctuate.• Navigation menu – the user can click the arrow and use the menu to jump between modules and pages. It will also show the user which sections have unanswered questions.• Previous, Next, and skip buttons – for moving between neighbouring pages or skipping to the start or end of the questionnaire.
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Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group III – Inventory user-friendliness			
<p>3-4 Flexibility in data management and data analytics</p>	<p>The Mission doesn’t impose strict requirements on the flexibility in GHG inventory data management and data analytics. It highlights that data can illustrate the sometimes initially intangible value that cities have generated and can be used to attract private investment and finance smart city solutions. Data is also a fundamental opportunity that smart cities can exploit in the future. For example, data-driven innovations can improve the circular economy, by more accurately managing consumption and production processes.</p>	<p>Over the course of 2019, the Covenant framework was aligned with the recommendations of the Global Covenant of Mayors for Climate and Energy Common Reporting Framework.</p> <p>https://eumayors.eu/FAQs_2021.pdf</p>	<p>In 2022 the new, streamlined Cities Questionnaire replaced the existing one, raising the bar on tracking progress on cities climate action and simplifying the process for reporting cities.</p> <p>Three questionnaire pathways have been introduced to reflect the different contexts of cities and to streamline reporting. This enables reporting to a core set of questions for all cities and additional questions only where relevant and valuable. The pathways vary in the number and type of questions presented to local governments based on their impact and capacity to act:</p> <ul style="list-style-type: none"> • Pathway 1 – contains 17-27 questions. • Pathway 2 – contains 24-34 questions. • Pathway 3 – contains 30-40 questions. <p>The 2022 Cities Questionnaire was developed alongside partners to ensure the integration and alignment of initiatives and framework reporting requirements including the Common Reporting Framework (CRF), Task Force on Climate-related Financial Disclosures (TCFD), Science-Based Climate Targets (SBT), Race to Zero (RtZ) and Race to Resilience (RtR). It tracks the performance and impact of key actions, defines critical climate actions and assesses the increasing links between environmental action and social impacts.</p>

Analysis criteria	European Mission’s “100 Climate-Neutral and Smart Cities by 2030” requirements	Covenant of Mayors Europe approach	CDP-ICLEI Track approach
			
Group III – Inventory user-friendliness			
<p>3-5 Control, security and privacy aspects</p>	<p>The Mission doesn’t impose strict requirements on the control, security and privacy aspects of the GHG inventory framework. It highlights that one of the challenges for cities to consider is the data protection policies and protected Information and Communication Technology platforms concerning data use, sharing, management, and exploitation by public and private sectors. Including data ownership, appropriate and consistent legislation, data sharing and standards, and cybersecurity.</p>	<p>My Covenant is in line with all current European Union cybersecurity guidelines and compliant with the European Union General Data Protection Regulation (GDPR).</p> <p>My Covenant has the Data Policy that sets the rules that the European Commission applies for collecting, processing, sharing and publishing data of local and regional authorities and other organisations in the context of the My Covenant.</p> <p>By default, all Covenant Data are considered “open data”. It means that Covenant Data should be open (published and made available for re-use for both commercial and non-commercial purposes), timely, comprehensive, accessible and usable, comparable and interoperable. It should contribute to improving governance, citizen engagement, inclusive development and innovation.</p> <p>Signatories reporting through My Covenant make data publicly available free of charge through the Covenant of Mayors for Climate and Energy Europe website, as well as on the European Union Open Data Portal or the website of the European Commission (https://ec.europa.eu/jrc/en).</p> <p>Key data from signatories under GCoM website and shared with the online Global Climate Action portal (GCAP) hosted by the United Nations Framework Convention on Climate Change (UNFCCC).</p>	<p>When responding to the Cities Questionnaire, the city can decide whether its response is private or public, unless the city decides to participate in the GCoM initiative and/or European Climate Pact and/or Cities Race to Zero (RtZ) and/or Race to Resilience (RtR) in which case the city can only respond publicly.</p> <p>If data can be made public, CDP may use it in furtherance of its mission, including:</p> <ul style="list-style-type: none"> • Making it available as soon as it is received by CDP to its partners and any other parties CDP deems appropriate. • Making it publicly available, for example through the CDP Open Data Portal (and stored and preserved on CDP servers indefinitely thereafter). • Compiling it in CDP databases and making it available in original, modified or adapted form for use by commercial (for a fee or otherwise) and non-commercial organizations. • Amalgamating it with information about the Responding City from other public sources. • Using in any other way that accords with the CDP charitable mission.