C40 CITIES

Climate Action Planning

C40 City Monitoring, Evaluation and Reporting Guidance

Guidance for climate action planning teams

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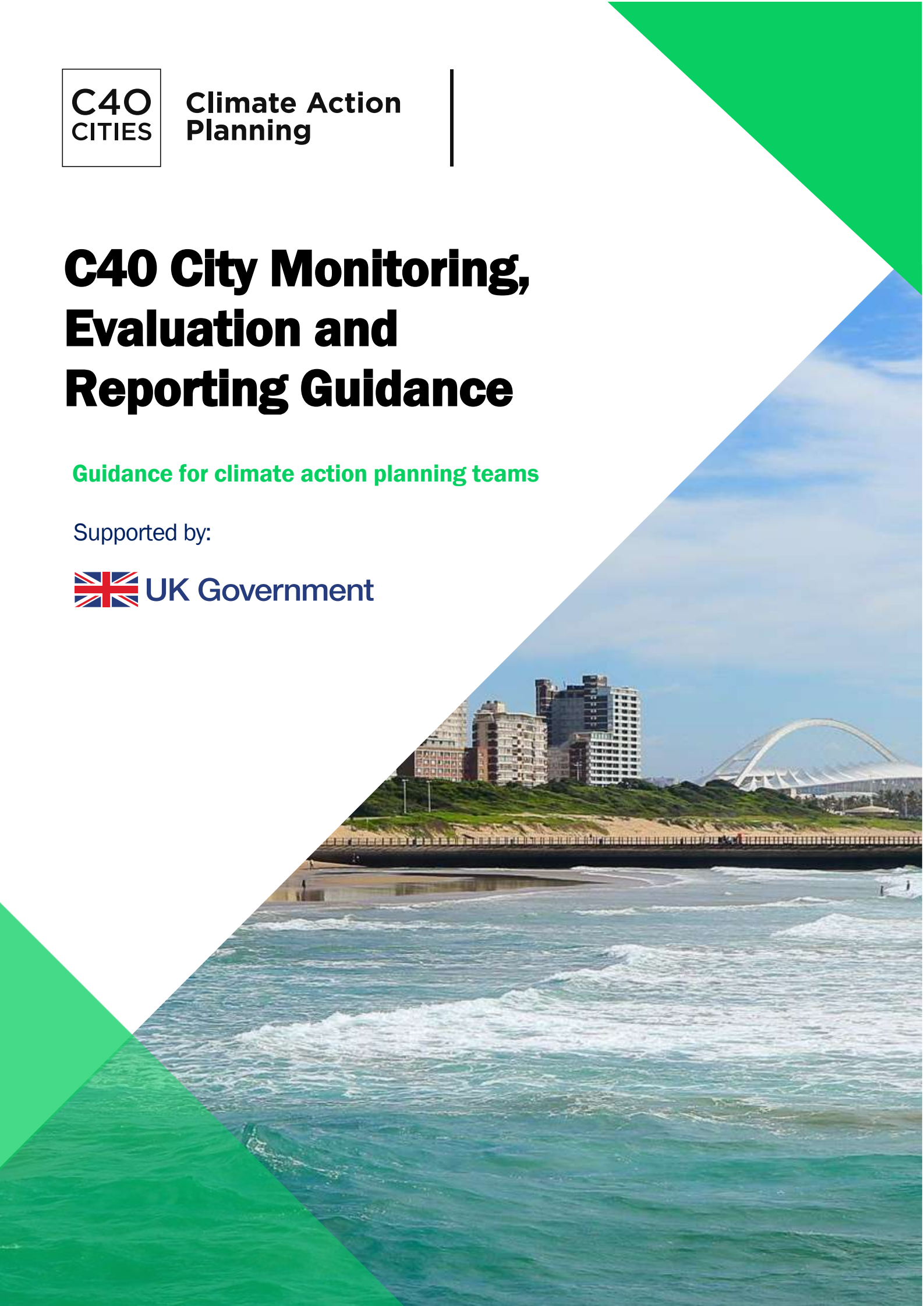

C40 CITIES CLIMATE LEADERSHIP GROUP

The C40 Cities Climate Leadership Group, now in its 14th year, connects 90+ of the world's greatest cities which have committed to tackling climate change. We bring Mayors from around the world together to learn from each other in reducing greenhouse gas emissions and creating resilient, sustainable and inclusive cities. C40 cities represent more than 700 million urban citizens and their economies account for 25% of global GDP. Our 'Deadline 2020' report sets out the critical role that the world's major cities have to play in delivering the historic Paris Agreement to prevent catastrophic climate change.

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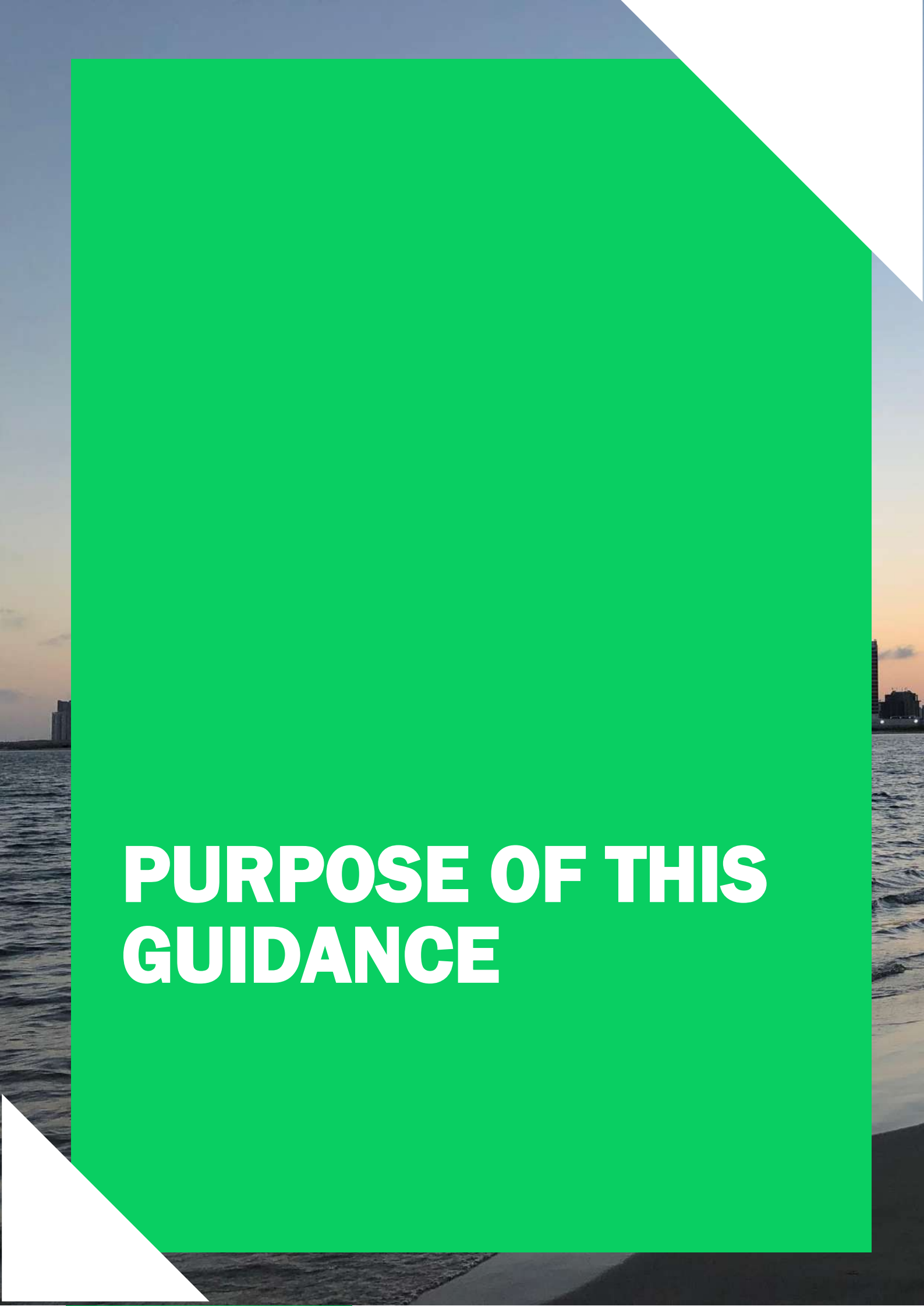


PURPOSE OF THIS GUIDANCE

1. PURPOSE OF THIS GUIDANCE

This guidance has been developed to help cities develop and implement effective monitoring, evaluation and reporting (MER) of their climate action plans.

To achieve the goals of the Paris Agreement we need to act faster and with more urgency than ever before.

C40 cities make up a quarter of the world's economy and represent 700 million people. Achieving a climate-safe future is only possible if cities act now and in collaboration with other levels of government, businesses, civil society and people.

C40 cities have committed to the most ambitious goals of the Paris Agreement, planning and delivering ambitious roadmaps towards a carbon neutral, resilient and inclusive climate future.

In order to measure success and adjust priorities over time, cities are looking to develop a well-structured system to monitor, evaluate and report progress.

This guidance sets out to support these processes as cities develop and adjust their climate action planning.

The Climate Action Plan (CAP) is a strategic document - or set of documents – showing how a city will deliver on its commitment.

A climate action planning monitoring, evaluation and reporting (MER) system then enables cities to track and review the intended results and real progress. This is essential in order to monitor the effects of climate actions across a diverse range of stakeholders and progress may face multiple risks or challenges.

The ability to demonstrate clear progress and quantify the benefits of climate action can also lead to greater access to national and international climate funding and secure more support from key stakeholder groups in the city.

Box 1 - With a climate action planning MER system cities can:

- Improve accountability and transparency.
- Provide relevant information to a wide range of partners and city dwellers.
- Continue to make the case for (or against) other possible climate actions.
- Assess progress and effectiveness and adapt

Figure 1 - Climate action planning cycle

To be aligned with the 'objectives of the Paris Agreement', a city Climate Action Plan should be accompanied by an effective MER system - but there is no prescriptive, one-size fits all solution.

Rather, cities will build on existing structures, including data collection and data management tools.

Climate action planning is an iterative process. As shown in Figure 1, it is a cycle where steps are repeated with the aim of achieving continuous improvement.

The first step is to build the key aspects of the evidence base that will be used to inform the CAP development (refer to section 4.3, for further details on building the baseline).

The next step is to set the targets, and identify the transformational actions and strategies needed to achieve these targets, followed by an action selection and prioritisation process to define the transformational actions that will be included in the CAP.

Once the plan has been developed, the implementation stage begins, followed by the monitoring stage which enables cities to assess the changes occurring. Updating the evidence base helps cities evaluate the real impact of the actions. The process is then repeated.

For the purpose of this guidance, it is assumed that cities have already analysed and selected priority climate actions to be implemented through their CAP.

Cities may already have monitoring systems in place to track progress on priority actions, and many cities are already adapting their planning approaches and building capabilities to evaluate progress against climate objectives.

This guide aims to support a more effective and harmonised approach. It will help to meet the needs of different stakeholders, including reporting to different audiences, particularly decision makers.

The guide is aligned with other C40 guidance supporting city monitoring, evaluation and reporting efforts (see Box 2).

Box 2 - Existing C40 monitoring, evaluation and reporting resources

- The Climate Action Planning MER system should aim to assess and report the equitable distribution of climate action by including suitable monitoring and evaluation indicators - see Toolkit for Equitable Impacts.
- Likewise the Climate Action Planning MER should integrate measures of progress to reduce climate risk and impacts - see Measuring Progress in Urban Climate Change Adaptation for guidance.
- The MER should be based on robust and up to date data. The C40 Climate Data Management Framework and the corresponding Maturity Assessmente Survey supports all cities to implement sound data management practices.

This guidance is structured around six main steps for developing and using a Climate Action Planning MER system.

The purpose and scope of the MER should be defined early on in the Climate Action Planning process, and key stakeholders for developing it identified.

The **purpose** is usually to measure the outcomes and impact of the CAP, to inform the review and update of actions, and to ensure the effective and efficient allocation of resources to deliver the CAP.

The **scope** is typically monitoring, evaluation and reporting of the CAP with focused evaluation of key transformational/flagship policies.

This enables the city Climate Action Planning MER processes to be formalised and suitably budgeted for.

As a first step in the Climate Action Planning MER development process, the governance and structure for implementing the Climate Action Planning MER system then needs to be established, to ensure that the MER system is fully integrated into climate action planning and implementation. See Section 3 for further guidance.

Section 4 of this guide describes the next five steps in detail, accompanied by a proposed checklist of key activities for each step.

Steps for developing a Climate Action Planning MER system:

1. **Define governance and structure**

What monitoring evaluation and reporting work has been done in the city that could be applied to the Climate Action Planning MER system; what is the delivery structure and resources for this system; which city staff will contribute to the day-to-day development and maintenance of this system?

2. **Define intervention logic**

What is the essential chain of results leading from the action to the intended impacts on the ground?

3. **Define indicators**

What are the metrics that will be used to measure and report on progress?

4. **Monitor**

What data is needed, who will regularly collect and provide it and how will it be used in order to measure progress against the indicators and, if needed, adjust resources?

5. **Evaluate**

What lessons can be drawn from monitoring of the actions, when tested periodically against rigorous evaluation criteria?

6. **Report**

Who are the main audiences, what information do they need, why and when?

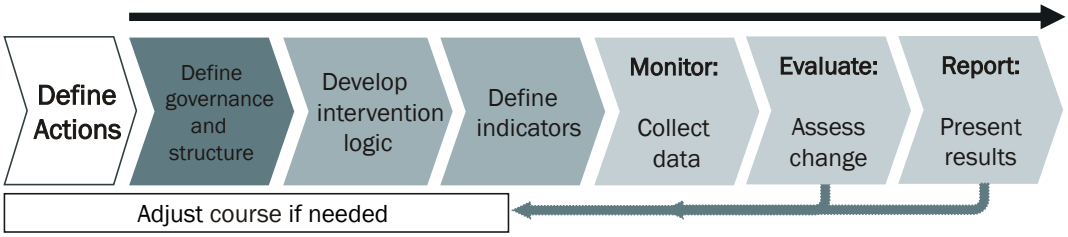
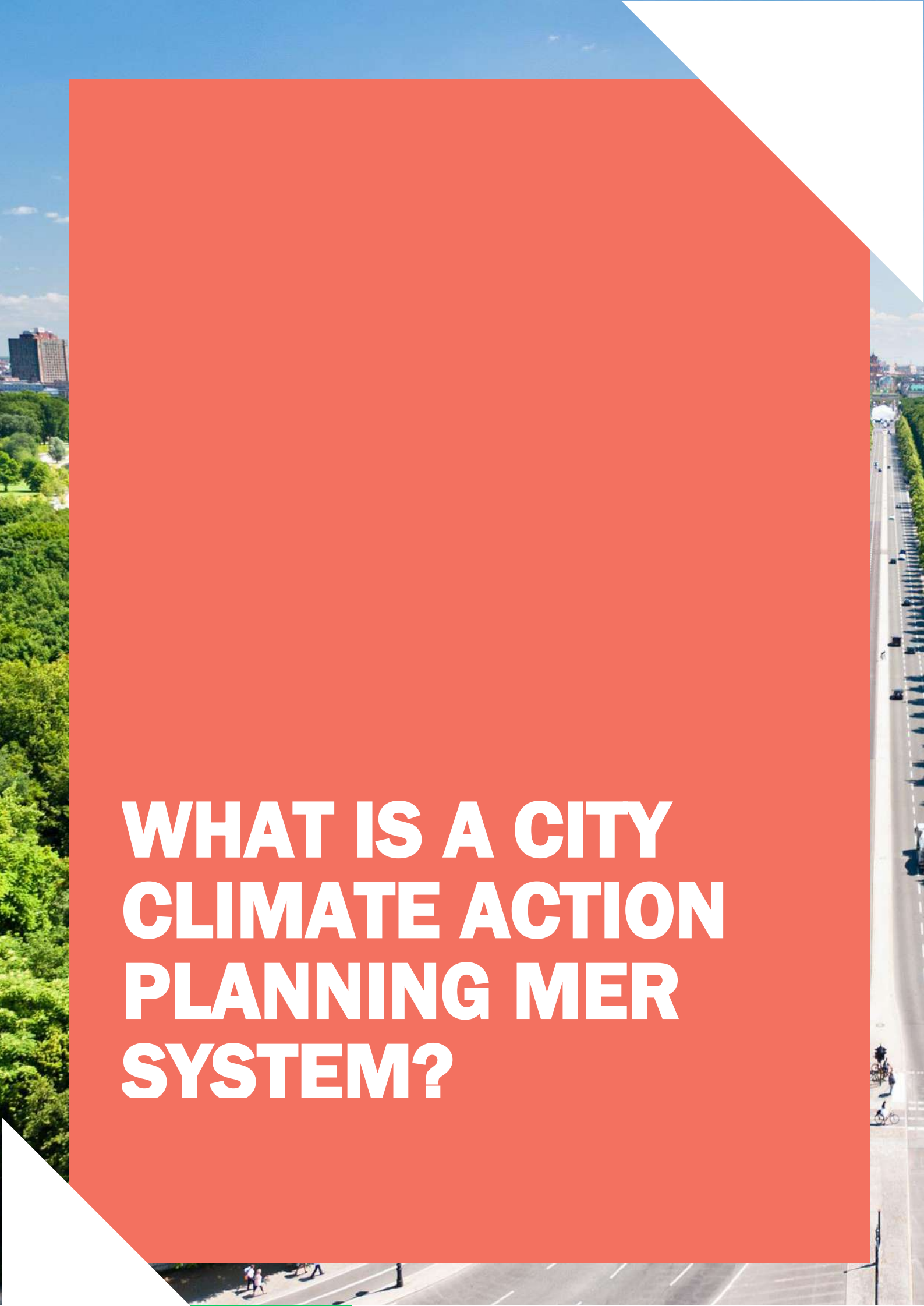


Figure 2 - Developing a city CAP MER system, step by step



WHAT IS A CITY CLIMATE ACTION PLANNING MER SYSTEM?

2. WHAT IS A CITY CLIMATE ACTION PLANNING MER SYSTEM?

This section defines and illustrates common terms used throughout this document (also refer to the Glossary below for further explanation).

Monitoring: Continuous, systematic collection of data on specified indicators.

Evaluation: The process by which a city assesses and understands changes identified over time, in line with the indicators and against a baseline. This is done to assess the impact of actions, and to review and update the actions and resource allocation plans, to ensure efficient and effective delivery of the CAP.

Reporting: Presenting data and analysis to stakeholders for information, decision making, or knowledge sharing.

The objective of the CAP - a strategic document or series of plans and documents – is to to set a pathway to a carbon neutral, resilient and inclusive city.

The content of the CAP is a set of targets, with strategies and prioritised actions to focus on achieving those targets.

A city Climate Action Planning MER system enables cities to decide what is important to measure, how to measure it and how to assess the real progress against the CAP targets, demonstrating the value of the actions taken.

It also allows to show progress while reaching the final targets may take considerable time.

The targets set today are usually based on assumptions of what could be achieved if sufficient resources are dedicated in a timely manner.

Box 3 - Establishing an 'intervention logic' can help decide what to monitor

This then allows definition of an appropriate level of monitoring and data collection.

By measuring the whole chain of results in a step-wise, logical way, risks of non-implementation can be identified early and the assumptions made can be tested and revised.

Exploring the intervention logic

At the heart of a MER system for city climate action plans are those activities and results that are normally within the direct control of the city administration or within regional/national climate actions.

Climate actions are any policy, programme, or investment initiated by the city authority with the intention of contributing to climate mitigation or adaptation.

Outputs are the results from an initial situation or baseline that have been produced by an action, e.g., a service, facility, infrastructure or financial tool.

Milestones might be used to monitor progress. These are major events, dates, decisions, or deliverables, usually in a project plan, such as 'approval of tender documents'.

Some cities may choose to include **interim outputs**, such as the results of an analysis, design or other types of deliverables. Interim outputs can be useful in city planning when larger infrastructure policies and projects take a long time and substantial resources to plan, approve and deliver.

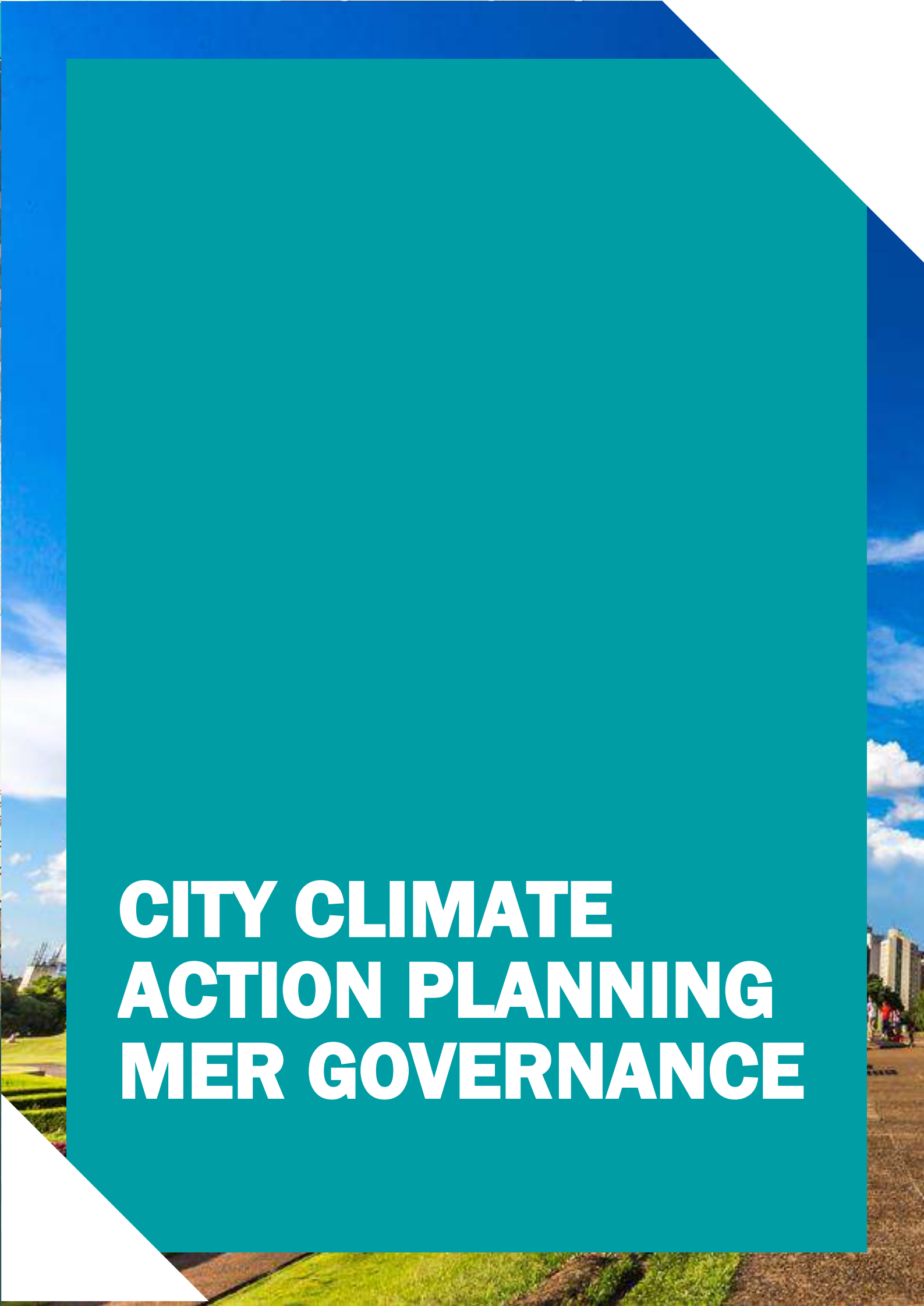
If the outputs are achieved, then progress on the expected **outcomes** may be achieved. An outcome would be, for example, the actual use of a service, facility or infrastructure.

Inclusive planning, toegther with inclusivity in policy design, implementation and evaluation to ensure benefits are distributed equitably - particularly for the most vulnerable groups of people - is an important part of the Climate Action Planning MER system.

If there is progress with outcomes, this will lead to **impacts**, the originally conceived high level objectives of climate actions set out in the planning process.

Impacts usually include reduced city emissions and climate vulnerability. Impacts will also capture wider benefits such as improved air quality, health benefits and so on.

The full intervention logic is illustrated in Section 4, Figure 5.



CITY CLIMATE ACTION PLANNING MER GOVERNANCE

3. CITY CLIMATE ACTION PLANNING MER GOVERNANCE

Establishing the governance and structure for the city Climate Action Planning MER system is the crucial first step to ensure that the MER system is fully integrated into climate action planning and implementation.

GOVERNANCE

When the objective of the Climate Action Planning MER system is defined and key stakeholders are identified, the governance structure for implementing the Climate Action Planning MER system needs to be established.

The Mayor's Office or the City Council may establish a Climate Action Planning MER system coordination team, define the communication strategy and include climate objectives in current reporting

An official or a department (usually the City Planning) Office) may be assigned to steer and overlook the MER process. The coordination team will likely include project managers of the climate actions outlined in the CAP, who will report to the department that is leading on CAP oversight.

The process can build on already existing govenance structures. It should consider who will contribute to the day-to-day development and maintenance of the Climate Action Planning MER system, what is the delivery structure and what are the resources needed (see hypothetical example in Figure 3).

Figure 3 – Climate Action Planning MER system coordination
** Note: national-regional-city data sharing already takes place to various extent within different departments, based on reporting requirements, expertise, professional relationships and projects, for instance. Which team collates and manages different CAP data will depend on the city's existing structure and any new agreements*

Reporting and communications

Involving communications teams from the beginning of the process is crucial to help define what needs to be communicated, how and to whom.

Demonstrating progress and clearly communicating the quantified benefits of climate action offers many opportunities. For example, it can improve access to national and international climate funding, and secure support from key stakeholder groups in the city.

A successful Climate Action Planning MER process will depend on climate teams from various departments, as well as at national/regional levels, coordinating to help identify, define and build the indicators needed. C40 has developed the Climate Action Planning Governance Self Assessment resources to assist cities in identifying specific gaps and opportunities related to climate governance (available in C40 Climate Action Planning Resource Centre).

Forming joint working groups across departments can improve coordination. This includes agreement on what data to gather, how, how often and what for. Departments then need to report back to the coordination team according to the agreed reporting plan.

Similarly, for national/regional interaction, the team responsible for monitoring integrated actions should also be well defined. It is a good practice to frequently check updates on National Communications and Nationally Determined Contributions (NDCs) progress reports.

In Colombia, the cities of **Medellín, Cali, Montería and Pereira** are working together with the National Ministry of Environment and the Hydrology, Meteorological and Environmental Studies Institute (IDEAM), with the support of C40, WWF Colombia and the British Embassy (UK PACT programme) to develop a MER system for current mobility projects. The project includes estimated GHG emission reductions to be included in the National Registry for Colombian GHG reductions (RENARE), to support Nationally Determined Contributions (NDCs) - more information will be available publicly by the end of 2020 here.

C40 has developed the Vertically Integrated Action Tool (VIA Tool) – a critical thinking resource that cities or national governments can use to evaluate vertical integration barriers and enablers that impact their choice of and ability to implement climate actions (also see section 4.4 for more details on this subject).

When the Climate Action Planning MER structures and processes are established and it is clear what the reporting and communications plan require, the coordination team can monitor, evaluate and report progress to allow the delivery of the city CAP reporting strategy.

Box 4 - Resourcing

Resources and capacity to plan and implement the Climate Action Planning MER system need to be identified early on and agreed on.

Resources for collecting data may be embedded within climate actions - or city departments responsible for these - and reported using existing city systems.

However, the governance and management of the overall Climate Action Planning MER system, new working groups and additional data collection may need re-adjustments.

A first step is often a rapid self-assessmnent of current systems and capacity to adjust city planning to the Climate Action Planning MER system (see for example the C40 Data Management Framework and Maturity Assessment Tool).

STAKEHOLDER ENGAGEMENT

The development and operation of the Climate Action Planning MER system involves city departments, regional and national policy makers as well as other actors outside the coordination team.

The involvement of external stakeholders, such as national and regional agencies that have relevant roles in policy, budget and reporting will help ensure that:

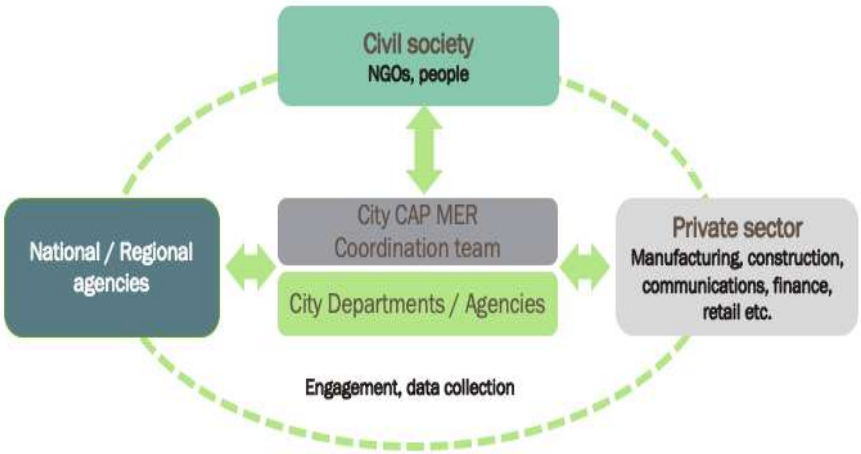
- Stakeholders agree with the monitoring process and commit to delivering data
- The best available indicator data is collected - and resources for collecting new required data are planned.
- The information reported is highly relevant to stakeholders' needs.

Identifying existing communication channels and involving stakeholders early helps to obtain agreement and commitment to the purpose and processes of the MER.

Stakeholders may be either providers of data or audiences for MER results, so different approaches will be needed. The C40 C40 Inclusive Community Engagement Playbook has been developed to share best practice.

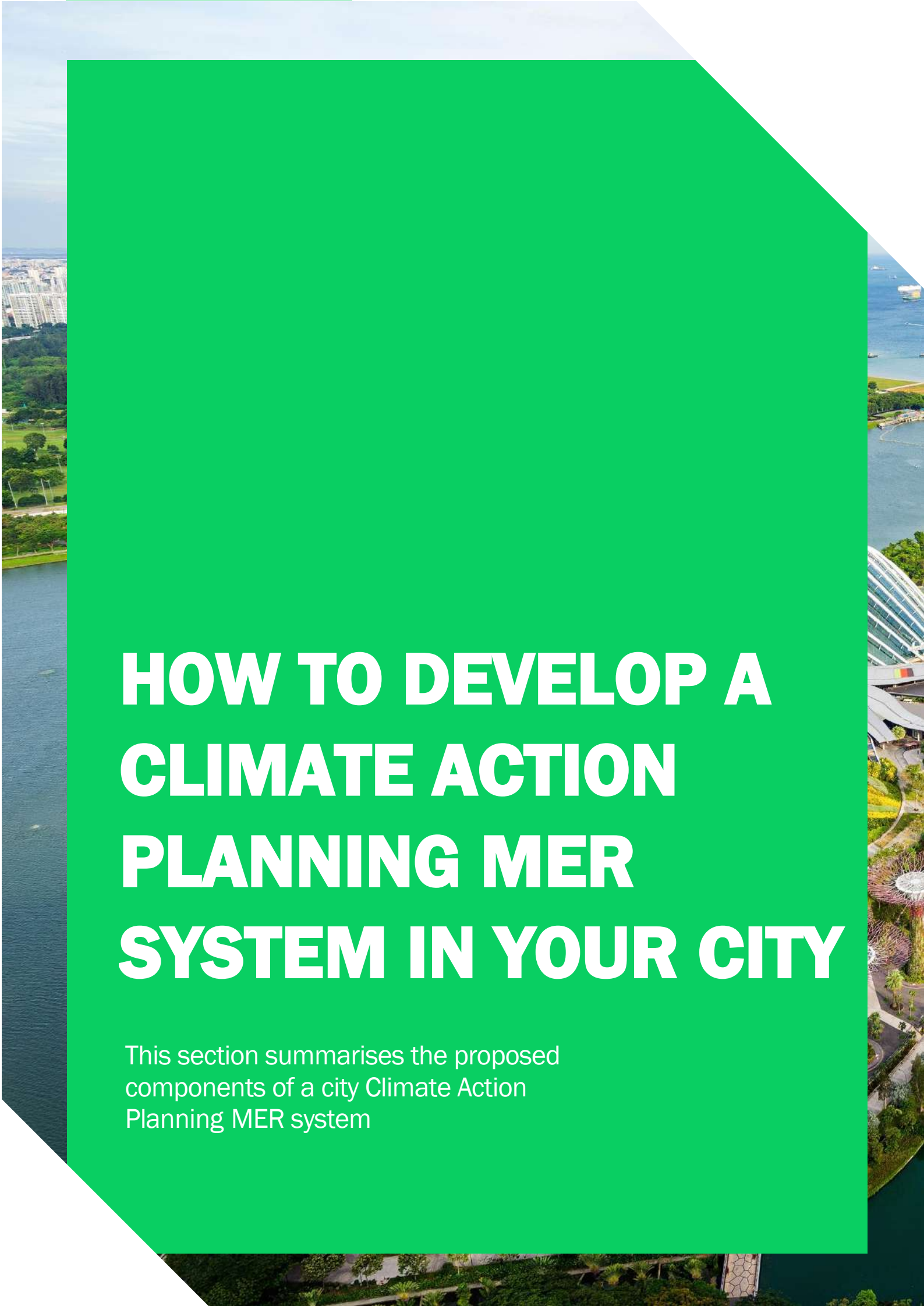
In Washington DC, to jump start its Sustainable DC initiative in order to get real action going with a wide range of partners, the city set out specific governance tasks which included an annual 'Budget Challenge' competition for the District Government. Through various projects such as energy saving and restoring tree canopy, the city aimed to involve local experts and stakeholders in the process.

Error! Reference source not found. illustrates the different stakeholder groups. More examples are provided in section 4.2.



GOVERNANCE – CHECKLIST

Establish/adjust a coordination team, roles, responsibilities and organisation for the Climate Action Planning MER system including coordination with national/regional levels.	☐
Define a climate action reporting strategy linked to data collection and stakeholder mapping.	☐
Agree resources and budget needed to implement the Climate Action Planning MER system.	☐



HOW TO DEVELOP A CLIMATE ACTION PLANNING MER SYSTEM IN YOUR CITY

This section summarises the proposed components of a city Climate Action Planning MER system

4.1 DEFINE THE INTERVENTION LOGIC

The intervention logic sets out a chain of results and therefore how to monitor progress and change.

The intervention logic seeks to clearly define what an action aims to achieve.

It presents the causal chains for change to take place in a step-by-step approach, moving from action to immediate outputs, followed by outcomes, and finally, longer-term impacts.

Developing the intervention logic also helps to identify and monitor co-benefits, such as jobs created and improved health.

By being clear what happens at each stage, it is then possible to identify specific indicators to measure actual results.

In this terminology, the output is what planners can control, whereas outcomes and impacts depend on a range of external assumptions, such as responses of other actors like investors or people. An interim output is a preparatory, analytical or design result (refer to the definitions on page 8).

Note that an output or outcome under different circumstances may vary for different actions. For instance, it may be useful to break down the action preparation phase into interim outputs.

Figure 4 shows a simplified approach. The intervention logic could have multiple indicators at each stage. In this example, the output could be electrical capacity installed (megawatts) of solar panels and/or their total area (square metres) or another suitable indicator. There can also be more steps in the chain. It may be useful to explore smaller steps first before developing the higher level summary.

<u>To develop the logic, try asking:</u>

What is the action's aim?

What can we measure before the action is implemented ('ex ante') and after ('ex post')?

What will the action improve?

What could then change as a result of that improvement?

How we can measure changes?

What are the benefits (including wider benefits) and for whom?

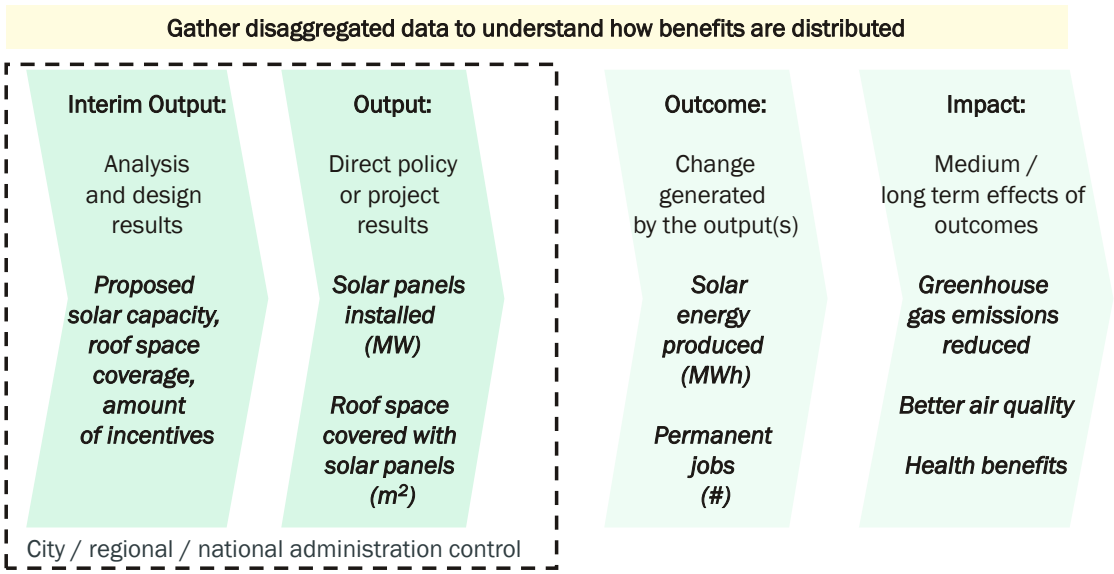


Figure 4 - Intervention logic example: Municipal solar on all city–owned buildings

Identifying and reviewing the critical assumptions will ensure the intervention logic is realistic.

Assumptions are preconditions for the policy/project/action to generate the expected change.

Being clear about the assumptions from the beginning – and reviewing them regularly – will help clarify the city's role and constraints. It is recommended to assess the real change all through the intervention logic. Refer to the example in page 4 of the C40 City Climate Action Planning MER Indicator Matrix User Guide.

For example a climate action may assume – and depend on – relevant national policy decisions that are aligned and enable progress. It may also be an assumption that another linked climate action is successful, so the intervention logic for each should not be done in isolation.

Assumptions could be linked with barriers or existing conditions that might have an effect on the real change produced by the action.

It is recommended to assess the real effect of the barriers on the assumptions throughout the chain.

INTERVENTION LOGIC – CHECKLIST

- Develop intervention logic for priority climate actions ☐
- Identify and regularly review critical assumptions ☐

4.2 DEFINE INDICATORS

How to build a strong indicator

An indicator is a 'quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess [...] performance.' (OECD 2013)

Quantitative: reported as numbers, such as units, proportions, rates of change or ratios. Example: number of kilometres of (segregated) cycle lanes.

Qualitative: reported as words, in statements, paragraphs and reports. Example: perceptions of cycling safety from in depth interviews. These indicators can help to tell a narrative around progress or impact using examples, a case study or even a quote which can be powerful in its own right.

Quantitative indicators are more common. They are less prone to interpretation and can be more easily aggregated. They usually appear as neutral statements (e.g. '# of MW of renewable energy installed', not '50 MW of renewable energy installed')

So, indicators generally do not state specific numbers nor include words such as 'increase', 'reduce' etc. They provide evidence of change, rather than targets to be achieved. Binary indicators ('yes/no') help to measure if something has happened or not.

Finally, indicators chosen should directly support objectives or targets that are 'SMART' (Specific, Measurable, Attainable, Relevant and Timebound). For example, 'All municipal buildings owned, occupied or developed are net zero carbon by 2030'. The corresponding indicator might be 'net emissions from all municial buildings (tonnes of CO_2 equivalent)'.

Where to start

The City Climate Action Planning MER Indicator Matrix includes a list of ~106 climate priority actions and proposed result chain indicators for the following sectors: Buildings, Energy, Transport, Urban Planning, Waste, Air Quality, Adaptation & Cross Sector. (Note: Hazards, Actions and Outputs, Outcomes, and Impact indicators for and Adaptation sector are those presented in the C40 Indicator Matrix Manual for Climate Change Adaptation).

Priority climate actions will contribute to meeting the stated goals and enable the city to meet ambitious targets. Actions can be prioritised based on their impact on reducing GHG emissions, their ability to reduce risk, and on their wider distribution of benefits.

The recommended indicators in the City Climate Action Planning MER Indicator Matrix are based on best practice from C40 cities, but this is not exhaustive. Also refer to the C40 Indicator Matrix Manual for Climate Change Adaptation and the Inclusive Climate Action indicators module and database for indicators relating to adaptaction and inclusive climate action respectively.

Following the intervention logic (see Section 4.1 above), the Matrix presents a proposed approach to identifying the direct result, i.e. output, of an action, the change generated, and the medium/long term effects of benefits and their distribution.

The Matrix also includes the proposed method to help cities identify indicators at an outcome and impact level, along with potential data sources and references. It also includes an example template for reporting indicators, as a proposed way to capture and monitor selected action indicators.

The C40 City Climate Action Planning MER Indicator Matrix User Guide (page 4) shows a fully worked example of the intervention logic and possible indicators for cycle infrastructure.

Box 5 - International Standard ISO 37120 (2018)

The International Organization for Standardization (ISO) standard: '**Sustainable cities and communities — Indicators for city services and quality of life**' is designed to assist cities in steering and assessing the performance management of city services and all service provisions, as well as quality of life.

Sustainability is a general principle, and smartness and resilience as guiding concepts. "Core" and "Support" indicators are described. Sectors include: Energy, Environment and Climate Change, Solid Waste, Transportation and Urban Planning, amongst others). Cities can use these standard indicators where appropriate.

Integrating inclusivity and equity into MER

The City's Climate Action Planning MER should reflect the social, environmental and economic benefits expected from implementing the plan, as well as the distribution of those benefits across the population.

Making the case for climate action is one of the main challenges facing cities and mayors; by monitoring, evaluating and reporting on the wider benefits – and who receives these benefits – city leadership can make a compelling case for climate action and build a broad base of support for enacting meaningful change.

Cities must design climate actions in an inclusive way, such that the benefits are distributed equitably amongst the population, and thereby they must establish ways of monitoring and evaluating the distribution of benefits from different actions.

This enables city leaders to avoid making false trade-offs and can drive urban development that reduces greenhouse gas emissions and climate risks, while increasing the health, wellbeing and economic opportunities of all urban residents.

Climate Action Planning MER indicators should reflect and respond to local knowledge and priorities. Stakeholder engagement activities can inform the development and selection of key indicators.

Box 6 - Inclusive benefits: new full-time jobs

The city of Copenhagen used the C40 Benefits of Building Energy Retrofits: Analysis Tool **to assess the economic benefits** of a deep retrofit pilot project in municipal school buildings to make the case for scaled up action. The city found that expanding the retrofit to 40 schools (50% of schools in the city) would save DKK 8.55m (USD 1.1 million) in energy costs and create around 274 full time jobs.

Barcelona understands that the climate emergency requires everyone's effort and involvement. In 2015 the signatories to the More Sustainable Barcelona Network asked the City Council to provide a roadmap to face the climate crisis. Hence, the origin of the Barcelona Commitment to Climate, where the Network's organizations and the City Council set different targets and initiatives, including the drafting of the Climate Plan. The drafting of the Plan took into account the public's contributions, as well as the Climate Emergency Declaration, where many different sectors were involved. Both the Commitment and the Plan have included projects co-produced by citizen organizations and groups with the municipal support of human and financial resources. The Action Plan and the Climate Emergency Declaration are monitored every 6 months – follow up progress here.

Cities also need to ensure that their reporting is representative of the experience of all communities in the city – especially those who may be disproportionately impacted by climate change and climate actions, i.e. 'frontline communities'.

It may be necessary to collect and analyse data disaggregated by group or community (income level, gender, ethnicity, ability status, etc.) to understand the various impacts of climate actions across the city's population.

Delivering on the Paris Agreement presents a unique opportunity to create a more just urban society, protecting those that have been historically marginalised, and it's vital that cities monitor and track progress towards these ambitions.

Box 7 – Equity indicators and participation

The Pittsburgh Division of Sustainability and Resilience in the Department of City Planning developed the Pittsburgh Equity Indicators to measure progress against key objectives in the 'OnePGH Resilience Strategy' tracking impacts across the city's diverse population. The Equity Indicators represent the first step in the city's larger effort to measure and track progress on resilience and wellbeing, inform current and future planning efforts, and support better communication and engagement with city residents.

Paris has created new forums for all Parisians to participate in climate actions. For instance, in 2018, Paris created a new governance of its Climate Action Plan called "Agora" gathering citizens, companies, NGOs and administration. The Agora exams Climate Action progresses published every year in 'Bleu Climat'. Tackling energy poverty is one of the main priorities. Paris aims to reduce the estimated 77,000 households who suffer from fuel poverty, with subsidies, retrofits, and better home energy management. Reducing fuel poverty will help low-income communities and improve access to more affordable energy and energy efficient homes.

Monitoring systems and participation platforms – The city of Rio de Janeiro developed the Rio Painel, an integrated dashboard of spatial data to monitor indicators of territorial, socio-economic and governance dynamics in real time, as part of the city's Sustainable Development Plan. The Participa.Rio platform was developed to invite people to be a part of the city´s sustainability and climate action planning processes. (please note information will be available in November 2020)

The C40 Roadmap for Inclusive Planning outlines the importance of tracking the social, economic and environmental benefits of climate actions at the city and project level, and includes a catalogue of policy-ready indicators mapped to specific climate actions and the Sustainable Development Goals.

The Roadmap also includes action-specific indicators that cities can use to track its progress against key inclusivity and equity ambitions, as well as example targets set by cities from around the world.

The Integrated Impacts Assessment Tool is a project level accounting tool developed by C40, that integrates all of C40's existing impact assessment tools and allows users to analyse multiple impacts of climate projects: for GHG emissions as well as other benefits – air quality, health and jobs, among others. [available on the Resource Centre in December 2020]

The C40 Toolkit for Equitable Impacts builds on C40's existing research to provide city officials with a global approach for evaluating the non-GHG emissions impacts of climate action.

This toolkit provides ways to calculate the social and economic benefits of bus rapid transit, congestion pricing, expanded waste collection and segregation, and cool roofs initiatives, as well as an approach for how to ensure the benefits of these actions are distributed equitably.

For more insights and tools, refer to: the C40 Inclusive Climate Action Planning Roadmap Policy Recommendations and the C40 Inclusive Climate Action In Practice Case Studies.

INDICATORS – CHECKLIST

- Select indicators for measuring progress on all targets in coordination with city departments and national/regional agencies ☐
- Agree processes and selection of inclusive indicators ☐
- Develop indicator methodologies and identify sources ☐

Box 8 - Thriving cities: big picture thinking

In April 2020, the City of Amsterdam became the first municipality in the world to publish a 'City Doughnut' – a strategic framework and policy-making tool based on the economic 'Doughnut model', and a vision to emerge from the COVID-19 crisis as a city that ensures a good life for everyone, within the Earth's natural boundaries. Released alongside the Circular Strategy, the Amsterdam City Doughnut is a tool to drive transformative action.

The vision is to transition Amsterdam into a circular city, adopting a smarter approach to managing scarce raw materials, production and consumption, and creating jobs for everyone.

The approach applies 4 lenses: local, global, social and ecological, to help city stakeholders explore interdependencies between these. The aim is to foster co-creation of ideas, collaboration, community-led action, and local outcomes and benefits.

Box 9 – Agenda for a Green and Just Recovery

C40 mayors, supported by climate experts, business leaders, youth climate activists and trade unions, recently launched the C40 Mayors' Agenda for a Green and Just Recovery.

The report outlines ambitious yet tangible steps for delivering an equitable and sustainable future for all.

4.3 MONITOR: COLLECT MEANINGFUL DATA

Types of monitoring

Monitoring is done to ensure that everyone who need to know about an intervention are properly informed, to be able to make timely decisions to adjust and improve progress.

This is a continuous process using systematic collection of data on the specified indicators to manage an ongoing intervention.

We've already discussed process/performance monitoring, using the intervention logic. Besides action level monitoring, cities could conduct a city wide/CAP level monitoring. GHG emissions inventory is a very useful tool to understand city wide impact of the CAP priority actions.

For that purpose, it is important to update the inventory frequently, as a key tool for decision making and a starting point for planning mitigation actions, assessing policy impacts, improving communications and monitoring progress (as shown in Figure 1, page 5, Climate Action Planning Cycle).

The primary purpose is to collect regular information on progress, and to use this to support data management. This includes ensuring plans and budgets are being followed, and changing them when necessary.

Data collection

Data for the city Climate Action Planning MER system should use and build on existing city data capabilities.

Once indicators have been defined, baseline data, as well as methods and responsibilities for collecting them should be established. See example in the table opposite.

A **baseline** is the situation prior to the implementation of actions. Baselines can be a one-time measurement. This could be a basline year in case of the GHG inventory (see box 10), or a reporting template with the number of km of public transportation system per 100,000 population in e.g. 2019 (Figure 6).

If possible, a previously measured trend as an indicator over previous years is preferable, as the foundation for a "**reference**" or "**business as usual" (BAU)** scenario.

Box 10 - Build and update the evidence base

Understanding city-wide GHG emissions, current and future climate risks, and evaluating needs and vulnerable groups is key for setting targets and prioritizing actions, as well as for measuring progress. C40 recommends that all C40 cities update their GHG inventory every 2 years (based on data no older than 3 years) and review the Climate Risk Assessment at least every 5 years.

The Strategy for a fossil-fuel free **Stockholm** by 2040 set key targets by calculating and analysing climate emissions. Stockholm focuses on the long-term goal and continually renews its analyses of potential emissions reductions. The instrument that governs this is the Environment Programme, revised every four years with targets to reduce tCO_{2e} per capita from 2.3 in 2019 to 0.4 in 2039.

For the **Helsinki** 2035 Action Plan, the open decision-making policy involves the openness of data and participation, meaning that all data will be available to all interested parties, and interest groups are constantly encouraged to participate. The City Council provides an annual overview of the progress of the Action Plan, including progress on emissions and action implementation.

The **Kampala** Climate Change Action strategy highlights that severe climate change shocks and stresses such as flooding and heatwaves will impact the livelihoods of the vulnerable urban poor in particular. City-wide climate risk mapping has provided a basis for integrated landscape policy and assessing community risk with the aim to mitigate these risks.

Barcelona aims to reduce 50% of GHG emissions by 2030, compared to 1992 levels. The city´s inventory series currently covers the period from 1992 to 2017. The city updates the GHG Inventory annually.

Baseline Year (date)	Type of public transport system	Km	Source
High-capacity systems	Heavy rail metro Subway Light rail Streetcars/ tramways Buses and trolleybuses BRT (Bus Rapid Transit) Commuter rail Other		
	TOTAL (all systems):		

Data collection frequency: Annual
Data owner (position):

Figure 5 - Baseline example: public transport

Data management

Sound data management practices will strengthen cities' ability to understand the current situation and will directly help achieve its climate mitigation and adaptation ambitions.

Sector and climate data and good data management is fundamental to effective monitoring, evaluation and reporting.

For example, city Climate Action Planning MER coordinators may need to do a rapid data needs assessment and engage with stakeholders to plan and collect relevant data.

First set out what data is already available and if possible how reliable and useful this is for climate actions. This data will be the core to build on from the outset.

It is important to establish data quality controls and quality assurance systems to ensure the data that is collected is reliable, and meets the intended reporting purposes.

Then make a check of what key data is currently missing and prioritise which gaps need to be addressed and how.

For instance, an up to date city GHG emissions inventory (less than three years old) is recommended in order to prioritise actions and develop emissions trajectories.

The C40 Cities Climate Data Management Framework support cities to implement sound data management practices. The Maturity Assessment Survey was developed to support cities in identifying and evaluating climate related data management gaps along five main data management themes.

This aims to strengthen the city's understanding of their current data maturity level, to help effectively **measure progress** on climate actions and delivery of wider benefits**,** as well as to provide **powerful information to** a wide range of **stakeholders and investors.**

The Framework outlines a set of principles to consider when developing or improving a data management strategy. Jointly with an assessment against the Maturity Assessment Survey, it will help city sustainability departments design and implement processes, policies, practices and systems to effectively and efficiently manage and use climate data.

Box 11 - Mexico City: data management focus

Starting in 2019 and following a rapid increase in the public offer of dockless scooters and bikes, Mexico City started to define an efficient and comprehensive urban mobility policy based on improved data analysis.

The city required participating companies to provide the city with access to data in real time. This included all units and weekly data of system operation including trips, routes, time, etc.

Box 12 - Collecting employment data: Trade unions and statistics agencies can play a lead role

Green jobs (International Labour Organization (ILO) 2020) are 'decent jobs in any economic sector (e.g. agriculture, industry, services, administration) which contribute to preserving, restoring and enhancing environmental quality'.

Good evidence continues to emerge on employment in green sectors. C40 has developed tools and resources to help cities quantify the job creation impacts of select climate actions. See C40 Benefits Tool and Measuring Green Jobs: Six city case studies.

For example the City of **Rio de Janeiro** developed a pioneering initiative based on the ILO guidelines. It found that 9% of jobs in the city are considered green and that 76 activities out of the total 675 in the national classification codes were identified as green.

Los Angeles' Green New Deal aims to transform the building stock, transportation network, electricity grid, and waste management of the city. This is expected to create and support 300,000 green jobs by 2035 and 400,000 by 2050. Targets include increasing private sector green investment to USD 750 million by 2025 and to USD 2 billion by 2035.

Cities need to be able to measure and make locally-informed decisions on the socio-economic impacts from climate actions (e.g. job creation, skills training and development), ensuring that frontline communities and groups have equitable access to jobs created through climate action in cities.

It's essential that municipalities obtain their city's granular employment data characteristics, including splits by gender, postcode, pay grade, qualification levels and race/ethnicity, to make informed decision-making. These data are also necessary to ensure that cities' employment analyses are flexible, as key questions change over time (e.g. number of green, decent jobs evolves into an analysis of career pathways that enable social mobility and rising incomes; transport planning may require spatial mapping of income levels, occupations and ethnicity).

There may be justification for investment in new data collection and management systems associated with climate action planning because data is often limited or general.

MONITOR - CHECKLIST

- Complete a data needs assessment ☐
- Establish data quality controls and assurance ☐
- Develop and regularly update the city GHG Inventory and the Climate Risk Assessment ☐

4.4 EVALUATE

Evaluation helps city officials understand the changes identified over time, in line with the defined indicators and against the baseline. Contrary to monitoring, which is an ongoing activity, evaluation should be conducted periodically.

The ability to demonstrate clear progress and quantify the benefits of climate action can lead to greater access to national and international climate funding and secure more support from key stakeholder groups in the city.

Evaluation aims to answer questions such as 'how and why did the change occur?' as well as 'did the change occur due to the action or to other factors?'

Evaluation takes a critical look at the actions to improve their impact. The ideal outcome of evaluation is therefore creating recommendations to improve the design and implementation of adaptation actions, policies and processes.

This can enable the city to revise the allocation of resources and gain a deeper understanding of the problem. It can also help to find the causal chains of effects and the intervention logic, the action's implementation processes, and the suitability of policy tools used to address the problem.

Furthermore, evaluating one action may also enable the city to identify lessons that can be applied to other actions within the same city or other cities (if the evaluation results are shared).

Hence, evaluation goes deeper than monitoring to assess causality between the action and the effects observed.

Modelling can be used to understand the potential benefits of actions and to develop different scenarios (see example in Figure 7).

For instance, a city could model and compare a scenario where no action was taken (and the associated consequences), with scenarios of actions of varying scales (and the consequent benefits).

Evaluation also enables analysis of outputs and outcomes at the wider city level. For example, a city may take multiple actions to increase renewable energy generation in municipal buildings.

The amount of renewable energy generated in the city will also depend on city dwellers and businesses, who may also install renewable solutions independently.

A city government may not have control over these changes, but the city could choose to assess the whole city's renewable capacity, including city- and private sector actions.

Evaluating an action also provides an opportunity to assess its inclusivity by determining its impacts on different population groups.

In particular, the evaluation can assess the impact on disadvantaged or vulnerable people (the poor, elderly, etc.) who are previously identified in the needs assessments. It can help ensure equity of the climate action and that it does not have unintended negative impacts.

This way, the evaluation should aim to identify the extent to which the action has contributed to improving or worsening the situation of vulnerable populations.

Evaluation often takes the form of a dedicated study and follows a different process to the one used for monitoring.

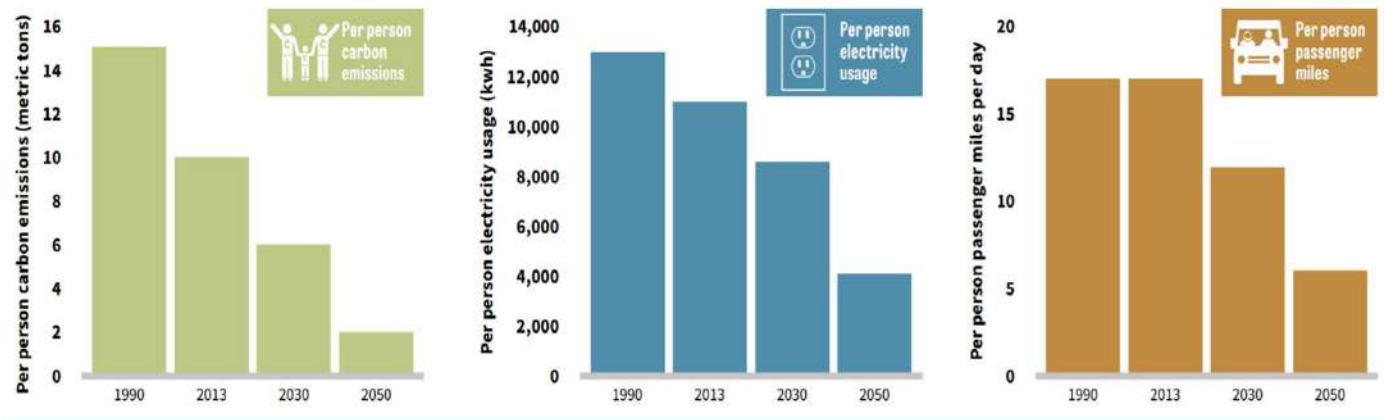


Figure 6 - Portland and Multnomah County Climate Action Plan scenarios: per person carbon emissions, electricity use and passenger miles in 2030 and 2050 (Portland Bureau of Planning and Sustainability, 2015).

Box 13 - Evaluation in Melbourne together for 1.5°C - Climate Change Mitigation strategy to 2050

The city developed a comprehensive measurement and evaluation plan to accompany their climate action strategy.

- Self-assessment once per year, to adjust the five-year rolling Implementation Plan. The city will conduct a comprehensive evaluation after five years of implementation in 2023.
- Publicly report emissions inventory each year. Evaluate and report on the implementation of emissions reductions by 2025 and report residual emissions. Reports will be publicly available.
- Collaborate with stakeholders throughout the process to create a long-term agenda and improvements.

The evaluation process should be participatory in the sense that it collects the voices of stakeholders implementing or affected by the action, to understand whether the action achieved its effects 'on the ground'.

Stakeholder participation can take the form of surveys or interviews, focus groups or other consultation methods.

Evaluation should be conducted when sufficient data has been collected during monitoring.

Trends can then emerge, allowing city officials to identify changes. Stakeholders may be able to provide an explanation of the causes for successes and failures.

Evaluations are driven by questions that are formulated to assess an action in line with evaluation criteria to be chosen depending on the preferred focus of the evaluation.

Standard evaluation criteria, usually based on OECD-DAC guidance help to ensure that different aspects of climate action or plan are thoroughly assessed:

- **Relevance**: is the action doing the right things?
- **Efficiency**: how well are resources being used?
- **Coherence**: how well does the acton fit?
- **Impact**: what difference does the action make?
- **Effectiveness**: is the action achieving its objectives?
- **Sustainability**: will the benefits last?

See more detailed example evaluation questions in Annex B (page 29), for evaluating an individual CAP action.

EVALUATE - CHECKLIST

- Define purposes, types and timings of evaluations to be done ☐
- Select realistic research questions according to evaluation purpose ☐

4.5 REPORT

Reporting means presenting the data and analysis compiled during the monitoring to stakeholders for information or knowledge-sharing.

Many diverse stakeholders are involved, from city dwellers and politicians to funders.

It is therefore essential for cities to consider who their main partners and target audience(s) are and what information they will provide and/or need.

Typically these will be made up of 4 groups:

- Political leaders including the city Mayor's office
- City and national /regional heads of department (e.g. finance, planning, transport, energy, buildings, water, sanitation, district departmental lead etc.)
- City dwellers
- External groups including other stakeholders such as development banks and funders.

The purpose of the reporting can be different depending on the target audience.

Public reporting communicates progress, making the city accountable for its activities to the public and helping to increase investors' confidence.

It can allow for knowledge-sharing between cities and with experts, potentially allowing comparisons across different years and/or different cities, depending on the level of detail provided.

Internal or direct reporting informs city stakeholders (such as other city departments) and can facilitate cross-departmental exchanges and collaboration on climate actions.

It also stimulates institutional learning, which should include plans for improving city communications teams' understanding of CAP data, for example.

Reporting can be pre-determined under a reporting plan detailing the structure and procedures. The plan should include in what format data should be reported, to whom, at what intervals and for what purpose.

Box 14 – Transparency and reporting

For Durban's Climate Action Plan, the city plans to produce a "State of Climate Change Report" every two years. This will inform updates of the the Plan every five years, including review of:

- Strategy and Direction: to adjust progress on current actions, and to take account of technological, scientific and ambition changes
- Learning and Communication: so that relevant sectors have the necessary skills and resources
- Governance and Management: mainstreaming monitoring and evaluation, defining timelines and responsibilities and requiring departments to submit data. The Governance plan aims to engage community stakeholders - an important part of monitoring.

Mexico City's 2014 Climate Action Program - The Mexico City Government started a Monitoring System of Mexico City's Climate Action Program (SSPACCM), in which government agencies report progress on their actions.

The SSPACCM enables the development of reports for every climate action, by city agency or priority axis, which guides climate change policy decisions. Trained users report progress corresponding to 14 city agencies every two months. Reported progress is publicly available online.

The reporting plan can be part of the city's CAP, as the objective is to consistently inform stakeholders on the progress. Some information will already exist within departmental reporting systems but new products might be needed.

Focus on what is necessary and important rather than trying to develop a "perfect" set of products and requirements.

Ideally, cities should aim to integrate the MER reporting within their strategic planning and reporting systems.

The content or form of the reporting can vary. It can include reports on CAP implementation, regular (quarterly/biannual/annual) monitoring reports on results or live dashboard format for some components.

The real value of MER emerges over time, when targets have been tracked over a number of years. Performance may be measured against baselines or compared with 'Business as Usual' scenarios: the scenario for when no action is taken.

It is therefore ideal to establish and maintain a robust data reporting plan, in order to maximise the benefits of keeping historical datasets.

The frequency and content of reporting should not be excessive, to avoid reporting fatigue.

Report information should include monitoring results.

Tools and templates can be created to optimise the reporting process and structure its content.

The format is then pre-defined for subsequent reports. Page 5 of the C40 City Climate Action Planning MER Indicator Matrix User Guide gives an example of such a reporting tool.

The graphic below shows the typical communications needs of different stakeholders.

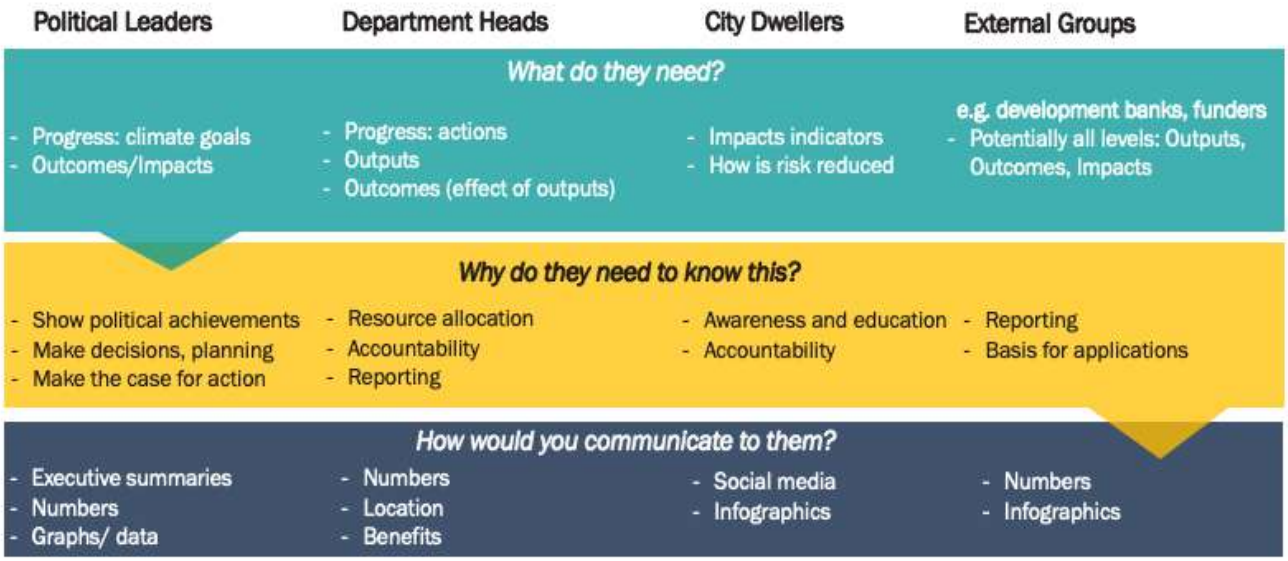
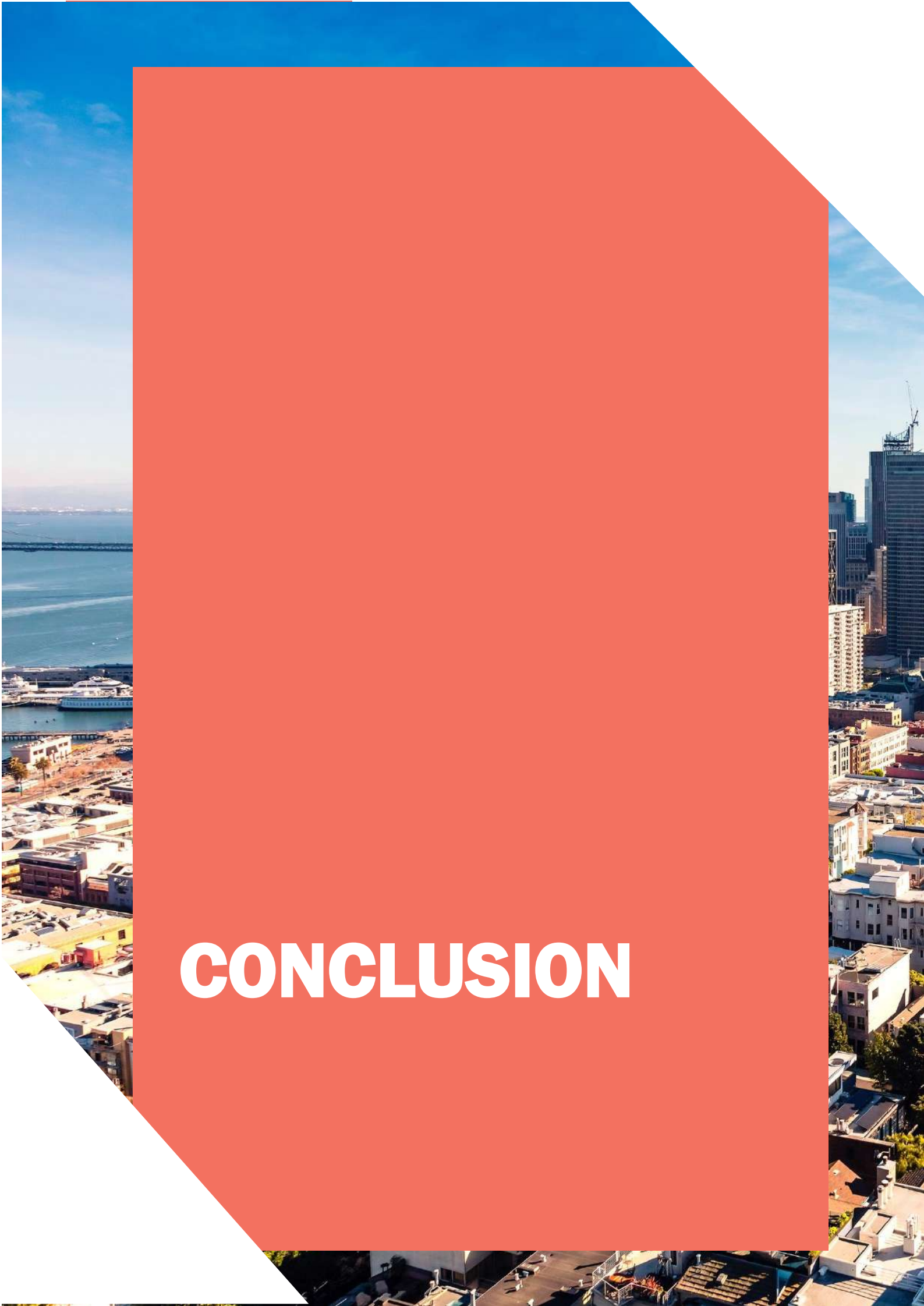


Figure 7 - City stakeholder groups have different communications needs
Source: (C40 (2020): Measuring progress in Urban Climate Adaptation Masterclass)

REPORT - CHECKLIST

- Draft reporting plan, including resources, audiences, timings and report formats ☐
- Prepare standard reporting tools and templates ☐
- Revise reporting plan incorporating user feedback ☐



CONCLUSION

5 CONCLUSION

The objective of the C40 City Climate Action Planning MER Guidance is to support cities in monitoring, evaluating and reporting on how effectively they are achieving their climate goals.

The guidance is designed to support cities in developing their monitoring, evaluation and reporting, through an inclusive and transparent process based on the city's context, capacity and priorities.

Yet, ambitious action on limiting and adapting to climate change is complex to monitor and evaluate. The vision of net zero emissions and climate risk reduction can be taken forward by identifying priority actions, setting out robust methods and having a targeted approach to indicators for reviewing progress.

A standard city Climate Action Planning MER system will not fit all contexts. Hence, cities are strongly encouraged to start with existing city systems and adapt aspects of this guide to suit their situation.

Good monitoring, evaluation and reporting can help cities amplify their ambitions and gain political support.

The process is complex and requires dedicated resources and collaboration across city departments and with wider stakeholders. But it can also help unlock additional investment for the city or greater support for the city's transformative actions.

The city Climate Action Planning MER system should be thoroughly integrated into a city's climate planning processes, checking how actions will be monitored and evaluated while they are being defined. The city can then develop and update actions in a way that enables a clear monitoring process, focusing on real change.

City capacity and resources are key challenges, both in the implementation of plans and in the monitoring of progress. This guidance and the City Climate Action Planning MER Indicator Matrix should be used together, in order to derive the maximum benefit.

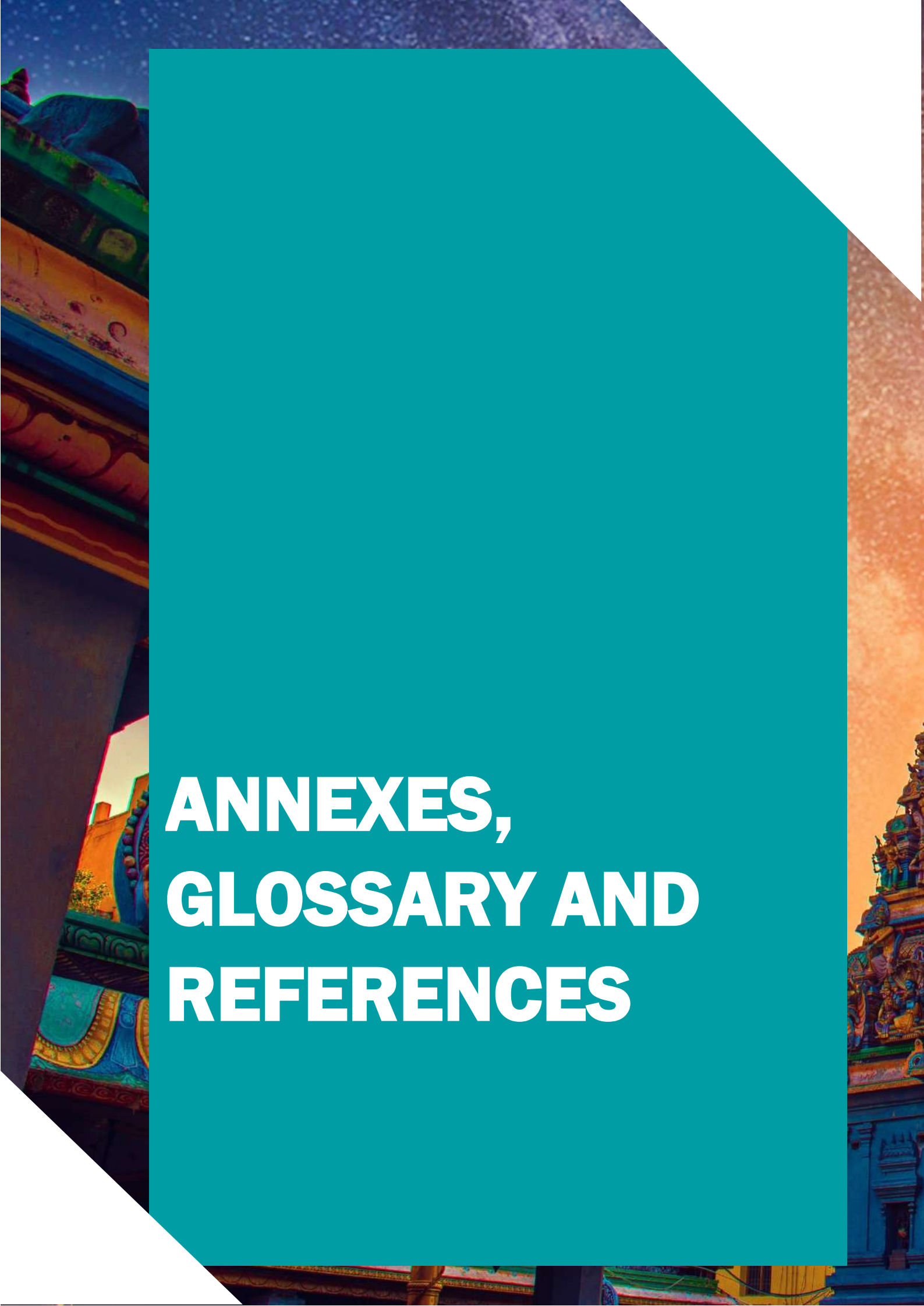
The C40 City Climate Action Planning MER Guidance is an attempt to help cities assess the success of initiatives, compare their progress internationally and strengthen the case for climate action. It allows cities to leverage existing data as much as possible and supports future reviews of the CAP, recommended to be carried out at least every 5 years.

As cities gather more evidence, the guidance and more specifically the indicator matrix will continue to evolve to meet their needs.

CITY CLIMATE ACTION PLANNING MER CHECKLIST

The table below presents a summary of the proposed checklist of key activities highlighted throughout the sections, to establish a city Climate Action Planing MER system.

Steps	Key activities	
Governance and structure	Establish a coordination team, roles, responsibilities and organisation for the Climate Action Planning MER system including national/regional levels.	☐
	Define a climate action reporting strategy linked to data collection and stakeholder mapping.	☐
	Agree resources and budget needed to implement the Climate Action Planning MER system	☐
Define the intervention logic	Develop intervention logic for all climate actions.	☐
	Identify and regularly review critical assumptions	☐
Define indicators	Select indicators for measuring progress on all targets in coordination with city departments and national/regional agencies.	☐
	Agree processes and selection of inclusive indicators.	☐
	Develop indicator methodologies and identify sources	☐
Monitor	Complete a data needs assessment.	☐
	Establish data quality controls and assurance.	☐
	Develop and regularly update the city GHG Inventory and the Climate Risk Assessment.	☐
Evaluate	Define purposes, types and timings of evaluations to be done.	☐
	Select realistic research questions according to evaluation purpose.	☐
	Check evaluation findings can be implemented.	☐
Report	Draft reporting plan, including resources, audiences, timings and report formats.	☐
	Prepare standard reporting tools and templates.	☐
	Revise reporting plan incorporating user feedback	☐



ANNEXES, GLOSSARY AND REFERENCES

ANNEX A – EXAMPLES OF OUTCOME INDICATORS

The following table shows some examples from the C40 City Climate Action Planning MER Indicator Matrix, which proposes interim output, output, outcome and impact indicators for climate actions.

The data collection process can be outlined in a data collection matrix, which describes each indicator.

Baseline data can then be collected as well as target(s), how data will be collected, how often, by whom and for what purpose.

Data collection should address all indicators in the city Climate Action Planning MER system.

Sector, Hazard Category	Outcome Indicator	Methodology	Sources
Buildings	**Energy consumption of public buildings per year (kWh/m²)**	City counts the total end use of energy in public buildings within a city divided by total floor space of these buildings.	Utility billing reports, buildings register.
Energy	**Renewable energy generated (MWh/annum)**	The total metered energy from renewable energy sources expressed in megawatt-hours equivalent per annum.	Local utility providers, city energy or environment offices, and international sources such as the International Energy Agency (IEA) and the World Bank.
Waste	**% of city population with regular solid waste collection (residential)**	The number of people within the city who are served by regular (weekly or every two weeks) solid waste collection (solid waste picked up from the household, transported and dropped at a proper treatment facility (recycling or landfill sites) divided by the total city population.	Public services reports and major private contractors dealing with solid waste collection and disposal. Studies carried out on solid waste.
Transport	**Kilometres of public transport system per capita**	The total length (in kilometres) of the public transport systems operating within the city divided by the city's total population.	Local transport providers, city transport offices, official transport surveys, revenue collection systems (e.g. number of fares purchased) and national censuses.
Storm-surge & Sea level rise	**% of storms leading to floods**	City counts number of storms and calculates how many storms lead to unacceptable flood levels.	Coastal and river authorities' statistics, reports.
Wider benefits	**Number of permanent jobs created**	City counts the number of new jobs created by the climate action, disaggregated by income level, gender, age, race/ethnicity, migrant status, etc.	Statistics office, surveys, census.

ANNEX B – EVALUATION QUESTIONS

RELEVANCE: IS THE ACTION DOING THE RIGHT THINGS? This is whether CAP action objectives and design respond to beneficiaries' needs and continue to do so if the context changes. ➢ Are the objectives of the action still valid? ➢ Is the action inclusive and equitable so that benefits are shared? ➢ Is the action and its outputs consistent with achieving reduced emissions and /or climate risk exposure? ➢ Has it created any additional benefits?	**EFFICIENCY: HOW WELL ARE RESOURCES BEING USED?** This is the whether the action delivers economic and timely results. ➢ Was the action cost effective? ➢ Was the action implemented efficiently compared to feasible alternatives? ➢ Was the original planned timescale feasible and were results achieved on time?
COHERENCE: HOW WELL DOES THE ACTON FIT? The compatibility of the action with other interventions in the sector / institution. ➢ Is the action internally coherent (with other city plans and policies)? ➢ Is it externally coherent: are national or other major policies /programmes aligned? ➢ Is coordination with others working, and is the action adding value while avoiding duplication of effort?	**IMPACT: WHAT DIFFERENCE DOES THE ACTION MAKE?** Whether the action generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects. ➢ What is the ultimate significance and potentially transformative effect of action? ➢ What is the longer term or wide social, environmental and economic effects, including on people's well-being, rights, gender equality, and the environment?
EFFECTIVENESS: IS THE ACTION ACHIEVING ITS OBJECTIVES? Whether the action achieved, or is expected to achieve, its objectives, and its results, including differential results across groups. ➢ To what extent were actions implemented as planned? ➢ To what extent were/are the objectives likely to be achieved? ➢ What were the major factors influencing the achievement (or not) of the objectives?	**SUSTAINABILITY: WILL THE BENEFITS LAST?** The extent to which the net benefits of the action continue or are likely to continue. ➢ What financial, economic, social, environmental, and institutional capacities of the systems are needed to sustain net benefits over time?

GLOSSARY

Climate Action Plan	A climate action plan is a strategic document (or series of plans and documents) that demonstrates how a city will deliver on its commitment to address climate change.
MER	Monitoring, Evaluation and Reporting.
Monitoring	Continuous, systematic collection of data on specified indicators to provide management of an ongoing intervention.
Evaluation	Process by which a city / city official assesses and understands changes identified over time, in line with the indicators and against the baseline. Contrary to monitoring, which is ongoing, evaluation is conducted periodically.
Reporting	Presenting data and analysis from monitoring to stakeholders for information or knowledge-sharing. Some reports or other media will be for programme management and others will be to show accountability, raise funds or promote wider learning.
Baseline	The original situation before the action. Baselines can range from simple data collection exercises through to large, expensive surveys, normally carried out at or near to the start of a project or programme.
Inputs	The financial, human, and material resources used for the action.
Action	Any policy, programme, or investment initiated by urban public officials with the intention of climate mitigation or adaptation.
Output	The circumstance produced by an action, such as a service, facility, infrastructure, or financial tool. The output is an improvement from the initial situation or baseline.
Outcome	The likely or achieved short- and medium-term changes generated by the output or multiple outputs. It is generally not under the direct control of the project or intervention. They show whether any desired changes are beginning to happen.
Impact	The medium or long-term effects produced, directly or indirectly, intended or unintended from the outcomes.
Indicator	A measurement to provide evidence of change. There are different types including quantitative and qualitative indicators and can be developed in different ways, according to the context.
Assumption	Key factors that might influence success in achieving an output, outcome or impact. Usually these are identified early on so the most important factors are clear to the programme team and risks can be monitored.
Milestone	Major event, dates, decision, or deliverable, usually in a project plan.
Disaggregation	Information separated out to show differences between target groups such as gender, disability, and marginalised groups.
GHG Inventory	A quantified list of a city's GHG emissions and sources.
Double counting	Two or more reporting entities claiming the same emissions or reductions in the same scope, or a single entity reporting the same emissions in multiple scopes.
Adaptive	The combination of all the strengths, attributes, and resources available within an organization, capacity community or society to manage and reduce disaster risks and strengthen resilience.
Exposure	The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.
Risk	Risk depends on the likelihood (sometimes referred as probability) of an event, multiplied with the hazard impacts (sometimes referred as consequences).
Vulnerability	The conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

REFERENCES

C40 PRODUCTS AND TOOLS

GOVERNANCE	
C40 Mayors Agenda for a Green and Just Recovery	Through the Global Mayors COVID-19 Recovery Task Force, leading city mayors have committed to providing the swiftest and strongest possible rebound for their citizens in line with the principles of the Global Green New Deal. The C40 Mayors' Agenda for a Green and Just Recovery outlines their collective vision.
C40 Governance Self-Assessment	The excel-based resource and complementary guidance document is designed to support cities in analysing the status of their climate governance in a systematic manner when developing and delivering a Climate Action Plan.
C40 Climate Action Planning Programme Vertically Integrated Action Tool (VIA Tool)	This tool is designed to analyse the alignment between city and other levels of government to inform the development of ambitious, implementation-focused city climate action plans.
ACTION SELECTION AND PRIORITISATION	
C40 Strategic Recommendations Guidelines	This guidance aims to support cities identify high impact actions during the action prioritisation process. These guidelines have been designed to support the action selection and prioritization process and should be used alongside the ASAP tool and resources.
C40 Action Selection and Prioritisation (ASAP) Tool Version 1	The ASAP Tool helps cities who have calculated their emissions scenarios using a GHG emission inventory to select and prioritise their ambitious climate actions, through a comparison of action benefits and challenges
INCLUSIVE CLIMATE ACTION	
C40 Tolkit for Equitable Impacts	This toolkit provides a global approach and tools for evaluating the social and economic benefits of bus rapid transit, congestion pricing, expanded waste collection and segregation, and cool roofs initiatives. It offers an approach for ensuring that benefits are distributed equitably.
C40 Inclusive Community Engagement Playbook	This is a practitioner's guide to developing a comprehensive and effective stakeholder engagement strategy, featuring techniques, exercises and case studies.
C40 Inclusive Climate Action Planning Roadmap Policy Recommendations	This is a collection of strategies that cities can employ to make specific climate actions more equitable, with example equity indicators and targets for each action.

C40 Inclusive Climate Action In Practice Case Studies	There are seven case studies in this report, which look at tackling climate change and social equity simultaneously: Cape Town's renovations for energy efficient homes and healthy residents; New York City's Cool Neighbourhoods strategy for tackling the urban heat island effect in its most vulnerable communities; Barcelona's climate action plan for environmental justice; Sydney's community engagement strategy; Buenos Aires' water infrastructure adaptation to protect vulnerable communities; Los Angeles' electric car sharing scheme for low-income neighbourhoods, BlueLA; and Paris' policies to address fuel poverty and engage residents.
C40 Roadmap for Inclusive Planning	This roadmap outlines the importance of tracking the social, economic and environmental benefits of climate actions. It includes indicators mapped to specific climate actions and the Sustainable Development Goals. It also includes action-specific indicators for cities to track progress against key inclusivity and equity ambitions, and example targets that cities around the world have set.
INTERVENTION LOGIC AND INDICATORS	
C40 City Climate Action Planning MER Indicator Matrix and User Guide	This excel-based document helps to assess a city's current MER system and identify opportunities to strengthen it, with logic for commonly used actions, as well as corresponding outputs, outcomes and predicted impacts. The User´s guide provides a brief summary of how to use the matrix.
C40 Climate Change Adaptation Monitoring, Evaluation and Reporting Framework	The framework helps cities 'make the case' for climate adaptation and assist and incentivise targeted climate change adaptation initiatives. It includes: a guide to measuring progress in Climate Change Adaptation, an indicator matrix and a manual on using the matrix.
C40 Indicator Matrix Manual for Climate Change Adaptation	Part of the C40 Climate Change Adaptation Monitoring, Evaluation and Reporting Framework, this matrix provides logic for commonly used adaptation actions, with corresponding outputs, outcomes and predicted impacts.
DATA MANAGEMENT	
C40 Cities Climate Data Management Framework and Maturity Assessment Tool	This outlines a set of principles to consider when developing or improving a data management strategy. It will help the city sustainability departments design and implement processes, policies, practices and systems to effectively and efficiently manage and use climate data.
IMPACTS	
Integrated Impacts Assessment Tool	The Integrated Impacts Assessment Tool is a project-level accounting tool developed by C40 that integrates C40's existing impact assessment tools and allows users to analyse multiple impacts of climate projects: for GHG emissions as well as other benefits (e.g. air quality, health and jobs). Will be available in the Resource Centre in December 2020.

CITY EXAMPLES AND OTHER REFERENCES

Amsterdam, The City Doughnut (2020). Available online here

Barcelona: More Sustainable Barcelona, Barcelona Climate Commitment, Climate Plan (2018), Climate Emergency Declaration (2020)

Copenhagen, C40. (2020). Benefits of deep retrofits. Available online here

City of Helsinki Department of Housing and Environment. (2018). The Carbon-neutral Helsinki 2035 Action Plan. Available online here

City of Los Angeles. (2019). Green New Deal - Sustainable City Plan. Available online here

City of Melbourne. (2018). Climate Change Mitigation Strategy to 2050 – Melbourne together for 1.5 °C. Available online here

City of Pittsburgh Department of City Planning. (2017 & 2018). Pittsburgh Equity Indicators – a baseline measurement for enhancing equity in Pittsburgh. Available online here

City of Portland and Multnomah County, Bureau of Planning and Sustainability. (2015). Portland Climate Action Plan – local strategies to address climate change. Available online here

City of Stockholm City Executive Office. (2016). Strategy for a Fossil-fuel free Stockholm by 2040. Available online here

District of Columbia, Sustainable DC Initiative. Available online here

Ethekwini Municipality, Department of Environmental Planning & Climate Protection. (2019). Durban Climate Action Plan – towards climate resilience and carbon neutrality. Available online here

ILO (2020). Green jobs assessment reports

ILO (2015). National employment policies: A guide for workers' organisations. Gathering and analysing labour market data.

ISO (2018). Sustainable cities and communities - Indicators for city services and quality of life. Second edition 2018-07. Reference ISO 37120:2018(E).

Kampala Capital City Authority. (2016). Kampala Climate Action Strategy – for a better City. Available online here

Mexico City, Data Gathering of Dockless Transport Use in Mexico City. Available online here

Mexico City, Secreteria del Medio Ambiente. Climate Change Action Plan Monitoring System available online here

OECD (2013). Development Results: an overview of results measurement and management.

Paris, Inclusive Climate Action in practice. Available online here

Paris, Bleu Climat. Available online here

Rio de Janeiro, Participa.Rio. Available online here (after November 2020)

Rio de Janeiro, Rio Painel. Available online here (after November 2020)

Rio, Measuring Green Jobs. Available online here

WWF (2020). WWF Colombia website