United Nations | Department of Economic and Social Affairs

KRILA Korea Research Institute for Local Administration

Handbook Series on Innovative Local Governance for the Implementation of the Sustainable Development Goals

EFFECTIVE NATIONAL TO LOCAL GOVERNANCE FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

United Nations Department of Economic and Social Affairs

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Abbreviations and Glossary

CAP: climate action plan

CC: climate change

CCRA: climate change risk assessment

COP26: Conference of Parties 26th Summit

COVID-19: coronavirus disease

DFIs: development finance institutions

DRR: disaster risk reduction

ETF: enhanced transparency framework

ESG: environmental, social and governance

GCoM: Global Covenant of Mayors for Climate and Energy

GDP: global domestic product

GEWE: gender empowerment and women's equality

GHG: greenhouse gas emissions

IPCC: Intergovernmental Panel for Climate Change

MDB: multilateral development bank

M&E&R: monitoring and evaluation, and reporting

NAPs: National Adaptation Plans

NDCs: Nationally Determined Contributions

NUA: New Urban Agenda

RLCs: Regional and Local Contributions

SDGs: Sustainable Development Goals

SFDRR: The Sendai Framework for Disaster Risk Reduction

UN DESA: United Nations Department of Economic and Social Affairs

UNFCC: United Nations Framework Convention on Climate Change

C40: Cities40, a network comprised of mayors of nearly 100 world-leading cities collaborating to deliver urgent action to confront the climate crisis

City diplomacy: refers to cities' engagement with political actors, as well as the processes and institutions through which cities represent their interests on the international stage

Climate action: encompasses mitigation and adaptation

Climate governance: refers to the formal and informal rules, structures, processes and systems that define and influence action on climate change

Climate mitigation: refers to efforts to reduce or prevent the emission of greenhouse gases.

Climate adaptation: refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts.

Climate planning: refers to the plans and strategies to adapt and respond to anticipated climate impacts and manage associated risks.

Climate emergency response: a set of actions or responses to a situation in which urgent action is required to reduce or halt climate change

Climate resilience: the ability of a system, community or society exposed to climate hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management

Embodied carbon: all the CO2 emitted in producing materials; can be contrasted with the emissions from the operation of equipment.

ICLEI: an international non-governmental organization that promotes sustainable development and provides technical consulting to local governments to meet sustainability objectives

ITMOs: internationally transferred mitigation outcomes; The new framework in Article 6.2 of the Paris Agreement addresses the critical issue of accounting for ITMOs to avoid double counting emissions credits, both by the country obtaining them and the country supplying them. The Paris Agreement calls for rules on applying "corresponding adjustments" of national carbon inventories when one country uses ITMOs to reduce its carbon footprint so that the credit cannot be claimed twice.

LDCs: least developed countries; a list of developing countries that, according to the United Nations, exhibit the lowest indicators of socioeconomic development, with the lowest Human Development Index ratings of all countries in the world

LLDCs: landlocked developing countries; a list of developing countries that are landlocked, meaning that they do not have territory connected to an ocean or whose coastlines lie on the water with no outflow to other external bodies of water like rivers

Polycentric governance: a complex form of governance with a distributed form of leadership and citizenship that protects the integrity of the system and multiple centers of decision-making, where each center has a certain degree of autonomy

SIDS: small island developing states; a group of developing countries that are small island countries, which tend to share similar sustainable development challenges

Acknowledgments

This Handbook on Effective National to Local Governance for Climate Change Mitigation and Adaptation was developed by the United Nations Department of Economic and Social Affairs (UN DESA) through its Project Office on Governance (UNPOG) of the Division for Public Institutions and Digital Government (DPIDG). The handbook was prepared under the overall guidance of Kyu Chang Ko, Head of the United Nations Project Office on Governance (UNPOG), with Prabin Maharjan, Programme Management Expert of UNPOG, serving as the lead coordinator.

Elisabeth Gomez, consultant, substantively prepared the handbook through a literature review of existing reports and studies and analysis of climate action in the global context, in particular in the Asia- Pacific region. Elements of the handbook were substantially enriched by inputs and information provided by UNPOG officials, including Ana Thorlund, Hye Yong Kim (Hailey), and Hye Kyung Choi (Shelley).

The handbook was peer-reviewed by Cristina Alicia Rodriguez Acosta of Division for Public Institutions and Digital Government of the United Nations Department of Economic and Social Affairs (DPIDG/UN DESA), Amson Sibanda, Friedrich Soltau and Carol Pollack of Division for Sustainable Development Goals of UN DESA, Samuel Njuguna and Anne Amin of UN-Habitat, and Merlin Lao and Kelly Dai of the International Council for Local Environmental Initiatives (ICLEI).

The handbook was meticulously edited by Margaret A. Ferry, International Communications Consultant, to ensure consistency, readability, and clarity of language. Sungbin Hwang (Benny) (UNV) and Ezgi Connard were engaged to graphically design the handbook to make it more presentable and attractive.

EXECUTIVE SUMMARY

Executive Summary

This handbook introduces the reader to concepts, approaches, tools, exercises and innovative cases relating to Climate Change Mitigation and Adaptation. The handbook guides the reader towards roadmaps, policy toolkits, manuals and peer support to help cities and local communities better invest in practical actions on climate change. This handbook builds on global good practice and the Training Toolkit on “Effective National to Local Public Governance for SDG Implementation." developed by UNPOG/DPIDG/UN DESA.[1] This handbook is one in a Handbook Series on "Innovative Local Governance for the Implementation of the Sustainable Development Goals" developed by UNPOG/DPIDG.

COVID-19, climate change and our interconnected world are changing the risk landscape for local communities. To maintain progress, local communities must address physical, cyber, geographical, logistical and resource-dependent risks. They must also support systems and infrastructures, including information, communications, transport, energy and other fundamental systems. Much of the power to regulate this systemic risk is outside of local authorities' control. However, global and national goals exist that do require local action dedicated to strengthening resilience. Climate impacts are felt locally. For example, emissions are the result of processes that occur in a given place. Therefore, local governments are crucial players in climate change adaptation and mitigation.

This handbook aims to:

- introduce diverse specific strategies, approaches, and policy tools to address climate change (to enhance one country’s capacity and readiness on national to local governance)
- assist local governments with mainstreaming the relevant policy frameworks and strategies for climate change mitigation and adaptation
- strengthen the capacity and readiness of local governments to promote climate change mitigation (with a particular emphasis on fostering the capabilities and skills to engage with diverse stakeholders in the policy processes)
- introduce good and innovative practices of promoting local governance for climate change mitigation and adaptation and assist local government and relevant stakeholders with identifying the areas for improvement and the possible modes and mechanisms of government interventions, where possible, in partnership with the private sector
- provide recommendations for concrete policy actions by local governments and other relevant stakeholders
- provide visibility to relevant transversal aspects, including:
  - Gender-related matters (SDG 5)
  - Focus on North Africa, Asia and the Pacific, particularly the most vulnerable Pacific Islands.
  - Relevant sectors such as infrastructure, ICT, buildings, energy (SDG 7) and transport.

This handbook initially addresses the role of local communities in effective governance for climate action within global frameworks. It then guides local communities to effective governance by considering the following themes:

Multi-level Governance for Climate Change Mitigation and Adaptation (Chapter 3): This chapter explores the transformative leadership paths toward local governance, includes the global/international contexts involving governance for climate action to help the reader understand the big picture, and links national duties and plans and commitments with the local scope. Understanding climate change policy through this multi-level governance approach helps to break down state-centric understandings and to better characterize the relationships between actors at different levels of government.

Institutional Arrangements and Readiness (Chapter 4): This chapter examines organizational structures and processes and shares roadmaps, standards, governance approaches and smart policy toolkits designed to evaluate current local climate action efforts and paths forward toward established goals.

Policy Coherence and Local-National Climate Policy Linkages (Chapter 5): This chapter explains the need to integrate the existing initiatives with the national/local SDG plans in order to build a coherent system. Mechanisms are provided to anticipate, balance and reconcile divergent policy pressures and opposing economic, social and environmental concerns. Reconciling competing sectoral interests, short-term priorities and long-term policy direction also are addressed.

Multi-stakeholder Engagement (Chapter 6): This chapter guides the reader on how to proactively engage stakeholders to achieve powerful and inclusive climate action planning.

Monitoring and Evaluation and Reporting (Chapter 7): This chapter shares how to bring rigor and structure into efforts to measure progress in achieving mitigation goals. Obtaining a baseline for monitoring the progress of initiatives and accountability is highlighted. Both help ensure that promised results are being achieved.

Conclusion: Summary and Policy Recommendations (Chapter 8): Based on the aspects discussed in previous chapters, this chapter provides policy recommendations for concrete actions by the local governments and other relevant stakeholders.

For each thematic chapter, additional reference materials are provided, including readings, cases, tools and exercises.

ABOUT THIS HANDBOOK

1. About this Handbook

1.1 Handbook Series

Handbook #2, “Effective National to Local Governance for Climate Change Mitigation and Adaptation,” is part of the series on “Innovative Local Governance for the Implementation of the Sustainable Development Goals”. These handbooks complement the Training Toolkit on “Effective National to Local Governance”, which is part of the Curriculum on Governance for the SDGs developed by UN DESA. They are intended to be used during capacity development workshops and training organized by UN DESA and other UN agencies, as well as by schools of public administration, institutes of public management and local authorities. The Handbook is designed as a practical guide for local government officials and other relevant stakeholders.

1.2. Handbook's Aim

This handbook aims to:

- introduce diverse specific strategies, approaches and policy tools to address climate change; (to enhance one country’s capacity and readiness on national to local governance)
- assist local governments with mainstreaming relevant policy frameworks and strategies for climate change mitigation and adaptation;
- strengthen the capacity and readiness of local governments to promote climate change mitigation (with a particular emphasis on fostering the capabilities and skills to engage with diverse stakeholders in the policy processes);
- introduce good/innovative practices of promoting local governance for climate change mitigation and adaptation and assist local government and relevant stakeholders with identifying the areas for improvement and the possible modes and mechanisms of government interventions, where possible, in partnership with the private sector (SDG 17);
- provide policy recommendations for concrete policy actions by the local governments and other relevant stakeholders;
- provide visibility to relevant transversal aspects, including:
  - Gender-related matters (SDG 5)
  - Focus on North Africa, Asia and the Pacific, particularly the most vulnerable Pacific Islands.
  - Relevant sectors such as infrastructure, ICT, buildings, energy (SDG 7) and transport.

1.3. Handbook Structure

The Handbook initially discusses the role of local governments in effective governance for climate action within global frameworks. It then guides local communities to effective governance by considering the following themes:

- **Multi-level Governance for Climate Change Mitigation and Adaptation (Chapter 3)**
- **Institutional Arrangements and Readiness (Chapter 4)**
- **Policy Coherence and Local-National Climate Policy Linkages (Chapter 5)**
- **Multi-stakeholder Engagement (Chapter 6)**
- **Monitoring and Evaluation and Reporting (Chapter 7)**

At the end of each thematic chapter, additional reference materials are provided in the form of readings, cases, tools and exercises.

Chapter 6 provides a concluding summary and policy recommendations.

INTRODUCTION TO EFFECTIVE NATIONAL TO LOCAL GOVERNANCE FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

2. Introduction to Effective National to Local Governance for Climate Change Mitigation and Adaptation

2.1 Objective and Purpose of the Handbook

This Handbook focuses on the critical role of local governance in combatting climate change through mitigation and adaptation. It does so by introducing diverse specific strategies, approaches and policy tools to address climate change to enhance one country's capacity and readiness on national to local governance. The Handbook will assist local governments with mainstreaming relevant policy frameworks and strategies for climate change mitigation and adaptation and strengthen the capacity and readiness of local governments to promote climate change mitigation (with a particular emphasis on fostering the capabilities and skills to engage with diverse stakeholders in the legal, institutional and policy processes). This Handbook also aims to introduce global good and innovative practices promoting local governance for climate change mitigation and adaptation and to assist local government and relevant stakeholders with identifying areas for improvement and possible modes and mechanisms of government interventions, in partnership, where possible, with the private sector (SDG 17).

Each thematic chapter in the Handbook contains specific policy recommendations, reference materials for further reading, and visual materials, such as graphs, diagrams, tables and infographics, to effectively present and deliver the contents. The Handbook takes into account the outcomes of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), known as the COP26, including new tools for carbon neutrality, such as Internationally Transferred Mitigation Outcomes (ITMOs) for carbon trading system. Relevant global frameworks, trends, policies and strategies, such as the Green New Deal [2], are also incorporated. Relevant sectors are addressed, including energy (SDG 7), infrastructure, ICT, buildings and transport.

The information and references included have been selected to be customizable for use by any location in any context globally. However, the geographic focus of this Handbook is narrowed to Asia, the Pacific and Eastern Africa regions that will experience the highest rate of urbanization. Where possible, a particular focus is placed on the Pacific Islands, given their vulnerability to climate change.

2.2 Concepts

This section introduces the most relevant concepts around the core topics of mitigation and adaptation.

The Principles

The Principles of Effective Governance for Sustainable Development, agreed upon by the UN Committee of Experts on Public Administration (CEPA) and endorsed by the UN Economic and Social Council in July 2018, are intended to help interested governments to build voluntarily, effective, accountable and inclusive institutions at all levels, in the context of the 2030 Agenda for Sustainable Development. The principles are:

- Effectiveness: i) competence; ii) sound policy-making; and iii) collaboration;
- Accountability: iv) integrity; v) transparency; and vi) independent oversight; and
- Inclusiveness: vii) leaving no one behind; viii) non-discrimination; ix) participation; x) subsidiarity; and xi) intergenerational equity.

The essential purpose of these voluntary principles is to provide interested countries with practical, expert guidance on a broad range of governance challenges associated with implementing the 2030 Agenda. To operationalize the principles, CEPA also identified commonly used strategies, which are the subject of a set of strategy guidance notes, covering topics ranging from strategic planning and foresight to territorial planning and spatial development. [3]

Building Blocks of People-Centred Local Governance Innovation Approach (PC-LGI) for Climate Change Mitigation and Adaptation

The people-centered local governance innovation approach (PC-LGI) comprises seven major "building blocks", a set of organized actions aimed at influencing public policies, societal attitudes and socio-political processes that enable and empower the marginalized to speak for themselves.

Below is a general description of the seven building blocks and their link to effective local governance toward climate mitigation and adaptation:

Vision – a desirable future scenario where vulnerability has been mitigated and people are empowered.

Strategy – departs from a SWOT analysis and includes the definition of principles and objectives.

Governance – defines the type of innovation (institutional, organizational, process, conceptual) and the necessary policy and legislation tools to promote the vision.

Process – lays out a series of agile operations necessary to achieve the vision.

Partnerships – maps the various parties, including people from all sectors willing to cooperate and advance mutual interests.

Technology – defines the technologies that likely will be employed to achieve the vision (database, sensors, cloud, mobile, AI, etc.).

Monitoring and Evaluation – define targets and key performance indicators (KPIs), milestones and SDGs addressed.

The Roadmap on Climate Action

There has been significant discussion on climate change over the last several decades, but it is well-recognized that countries have been slow to address it. Addressing climate change through action requires both mitigation and adaptation.

In the 1970s, a research study [4] concluded that the five basic factors that determine and, in their interactions, ultimately limit growth on this planet are: population, agricultural production, non-renewable resource depletion, industrial output and pollution generation. The research team fed data on those five factors into a global computer model and then tested the behavior of the model under several sets of assumptions to determine alternative patterns for mankind's future. The non-technical report of their findings, titled "The Limits to Growth", contains a message of hope: Humanity can create a society in which people can live indefinitely on earth if they impose limits on themselves and their production of material goods to achieve a state of global equilibrium, with population and production in carefully selected balance.

More recently, Kate Raworth [5] has popularised a new economic theory that aims to combat both social inequality and climate change. The so-called "Doughnut Economics" model aims to provide a framework that prioritizes people and the planet over profit. Rawworth argues that 20th-century ideas - such as capitalism and communism - are not equipped to deal with contemporary ecological and financial challenges. She argues that policymakers traditionally have enacted one solution for financial crises and a different one for the climate crisis. The doughnut model brings together those solutions when deciding on systems needed for a functioning community, such as housing, food and energy (SDG 7).

Climate Change Mitigation and Adaptation

The Paris Agreement calls for Parties to commit to avoiding dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. To achieve this, many countries have pledged to achieve carbon neutrality, but the path to achieving it is not a smooth one. There are differences in interests and perceptions between developed and developing countries in responding to climate change. Developed countries are more interested in greenhouse gas mitigation measures. Developing countries are more serious about climate adaptation issues due to their exposure to emerging climate change risks and disasters, along with concerns about mitigation costs. Developing countries are raising their voices asking for the developed countries to take more responsibility for climate change risks and to fulfill their commitments to provide US$100 billion for developing countries' climate action work.

Even within a given country, the interests of the central and local governments may differ. In instances where local industries depend on fossil fuels, local residents may resist and challenge the demands of the central government for climate change mitigation and carbon neutrality. They may believe government demands and related policies are unrealistic. The reverse can also be true if the national government pursues the development of fossil fuel industries to the detriment of local populations. Examples include the opposition of indigenous peoples in the Amazon region to the extraction of fossil fuels or of the Standing Rock Sioux Tribe in the United States to the Dakota Access Pipeline.

Mitigating climate change and achieving carbon neutrality involves costs that companies and local governments may not absorb. However, most studies find that the costs are manageable, especially compared to the cost of inaction. Macroeconomic impacts caused by climate change may collapse the local economy and create massive unemployment. To maintain the balance between sub-national and local regions, the state must come up with active measures and provide substantial support to the affected regions and industries, as well as promote opportunities in new green industries.

As economies face difficulties relating to rising energy costs and raw material prices resulting from conflicts (e.g., the 2022 Russia-Ukraine War), it is becoming more difficult for many businesses and citizens to meet the rising costs of climate change mitigation measures. These issues will need to be addressed if action on climate change is to be successfully accelerated.

Importance of Addressing Climate Change Action in the Local Context

The role of cities in climate resilience has been recognized by the Paris Agreement, which identifies cities as "important stakeholders capable of mobilizing strong and ambitious climate action." [6] The New Urban Agenda (NUA) also puts urban areas at the centre of climate change action and notably introduces a multi-level governance approach by including the commitment to promote "international, national, subnational and local climate action, including climate change adaptation and mitigation, and to supporting the efforts of cities and human settlements, their inhabitants and all local stakeholders to be important implementers."

Urban areas account for two-thirds of greenhouse gas (GHG) emissions and energy consumption, making them major contributors to climate change. Many cities are already suffering from extreme weather events, flooding, storms, heat waves, water scarcity, droughts, sea-level rise and other climate change effects. Urban areas stand to be more acutely affected by climate change and global warming due to the concentration of people and population growth.

The increasing intensity and frequency of climate-related shocks and their diverse, localized manifestations mean that the task of addressing climate change is likely to fall disproportionately on local government. The profound, transformative changes in the economy and society required to achieve global climate commitments can only be initiated and shaped by comprehensive strategies that encompass all policy fields and levels concerned. It has often been stressed that the SDGs can only be achieved jointly in a meaningful way and that "cherry-picking" of individual goals or targets will not lead to sustainable development. At the same time, to make climate policies effective, priorities need to be set and national and local conditions taken into account [7].

Local Government Challenges in Addressing Climate Action

Many local governments, while aware of climate change risks and their associated geographic vulnerabilities, face major challenges in the preparation and implementation of suitable local climate plans. There is a lack of a regionally contextualized and standardized methodology to assess climate risk and vulnerability. The data needed to inform, identify and prioritize suitable adaptation measures are often missing, inaccessible, scattered or collected in different formats. Most local governments lack the financial and human resources to deal adequately with the issue of climate adaptation and resilience. The commissioning and monitoring of third-party services in the field of adaptation (whether for studies, planning documents or infrastructure construction) often also is very difficult, as it is a relatively new field and experience in the field is not always available. It is, therefore, not surprising that very few local governments are making progress in developing and implementing appropriate mitigation and adaptation plans.

A significant number of countries facing climate change challenges are found in Asia, the Pacific and Eastern Africa. These include:

- Small Island Developing States (SIDs): These countries tend to share similar sustainable development challenges, such as growing populations, limited resources, remoteness, susceptibility to natural disasters, vulnerability to external shocks, excessive dependence on international trade and fragile environments. Their growth and development are also held back by high costs of communication, energy and transportation, irregular international transport volumes, disproportionately expensive public administration, and lack of infrastructure due to their small size and little to no opportunity to create economies of scale. In many cases, they are multi-island States that are spread over vast areas, so governing across the many jurisdictions is costly and inefficient. Often countries employ only an administrative role as opposed to enforcement over the use of resources.

- Least Developed Countries (LDCs): These countries are particularly vulnerable to climate change but have done the least to cause the problem. Climate change has not been a priority for local governments in LDCs. Through the UN LDC Group on Climate Change, LDCs are currently playing a leadership role in the collective global efforts to prevent climate change.

- Landlocked Developing Countries (LLDCs): The structural vulnerabilities and limited productive capacities of these countries expose them disproportionately to the severe negative impacts of climate change. The socioeconomic impacts of COVID-19 have exacerbated existing vulnerabilities to climate change, especially drought, desertification and land degradation. The UN COP26 meeting reflects the priorities given to LLDCs, with a focus on water security (SDG 6), food security, energy connectivity, infrastructure, and interlinkages.

Gender Equality and Women's Empowerment (GEWE)

Within local climate governance, there is an opportunity to advance Gender Equality and Women's Empowerment (SDG 5). This handbook offers tips for local governments to consider gender-disaggregated information and data and gender-sensitive aspects while progressing on climate action.

Further guidance in this area is available in Handbook number 1 of this series, “Promoting Local Innovation for Inclusion of People in Vulnerable Situations and Leaving No One Behind.”

2.3 Global Frameworks

Global and international initiatives for governance for climate action translate into national and, subsequently, local duties, plans and commitments. Therefore, it is important to understand the bigger context of climate governance and the relationships and trends at different levels of government. The most relevant global initiatives for climate mitigation and adaptation are:

1. 2030 Agenda for Sustainable Development (SDGs) -- SDG 13 (climate action) and SDG 16 (strong institutions)
2. The 1992 United Nations Framework Convention on Climate Change (UNFCCC)
3. The New Urban Agenda (NUA)
4. The Paris Agreement and tools for complying, including:
    a. Nationally determined contributions (NDCs)
    b. Long-term strategies (LTSs)
    c. Nationally Appropriate Mitigation Actions (NAMAs) o National Adaptation Plans (NAPs)
    d. Adaptation Communications
5. Sendai Framework for Disaster Risk Reduction
6. The UN Principles of Effective Governance for Sustainable Development
7. Other climate-related development frameworks:
    a. The Global Framework for Climate Services
    b. The Montreal Protocol on Substances that Deplete the Ozone Layer

These initiatives are further described in Annex 1.

These global frameworks are crucial to enhance resilience. They can serve as transmission mechanisms that create international norms and help citizens hold national governments accountable. However, their effectiveness depends on the commitment and action of national governments, civil society, businesses and citizens. Chapter 1 addresses how these tools can be applied to local contexts for climate mitigation and adaptation.

The most recent evaluation of such global initiatives and their results to date is available at the GAR2022 [8]. The evaluation encourages reflection on the progress made to date and the road ahead. It clearly highlights that current efforts are not on track to achieve most of the global targets but also provides pathways and solutions to accelerate action and reverse this trend.

Global current context, facts and trends

- The most important event on climate action globally by governments is the UNFCCC COP [9]. At the time this handbook was prepared, the last summit had taken place in 2021 (COP26). At the COP, countries consider the Intergovernmental Panel for Climate Change (IPCC) reports. At COP26, the IPCC noted that all regions of the world are dealing with increasingly severe climate change impacts and that every additional increment of warming escalates the risks to people, ecosystems, and communities. The IPCC also noted that to have a chance of keeping global warming to 1.5°C – and avoiding the most disastrous consequences – emissions need to be cut in half by 2030 and reach “net zero” by 2050. Action by the parties to the UNFCCC, pursuant to the Paris Agreement and decisions at subsequent COPs, including COP26, plays a critical role in putting the world on a safer path.

- Relationship between the UNFCCC, the Paris Agreement, and the COP [10]: The COP is the annual UN Climate Change Conference assessing progress on combatting climate change and representing the supreme decision-making body of the UNFCCC and the COP. The negotiations focus on a variety of areas, including agreements by countries on future emissions reductions. The negotiations are a vital means of monitoring the progress made to date and of working out future targets if the goals of the Paris Agreement are to be met. This agreement is a legally binding treaty adopted by 196 countries at the climate change COP 21 in 2015. The main goal of the agreement is to cut global greenhouse gases in order to limit global temperature increases as close as possible to 1.5 degrees Celsius. Other agreed measures focus on adaptation, education (SDG 4), financing, technological cooperation and recognizing the role climate action plays in reaching many other Sustainable Development Goals.

- Introduction to governance for climate action to understand the whole picture [11]: With just under ten years left to achieve the Sustainable Development Goals, world leaders at the SDG Summit in September 2019 called for a Decade of Action and delivery for sustainable development, and pledged to mobilize financing, enhance national implementation and strengthen institutions to achieve the Goals by the target date of 2030, leaving no one behind. The UN Secretary-General called on all sectors of society to mobilize for a decade of action on three levels: global action to secure greater leadership, more resources and smarter solutions for the Sustainable Development Goals; local action embedding the needed transitions in the policies, budgets, institutions and regulatory frameworks of governments, cities and local authorities; and people action, including by youth, civil society, the media, the private sector, unions, academia and other stakeholders, to generate an unstoppable movement pushing for the required transformations. At the core of the 2020-2030 decade is the need for action to tackle growing poverty, empower women and girls, and address the climate emergency.

- The urgency and importance of acting on climate mitigation and adaptation

    - The climate's impact on individuals: As considered in the latest IPCC report [12] (Working Group 2 of the 6th Assessment) [13] on key impacts, climate impacts are likely to exaggerate existing socio-economic issues in many countries and negatively impact individuals. The report's Summary for Policy Makers of the Working Group 1 sets out the latest temperature trends, which can be translated into different contexts, such as health issues due to heat waves, loss of agriculture due to climatologic events, alteration of tourism sectors, and conflict and tension in local society over solar panels and windmills. Socio-economic pressures exerted by climate change also may potentially cause increased internal displacement and rural-urban migration and, consequently, further weaken social cohesion.

    - Progress is being made, but overall, action is not yet advancing at the speed or scale required to deliver on the SDGs by 2030. Urgently acting on climate change is a priority at all levels. The September 2021 UNFCCC Synthesis Report implies an urgent need for a significant increase in the level of ambition of NDCs between now and 2030 [14].

- The energy crisis [15]: The energy crisis of 2021-2022 has disrupted the availability and supply of energy resources to large parts of the global economy, even as demand has continued to increase. Factors, including the post-COVID-19 pandemic economic recovery and supply chain disruptions, are contributing to the global energy crisis. Prices for fossil fuels, including oil, natural gas and coal, which account for the bulk of global energy demands, have risen considerably. Developed and developing economies alike are feeling the impact. Higher energy costs feed into higher inflation across a broad range of items, both directly and indirectly, such as electricity, transportation and food. It is not certain how long the current energy crisis will persist.

- The great economic transformation [16,17]: According to the World Economic Forum, anxiety about the world's social and economic prospects is intensifying. A sharp economic downturn has already begun, and the world must act jointly and swiftly to revamp aspects of societies and economies, toward the so-called "Great Reset" of capitalism, with climate action as one of the pillars to achieve it. The Global Green New Deal, initiated in 2007 by the United Kingdom and the United Nations and followed by the European Union on a major scale, calls for public policy to address climate change while also achieving other social aims such as job creation and reducing economic inequality. The Green New Deal combines Roosevelt's economic approach [18] with modern ideas such as renewable energy (SDG 7) and resource efficiency.

- Climate mitigation: Achieving the UNFCCC goals of the Paris Agreement will require a massive increase in action on climate issues. That said, some low-carbon solutions and new markets have already been sparked since the agreement. More and more countries, regions, cities and companies are establishing carbon neutrality targets. Zero-carbon solutions are becoming competitive, representing 25 percent of emissions across all sectors. This trend is most noticeable in the power and transport sectors and has created many new business opportunities for early movers. By 2030, zero-carbon solutions could be competitive in sectors representing over 70 percent of global emissions [19]. Statistics indicate the priority sectors where action on climate change and adaptation are most needed: almost three-quarters of emissions come from energy use; almost one-fifth comes from agriculture and land use (this increases to one-quarter when considering the food system as a whole, including processing, packaging, transport, and retail); and the remaining 8 percent comes from industry (SDG 9) and waste [20] (SDG 12).

MULTI-LEVEL GOVERNANCE FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

3. Multi-level Governance for Climate Change Mitigation and Adaptation

3.1 Introduction

Multi-level governance is defined as “the arrangements for making binding decisions that engage a multiplicity of politically independent but otherwise interdependent institutional actors (private, public and social) at different territorial levels, and that does not assign exclusive policy competence or assert a stable hierarchy of political authority to any level" [21]. In other words, multi-level climate governance is a continuous process of discussions and negotiations involving a diverse group of national and local governments, international organizations, the private sector, NGOs and other social actors. Its purpose is to promote opportunities and prompt action to address pressing issues such as climate change. These decision-making and discussion processes may be formal or informal, are flexible and adaptive, and can take place at local, national, regional or international levels. [22]

The most relevant actors of multi-level governance are national governments, regional governments, local governments and non-state actors (e.g., civil society organizations, the private sector).

In general terms, climate action (adaptation and mitigation) has not yet been achieved at national levels and is not effectively trickling down to the local government level. That is to say, national climate change strategies and action plans are being developed without collaboration and cooperation with local governments. The resulting strategies and action plans are not generally translated into sectoral or local government action plans. While many local governments are tackling climate change, their general awareness of national climate action strategy is often somewhat limited or not a priority. Climate change has been treated primarily as an international issue to be dealt with by the national governments and as an issue well beyond the jurisdiction and responsibility of local governments.

3.2 Key Takeaways, Messages, Concepts

- Multi-level, adaptive governance approaches must be enhanced and promoted. When reflecting, it is important to bear in mind that scale and typologies are key, and every context is different. [23]
- Co-creating solutions in collaboration with the private sector are key to finance, design and lead urban resilience-building. [24]
- Similarly, co-creating solutions for data and information sharing between public agencies is key and also serves as a feedback mechanism to the general public.
- Given the global, national and local reach of the effects of climate change, multi-level governance is crucial to address its multi-level causes and impacts, and the participation of all social actors is necessary to provide an effective response. [25] Climate change needs to be front and centre at all levels of governance.
- Multi-level governance strengthens and promotes innovation, problem-solving capacity, learning, and the development of solutions that benefit more sectors. It can make decision-making or public policy processes more efficient and create mechanisms that can be adapted to specific contexts and a wide range of topics. [26]

3.3 Strategies/Approaches

Conceptual framework: Multi-level climate governance instruments and frameworks differ along numerous dimensions. These dimensions refer to the following issues [27]:

- *What are the governance capacities fostered by multi-level climate governance for different levels of government?*
- *How do governments engage in multi-level climate governance?*
- *Who is involved in multi-level climate governance?*

The instruments for multi-level climate governance [28]

- Information and Knowledge: Monitoring and reporting; Certification and award schemes
- Finance: Local government own-source revenues; Domestic climate and development finance
- Coordination and cooperation: National policy alignment; Inter-municipal and regional cooperation; networks, city twinning and partnerships (SDG 17)
- Institutional capacities: Human resources and capacities

Inevitable Interdependence: National governments rely in part on regional and local governments to implement national climate strategies to narrow the emissions gap and adapt to climate change. Conversely, local and regional governments are affected by the legal, institutional and financial instruments and frameworks put in place by higher levels of government.

Enabling conditions for multi-level climate adaptation governance [29]: The following actions help achieve multi-level climate adaption governance:

- **Prioritizing building local capacities:** Mechanisms include defining adequate minimum qualifications of staff (local government officials and other stakeholders), performing capacity needs assessments and mandatory periodic training, and promoting knowledge exchange with other local governments.

- **Fiscal decentralization:** Legal frameworks should enable local authorities to raise revenue to fulfill their functions, e.g., by authorizing municipalities to levy taxes such as land-based taxes (property tax, infrastructure charges, land value capture, sale of serviced land, sale of development rights), non-land taxes (license fees for businesses, taxes on households, taxes on vehicles, etc.), and user charges (services, planning applications and building permits, business registration, market fees), among others. Similarly, it is important that local governments have autonomy and resources to independently implement local mitigation and adaptation measures.

- **Public participation in environmental decision-making:** Residents' needs and opinions should be integrated into the process and reflected in the outcomes.

- **An expanded local mandate for climate change-related activities:** Local governments are closest to the people they serve and can ensure effective, appropriate, and cost-effective delivery of services based on first-hand knowledge of the territories affected.

- **Local data collection and sharing vertically and horizontally:** Sharing of data assists public bodies in making more informed policy decisions (so-called evidence-based decision-making), allowing for the aggregation of data from a wide range of sources in greater quantities. This can reveal new correlations and patterns that can help governments to tackle multi-dimensional challenges and reveal correlations that would otherwise not be visible. Sharing data reduces searching and processing times, which in turn can help to speed up decision-making and improve efficiency.

- **Supportive legal frameworks:** Strong comprehensive laws can create legally binding obligations to set GHG emission reduction targets and adaptation goals and create oversight bodies and coordination mechanisms to bring together and clarify responsibilities across levels of government and lay down obligations to mainstream climate change action into national and sub-national plans.

- **Political will:** There needs to be a deliberate directive from political leaders to ensure successful local implementation, including through a "political champion". Such actions may be motivated through awareness of co-benefits, especially financial ones, such as achieving cost savings and attracting external funding and investment, as well as expected "political gains for local leaders" that may accrue from undertaking climate change activities.

Mechanisms for multi-level CA governance: Mechanisms for multi-level CA governance include the development of relevant policies and legislation (which may be sectoral such as housing, environmental, energy, transport, etc.) and mitigation and adaptation plans. [30] These include:

- **Informal mechanisms**: These are collaborative practices that have been forged without the aid of regulatory instruments and may include initiatives such as local government networks and partnerships (SDG 17) or informal fora, which bring together representatives from different levels of government and non-State actors (including facilitating access to funding through joint bids and providing capacity building to members through training and technical support). For example, in India, more than 100 cities have created a Climate Alliance that provides a platform for information sharing on urban climate action. Local government networks also can "improve both horizontal and vertical coordination and coherence, for example, where cities develop shared GHG emission reduction targets (horizontal), or where city networks represent cities' interests vis-à-vis national governments or in international processes (vertical)" (Giz (2018). Multi-Level Climate Governance Supporting Local Action. Instruments enhancing climate change mitigation and adaptation at the local level; see (https://www.citiesalliance.org/sites/default/files/giz2018-0318en-cpmud-multi-level-climate- governance.pdf).

- **Formal mechanisms:** The three main formal mechanisms that appear most prominently are:
  - Intergovernmental bodies with multi-stakeholder representation: For example, Kenya has a Climate Change Council chaired by the President and comprised of representatives from the national cabinet, the county government, the private sector, civil society, academia, and marginalized communities. The Council has the primary coordination role for climate change policy direction, oversight, and guidance across all levels of government and for ensuring that climate change is mainstreamed across all levels of government.

  - Financing mechanisms aimed at incentivizing institutional coordination (e.g., through conditional intergovernmental transfers or formalizing financing mechanisms aimed at incentivizing institutional coordination in climate change action): One example is India's Tamil Nadu Urban Development Fund, which is a form of subnational pooled financing mechanism (SPFM) that allows local governments to jointly access loans, bonds and other forms of finance. SPFMs enable local governments that individually lack the credit history or financial scope to access such finance to do so collectively.

  - Bilateral agreements between levels of government where they agree to pursue collective action, with one level complementing the actions of the other: The energy conservation target responsibility system (ECTRS) in China provides an example of such an arrangement. Although the country's governance structure is characterized by strong central government control, local governments play a significant role in the implementation of national policies. In the ECTRS, targets set at the national level are cascaded down and implemented at the provincial and local levels. The responsibility for achieving the targets is vested at the subnational level (e.g., provincial governors and party secretaries), with the national government committing to support local implementation through capacity building and financing. The targets are also differentiated, with more developed provinces receiving higher targets. While the targets are developed in a top-down manner, the sub-national governments determine the best way to meet them, taking into consideration their socioeconomic status, financial resources and technological capabilities.

Existing National and Local Plans: Most countries have published their NDCs, many of which emphasize the central role of cities, local governments and investments in cities in achieving their goals. While it is not always clear how these goals will be integrated at the local level, several countries indicate that they will include local requirements/targets in their National Action Plans (NAPs) for local adaptation in their NDCs. This can be achieved, for example, by including guidelines for spatial planning, adaptation measures and/or the incorporation of risk factors at the local level (e.g., municipalities with more than a certain number of inhabitants). The NAPs already published are mostly related to transport, agriculture, housing and energy (SDG 7) at the national level. Only a few countries (e.g., Chile) have developed a NAP exclusively for cities.

Relevant strategies for multi-level climate governance: One prominent approach to implementing multi-level governance for climate change mitigation and adaptation while linking the national duties and plans, and commitments with the local scope promotes collaboration, communication and engagement among all levels of government in a process led by parties such as national governments and international organizations such as the UN and donor agencies [31].

National governments can provide the enabling environment to help produce regional and local contributions (RLCs). RLCs are the climate commitments, actions and achievements of local and regional governments across mitigation and adaptation. Effective RLCs should be underpinned by robust data and should include at least the following elements [32]:

- A baseline level of ambition, including a minimum target in line with current NDCs, geographically differentiated commitments to mitigation and adaptation reflecting the local context and capabilities, and a five-year review process
- Mitigation and adaptation commitments and actions, addressing key sectors and synergies, driven by data, using monitoring and evaluation processes, with resilience and equity outcomes (e.g., facilitating renewable energy access, reducing energy poverty (SDG1), and ensuring energy affordability for all)
- Institutional set-up/implementation parties, addressing government operations as well as the whole territory/jurisdiction – in part facilitated by relevant national-level focal points and technical working groups
- Transparency, measurability, and aggregation to facilitate collaborative and complementary contributions to national policies, including global reporting, advocacy, science-based targets and inclusion in reports to the UNFCCC
- Compatibility with NDCs to facilitate incorporation into vertically integrated national policy developments, inclusive of NDC implementation and investment plans
- Alignment with existing nationally recognized commitments, including the Global Covenant of Mayors for Climate and Energy (GCoM), the Cities Race to Zero, and the Cities Race to Resilience
- Consultation and dialogue to facilitate co-creation and co-ownership of vertically aligned climate and sectoral policies and plans that enable alignment of effort, stakeholder participation and tracking of impact.

3.4 Innovative Cases

The cases presented below embrace the main topics discussed in this chapter: fiscal decentralization, public participation, expanded local mandate, local data collection, supportive legal framework and political will.

Case 1 [33]: Supporting resilience to climate change in Asia – the European Union's contribution through political will and expanded local mandate

Through the International Urban Cooperation (IUC) programme, the European Union is providing support to strengthen climate change resilience in Asian cities, especially in China, India, Indonesia, Japan, Malaysia, the Republic of Korea and Viet Nam. IUC provides dozens of pilot cities in the region with capacity-building and technical assistance while developing climate action plans that integrate mitigation and adaptation measures as well as promote access to clean and affordable energy (SDG 7) aligned with national programmes to support multi-level governance via the implementation of the Global Covenant of Mayors for Climate and Energy (GCoM). This covenant is the largest global alliance for city climate leadership, built upon the commitment of more than 9,000 cities and local governments. Local community organizations and stakeholders are extensively involved. Efforts include initiatives to support innovation, data reporting and investment.

Case 2 [34]: Mainstreaming climate change into urban-related policies through multi-sector and multi-level participation and engagement in the Philippines

The Philippines ranks highest in the world for vulnerability to tropical cyclones and scored fourth position in the Global Climate Risk Index of 2021 among most weather-affected countries. Studies show that the projected sea level rise will likely affect 70 percent of the 145 cities and 1,489 municipalities located in the coastal zone, home to more than 13 million people. The central government recently updated the National Urban Development Housing Framework via a participatory, multi-stakeholder, cross-sector process. The Framework for the period 2017-2023 is built on climate-sensitive and resilience-focused urban development principles and strategies. This approach recognizes the complex nexus of climate change and urbanization. It is guided by the principle of "climate resilience as the basis of spatial structuring and sectoral development". The Government of the Philippines took several key steps when drafting this framework, including forming inter-agency technical working groups and reviewing existing policies and legislation. Sustained coordination between government organizations and agencies and constant dialogues among the practitioners were essential to developing and agreeing on the evidence-based context and to providing the agencies with inputs on the linkages between urban development and climate change actions.

Case 3 [35]: Tunisia: tackling the energy transition through national-local collaboration promoting public participation and local data collection

The transition to clean, secure and affordable energy cannot succeed without the comprehensive engagement of cross-sector stakeholders – particularly national and local governments. In Tunisia, the National Agency for Energy Management (ANME) has spearheaded the deployment of the Alliance of Municipalities for Energy Transition (ACTE) programme, which aims to strengthen Tunisian municipal capacity to contribute its fair share to the national energy transition by exploiting energy efficiency deposits and renewable energy use. Facilitated in partnership with the Ministry of Local Affairs and Environment, the Local Authorities' Loans and Support Fund, and the Training and Assistance Center for Decentralization, ACTE also seeks to align municipal energy management practices with European Energy Award principles across planning, project set-up, feasibility studies, implementation, and monitoring and evaluation.

Targeted support has been received from the Swiss State Secretariat for Economic Affairs. A credit line for local governments opened in 2018 has helped finance studies and other investments in energy management. Local climate action plans are prerequisites for program eligibility. The use of MyCovenant (one of the official GCoM reporting platforms) to visualize critical data among local and national governments helps inform and strengthen Tunisia's climate and NDC policy developments. With an unconditional NDC emissions reduction target of 45 percent, Tunisia's local and national governments are coordinating together to meet their shared ambition through proven practice on energy management and the implementation of renewable energy and energy-efficient technologies.

Case 4 [36]: Chinese Jiangsu Province's innovative multilevel governance approach to provincial spatial planning

The case of the Jiangsu Province in China is an example of good practice that reinforces a future pathway for integrated rural-urban sustainability planning. It promotes expanded local mandate and a supportive local framework.

Jiangsu Province is now almost 70 percent urban, up from less than 18 percent urban in 1978. Jiangsu's cities first introduced master plans to plan new city districts and industrial parks. Over the last 20 years, the province has instituted citywide strategic planning, abolished the role of counties in large cities and added metropolitan planning frameworks. Jiangsu's Urban System Planning 2001-2020 was China's first territorial provincial planning framework. In Jiangsu, planning decisions are disaggregated to eight sectoral departments. The simplistic idea of returning to a singular master plan is now giving way to the realization that China needs "comprehensive blueprints" and that organizing the functions of spatial decision-making, planning delivery, monitoring and regulatory oversight is difficult. Internalizing all functions will not necessarily lead to more coordination and could easily defeat the need for more participation between stakeholders – a vital requirement in a context of significantly increased complexity in regeneration and peri-urban areas. Leading planning experts in China advocate the shift to blueprint planning processes with defined goals and clearly laid out options for intervention. The "blueprint" concept is designed to supplant "visions", which have always been tied to linear, top-down decision-making in China. Blueprints, on the other hand, are based on many forms of collaboration strategies and action plans by cities and regions, governments and communities, and public and private partners. Provincial and urban regional blueprints should be holistic and sustainable while allowing for diversity, change and participation.

Case 5 [37]: Examples of successful fiscal decentralization

One example of a successful domestic climate finance scheme is Sweden's Klimatklivet, which finances local climate measures such as charging infrastructure for electric vehicles, biogas plants, bike infrastructure and extensions of district heating networks. This is achieved through the Climate Leap initiative to provide financial support for emissions reductions in municipalities and regions (Swedish Environmental Protection Agency 2018a).

Other successful fiscal decentralization schemes include the Municipal Climate Action Model Projects (*Kommunale Klimaschutz-Modellprojekte*) in Germany, which finances projects in areas such as waste management, energy, transport and agriculture, and Short Pathways for Climate Protection (*Kurze Wege für den Klimaschutz*), which funds neighborhood initiatives aimed at informing, connecting, activating or supporting climate-friendly everyday behaviour (BMU 2018b, 2018c).

In South Africa, a national Green Fund was established with a Funding Window for Green Cities and Towns, with a focus on the areas of sustainable transport, sustainable waste management and recycling, renewable energy and energy efficiency, sustainable water management (SDG 6), sustainable human settlements and ecosystem services (Green Fund 2017).

Colombia's National System of Royalties (*Sistema General de Regalías*) allocates funds to departments and municipalities based on royalties from the exploitation of non-renewable resources (Government of Colombia 2018a). Though not originally related to climate change goals, for the biannual period of 2017–2018, the allocation of approximately 5.1 percent of the total was made mandatory for disbursement concretely in the areas of disaster risk reduction and climate change adaptation.

3.5 Actions/Steps

Vision

Empower local governments so that national policies and finances leverage existing local experiments, accelerate policy responses, foster resource mobilization (including fiscal decentralization) and engage local stakeholders – achieved by keeping a vision on recovering power balance among the governance levels involved in climate change, particularly from the national government level.

Strategy

Identify actors/stakeholders at each governance level, including horizontal, vertical and international (see Chapter 3 for more details), use the synergies to build partnerships and close the local governance capacity gaps through capacity building.

Conduct a powers analysis, which can help to explain power dynamics and imbalances among government levels and how they might influence the climate action planning process [38]

Governance

Link policy and align local climate plans with the latest science, taking data-driven, policy-targeted inspiration from existing research and policies such as the Summary for Urban Policymakers (SUP), For Cities, by Cities, the Paris Agreement, and your country's NDC, and how they match up – and find ways to increase ambition together. [39]

Process

National, regional and local governments collaborate to initiate processes of policy coordination to help them define how to move from short-term objectives to long-term targets and identify the roles that the different levels should play in a country. Such processes should also aid in the identification of concrete measures to be taken at different levels to ensure an enabling environment that is conducive to climate action.

Partnership

Partner with the national government to integrate Regional and Local Contributions (RLCs) by engaging with national government ministries, commissions, and task forces focused on climate to secure integration of local and regional perspectives. For example, connect with the national government bodies tasked with crafting your country's NDC and highlight the opportunity to strengthen country-wide commitments through RLCs; coordinate with the GCoM alliance and subnational government associations to make the case to the wide audience for increased national impact on mitigation, adaptation and energy when engaging local and regional governments as distinct policy partners and integrating RLCs. [40]

Identify and join relevant networks on climate governance, consider city twinning and further partnerships for win-win scenarios.

Technology

Promote experimentation and innovation, particularly at local and regional levels of governance

Monitoring and Evaluation

Strengthen local data collection, adopt open data standards and provide for evaluation of outcomes

3.6 Exercises

When conducting the exercises suggested below, do so with the GEWE aspect in mind. Where possible, provide gender-disaggregated information/data, consider gender-sensitive information and prioritize gender-oriented choices. When reflecting on multi-level climate governance, consider whether all governance levels include representatives with knowledge of and stakeholders whose core expertise is dedicated to GEWE matters.

The UNPAN – Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development: proposes a Self-Assessment Questionnaire to provide an accurate picture of the reality on the ground with regard to three main social, economic and environmental aspects (questionnaires to be accessed via https://unpan.un.org/capacity- development/otc/self-assessment-tools/self-assessment-questionnaire/ due to their length). The questions can be considered at the national or local level according to your position. This is a transversal tool, therefore for the purpose of this exercise, in the questionnaire, replace the words “sustainable development” and “SDGs” with “climate action” and “climate action goals,”

- **Exercise 1 [41]:** System thinking and policy linkages: integration of the social, economic and environmental dimensions of sustainable development and systematic assessment of policy effects
- **Exercise 2 [42]:** Transformational leadership, human resources and changing mindsets
- **Exercise 3 [43]:** Institutionalization of political commitment toward policy coherence

Suggested exercises to follow up on the readiness assessments are provided in the Section “Readers Tools – Additional exercises."

Exercise 4 [44]: C40 Governance Self-Assessment to undertake a systematic analysis of climate governance: designed to aid key decision-makers and stakeholders in analysing the status of climate governance in their city in a systematic manner when developing and delivering a CAP; intended to be completed initially during the climate action planning process, after defining high impact actions in detail, and before planning for implementation begins; can be repeated to monitor progress and improvements in climate governance to ensure that the CAP is mainstreamed into city governance systems and processes.

INSTITUTIONAL ARRANGEMENTS AND READINESS

4. Institutional Arrangements and Readiness

4.1 Introduction

Institutional arrangements refer to the design of institutional structures within a local government and the allocation of roles and responsibilities within that structure. Optimizing the design and allocation of those responsibilities across a local institution is important when creating a coordinated, collaborative, and committed working environment to carry out the local climate action plan. Institutional Arrangements also consider the level of transparency behind the decisions taken in allocating these roles and responsibilities, the extent to which they have been implemented, and any changes following implementation to result in more effective working.

This chapter focuses on how to develop an institutional mechanism that brings together relevant ministries and local government entities to enhance coherence across climate action-related policies, including sectoral policies.

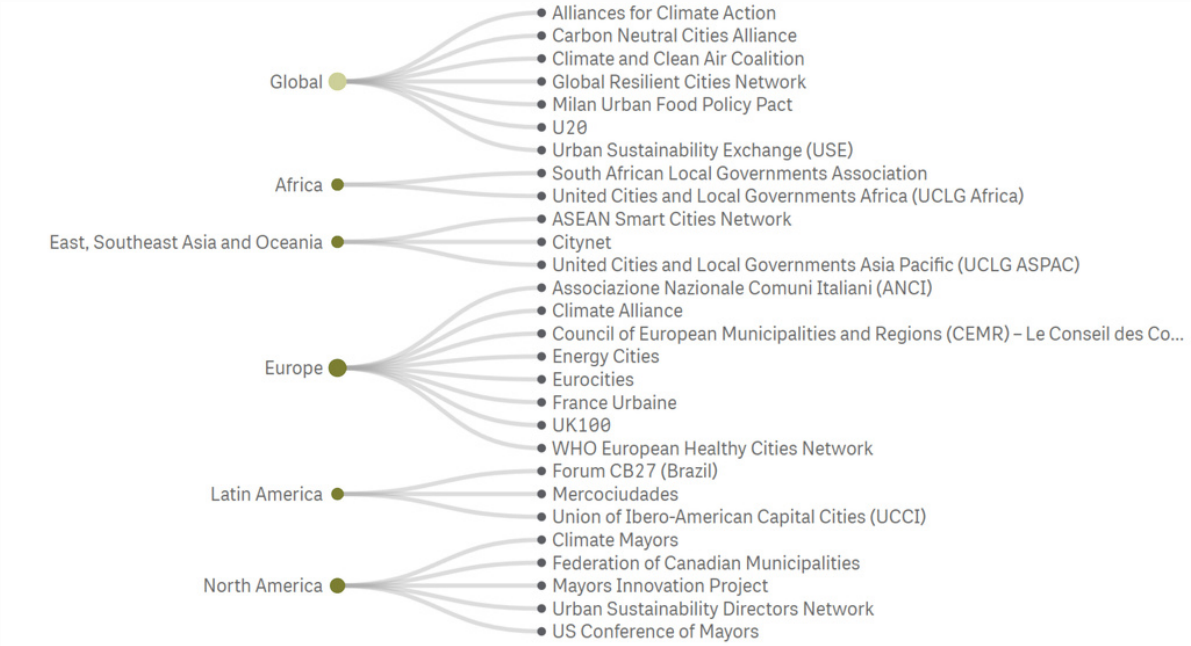
4.2 Key takeaways/messages/concepts

- Local governments seek to ensure that their priorities are reflected in national and global policy and that their importance is recognized through diplomacy to shape their agendas to advance local interests [45].

- Where feasible, institutional arrangements for climate action should build on existing institutional arrangements, which may be restructured if necessary to promote effectiveness. Where this is not feasible, new arrangements can be created. Arrangements should facilitate data flow and make available expertise to prepare reports and inform stakeholders. They also should include a wide range of organizations. Successful implementation of institutional arrangements requires clear communication of objectives and related organizational structures.

4.3 Strategies/Approaches

Coordination and collaboration: Organizational structures and processes need to be taken into account when developing strategies and approaches for climate mitigation and adaptation at the local governance level. Collaboration with other city governments can potentially deliver significant advantages, especially for small and mid-sized municipalities that typically have limited access to financing, lower capacity and less political clout. Local governments can benefit from the following major global networks active in climate governance [46]:



Local government also can collaborate on the procurement of goods and services. By pooling resources among organisational arrangements and working together, local governments can more easily finance and manage expensive and complex climate action projects. Examples include taking advantage of bulk-buying discounts and other economies of scale; sharing the cost of legal advice, staff and equipment; access to better technology; and reducing administrative burdens (often one of the main limitations for local governments). Specific actions are [47]:

- Zero-emission vehicle technologies - Experience shows that the joint procurement of expensive technology, such as electric buses, can work across borders, as well as for neighbouring cities.
- Large-scale, local, clean energy generation (SDG 7)
- Retrofit programmes for building energy efficiency (SDG 7).

Steer national and international finance for a green and just recovery [48]: fiscal stimulus programmes and interventions by Development Finance Institutions (DFIs) and Multilateral Development Banks (MDBs) can help meet green and just criteria.

Currently, most national stimulus packages lack emphasis on green and just measures. The packages announced to date have overwhelmingly prioritised support for business-as-usual activities, locking in emissions-intensive pathways and missing an unprecedented opportunity to transition to carbon-neutral, resilient and just economies. Green stimulus spending as a proportion of overall stimulus spending is estimated at just 3.7−5.4% globally. With this in mind, national stimulus packages can support cities and a green and just recovery through national government infrastructure expenditure and targeted income support to households and businesses, as well as stimulus capital or operating grants that flow directly to municipal budgets and programmes. And in parallel, cities can inform their advocacy on national government stimulus spending, as well as to define local priorities for a green and just recovery.

Cities and their allies should advocate for direct city access to MDB funds and for support to address the challenges associated with direct access. DFIs and MDBs are well-positioned to provide the necessary technical assistance for improving creditworthiness, crafting regulatory and market-making reforms, or preparing and structuring projects for cities and other entities as borrowers or indirect recipients of finance. Cities should position themselves for indirect financing flows from DFIs and MDBs that may be received via national governments.

Thinking polycentrically: Local governments often experiment with novel climate governance instruments and set higher climate action ambitions than the nation-states to which they belong. In doing so, they actively collaborate with private and civil society actors and participate in trans-local or international networks to develop and share information about urban climate mitigation and adaptation and seek to influence international climate negotiations. This is particularly true for large cities [49].

That being said, laws established at the national level do create institutional arrangements that define responsibilities for local actors. These include informational responsibilities such as greenhouse gas accounting or risk assessments, policy implementation through coordination, monitoring, evaluation and reporting of performance, and reformulation of policies in accordance with the need to strengthen national commitments over time. Stable institutions need to be created, and transparency and financial stability need to be improved, flowing from national to local institutions. This establishes rules of operation along the whole governmental chain and contributes to developing countries access to international climate finance [50].

Mapping of institutional linkages [51]: An empirical mapping of institutional membership linkages in global climate governance provides valuable insights into the processes of convergence and divergence and demonstrates the potential for interlacing ideas and innovations. Knowledge, ideas, information and norms can be more easily shared among actors who are members of the same institutions. Members become ‘bridges’ between different institutions, and their interactions can support efficiency.

For example, if a city participates in two different urban climate governance networks, it has the incentive to ensure that their mitigation goals and monitoring and reporting standards are the same, or at least do not contradict each other.

Climate governance and its financing: Many key public services, as well as some critical infrastructure, are not the responsibility of public administrations or are only partially so. Climate action, therefore, requires multi-sectoral, multi-level government and multi-partnership (SDG 17) approaches that also involve private actors and neighboring communities. This coordination is demanding and costly. Financing climate action measures, whether they are directed to mitigation or adaptation, exceeds the financial and human capacities of most local governments. Depending on whether taxes are levied at the national, state or local level, local budgets are dependent on national grants and the equitable distribution of tax revenues from central government to local governments. Where a relatively high level of financial autonomy exists, the responsibility for local climate action usually lies primarily with the local governments. But the national government always plays a decisive role. In practice, coordination between actors and levels often does not work, responsibilities overlap or are not clearly defined, and insufficient financial resources are made available for climate action-related investments. Where legal frameworks for financing mechanisms do exist, there is often a lack of interest in providing financing for climate action-related measures. Existing financing options often significantly impair the economic viability of climate investments.

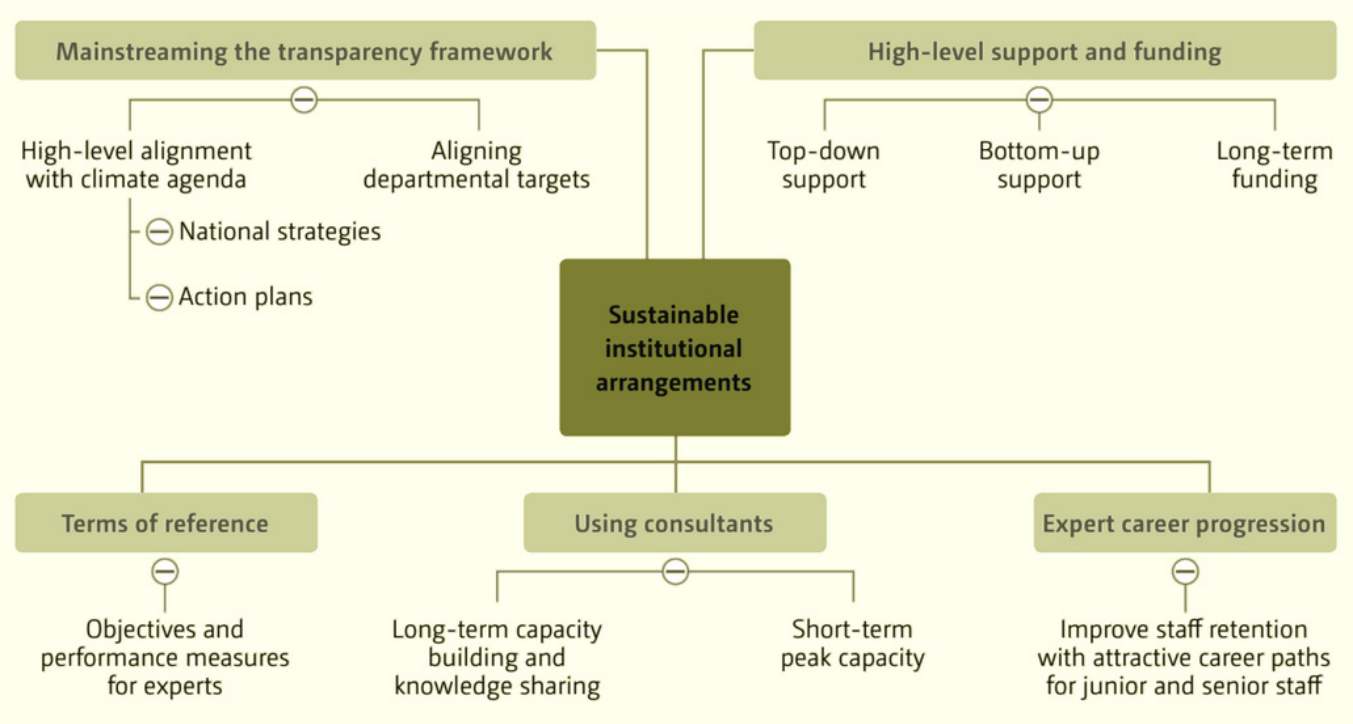
Collaborative climate action [52]

There is significant scope to increase national-local collaboration and harness cities' ambition during the NDC update process for better, faster action on climate. Following the COVID-19 crisis, sustainable infrastructure stimulus packages for cities are especially suitable as subnational contributions within NDCs, as they can provide both climate benefits and revive local economies.

Recommendations for increasing the local governance role in NDC update processes include:

- Apply locally adapted (context-relevant) methods to determine local mitigation potential, depending on data availability
- Provide a forum for subnational actors to present their climate initiatives and contributions
- Verify whether these initiatives are reflected at the national level and, if not, calculate their emissions reduction potential.
- Identify areas that are under the sole responsibility of – and require action by – a subnational authority and make them explicit in the NDC or its background documents, including where they related to policies and measures and climate finance.
- Engage subnational government in the design of NDCs at an early stage
- Strengthen dialogue between national and subnational governments, for example, through stakeholder consultations.
- Institutionalise coordination and consultation processes
- Ensure that subnational levels have the mandate and access to resources (financial and human) to fulfill their mitigation potential
- Support subnational governments in accessing data and information, including through knowledge sharing and learning among subnational governments
- Set national standards (for example, energy efficiency in buildings, targets for renewable energy or greenhouse gas emissions) and allow the subnational actors to set theirs higher – but not lower.

Structuring and ensuring long-term institutional arrangements [53]: Structuring and ensuring long-term institutional arrangements require high-level support, the engagement of sectors and line ministries, clear terms of reference for long-term engagement, incentives for experts to develop their knowledge and skills, and external support and expertise. The graph below illustrates the main elements needed for sustaining institutional arrangements:



4.4 Innovative Cases

The cases presented below embrace the main topics discussed in this chapter: organizational structure and process, collaboration with other city governments, mapping institutional linkages and/or arrangements and steering national and international finance.

Case 1: Integrated water management approach: the Sponge City Project in Shenzhen, China

To address urban water management and resilience in China and to support ecological civilization implementation, the Chinese government has used nature-based land solutions for climate adaptation. At the root of this effort was a desire to resolve urban waterlogging, water storage and discharge, improve water quality, and reduce urban heat island effects. A national technical guidance was released by the government to guide implementation and facilitate localization. As the project matures, the pilot cities are incorporating sponge city planning approaches into long-term urban and sustainable development plans.

The **key elements** included in Shenzhen's sponge city project are:

- detailed pre-assessments of natural resources, hydrological characteristics, and climatological elements for spatial planning
- integrated water management plan
- customized design according to the living environment and ecological conditions.

The **challenges** include:

- Urban flooding risk increasing in frequency and intensity
- Water pollution in Shenzhen Bay and the Pearl River Delta
- Water security and limited drinkable water resources in Shenzhen.

Objectives:

- Water security: effective prevention of urban flooding disasters
- Water environment: water treatment on polluting sources to ensure the improvement of water quality
- Water ecology: ensure the volume capture ratio of annual rainfall exceeds 70 percent
- Water resources: effective use of rainfall, recycled water, seawater and other non-conventional water resources
- Institutional setting: development of sponge city planning and construction control framework, technical specifications and standards, investment and financing mechanism, performance assessments and incentive mechanism

How did the project provide a low-carbon and climate-resilient solution?

- Low-cost solution
- Inclusive decision-making
- Behavioural change
- Cleaner/more eco-friendly infrastructure
- Cleaner/more eco-friendly equipment

Political commitment, policies, and regulations: Under the Guiding Opinions on the Construction of Sponge Cities (2015), China's State Council set an ambitious national target for Chinese cities to transform the urban areas to absorb, retain and reuse 70 percent of the rainwater. Political commitment and national support were significant factors for Shenzhen's achievements in the project. Prior to the project, the local government had already raised cross-departmental awareness of the necessity to enhance and engage in urban resilience. Shenzhen, especially Guangming District, was, therefore, more equipped and fully prepared for the project implementation. Once selected as a pilot area, Shenzhen responded rapidly by formulating comprehensive, stage-by-stage planning and technical instructions. Supporting policies at the municipal level, such as financing and budgeting, also were officially approved.

Institutional set-up: Cross-departmental task force teams have been set up at both municipal and district levels. At the municipal level, Shenzhen Sponge City Construction Office takes responsibility for planning and coordination and District Sponge City Construction Offices are established at the district level. Implementation of the Sponge City Project in Shenzhen synergizes with water environmental restoration, so the Water Affairs Bureaus at municipal and district levels also play a core role.

Resilience: The project supported urban water management and enhanced urban resilience by reducing the impact of flooding and improving water quality and ecosystem services. Shenzhen met the 2020 goal of transforming 20 percent of the urban area to meet the Sponge City requirements (approximately 312.7km of total area). The ultimate goal is to achieve 80 percent by 2030.

Case 2 [54]: Examples of steering national and international finance for climate action.

Partnerships with private businesses and investors have helped overcome limitations in the revenues and overall budget available to local governments that impede their ability to implement climate projects. For example, the city of Amsterdam has implemented new charging points for electric vehicles to reduce CO2 emissions from motorized vehicles and has also entered into agreements "with private companies such as Nissan, Renault and Mitsubishi, and car sharing schemes such as Car2Go to facilitate uptake of the services" [55] International organizations and transnational networks also can leverage access to finance. Innovative finance opportunities and revenue sources such as municipal borrowing and bonds, direct private investment in local climate projects and public-private partnerships have become part of the solution.

Various cases [56]: The C40 on why city diplomacy is vital to meeting climate ambitions lists many successful examples of cities engaging in global agendas. For example:

- #urbanSDG: From 2013 to 2015, through the #urbanSDG campaign, city networks and urban organizations advocated for a Sustainable Development Goal (SDG) dedicated to cities in the post-2015 development agenda. This contributed to the inclusion of SDG 11 on cities and human settlements in the 2030 Agenda for Sustainable Development.
- Cities and the Paris Agreement: The Compact of Mayors established in 2014 and the Climate Summit for Local Leaders in December 2015 drove the mobilization of cities in support of an ambitious climate agreement ahead of the United Nations Climate Change Conference (COP21) in Paris. Consequently, cities were recognized in the Paris Agreement. Cities mobilized again ahead of COP26 in Glasgow in 2021 through the Cities Race to Zero. In the United States, in 2017, more than 350 mayors and other local leaders came out against President Donald Trump's decision to withdraw from the Paris Agreement, publicly committing to deliver on their share of emissions reductions.
- Cities IPCC: From 2016–2018, city networks partnered with academic institutions and United Nations agencies to raise the profile of cities in the Intergovernmental Panel on Climate Change (IPCC). This culminated in 2018 with the Edmonton Conference on Cities and Climate Change Science and the adoption by the IPCC of the Research and Action Agenda for Cities and Climate Change Science. In 2019, cities again collaborated, producing For Cities by Cities: Key Takeaways for City Decision Makers from the IPCC 1.5°C Report and Summary for Urban Policymakers.
- Urban 20: In 2017, cities created their own space in the G20 ecosystem. The Urban 20 (U20) is now the official city group engaging with the G20, bringing an urban perspective to the G20 and advocating for ambitious and equitable climate action.
- Mayors' Agenda for a Green and Just Recovery: In 2020, C40 mayors came together to set their COVID-19 recovery agenda in alignment with the Global Green New Deal. The Mayors' Agenda is a powerful set of principles, initiatives and calls to action for engaging in global and national discussions on COVID-19 stimulus packages and making them green, just and city-focused – a call echoed by the U20's 2020 communiqué to the G20.

4.5 Actions/Steps

Vision [57]

- Recruit dedicated international affairs staff to craft a global engagement strategy
- Join city networks
- Engage in global processes and conferences

Strategy

- Most people are ready for the change in governance towards tackling climate change. Governments should identify strategies to convince and include the others who may not be ready, or who want to maintain the status quo.

Governance

- Promote legislation on inclusive participatory national to local governance

Process

- The national governments can support effective and equitable planning and budgeting for climate initiatives by establishing clear organizational processes and institutional procedures for CA.
- Identify clear roles and responsibilities for the involvement of stakeholders at all policy levels: This includes streamlining resource use by having a lead institute at national and/or regional level; establishing local champions to lead the work on adaptation initiatives; engaging with experts, whether local or from other regions and countries with similar experiences, to offer opportunities for learning and supporting adaptation action. This encourages and supports the exchange and sharing of information at all stages of the adaptation and mitigation process.

Partnerships

- Partner with institutions focused on climate to strengthen local and regional efforts; for example, through connecting with regional networks and task forces.

Technology

- Promote experimentation and innovation among institutions to complement each other's capacities and strengths.

Monitoring and Evaluation

- Seek out possible ways to share data among institutions

4.6 Exercises

When conducting the exercises suggested below, do so with the GEWE aspect in mind. Where possible, provide gender-disaggregated information/data and prioritize gender-oriented choices. When reflecting on institutional arrangements for multi-level climate governance, consider whether all governance levels considered include representatives with knowledge of and stakeholders whose core expertise is dedicated to GEWE matters.

Exercises 1-9 [58]: The UNPAN – Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development proposes a Self-Assessment Questionnaire to provide an accurate picture of the reality on the ground with regard to all aspects relevant to sustainable development. For a full assessment on readiness, all building blocks should be answered. For the Institutional Arrangements (the focus of this chapter), the building block dedicated to organizational structures and processes for inter-ministerial coordination/integration is recommended (building block 4 of the questionnaire, to be accessed directly from the original source online due to its length). The questionnaire can be considered at either the national or local level. This is a transversal tool. Therefore, for the purpose of this exercise, in the questionnaire, replace the words "sustainable development" and "SDGs" with "climate action" and "climate action goals".

Exercise 10 [59]: Once the self-assessment above is completed, consider asking the following questions regarding how to build new institutional arrangements at the local level:

- Can you confirm both local government support and city-wide engagement?
- Are there specific actors in a sector (or sectors), such as transportation, housing development or health care, in my locality that can be targeted to will lead to a wider ecosystem of engagement, which can bring in relevant institutional arrangements?
- Which private sector actors will have the biggest impact on reducing greenhouse gas emissions?
- Should the most ambitious and committed institutions be targeted to create a cross-sectoral leadership group that could lead to set criteria for the broader community or to ensure local community engagement? Should the focus be on smaller, community-based institutions?
- What can other institutions be offered to make a commitment on climate governance?

Exercise [60]: Conduct the proposed "Reflective practice" on partnerships at page 9.

POLICY COHERENCE AND LOCAL-NATIONAL CLIMATE POLICY LINKAGES

5. Policy Coherence and Local-National Climate Policy Linkages

5.1 Introduction

Policy coherence refers to corresponding policies, processes and institutions at all government and governance levels, designed to avoid contradictions and conflicting goals in policy making. Policy coherence in climate action at the national and local levels addresses the systematic integration of such policies, processes and institutions towards coherent implementation of climate mitigation and adaptation across various levels [61].
The United Nations Committee of Experts on Public Administration (CEPA) guidance notes on policy coherence to apply the principles for effective governance for sustainable development distinguish several complementary dimensions of policymaking that result in a coherent policy practice [62]:

- Horizontal coherence – between sectors in a jurisdiction or cross-cutting issues in multiple sectors
- Vertical coherence – between local plans and actions; national policy; and international agreements; or between national policy and local plans and implementation measures
- International coherence – between policy domains in different countries, addressing transboundary spillover effects.

There also needs to be a balance between the mitigation and adaptation nature of policies. Climate change mitigation focuses on avoiding and reducing emissions to prevent the planet from warming to more extreme temperatures. Climate change adaptation focuses on altering behaviour and systems to protect people from the impacts of climate change. As a general rule, the more climate change is mitigated, the easier it will be to adapt to changes that can no longer be avoided.

Three different clusters of drivers shape approaches to climate policy at different scales of action. How each of these different clusters work together across scales will determine the boundaries for decision-making and alter the outcomes at any particular level.

1. Government functions and roles: Address the barriers to adaptation (market failures, behavioural barriers, adaptive capacity, natural capacity) that may affect adaptation decisions and provide a framework for considering the government's role in identifying the priority areas for future research and the implications for policy design
2. Key actors and institutions: Strong governance actors and institutions are central to helping local climate policies and goals
3. Tools for decision-making: The fundamental purpose of both adaptation and mitigation tools is to assist officers in building their knowledge and applying efficient, coherent policies that can help meet climate targets.

5.2 Key takeaway/messages concepts

1. Climate change action requires broad-based inter-sectoral action by many actors. To ensure coherence and efficiency, collected data should be shared among all actors.
2. Align incentives in a proactive manner to deliver climate protection and resilience, working both vertically across levels of government and horizontally across different actors and issues within a given scale of governance.
3. National policy should be aligned to promote coherence in the activities of different subnational jurisdictions, coordination across different levels of government, and coordination across different line ministries.
4. Considering the relevant role of national development and sustainability plans, create a supportive policy framework for local government's climate action planning by integrating climate action planning with national and local policy frameworks, integrating policy into relevant local government's plans, processes and sectors.

5.3 Strategies/Approaches

The International Level: At the international level, global frameworks are interconnected and synergized to be supportive of each other. But each framework has its own goals, logic of action, actor networks and institutions [63]. An analysis of overlaps and gaps in their implementation is merited. This can be difficult, though, because trade-offs often are not mentioned in policy documents, and they are not formulated as direct actions. Methods to identify trade-offs and more palatable options (for example, synergies and "no-regrets" measures around air pollution and climate mitigation, such as cleaner transport and public transport) need to be developed. An improved understanding of such interactions is needed to manage potential goal conflicts and inconsistencies among economic, social and environmental policy objectives [64]. Some countries have already captured these connections and made them available to the public. For example, Germany has done so towards a joint implementation of the 2030 Agenda / SDGs, the Paris Agreement and the Sendai Framework.

This can be translated into an approach that can quantify the degree of coherence between two policy fields on nine levels [65]:

1. Independent decisions: departments make their decisions completely independently of each other
2. Exchange of information: departments inform each other about their decisions
3. Consultations between ministries: Ministries seek the opinion of other ministries on planned decisions
4. Avoidance of contradictions: for political decisions and their justifications, contradictions are avoided
5. Searching for consensus: for political decisions, a consensus is sought
6. Mediation of conflicts: to resolve conflicts, ministries commit themselves to dispute resolution mechanisms and recognize the decisions of those mechanisms as binding
7. Establishment of common parameters: departments agree on common goals
8. Agreement on common priorities: the goals are prioritized together
9. Common strategies: joint programmes and processes for their implementation are agreed upon to achieve established goals.

Nationally led - "top-down" enabling frameworks [66]: One main institutional approach to incentivize local action is a centralized enabling framework. Such a framework uses national policy to require that local and/or regional authorities take climate change into account at the local level. In this model, central governments can develop a variety of policies that assist local governments in contextualizing national (or regional) policies and priorities, as well as assist local governments in developing the competencies necessary for municipalities to take further action on their own. Developing policy frameworks to support local-level action is just as important in countries where national governments have made a strong commitment to climate action as in those that have not. Local governments have an important implementation role to play if national emission reduction and adaptation targets and goals are to be met. A first-order issue for national governments is to understand exactly how best to clarify goals in local contexts and to work with local governments on implementation. Beyond its essential role in implementation, experience and progress at the local level needs to be documented to further understanding at the national scale and within the context of international obligations to what extent progress is being made.

At a minimum, national policies are essential to establishing broad, cross-sectoral price signals to guide investment to climate-friendly outcomes, for example, through a tax on carbon or the establishment of national cap and trade regulations. More targeted, sector-specific national regulations may also be needed, for example, to encourage large-scale measures in energy conservation and fuel switching. National policies also can help to ensure that climate policy within countries is not confined to a few front-runner municipalities but is integrated into the functioning of urban areas across the country. Centralized frameworks, therefore, can ensure that a few "best practice" examples do not distract attention from the importance of pushing the majority of "business as usual" municipalities into taking action.

National policies targeting local authorities may take different forms, ranging from requiring local authorities to take certain actions to enable them to do so. Many examples relate to enabling policies or frameworks where mandated approaches play a role, but the general framework is one that leaves wide latitude to local authorities to taper local policies on climate change to local contexts.

Learning from the "bottom-up" - from cities and regions to national action [67]: A second model is "bottom-up", where regional or local authorities are encouraged or allowed to go beyond national requirements or incentives to independently act to address climate change, either as part of or in the absence of national policy. In this model, learning and experience acquired through successful local programmes diffuse to inform and steer policymaking at regional or national levels of government.
Inevitably both directions of influence – top-down and bottom-up – co-exist to shape action and policy across levels of decision-making.

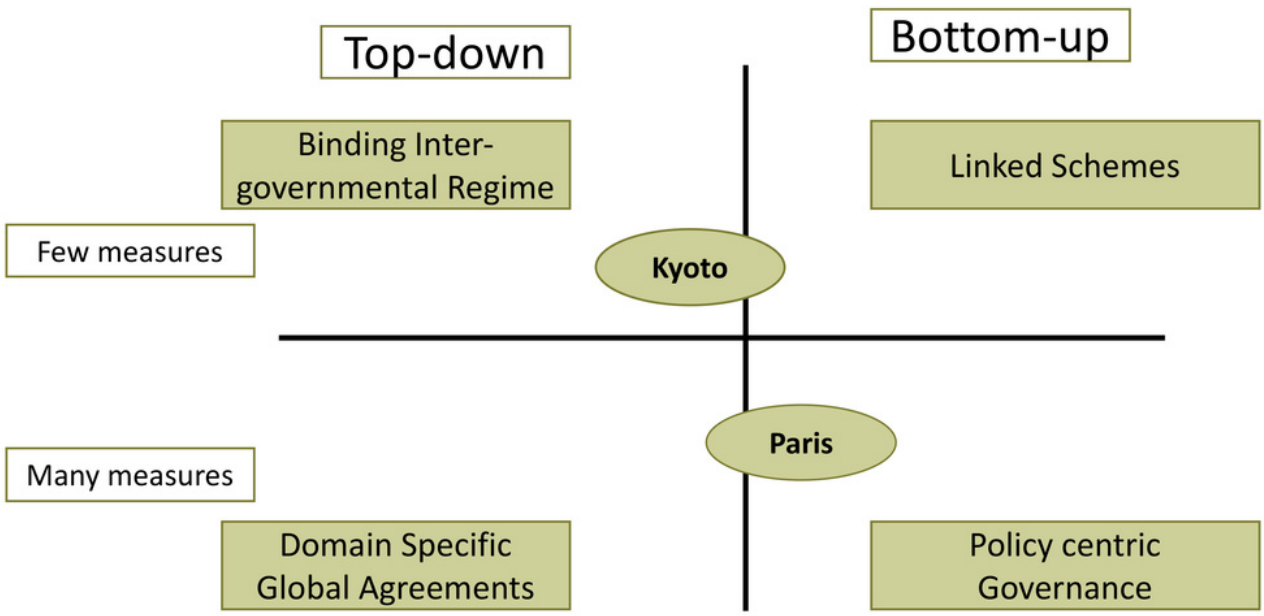
Hybrid models [68]: In a third hybrid institutional model, national and/or regional governments work closely with local authorities to encourage experimentation and innovation at the local level to respond to climate change and ultimately to identify successful lessons for broader implementation elsewhere.

The key is to align incentives in a proactive manner to deliver climate protection and resilience, working both vertically across levels of government and horizontally across different actors and issues within a given scale of governance. This is done, for example, through national policy alignment to promote coherence in the activities of different subnational jurisdictions, coordination across different levels of government, and coordination across different line ministries. It is also accomplished through creating a supportive policy framework for local government's climate action planning by integrating climate action planning with national and local policy frameworks and integrating policy into relevant local government's plans, processes and sectors.

Other levels: There are many levels on which the climate change scenario is even more complex. For example, while there are many connections between climate change adaptation and disaster risk reduction (DRR), DRR and climate frameworks, policies and governance often are disconnected [69].

Polycentric and monocentric climate governance: Monocentric and polycentric governance mainly differ in the following ways [70]:

- Whether steering and coordination are induced top-down from global, intergovernmental agreements or bottom-up from a variety of countries, sectors and domains
- Whether climate mitigation relies on a few intergovernmental measures or a whole variety of measures adopted in international, transnational, national, subnational and private domains.



The implications of these different forms of climate governance will lead to differences relating to the number of measures and instruments, policy windows [71] and coordination across levels and domains.

Relevant Strategies for policy coherence on climate governance

Once policy coherence has been analyzed, to start the climate action planning process at the local level, a strategy needs to establish the following two critical inputs:

- A greenhouse gas emission inventory: Use the C40 guide on how to develop and manage one [72].
- A climate change risk assessment: conducted to provide the basis for policy coherence with regard to climate change risks in the local context; provides a clear understanding of the scale of risk a city, building, etc., and which neighborhoods, facilities, populations and infrastructure networks qualify as high-priority assets, allowing cities to deploy attention and resources most effectively in the process of planning, investing, insuring, and protecting assets; Use any of the following strategies:
  - C40's Climate Change Risk Assessment Guidance
  - ULI's Guide for Assessing Climate Change
  - The C40 inclusive climate action planning conducts a city needs assessment [73].

Additional resources that will support the development of a robust local policy coherent with the national scope include:

- C40 How to get started on your city's climate action plan: helps set a long-term vision of how the city's low-carbon, resilient and inclusive future should look to determine the extent to which current targets, policies, plans and programmes are consistent with objectives

- C40 How to use scenario planning to identify mitigation targets and strategies: explains the steps involved in adopting science-based targets and identifying the right mitigation strategies for your city's CAP, using a transparent, inclusive and evidence-based process; The process should be iterative, with the findings from each stage informing the decisions made throughout the scenario development

- C40 How to identify adaptation goals and strategies: explains the steps involved in identifying the most appropriate and effective adaptation strategies, preparing cities to prioritize the climate actions to be included in their climate action plan

- C40 Adaptation and Mitigation Interaction Assessment (AMIA) tool: designed to support city practitioners in climate action planning by mapping the synergy potential, trade-off potential, mal- investment risk and piggybacking opportunities of a wide range of actions, such as switching to electric buses and investing in building-scale solar energy

- C40 The Multilevel Climate Action Playbook for Local and Regional Governments: identifies the mechanism for integrating regional and local contributions into party policy developments.

- C40 Using Data for Policy: provides process guidance to define objectives and metrics for data collection and sources, data cleansing, data analysis and communicating results, all for the purpose of making good use of data on building energy efficiency for policymaking

- C40 How to address infrastructure interdependencies when adapting to climate change: explains how cities can address interconnected urban systems in climate action planning and minimize the risks of cascading failures in the urban infrastructure systems for the highly interdependent energy, transport, telecommunications, water and wastewater, solid waste, buildings and food sectors

- C40 City policy framework for dramatically reducing embodied carbon: a comprehensive resource for cities and other government bodies seeking to develop a strategy, action plan and policies to tackle embodied carbon from construction materials/processes

- C40 Sustainable financing and policy models for municipal composting: outlines the strategies, financing mechanisms and policies that can create the right environment for a successful local composting project

- C40 How cities can shift toward a Planetary Health Diet for all: presents ideas and approaches from cities already working to shift patterns of food consumption and drive better diets and food access that have the potential to be adopted elsewhere

- C40 How to design and implement a clean air or low emission zone: explains the tried and tested policy options for Low Emission Zones

- C40 How cities can use the law to advance climate action: addresses how cities can use litigation, legal reform initiatives and pioneering policies to remove barriers to climate ambitions, protect residents and assets, and achieve transformational change.

5.4 Innovative Cases

Case 1: The "Ttareungyi" public bike-sharing system in Seoul, Korea

The Seoul Metropolitan Government (SMG) introduced the 'Ttareungyi' climate mitigation project in 2015 as a public bicycle rental service designed to reduce road traffic and GHG emissions. It involves:

- ICT and SMART technology
- Sustainable mobility
- Innovative urban governance
- Behavioural change

The challenges addressed included:

- Urbanization and traffic congestion issues
- Climate Change and the warming city

The project goals and objectives were to:

- promote bicycles as one of the main means of transportation in Seoul
- reduce GHG emissions by increasing cycling's modal share
- improve residents' health through the daily use of bicycles.

Enabling policy and policy regulation: In 2013, the SMG announced its Seoul Transportation Vision 2030, which serves as a root plan for the city's entire spectrum of traffic policies by 2030. The Transportation Vision 2030 Plan is built upon three core values of "People, Sharing, and Environment", seeking to shift the city's heavy dependence on private cars to a more sustainable, shared, human-oriented paradigm. The slogan "Livable Seoul without relying on cars" was adopted, followed by 11 specific promises targeting three core values through which the city plans to achieve "Triple 30" goals by 2030: reduce car traffic by 30 percent, shorten the average commuting time by 30 percent, and expand the use of different modes of green transportation by 30 percent. In managing transportation demand, the city aims to lower unnecessary movement and minimize the need to travel by implementing strategies to foster a "low mobility society". In managing transportation supply, the city also works to shift from energy-consuming transport modes to environmentally friendly modes.

In 2019, a controversy arose regarding the use of Ttareungyi as a means of transportation for the delivery business. According to the delivery industry, many couriers who do not own or cannot afford other transportation use Ttareungyi [74]. The SFC has stated that the use of Ttareungyi for profit or commercial purposes is prohibited based on Article 16 of the Terms and Conditions of Use ("User's duties and responsibilities," [75] and has notified delivery agencies to "refrain from using Ttareungyi for-profit". The reaction from the public to this action has been mixed. Some argue that prohibiting the use of Ttareungyi for commercial purposes is necessary due to the shortage of Ttareungyi.

Others argue that such a prohibition is not justified, SFC has to better consider couriers' situations, and commuting to work can be perceived as a commercial means to earn income. The public debate continues, but SFC and SMG maintain their stance that the Ttareungyi bikes should not be used for commercial and delivery purposes as they are public property.

Lessons learned:

- The Ttareungyi application (app) is one of the programme's biggest strengths. It increases the convenience of the service and enhances communication between the service provider (SFC/SMG) and the beneficiaries (Seoul residents).

- Although Ttareungyi, as a public service, is not fundamentally set up to make a profit, the city has been exploring ways to cut costs and cover some of the programme deficits. For example, by upgrading bicycles to the QR model, operational efficiency has been improved. According to SMG [76], the city aimed to save approximately 10 billion KRW (US$8.4 million) of operational and repair costs by replacing the LCF Ttareungyi terminals with QR. There also is a possibility that Ttareungyi will run paid advertisements starting next year to compensate for some of the deficit. This has not been fully confirmed, although there has been news reporting regarding this possibility since October 2021 [77].

Challenges:

- One of the main challenges for expanding the shared bike system in Seoul is the construction of the bicycle lanes needed. Many existing roads do not have them, and building them requires a huge budget, which is difficult to secure, especially given the current operating deficit of Ttareungyi service.

- It can be challenging for some people, including the elderly, to use bicycles, as it requires using smartphone technology such as scanning a QR code via the Ttareungyi app.

- There has been increasing concern around the issue of bicycles being parked everywhere and not in the designated return spots, causing inconvenience for residents.

- There have been some issues with the reservation system in the Ttareungyi app, with cases of people waiting in the rental centre for a bicycle that is not available because someone else has already booked it.

5.5 Actions/Steps

Vision

- Where possible, establish ambitions based on fair-share, science-based targets [78]. For example, set strong and robust targets that are at least as ambitious as your country's NDC.

Strategy

- Systematize the promotion of mutually reinforcing policy actions across national and local governments relevant to climate action; Take stock of your footprint by developing a community-scale GHG emissions inventory and assessing the climate risks and vulnerabilities you face [79].

- Assess the risks, vulnerabilities and hazards your community faces – integrating both local and national data, where available [80].

Governance

- Coordinate across local, regional and national governments to understand the emissions generated in your city/region by sector [81].
- Assess how gender equality is currently integrated into the local versus national/global levels to close the gap in policy coherence along the chain of climate governance.

Process

- The national governments can support multi-stakeholder planning for climate initiatives by establishing clear methods for incorporating these considerations in climate governance processes: bring coherence to the current institutions already in place to support climate action; promote coherence and synergies between climate action programmes and between institutions.
- Engage elected local officials and/or city council to evaluate, agree and implement a target [82].

Partnerships

- Partner with institutions focused on climate to ensure overall coherence among the different parties; for example, through connecting with regional networks and other task forces.

Technology

- Use advanced technology to connect institutions and boost coordinated efforts.

Monitoring and Evaluation

- Assess, through available data, the degree of gender equality currently integrated within the policy on climate governance, developing a gap analysis to find where policy adjustments and more institutional representation are needed where non-existent/disproportionate to the affected communities and inside the decision-making circles of institutions.
- Make use of national statistical institutes (NSIs) and official statistics as a starting point for evidence-informed decision-making.
- Establish a specific action plan or framework for policy coherence to make progress on relevant areas of sustainable development.
- Consider regular independent reviews of policy performance on high-priority issues with a substantial impact on sustainable development.
- Conduct systematic reviews to ensure that regulations remain effective and consistent and deliver the intended policy objectives (e.g., sustainable development).

5.6 Exercises

When conducting the exercises suggested below, do so with the GEWE aspect in mind. Where possible, provide gender-disaggregated information/data and prioritize gender-oriented choices. When reflecting on policy coherence and linkages for climate governance, consider, for example, whether climate risks are different by gender and whether policies are considering GEWE aspects.

Exercise 1-3: Develop the following three critical inputs to start the climate action planning process:

- A greenhouse gas (GHG) emission inventory: Develop the GHG emission inventory using the C40 City Inventory Reporting and Information System (CIRIS) [83] tool
- A climate change risk assessment (CCRA) [84]: Conduct the assessment following the C40 [85] or ULI [86] guidance; use the C40 screening sheet (template) [87]
- A needs assessment: Develop the assessment using the C40. Inclusive climate action planning: Conducting a city needs assessment tool [88,89,90]

Exercise 4 [91]: Create the "vision setting" for long-term goals based on the C40 How to get started on your city's climate action plan tool. Try to include aspects of horizontal and vertical coherence, national policy alignment and top-down/bottom-up actions.

Exercise 5:

1. Create the mitigation plan based on the C40 How to use scenario planning to identify mitigation targets and strategies tools.
2. Create the adaptation plan based on the C40 How to identify adaptation goals and strategies tool.
3. Based on your mitigation and adaptation plan, demonstrate the rationale used to achieve horizontal and vertical coherence and national policy alignment as per climate adaptation and mitigation.

MULTI-STAKEHOLDER ENGAGEMENT

6. Multi-stakeholder Engagement

6.1 Introduction

Multi-stakeholder engagement in climate action helps tackle societal inequality regarding climate vulnerability, build public support for innovative measures and practices, minimize unintended consequences resulting from climate change and can complement government resources by increasing community-led action [92].

The key challenges local and national governments face on climate action include considering engagement as part of the process rather than only at the endpoint, transparency, and ensuring engagement strategies are equitable and inclusive [93].

6.2 Key takeaway/messages concepts

The involvement of multiple actors, stakeholders and the public is an essential part of governance. It improves the quality of plans, policies and actions, promotes compliance, and ensures that strategies respond to the real needs of individuals and communities.

6.3 Strategies/Approaches

About civil society [94]: CA and governance performance also are a matter of civic engagement. An independent study from the European Foundation for the Improvement of Living and Working Conditions (EFILWC) measured the level of voluntary participation in organizations and found that the more volunteerism that existed in the local context, the better the score achieved in the Green City Index. Civic engagement/citizen involvement is an important element in climate change governance decisions. There are several good examples of such engagement around the world. One of these is the Seoul city government's "Green Seoul Citizen Committee", which is chaired by the mayor and has 100 members from non-governmental organizations and businesses.

Stakeholder representation: Effective national-to-local governance can involve different combinations of many public (local, subnational, national governments and associated bodies) and non-state and private actors (companies, civil society organizations, philanthropies and research institutions). The involvement of non-governmental actors in national to local governance can be useful to ensure awareness and consideration of different perspectives and to increase buy-in and support for implementation. It also can be useful in mobilizing additional resources and knowledge, especially where local governments have limited powers to implement climate action autonomously.

Engaging a wide representation of stakeholders is important and should be done from the design phase of CA initiatives. Consider analyzing the quality of stakeholder engagement in implementation and follow-up and provide multiple means for stakeholder feedback, including anonymously [95].

Vulnerable groups: To ensure an inclusive stakeholder plan, at an early in the process, identify potentially affected minorities and invite the participation of vulnerable and marginalized groups. This comprehensive list of invitees will provide additional inspiration and ideas on how to be more transformative for a wider range of beneficiaries. Groups to be considered include women (SDG 5), the poor (SDG 1), youth, children, rights activists, the disabled, the formal and informal private sector, tribal elders, representatives of workers' unions, refugees, migrants/displaced people (regardless of whether climate-related), indigenous populations, those in under-served regions, single-headed households, orphans and the elderly. The means used to engage these individuals/groups should be appropriate to each context (consider language, form, etc).

Special attention should be paid to the role of Indigenous Peoples, the climate risks and impacts they face, and the value in ensuring their inclusion across traditional knowledge, dialogue, planning, and action. The Paris Agreement includes a clear desire to integrate the knowledge and expertise of Indigenous Peoples. The tool established by the UN to consult with Indigenous Peoples before adopting and implementing legislative or administrative measures that may affect them is the Free Prior Informed and Informed Consent [96].

Similarly, women should be involved at both the macro- and micro-levels in the climate resilience process. They are not only beneficiaries but also important contributors to the economy and should be included in decision-making. Their role should be strengthened and supported.

The Digital Divide: The new reliance on digital means of communication leaves many of the vulnerable groups noted above without access. Adaptive management is required to address the digital divide. For example, find alternative appropriate ways to share information and increase participation of vulnerable groups. Information can be delivered through the local radio, paper posts at key community locations and word of mouth through local leaders.

Transformative leadership on climate governance [97]: The available examples of polycentric local climate governance point to a growing reliance on private and other non-governmental actors in collaborative governance processes. The involvement of nongovernmental actors, particularly multinational companies, pushes urban climate governance further towards neo-liberalism and market-based interventions and further strengthens the focus on technological fixes rather than behavioural change. With local governments acting independently of their national governments, national climate policies no longer ensure that all citizens contribute equally to and benefit from climate action.

City governments and other local leaders (including the private sector and civil society actors) are organizing themselves to address specific local climate challenges. They are doing so independently from national governments. Highly progressive cities are taking action even in countries that are very conservative when it comes to taking climate action, for instance, those that have not (or had not initially) ratified the Kyoto Protocol or the Paris Agreement. That said, cities' ability to take action is shaped by the prevailing national, political and legal contexts. As a result, some of the high hopes that have been expressed about the benefits of polycentric climate governance are not being realized in practice. That being said, opportunities still exist for cities to be transformational leaders in CA [98].

The last few years have been a watershed moment for climate action, and it is now an area of focus for stakeholders at all levels.

Relevant strategies on multi-stakeholder engagement for climate governance: Strategies and approaches to engage a multi-stakeholder audience for climate mitigation and adaptation at the local governance level need to be inclusive and empowering. The following initiatives include such strategies and approaches:

- C40 How to engage stakeholders for powerful and inclusive climate action planning: sets out tools and approaches to help cities design and deliver an inclusive, equitable and strategic engagement strategy for the climate action planning process; can apply to an engagement strategy for the planning process as a whole and to strategies for specific elements of the planning process; States that priority stakeholders in climate action planning should include groups that are [99]:
    - Most impacted by climate change, climate actions and inequities: Identification of these groups should be informed by the needs assessment; any stakeholder mapping undertaken before the assessment should be updated to reflect new insights. Groups that have been excluded from the city's past engagement processes also should be identified. The groups most impacted often will include children and youth, women, people with disabilities, informal communities (workers and residents), racial and ethnic minorities, the elderly, and immigrant and transient communities, as well as workers in highly polluting industries where change most needs to be made. Some of these groups may be relatively hard to reach. Factors that influence the ability of each group to engage should be taken into account.

- Critical to the implementation of climate actions in key sectors: The involvement and buy-in of private companies or utilities are crucial to the design of effective climate actions that extend beyond the direct control of the city government.

- Powerful and influential: Supportive individuals and groups with local power and influence can help bring others on board, including those likely to oppose the action.

6.4 Innovative Cases

Case 1: Seoul's Nowon energy zero housing complex – reducing building emissions, Korea [100]:

With the Paris Agreement entering into force, the national and local governments of the Republic of Korea set a carbon neutrality target by 2050. Recognizing that the building sector is the largest GHG emitter of Seoul city, the objectives of this climate mitigation initiative were to:

- Lower GHG emissions from buildings by optimizing energy equilibrium;
- Facilitate expansion of Zero Energy Building (ZEB) as a solution to the development of low-carbon cities; and
- Contribute to achieving the 2050 carbon neutrality target at national and local levels.

The initiative provided a low-carbon, climate-resilient solution through:

- Improved decision-making
- Inclusive decision-making
- Improved governance
- Behavioural change
- Cleaner, more eco-friendly infrastructure and equipment.

The national and local governments adopted laws and regulations to:

- Control GHG emissions from buildings by presenting the ZEB initiative, implemented in phases at national and city levels: For instance, the national government has enforced relevant laws such as the Green Building Construction Support Act and Energy Use Rationalization Act. SMG also adopted an Ordinance in the Support of Construction of Green Buildings, the Energy Saving Design Standard Building and the Green Building Construction Plan of Seoul City.

- Promote enforcement of the ZEB initiative for public and private buildings in accordance with the size of GFA: The legal and regulatory frameworks create a favorable environment to construct ZEB and proliferate the model. Seoul City uses financial instruments such as incentives to encourage housing developers to invest in ZEB. SMG provides financial support to ZEB certification and local tax exemption benefits along with lowering construction standards.

The project focused on developing buildings using a complex model designed to minimize energy consumption, for example, through maximum insulation performance, implementation of renewable sources, high energy efficient materials and other means.

The national mandatory roadmap for the ZEB initiative identified goals and strategies to be implemented in three stages: laying the foundation, promoting the popularisation, and initiating enforcement (Zero Energy Building Certificate System, n.d.) [101]. Aligning with the national approach, Seoul City develops the ZEB initiative. Although the timeline for enforcement varies according to building types in terms of ownership and GFA, the city moves up the enforcement of the ZEB initiative earlier than the national government (Climate and Environment Headquarters, 2021) [102]. The need is arising to assess technology development and identify the direction for making synergy effects from collaboration between technology and policy-based initiatives.

A multi-stakeholder consortium contributed to the initiative's success. This project was implemented based on cooperation between the national government (MoLIT), the local governments (Seoul Metropolitan Government and Nowon-gu District Office), a private construction company (KCC E&C), a university (Myongji University), and a research center (SH urban institute). The multi-layered perspective created a synergistic effect and encouraged successful project implementation. The government partners provided regulatory, administrative and financial support. The private company provided professional knowledge and skills to construct the buildings. The university and research center provided professional knowledge and skills to design the building and analyze the effectiveness of the project.

Lessons learned:

- Active engagement of the private sector is essential to quickly decarbonize the building sector. However, high construction costs hamper private engagement. For example, the construction costs for Nowon Energy Zero Housing Complex might be 24.5 percent higher than for a general rental housing complex. The incentives provided by the city government are too small to cover the expensive construction costs.

- Thanks to the engagement of the national and local governments, this zero-energy housing model should be easily applied to buildings at national and city-wide levels. The government's efforts to implement the ZEB roadmap in phases are expected to enable the scaling of the model. For example, small social rental housing buildings constructed by private companies for public interest in Seoul are especially recommended for the project.

Various Cases [103]: The C40 Good Climate Governance in Practice for Delhi, Durban, Jakarta, Johannesburg, Lima, Los Angeles, Oslo, Qingdao and Rio de Janeiro: The case studies illustrate how good climate governance can help cities to realize opportunities and overcome barriers to implementation, as well as to engage more effectively with external stakeholders and other levels of government to influence national and state policies, secure financing, attract political support and deliver complex cross-sectoral actions. The cities featured to share the approaches they took, the challenges they faced, the lessons they learned and the outcomes they achieved.

6.5 Actions/Steps

Vision

- Foster a civic ethos of participation and engagement, and seeking optimal degrees of engagement.

Strategy

- Consider building a stakeholder engagement plan as the basis of the strategy.

Governance

- Enable an environment for transparent, coordinated, participatory and inclusive approaches to multi-stakeholder engagement.
- Include non-state actors for 2030 climate action.

Process

- Produce an interest and influence matrix that plots needs and interests against power and influence [104].

Partnership

- Conduct a detailed stakeholder mapping to identify priority stakeholders, their interest or influence on CA/governance, and how to effectively engage them [105].

Technology

- Promote exchange of good practices to foster multi-stakeholder coordination.

Monitoring and Evaluation

- Establish a tracking system to ensure all inputs (feedback, claims, etc) are integrated into the continuous improvement process and, ultimately the decision-making.

6.6 Exercises

When conducting the exercises suggested below, do so with the GEWE aspect in mind. Where possible, provide gender-disaggregated information/data and prioritize gender-oriented choices. When reflecting on multi-stakeholder engagement for climate governance, consider whether parties dedicated to GEWE are on the stakeholder list and include representatives with knowledge of and stakeholders whose core expertise is dedicated to GEWE matters.

Exercise 1 [106]: Assessment of the commitment on engagement

Instructions

Circle the response in column A, B or C that most closely answers the question. Then count the number of answers in each column to create an assessment of your project's stakeholder engagement requirements. If the responses are evenly spread, the project should be categorised as a medium project by default.

A = Small engagement scope – low resource commitment

B = Medium engagement scope – medium resource commitment

C = Large engagement scope – significant resource commitment

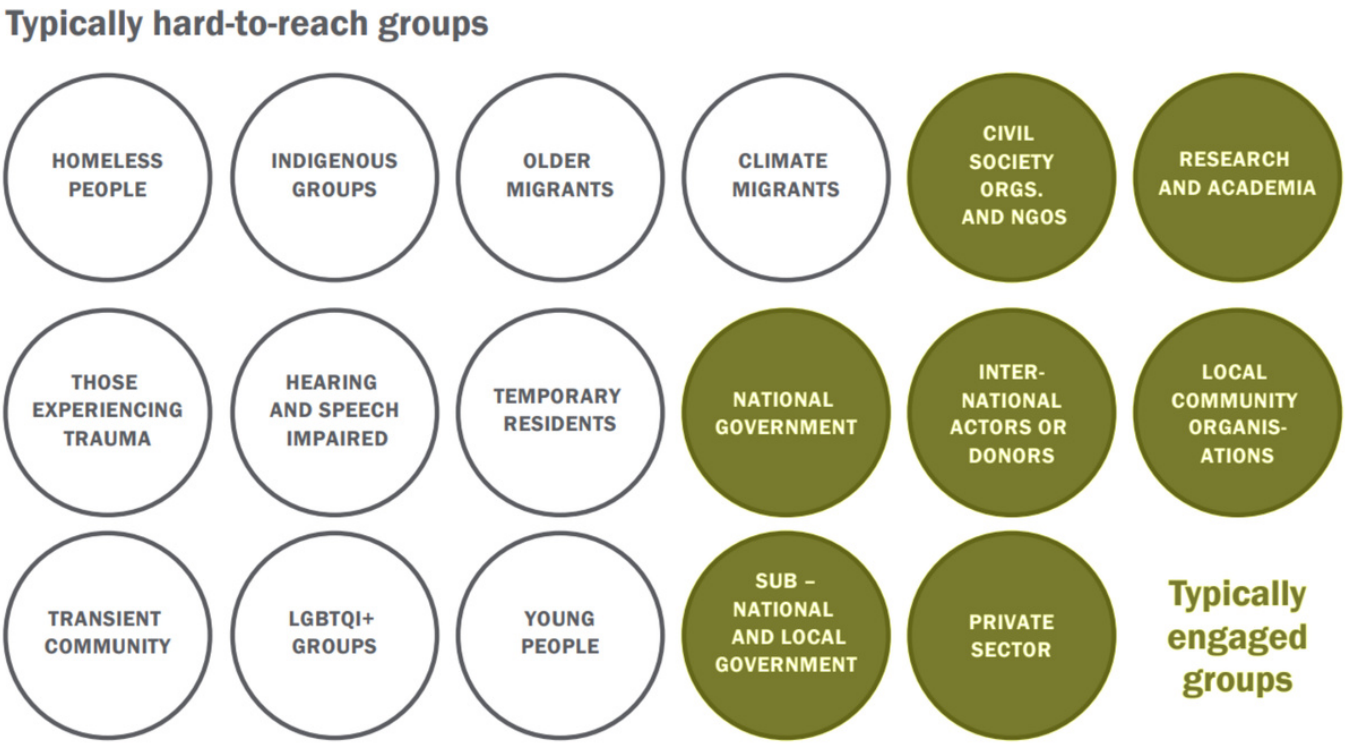
Important note: Small/medium/large does not necessarily represent the number of stakeholders involved or the size of the community or project. It is an indication of how much engagement risk is present and therefore how much engagement strategy and activity may be required.

Criteria	A	B	C
Considering the type and scope of the project, is the budget...	Small	Medium	Large
What level of political risk exists? Is the project an election promise or located in a contentious electorate? Rank the risk according to three levels of government (leave blank if not applicable):			
Federal government	Low/none	Medium	High
State government	Low/none	Medium	High
Local government	Low/none	Medium	High
Has there been any publicity (positive or negative) about this project in the public sphere to date?	None/very little	Some	A significant amount
Has there been any negative publicity or criticism about this project in the public sphere to date?	None	A little	More than a little
Have there been projects of a similar nature, or any other projects that have disrupted the local community, in this same geographical area recently?	Nothing within last 12 months	3 to 12 months ago	Within the last 3 months
What's the estimated duration of the project?	Less than 3 months	3 to 12 months	More than 12 months
What is the potential reputational risk if stakeholder or community engagement is perceived to be unsuccessful?	Low	Medium	High
Will the project require dedicated staff to work on the engagement?	No	Yes – a couple	Yes – a team
What is the geographical scale or impact of the project?	Within a local community (suburb, town)	More than one community / city-wide	State-wide or national
Does being able to complete an effective design for the project require input from community and/or impacted stakeholders?	No	Yes	Yes
What is the overall project risk rating?	Low	Medium	High
Total responses			

Exercise 2 [107]: The UNPAN – Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development: proposes a Self-Assessment Questionnaire to provide an accurate picture of the reality on the ground with regard to stakeholders' engagement (building block 8 of the questionnaire, to be accessed online directly from the original source due to its length). The questions can be addressed at the national or local level. This is a transversal tool; therefore, for the purpose of this exercise when reflecting on the questions, focus on climate action by replacing the words "sustainable development" and "SDGs" with "climate action" and "climate action goals."

Exercise 3 [108]: Map CC and groups impacted

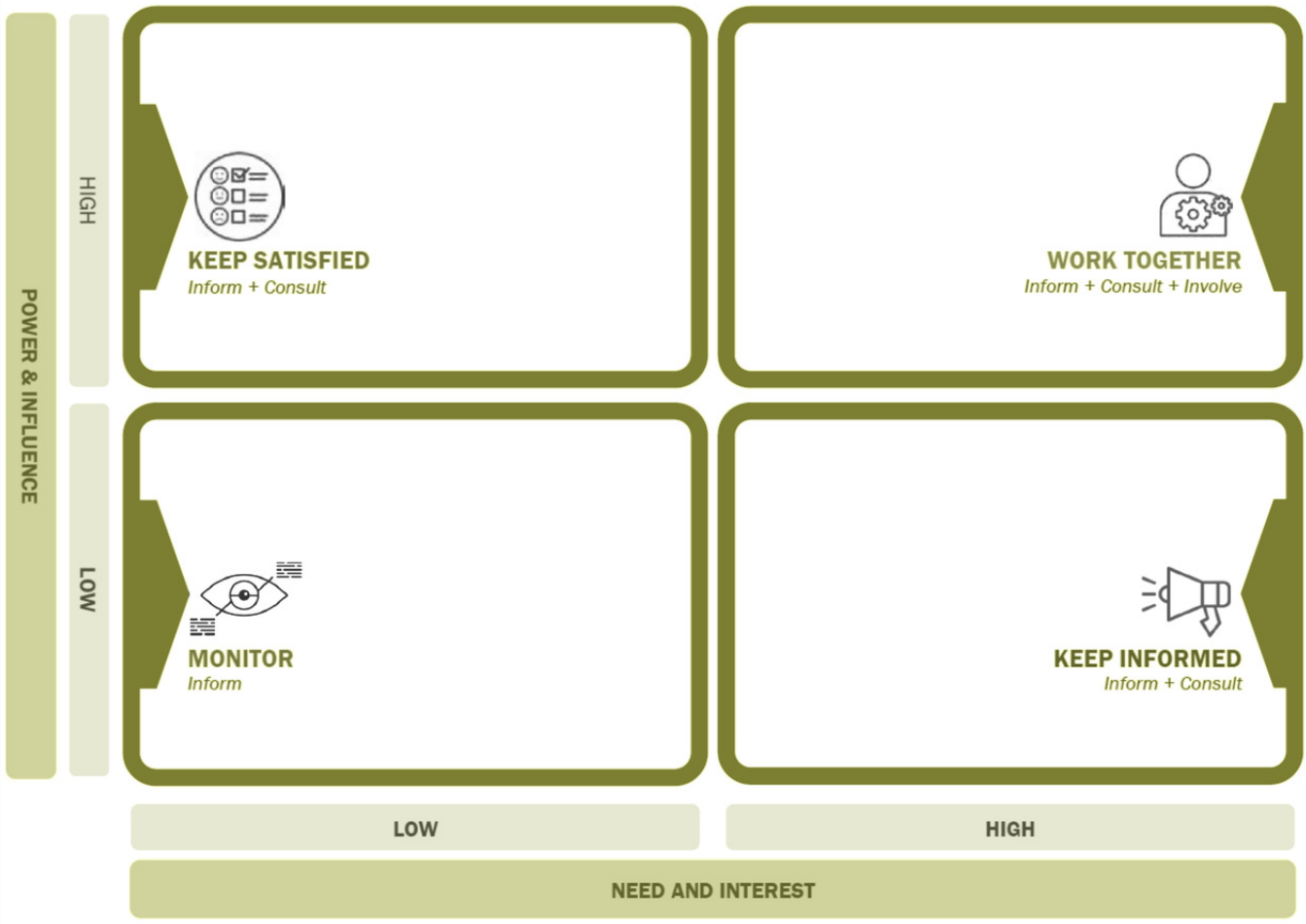
Map the key climate hazards and the characteristics of the individuals/communities in your local area. When brainstorming about individuals/communities, consider hard-to-reach groups, segregate them all, and compare their trends. The chart below may help with that exercise.



Informality status	Relationship of individuals, households, activities or firms to the formal or informal economy, typically with respect to production, employment, consumption, housing or other services.
Income level	Grouping or thresholds connected to earnings of labour and/or capital. Categories typically are defined related to the local/national economy.
Race and ethnicity	Race is defined as a category of humankind that shares certain distinctive physical traits. The term ethnicity is more broadly defined as large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background.
Age category	Chronological grouping based on years lived.
Sex	Sex refers to the biological characteristics that define humans as female or male. While these sets of biological characteristics are not mutually exclusive, as there are individuals who possess both.
Gender and sexuality	The socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men. Categories can include lesbian, gay, bisexual, transsexual and intersex.
Disability	Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.
Religion	Religious or spiritual belief or preference, regardless of whether or not this belief is represented by an organised group, or affiliation with an organised group having specific religious or spiritual tenets.
Working conditions	Working conditions covers a broad range of topics and issues, from working time (hours of work, rest periods, and work schedules) to remuneration, as well as the physical conditions and mental demands that exist in the workplace.
Areas of the city	Spatial distribution across neighbourhoods, districts, axes, or other delimitation.
Migrant status	Refers to the legal and immigration status of a person who changes their place of residence. Categories include locals, expatriates, documented or undocumented migrants, refugees and asylum seekers.

Project name		**Begin date**		**Version number and page number**	
Project description		**End date**		**Date prepared**	
Register owner		**Duration**		**Author**	

Exercise 4 [109]: Interest and influence matrix
Code stakeholders according to their power and influence, as illustrated below. This tool will help identify priority groups/individuals and the types of interaction with them.

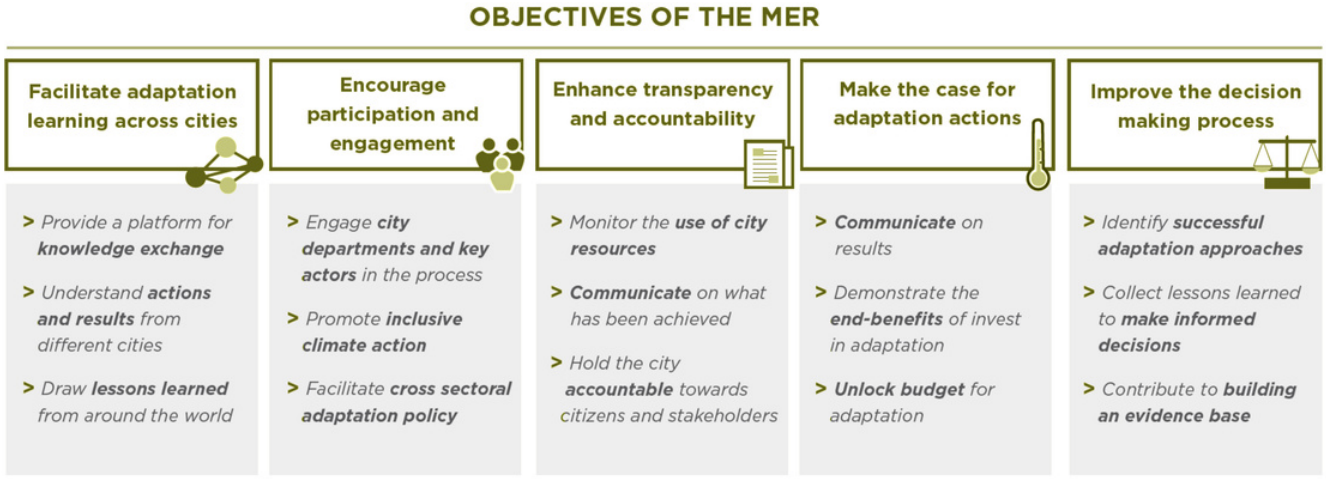


MONITORING & EVALUATION AND REPORTING

7. Monitoring & Evaluation and Reporting

7.1 Introduction

The objectives of monitoring, evaluation and reporting are highlighted in the chart below [110].



Acquiring data on informal settlements, which have huge CC impacts, is difficult and poses a challenge to monitoring, evaluation and reporting efforts, particularly in developing cities. For example, across the Green City Index [111] regions, there are very few instances in which one single data point – for example, CO2 emissions per capita – is measured and reported in the same way in each locality. This limited comparability creates a challenge when evaluating information across local governments.

7.2 Key takeaway/messages concepts

Data from multiple sectors and sources are needed to calculate indicator measurement. A national coordination plan needs to be in place to guarantee the timely and consistent collection of the data. Privacy protection and data security need to be guaranteed in all such efforts.

M&E&R for policy coherence

- Strengthen monitoring, reporting and evaluation systems to collect evidence on the impact of policies and report progress on policy coherence [112].

- To strengthen policy coherence (including prioritization, resource allocation and policy dialogue), reporting should link assessment to learning [113].

M&E&R: multi-stakeholder engagement

Evaluating the multi-stakeholder engagement process helps understand what has been effective, what hasn't worked well and how future processes can be improved [114].

7.3 Strategies/Approaches

Transparency [115]: The Paris Agreement was adopted in 2015, and through it, an Enhanced Transparency Framework (ETF) was established. Countries are now actively engaged in establishing the necessary arrangements to implement the ETF. To ensure consistency at the local level, national governments can share the following information.

- Provide the start year(s) and target years(s), including whether the target will be achieved in a single year or has a budget over multiple years; answer the following questions, as applicable: What is the overall goal compared with the start year (e.g., X percent below 1990 by 2030 on an absolute basis, or renewable energy target by 2025)? Is the indicator intensity-based? Is the goal an absolute reduction? Is the action related to technology penetration?

- Provide information on reference indicators, baseline(s) and/ or reference level(s), including how sector-, category- or activity-specific reference levels are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used; Provide relevant references for any data and assumptions applied, and state what, if anything, could trigger an update to those values (e.g., the 1990 emission level in the GHG has been updated to reflect more accurate data).

- LDCs and SIDS: describe strategies, plans and actions for low GHG emissions development; Where the provision of quantifiable information on reference indicators is not applicable, provide other qualitative information related to the goal(s) (e.g., a narrative description of intended actions, milestones and drivers).

- Provide the period over which the actions set out are applicable (e.g., 2020–2030).

- Provide information on the gases (e.g., CO2, CH4, N2O, hydrofluorocarbons, perfluorocarbon, SF6 and/or NF3), sectors and categories covered using the IPCC category classification.

- If not all categories or gases have been included, provide an explanation as to why certain sources, sinks or gases have been excluded; Recognizing that Parties are to continue including previously covered categories and gases in their efforts, provide an explanation for any category or gas that was previously reported but is no longer reported.

- Provide quantitative and/or qualitative information on the mitigation co-benefits of other actions, including key sectors such as energy, water resources, coastal resources, human settlements and urban planning, agriculture and forestry; and economic diversification actions, which may cover, but are not limited to, sectors such as manufacturing and industry, energy and mining, transport and communication, construction, tourism, real estate, agriculture and fisheries.

- Provide information on domestic institutional arrangements (e.g., the institutions, actors and procedures involved), national circumstances affecting those arrangements (e.g., geography, national priorities) and other relevant contextual information.

- Describe how opportunities and challenges for enhancing action and support, as well as possible measures and good practices, including for international cooperation, have been considered. These often result from the global stocktaking exercise, referencing thematic summary reports and a factual crosscutting synthesis report.

- Developed countries: Refer to the absolute economy-wide target and if none exists, explain why.

- Developing countries: Explain how mitigation actions have been enhanced since previous actions and, where applicable, explain how actions are moving towards an economy-wide emission limitation or reduction target. LDCs and SIDS: refer to the preparation of strategies, plans and actions for low GHG emission development strategies

- Describe how efforts contribute to the stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system, national GHG emissions and removals in the target year or period, shifting of the estimated peaking year, or longer-term low GHG emission development strategies and plans; Describe how efforts contribute to the goal of holding the global average temperature increase to well below 2 °C above pre-industrial levels, and pursue efforts to limit that increase to 1.5 °C. The discussion could, for example, be framed in the context of contributing to global peaking of emissions as soon as possible, with strong reductions thereafter, taking into account national circumstances.

A Circular Approach: The process should not be seen as a linear or one-time process but rather as a repeated circular process, helping to build an iterative approach to localizing climate change governance.

Relevant indicators on local-national climate governance: The information included for each goal of a nationally determined contribution could also be extended to the local level [116]:

- Quantifiable information on the reference point (including, as appropriate, a base year)
- Time frames and/or periods for implementation
- Planning processes
- Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic GHG emissions and, as appropriate, removals
- How the Party considers that its NDC is fair and ambitious in the light of its national circumstances Scope and coverage
- How the NDC contributes towards achieving the objective of the Convention as set out in Article 2.

It is important to note that:

- Policy and institutional coherence are contemplated as a cross-cutting systemic issue within the SDG indicators, specifically, as disaggregated indicators under SDG17 [117]. An exemplary case of one of these indicators is shown in the UNDESA Workshop [118].
- Local government action is contemplated as disaggregated indicators across various SDGs (SDG11 and SDG13).
- CC is contemplated mainly under the dedicated SDG13 and as disaggregated indicators across various SDGs (SDG2, SDG7, SDG11 and SDG12).

Challenges on M&E&R for policy coherence

- Considerable requirements regarding quality data and indicators
- Monitoring and evaluation efforts usually address single policies or sectoral programs rather than
- policy interlinkages or cross-sectoral goals or links.
- Indicators and evaluation criteria often are not standardized across government, which makes it more difficult to assess policy coherence on cross-sectoral issues.
- Mainstreaming monitoring and evaluation as a standard and continuous practice throughout SDG implementation is a challenge.

Strategy/Approach on M&E&R for policy coherence [119]: To establish cross-sectoral monitoring and evaluation practices:

- Include different actors from various sectors to discuss and interpret findings and decide on adjustments. For example, identify what institutional parties are responsible in your country/local area (e.g. National Statistics Office, inter-organizational groups, central government, Supreme Audit Institutions that audit/review SDG/CA implementation)
- Use multiple sources of evidence
- Design evaluation criteria to assess cross-sectoral impact
- Align strategy-building and monitoring, and evaluation systems
- Build an indicator system to monitor interlinkages of policies and related objectives.

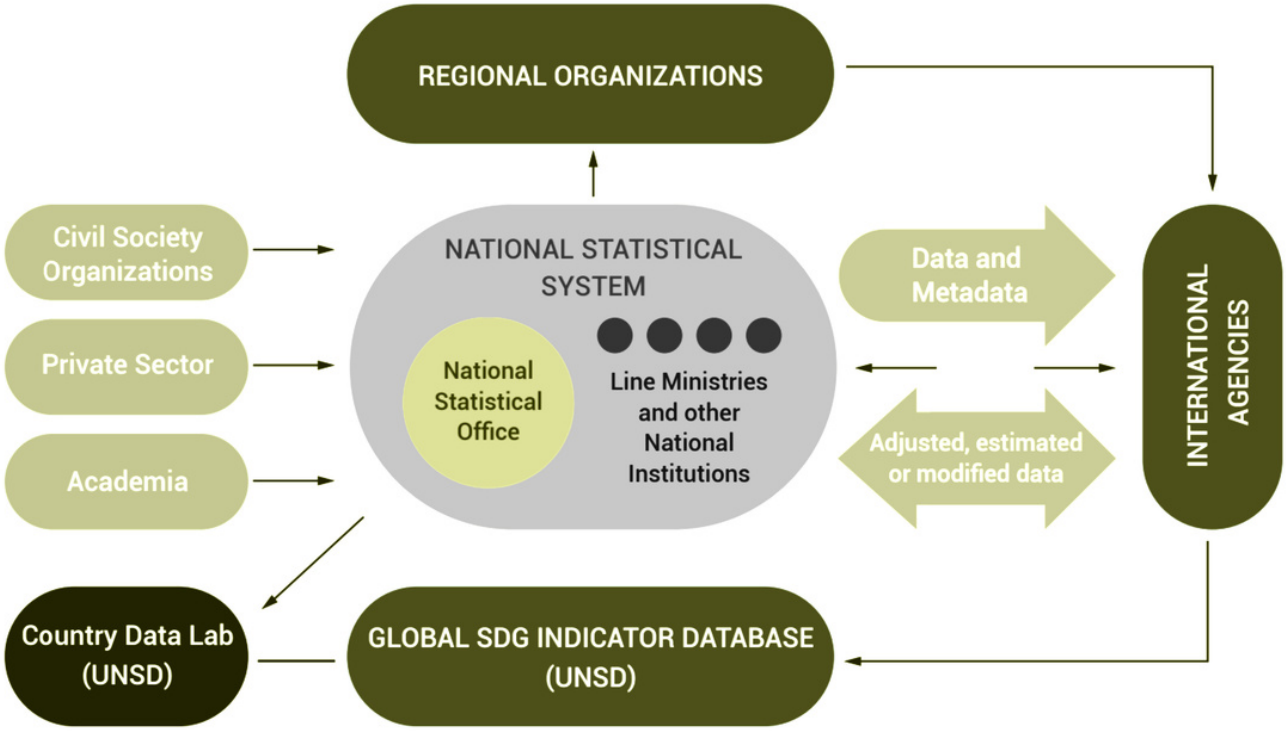
Countries and localities have different levels of capacity when it comes to monitoring. Take local capacity and available resources into consideration, and from there, advance progressively as follows [120]:

1. As a first step, populate indicators with estimates based on available national/local information; choose localized data (versus national) when possible; if necessary, data can be retrieved from internationally accessible databases.
2. Populate the indicators with nationally/locally produced data.
3. Refine data to produce higher accuracy (e.g., georeferenced and/or based on metered quantities).

Requiring that the effects of policies on the various dimensions of CC and cross-sectoral impacts are monitored, evaluated and reported on a regular basis using specific indicators allows findings to be used to inform adaptive action/management going forward. The M&E&R approach is strengthened by requiring that aspects of policy coherence are integrated into reporting.

From local to global level reporting: Systems developed should enable the local government to measure progress and accurately report on it at national and global levels.

The diagram below shows how local and regional reporting provides input to national reporting [121]:



The local-national linkages discussed in Chapter 3 apply to how local government can report to national and global levels.

7.4 Innovative Cases

Several of the UNPSA Award Winner projects provide valuable case studies. These include:

- UNPSA Award Winner: Strengthening the effectiveness of Romanian institutions and policy coherence for sustainable development (PCSD) to reach SDGs -2021 – Romania - Enhancing the effectiveness of public institutions to reach the SDGs.
- UNPSA Award Winner: PetaBencana, Ensuring integrated approaches in the public-sector Institutions – 2019 – Indonesia.
- UNPSA Award Winner: e-Mutation of land – 2017 - Developing transparent and accountable public institutions. Bangladesh.

The “Additional Cases” section of this Handbook provides more information.

7.5 Actions/Steps

The following are suggested actions/steps:

Vision

- Via the GCoM alliance, report GHG inventories, risk and vulnerability assessments, targets, plans, actions and finance needs on a regular basis (as capacity permits); Use a standardized, global framework and/or protocol to structure your climate data; Use an established, publicly accessible platform for reporting your climate data [122].

- Mainstream climate into core financial processes to inform budgeting and strategic decision-making; Use a standardized, global protocol for climate-related reporting in your annual financial reports; Prepare for reporting that is compliant with Recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) [123].

Strategy

- Establish a baseline against which progress can be measured over time, in line with the 2030 Agenda's ambitions.

- Establish a set of agreed-upon metrics for local key CC/governance performance indicators; This is a major step towards providing policymakers with a comprehensive assessment of their local current CC/governance footprint; A consistent set of CC/governance indicators will help reveal the most appropriate local policies and efficient investments to improve CC/government performance [124].

Governance

- Assess how gender equality is currently integrated into monitoring and evaluation of local governance in order to provide visibility to this vulnerable group.

Process

- Identify whether the local/national government has mechanisms in place to systematically monitor, evaluate and report the effects of local policies on the various dimensions of CC; Identify local/national data platforms and databases that contain sufficiently detailed information, including metadata, to allow direct interaction with data and metadata for global monitoring.
- Identify new data sources to obtain information for the indicators established.
- Establish the frequency of the indicators to be monitored, evaluated and reported.
- Make sure cross-sectoral criteria are considered [125].
- Share a data collection calendar with relevant local, national and global parties.
- Provide clear and comprehensive requests when defining indicators and collecting data -- without clear and complete metadata, it is not possible to fully understand the associated data [126].
- National governments can support evidence-based actions by planning and allocating budgeting for M&E&R.
- Use technology to improve data collection, analysis, and accessibility [127].

Partnership

- Identify relevant parties, e.g.., National Statistical Office (NSO), Custodian Agency Focal Points
- Clarify/establish institutional ownership of data and monitoring for CC [128]
- Improve coordination within parties, among custodian agencies, so that they all are informed about data requests and are aware of who is providing the data and when and to whom the data is being provided [129]
- Consult with parties on any harmonized, estimated, modelled or adjusted data through transparent mechanisms [130]
- Involve stakeholders in data collection [131]
- Assess how gender equality is currently integrated into the climate governance via effective disaggregated monitoring and evaluation

Technology

- Consider moving toward digitalisation to help systematising and standardising tasks

Monitoring and Evaluation

- Move toward integrated monitoring [132]

7.6 Exercises

When conducting the exercises suggested below, do so with the GEWE aspect in mind. Where possible, provide gender-disaggregated information/data and prioritize gender-oriented choices. When reflecting on monitoring and evaluation for climate governance, consider whether evaluations are reflecting gender issues.

Exercise 1: Identify existing local and national policy coherence mechanisms. Assess whether any types of policy coherence mechanisms are missing against the checklist of the mechanisms listed by the Inter-agency and Expert Group on SDG Indicators SDG17.14.1 [133]. Apply the value system in place, if any (or develop it if needed) and determine its suitability and usefulness to the local and national scopes. Where possible, justify each score given by providing evidence and/or references.

Exercise 2 [134]: The UNPAN Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development proposes a Self-Assessment Questionnaire to provide an accurate picture of the reality on the ground with regard to monitoring, reporting and evaluation of processes (building block 9 of the questionnaire, to be accessed here: https://unpan.un.org/capacity-development/otc/self-assessment-tools/self-assessment- questionnaire/). The questions can be considered at the national or local level. This is a transversal tool; therefore, for the purpose of this exercise, replace the words “sustainable development” and “SDGs” with “climate action” and “climate action goals”.

Exercise 3 [135]: Create an indicator matrix for extreme weather, taking into consideration government actions already underway. An example is provided below:

Extreme Heat/ Heatwaves

Action	Output	Output Indicator	Outcome	Outcome Indicator	Impact	Impact Indicator
Green infrastructure (Plant beds, green roofs, green walls, street trees, canopy cover etc.)	Vegetation planted	Area of vegetated area created (m²)	Improved temperatures from vegetation during extreme heat/heatwave	°C °F Temperature difference between vegetated and non-vegetated areas	Reduced exposure to extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)
Increase shade in public spaces (vegetation, retractable roofs, tensile structures, etc.)	Shading structures implemented	Area of canopy cover created (m²) Area of shaded cover created (m²)	Improved temperatures from shading structures during extreme heat/ heatwave	°C °F Temperature difference between shaded and non-shaded areas	Reduced exposure to extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)
Implement cool/white surfaces (pavements and roofs)	Cool/white surfaces implemented	Area of cool/white surfaces (m²)	Improved temperatures from cool/white surfaces during extreme heat/ heatwaves	°C °F Temperature difference between cool/ white spaces and non-cool/white spaces	Reduced exposure to extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)
Implement cooling centres across city (cooling centres, shelters, cool routes)	Cooling centres, shelters and routes implemented across the city	Number of cooling centers/shelters created per capita Length of cooling routes established (km)	Increased access to areas with moderated temperatures Increased access to routes with moderated temperatures	% of population within (15min) reach of a cooling centre % of population using cooling centres	Reduced exposure to extreme heat/ heatwaves Reduced vulnerability to extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)
Provide drinking/ cooling water sources (fountains, sprinklers, etc.)	Water features built across city	Number of water sources per capita	Increased access to safe water	% increase in water consumption during high heat	Reduced vulnerability in extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)
Implementing permeable surfaces	Additional permeable surface area	Area of permeable surfaces (m²)	Improved temperatures (surface temperature) from permeable surfaces during extreme heat/ heatwave	°C °F Temperature difference between permeable and non-permeable areas	Reduced vulnerability in extreme heat/ heatwaves	**People:** number of A&E admissions from heatstroke; number of ambulance dispatch calls in extreme heat/heat stroke; number of heat mortality cases **Assets:** Number of assets affected/damaged, Cost of repairs, Cost to economic productivity (or $ damage)

CONCLUSION - POLICY RECOMMENDATIONS

8. Conclusion - Policy Recommendations

- The world's growing cities are the engines that will determine the future direction of nations. Ongoing, unprecedented migration from rural areas to cities is putting tremendous pressure on urban environments and specifically on climate change-related matters. Efficient local-national governance is a prerequisite to prevent and deal with damage caused by climate change, including extreme weather events such as flooding, droughts and storms [136].

- Governments everywhere need to collaborate on a uniform standard for CC/governance data so that a given locality in one part of the world can easily compare its results to any other to learn from its peers and improve its performance [137].

- There is a strong correlation between a city's climate governance performance and the percentage of residents living in informal settlements [138]. Experts agree that including informal populations in formal planning processes for climate change agendas improves results. When populations living in informal settlements have inadequate services, climate risks are exacerbated (for example, flooding due to unplanned housing in slums).

- In most regions, the Green City Index series shows a clear link between greater wealth and better CC/governance performance. But there are some cities with below-average incomes that outperform their peer cities with higher incomes, demonstrating that policies and low-cost projects can be adopted to improve CA/governance. For example, this was the case for Berlin and Vilnius in Europe, Bogotá in Latin America, Delhi in Asia, Vancouver in Canada and Accra in Africa. Delhi has the third lowest average income in Asia (US$2,000 per capita versus the average of US$18,600) but achieves a relatively good place in the Green City Index. In another example, tree planting is becoming a common environmental activity in Asia, especially for cities with lower incomes. Beijing holds an annual "Voluntary Tree Planting Day" in which some two million residents participate, including senior government officials. In Brazil, Belo Horizonte has legalized waste picking, which has a major environmental impact but also provides economic and social benefits for waste pickers. Low-income cities can also look to international agencies to finance environmental goals. For example, Vilnius, Lithuania, took advantage of funding from the World Health Organisation's Healthy Cities Project to promote the use of cycling and public transport. Vilnius also drew on European Union funds to improve its water supply and treatment network (SDG 6). In the early stages of economic development, more affluence often correlates with more cars, more emissions and more urban sprawl. The Asian Index shows that only when GDP per capita rises above approximately US$20,000 per person does a "tipping point" occur, and the trend reverses. Cities with a higher income start to consume relatively less water and generate less waste and carbon emissions. Cities in developing countries need to work towards limiting the environmental impact of rising consumption rather than waiting for attitudes to change as incomes grow. This can be done by investing in efficient infrastructure, initiating public education campaigns (SDG 4) and setting targets (for example, for more renewable energy, green spaces and air quality), as well as by addressing the growth of informal settlements.

- Top-performing local governments in CA take a holistic approach to problems and set an overall strategy, recognizing that performance in one category, such as transport, is linked to success in others, such as air quality. They also have dedicated departments (e.g., environmental, CA, etc.), structured communication and joint target setting between departments with different responsibilities (for example, water, waste management and transport) [139].

- Local governments are encouraged to draft policies using the C40 Inclusive Climate Action Planning Policy Recommendations, designed to help cities move from analysis to action by describing and explaining equity considerations for 17 key climate policies based on global best practice. Specific steps, potential barriers, indicators and example targets are provided for each recommended action to help cities implement them.

- National directives should incentivize local governments to establish their own initiatives [140].

- There is substantial knowledge about polycentric urban climate governance in a small number of predominantly large cities in the global North, but we know very little about polycentric urban climate governance in general. Therefore, we are not well equipped to determine how far cities are genuinely capable of self-organizing. Urbanization is taking place predominantly in the global South, particularly in Asia and Africa, which may generate different outcomes than in the global North. Similarly, the trends visible in large cities may not be found in smaller cities, given that they face different barriers and have fewer capacities [141]. Collaborative and integrated plans, policies and actions are needed to achieve common goals in the adaptation, mitigation and empowerment of local government. By doing so, national policies can leverage existing local experiments, accelerate policy responses, foster resource mobilization and engage local communities, cities and sub-national authorities to translate national targets into actions.

READER'S TOOLS

9. Reader's Tools

9.1 Additional References

- UNPAN - Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development: The goal of this tool is to assist Member States in strengthening their institutions for more integrated solutions. The assessment is based on UN DESA's analytical work and the UN Environment Program's draft methodology for Tier II Indicator 17.14.1. UN DESA/DPIDG is the custodian of the Program on Public Administration. https://unpan.un.org/node/705

- This article explores an arrangement of policy recommendations for multi-level governance. Jänicke, M. (2017). The Multi-level System of Global Climate Governance - the Model and its Current State: The Multi-level System of Global Climate Governance. Environmental Policy and Governance. 27. 108-121. 10.1002/eet.1747. https://onlinelibrary.wiley.com/doi/epdf/10.1002/eet.1747

- ICLEI – Local Governments for Sustainability: This global network of more than 2,500 local and regional governments is committed to sustainable urban development. Active in more than 125 countries, ICLEI influences sustainability policy and drives local action for low-emission, nature-based, equitable, resilient and circular development. ICLEI members and experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability. https://www.iclei.org/

- UNDRR Policy Brief: Disaster Risk Reduction and Climate Change: Explores challenges faced in disaster risk governance and includes policy recommendations. https://drupal.preventionweb.net/publication/policy-brief-disaster-risk-reduction-and-climate- change

- UNDRR – Sendai Framework for Disaster Reduction 2015-2030: Promoting Synergy and Alignment Between Climate Change Adaptation and Disaster Risk Reduction in the Context of National Adaptation Plans: This supplement to the UNFCCC NAP Technical Guidelines provides practical recommendations to guide NAP technical teams and focal points on how to strengthen and better promote synergy and coherence between CCA and DRR. https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

- C40 City policy framework for dramatically reducing embodied carbon: A comprehensive resource for cities and other government bodies seeking to develop a strategy, action plan and policies to tackle embodied carbon in construction materials/processes. https://www.c40knowledgehub.org/s/article/City-policy-framework-for-dramatically-reducing- embodied-carbon?language=en_US

- C40 Inclusive climate action planning: Policy recommendations: The fourth in a series of toolkits that provide a roadmap for inclusive planning in the climate action planning process. https://www.c40knowledgehub.org/s/article/Inclusive-Climate-Action-Planning-Policy- Recommendations?language=en_US

- C40 How cities can shift toward a Planetary Health Diet for all: Food systems have a major impact on climate change. Cities can play an important role in supporting a shift in citizens' food consumption toward a more sustainable Planetary Health Diet. This diet is good for both people and the planet: it is healthier, reduces greenhouse gas emissions, and could halve food loss and waste by 2030. It also delivers benefits for equity and, ultimately, for cities' economies. This article explains why your city should pursue changes to its urban food system. https://www.c40knowledgehub.org/s/article/How-cities-can-shift-toward-a-Planetary-Health-Diet- for-all?language=en_US

- C40 How to design and implement a clean air or low emission zone: Provides information on tried and tested policy options for Low Emission Zones and strategies to navigate related obstacles. https://www.c40knowledgehub.org/s/article/How-to-design-and-implement-a-clean-air-or-low- emission-zone?language=en_US

- C40 How cities can use the law to advance climate action: Legal interventions are a way to remove barriers to cities' climate ambitions, protect residents and assets, and achieve transformational change. This article looks at how cities can use litigation, legal reform initiatives and pioneering policies, outlining key considerations. Available at https://www.c40knowledgehub.org/s/article/How- cities-can-use-the-law-to-advance-climate-action?language=en_US

- C40 How to strengthen climate governance for an effective climate action plan: Outlines interrelated principles and provides tools and resources that can help cities strengthen governance for CAP implementation. Draws on the evidence-based Governance Self-Assessment Guidance and provides good-practice examples from cities around the world. https://www.c40knowledgehub.org/s/article/How-to-strengthen-climate-governance-for-an-effective-climate-action-plan?language=en_US

- C40 Governance Self-Assessment: This tool is designed to aid key decision-makers and stakeholders when systematically analyzing the status of climate governance in their city to develop and deliver a Climate Action Plan (CAP). It is intended to be completed initially during the climate action planning process, after defining high-impact actions in detail, and before planning for implementation begins. It can then be repeated to monitor progress and improvements in climate governance to ensure that the CAP is mainstreamed into city governance systems and processes. Available at https://resourcecentre.c40.org/resources/mainstreaming-the-climate-action-plan

- Climate Action Planning Vertical Integration Guide: This guide explains the principles and practices of enabling climate action through vertical integration, provides a series of good practice examples from around the world, and introduces a suite of tools and resources to help city governments evaluate barriers and opportunities for vertical integration and support the planning and implementation of strategies to improve it. https://www.c40knowledgehub.org/s/article/Climate- Action-Planning-Vertical-Integration-Guide?language=en_US

- C40 Seizing the Urban Opportunity: This report focuses on six major emerging economies that together account for a third of global GDP – China, India, Indonesia, Brazil, Mexico, and South Africa – to explore the extent to which they can unleash the power of cities to catalyze sustainable, inclusive and resilient growth. https://www.c40knowledgehub.org/s/article/Seizing-the-Urban-Opportunity?language=en_US

- C40 City Climate Data Management Framework and Self-Assessment Questionnaire: This Framework has been designed to support cities in implementing sound data management practices that strengthen understanding of the current situation, drive improvement and achieve climate mitigation ambitions. The Framework also provides a means for city self-assessment of climate data management processes. https://www.c40knowledgehub.org/s/article/City-Climate-Data-Management-Framework?language=en_US

- C40 Inclusive climate action planning: Identifying indicators for monitoring and evaluation: This is the third module of the Roadmap for Inclusive Planning toolkit. It explains how cities can create indicators to measure and track progress on inclusivity and equity in climate actions. https://www.c40knowledgehub.org/s/article/Inclusive-Climate-Action-Planning-Identifying-

- C40 Policy-ready indicators database for equity and inclusivity planning. This tool, included in the M&E module noted above, is an exercise to select the relevant indicators, and establish their priority and baseline to ensure equity and inclusivity for policy-makers. https://www.c40.org/wp-content/uploads/2021/02/Equity-pledge_FAQ2022-1.pdf

- C40 Public-Private Partnerships for Delivering Climate Action: A list of resources describing case studies of partnership efforts contributing to climate action. https://www.c40knowledgehub.org/s/topic/0TO1Q000000UBYTWA4/publicprivate-partnerships-for-delivering-climate-action?language=en_US

- C40 How to address infrastructure interdependencies when adapting to climate change: This article explains how cities can address interconnected urban systems in climate action planning and minimize the risks of cascading failures in the urban infrastructure systems for highly interdependent sectors of energy, transport, telecommunications, water and wastewater, solid waste, buildings and food. It also emphasizes the need to facilitate engagement and collective action with stakeholders across multiple sectors. https://www.c40knowledgehub.org/s/article/How-to-address-infrastructure-interdependencies-when-adapting-to-climate-change?language=en_US

- C40 How to develop and manage a city-wide greenhouse gas emission inventory: looks at the options available to cities to measure their GHG emissions and the tools they can use to develop and manage an inventory. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideRecordId=a3t1Q0000007lEWQAY&guideArticleRecordId=a3s1Q000001iai1QAA

- UNCDF Policy Accelerator - Index of internal and external resources for policymaking for digital financial services. https://policyaccelerator.uncdf.org/policy-tools

- UNPSA Initiatives and the SDGs (includes Award Winners): https://publicadministration.un.org/unpsa/database/UNPSA-Initiatives-and-the-SDGs/Country/TH/keyword/water and https://publicadministration.un.org/unpsa/database/UNPSA-Initiatives-and-the-SDGs/Winners/True

- UN Urbanization and Sustainable Development in Asia and the Pacific: Linkages and Policy Implications: Note by the Secretariat. https://digitallibrary.un.org/record/3881413#record-files-collapse-header

- UN-Habitat Climate Change and National Urban Policies in the Asia-Pacific - A regional guide for mainstreaming climate change into urban related urban-related policy, legislative, financial and institutional frameworks: This guide provides policymakers with a flexible and non-prescriptive approach that can help with the integration of climate change into urban policy at any point of the policy cycle and suggests methods and steps for mainstreaming climate change into national urban policies. https://unhabitat.org/climate-change-and-national-urban-policies-in-asia-and-the-pacific-a-regional-guide-for

- Global Climate Governance: This 2020 report from Cambridge University Press takes stock of the current state of the global climate change regime, illuminating the scope for policymaking and mobilizing collective action through networked governance at all scales, from the subnational to the highest global level of political assembly. https://www.cambridge.org/core/elements/abs/global-climate-governance/920B86A424832E2803119C976969B262

- What can local councils do on climate change: This publication by the National Association of Local Councils (NALC) provides results of a survey conducted between October 2020 and January 2021 to discover what local (parish and town) councils were already doing on climate change and the barriers stopping them from achieving more. https://www.nalc.gov.uk/library/our-work/climate- change/3598-what-can-local-councils-do-on-climate-change-2021/file

- Report of the Secretary-General On The 2019 Climate Action Summit and the Way Forward in 2020: The report highlights how climate action can have tangible impacts on people’s lives, including on their jobs and health, and therefore the need to align policies and systems to accelerate the implementation of both the Paris Agreement and the Sustainable Development Goals (SDGs) https://www.un.org/sites/un2.un.org/files/cas_report_11_dec_0.pdf

- Curriculum on Governance for the Sustainable Development Goals: Aims to promote a critical understanding of sustainable development issues, enhance governance capacity, and strengthen public servants' awareness of their active role in contributing to the achievement of the SDGs. https://unpan.un.org/capacity-development/curriculum-on-governance-for-the-SDGs

- Principles of Effective Governance for Sustainable Development: these voluntary principles provide practical, expert guidance to interested countries in a broad range of governance challenges associated with implementation of the 2030 Agenda. https://unpan.un.org/index.php/sdg16/prin_of_governance (Please also refer to https://publicadministration.un.org/en/Intergovernmental-Support/CEPA/Principles-of-Effective-Governance)

- UN/DESA Policy Brief: https://www.un.org/en/desa/products/policy-briefs

- Case studies Climate Change: This National Association of Local Councils (NALC) publication is designed to be used by county associations or local (parish and town) councils, it includes best practices and examples of work that can be completed within their communities. https://www.nalc.gov.uk/library/our-work/climate-change/3297-climate-change-case-studies/file

- Adapting to climate change, a guide for local councils: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/218798/adapt-localcouncilguide.pdf

- Local Government Association UK climate change hub: includes tools, resources and case studies for climate action in the UK: https://www.local.gov.uk/our-support/climate-change-hub/climate-action-data-and-digital

- Green Policy Platform knowledge products on sustainable development and climate change issues, including case studies: https://www.greenpolicyplatform.org/case-studies

- Scorecards to measure the weakness of systems through guided questions: https://mcr2030.undrr.org/disaster-resilience-scorecard-cities

- UNDP (2016). A framework for an integrated climate change response at the local level. Available at https://sdghelpdesk.unescap.org/sites/default/files/2018-12/Making%20Local%20Governance%20Fit%20For%20Purpose.pdf

- CEPA 15th session, 2016. Challenges for institutions in ensuring that no one is left behind: Contribution by the Committee of Experts on Public Administration to the 2016 thematic review of the High-Level Political Forum on Sustainable Development https://sustainabledevelopment.un.org/content/documents/10196Cmtt%20of%20Experts%20on%20Public%20Admin%20contribution%20to%20HLPF%20recd%202016-May-5.pdf

- UN DESA (2018). World Public Sector Report 2018. https://publicadministration.un.org/en/Research/World-Public-Sector-Reports

- Roadmap for Localizing the SDGs: Implementation and Monitoring at Subnational Level: Roadmap drawn up by the Global Taskforce of Local and Regional Governments, UNDP and UN-Habitat to support cities and regions to deliver the 2030 Agenda https://sdgs.un.org/partnerships

- Greening Growth in Asia and the Pacific: UNESCAP follow up to the Word Summit on Sustainable Development - Taking Action on the Regional Action Plan for Asia and the Pacific, 2006 - 2010 https://sustainabledevelopment.un.org/content/documents/783GreeningGrowth.pdf

- SDGs in the Republic of Korea: Progress Report 2021: Statistics Research Institute report presents Korea's progress towards accomplishing the SDGs. https://kostat-sdg-kor.github.io/sdg-indicators/public/report/17.pdf

- Law and Climate Change Toolkit, Urban Planning and Land Use Module: https://climatelawtoolkit.org/

- 2022, Multi-Level Governance for Effective Urban Climate Action In The Global South https://unhabitat.org/sites/default/files/2022/02/mlg_for_effective_urban-related_climate_action_in_dev_count_07022022_2.pdf

- Pro-Poor Climate Action in Informal Settlements: 2018 UN-Habitat publication on the impact of climate change and strengthening resilience in informal settlements https://unhabitat.org/pro-poor-climate-action-in-informal-settlement

- Climate Change Vulnerability and Risk – A Guide for Community Assessments, Action Planning and Implementation: 2020 UN-Habitat publication to guide communities in conducting Vulnerability and Risk Assessments https://unhabitat.org/climate-change-vulnerability-and-risk-%E2%80%93-a-guide-for-community-assessments-action-planning-and

- Enhancing Nationally Determined Contributions (NDCs) through urban climate action: 2020 UN-Habitat publication that provides practical opportunities for incorporating urban climate action and human settlement issues into the current NDC revision and enhancement process https://unhabitat.org/enhancing-nationally-determined-contributions-ndcs-through-urban-climate-action

- The Local Governments and Municipal Authorities (LGMA) Constituency: an organization that has represented networks of local and regional governments at the processes under the United Nations Framework Convention on Climate Change (UNFCCC) since the first Conference of Parties (COP) in 1995. https://www.cities-and-regions.org/about-the-lgma/

- Watering the NDCs: National Climate Change for 2020 and Beyond: Crowdsourced report produced by the Alliance for Global Water Adaptation (AGWA) as a guidance document for countries seeking to enhance their national commitments related to water and climate change; updated regularly to include new or amended information. https://www.alliance4water.org/wateringthendcs/

- Workshop on Effective National-to-Local Public Governance for SDG Implementation: Online training designed to develop the capacities of government officials and other stakeholders responsible for SDG localization by introducing approaches, strategies, and tools for enhancing national-to-local public governance for SDG implementation. http://unpog.org/page/sub3_1_view.asp?sn=409&BoardID=0002

- The Cities Climate Finance Leadership Alliance: a coalition of leaders committed to deploying finance for city-level climate action at scale by 2030; the website features the 2021 State of Cities Finance Report. https://citiesclimatefinance.org/

- How Local Governments Can Promote Disaster Risk Management Through Adopting ICT-based Solutions: ICLEI publication that includes a case study on lessening the impact of heat waves on public health through a mobile application. https://iclei.org/en/publication/how-local-governments-can-promote-disaster-risk-management-through-adopting-ict-based-solutions

- Urban Transitions Alliance Roadmaps: Sustainability Transition Pathways from Industrial Legacy Cities. This report details four transition pathways that the cities have undertaken, with implementation ideas and best practices for each. https://urbantransitions.org/wp-content/uploads/2017/01/Urban-Transitions-Alliance-Roadmaps-April-2019-web.pdf

- From Talanoa Dialogue to NDCs: Shifting climate ambition through multilevel action. COP24 Report and 2019 Climate Advocacy Agenda https://e-lib.iclei.org/wp-content/uploads/2019/04/ICLEI-COP24-Report-and-2019-Climate-Advocacy-Agenda-ver1.1.pdf

- The Urban Transitions Alliance: initiative presents an opportunity for industrial legacy cities across the world to demonstrate their commitment to sustainable urban development; the Alliance is a city network and knowledge-exchange hub of transformative urban policies and projects. https://urbantransitions.org/

- Urban Transitions Alliance Roadmaps: Sustainability Transition Pathways from Industrial Legacy Cities: ICLEI publication summarizing exchanges on infrastructure, mobility, social and energy transition. https://urbantransitions.org/wp-content/uploads/2017/01/Urban-Transitions-Alliance-Roadmaps-April-2019-web.pdf

- Leveraging subnational action to raise climate ambition https://www.cities-and-regions.org/wp-content/uploads/cities-and-regions-talanoa-dialogues-2018-iclei.pdf

- CLEI: Multilevel climate action: The path to 1.5 degrees: A synthesis report of data from the Carbon Climate Registry, this report looks at subnational alignment with the 1.5-degree target, key climate hazards and how two-way dialogue and data-sharing can raise climate ambitions. Special attention is given to the importance of integrated Measuring, Reporting and Verification (MRV) systems and how such systems can help coordinate, target and build support for climate initiatives. https://transparency-partnership.net/system/files/document/cCR-Report-ICLEI-2018.pdf

- ICLEI: Data speak louder than words: meant to give voice to cities and regions in the important 2018 national stocktaking exercises on climate change and sustainable development; The aggregated data by and for cities provides a strong justification for diplomacy around adaptation at key events, such as the High-Level Political Forum. The report targets local and regional governments with the aim of enhancing understanding of planning, implementing, measuring, and reporting on climate change adaptation. This document will help activate the necessary awareness, modalities for support, and resources for cities and regions around the world to further commit, plan, implement, monitor, evaluate, and report their climate actions, including adaptation efforts. https://resilientcities2019.iclei.org/wp-content/uploads/Data-speak-report-web-final.pdf

9.2 Additional Cases

UNPSA Award Winners: The cases summarized below are the UNPSA award winners related to SDG13 (Climate Action) and SDG16 (Strong Institutions):

- **Strengthening the effectiveness of Romanian institutions and policy coherence for sustainable development (PCSD) to reach SDGs - 2021 – Romania -** Enhancing the effectiveness of public institutions to reach the SDGs: Implementing SDGs as an integrated and coherent set represented a major challenge for the Department of Sustainable Development (DSD) in the context of the COVID-19 crisis. Enhancing the effectiveness of DSD actions became crucial. As a solution to the crisis and to align short-term responses with long-term economic, social and environmental objectives of the 2030 Agenda, DSD enhanced its role and strengthened the governance of SDGs.

The approach included: designing and effectively applying the new Romania's Sustainable Development Strategy 2030; strengthening the institutional framework for coordination and implementation; strengthening the effectiveness of Romanian institutions involved in the implementation of Agenda 2030; mainstreaming SDGs in policy-making through an Action Plan for implementation of the Romania Sustainable Development Strategy 2030; monitoring and reporting; ensuring policy coherence for sustainable development; and engagement of civil society, private sector and other stakeholders. This case study addresses the following topics:

- Policy coherence (handbook chapter 3)
- Multilevel governance (handbook chapter 1)
- Multistakeholder Engagement (handbook chapter 4)
- M&E&R (handbook chapter 5)
    - https://publicadministration.un.org/unpsa/en/Home/Case-Details- Public?PreScreeningGUID=bd58b9ed-c57c-4531-8678-be9a7513ab05&ReadOnly=Yes&ReturnURL=http://publicadministration.un.org/unpsa/database/U NPSA-Initiatives-and-the-SDGs

- **PetaBencana, Ensuring integrated approaches in the public-sector institutions – 2019 – Indonesia.** As weather patterns intensify and become increasingly unpredictable, cities in Indonesia are regularly faced with the challenge of anticipating and responding to extreme weather events. A lack of access to verified, real-time data compromises abilities to make informed, evidence-based decisions concerning planning and response, resulting in ineffective resource management, confusion and conflict. The tacit knowledge of local communities and the dense network of mobile sensors connected via social media provides a data source of unprecedented resolution for mitigating urban risk. PetaBencana.id is a free web-based platform that supports the residents of Indonesia in reducing risk from disasters and increasing emergency response times by providing free real-time disaster information and transparent communication between residents and government agencies. The platform produces megacity-scale visualizations of flooding using both crowd-sourced reporting and government agency validations in real time. As part of a transparent two-way communication system, government emergency management agencies monitor the platform to assess the disaster situation, respond to resident needs, and update the map with time-critical information to alert residents to the severity of the flood. By enabling reliable, non-trivial communication between users and government agencies, the platform promotes civic co-management as a form of megacity climate change adaptation. This case addresses the following topics:
    - M&E&R (handbook chapter 5)
    - Multistakeholder Engagement (handbook chapter 4)
    - Readiness (handbook chapter 2)
        - https://publicadministration.un.org/unpsa/en/Home/Case-Details- Public?PreScreeningGUID=5817230e-6918-45ef-8ba0-d78d91704f97&ReadOnly=Yes&ReturnURL=http://publicadministration.un.org/unpsa/database/UNPSA-Initiatives-and-the-SDGs

- **Coatzabierto - Integral Strategy Of Open Government And Intelligent City– 2021 -** Enhancing the effectiveness of public institutions to reach the SDGs. Mexico: a comprehensive citizen platform that lays the foundations for transformation toward a smart and sustainable city; developed to put technology at the service of the citizen, applying good governance practices, transforming the government into a digital and online government; Stage 2 includes implementation of a transparency portal for monitoring public works and actions such as solar cells installed in parks, digital system of reference stage procedures, and electronic payments in the portal. This case addresses M&E&R topics (handbook chapter 5)
    - https://publicadministration.un.org/unpsa/en/Home/Case-Details- Public?PreScreeningGUID=4b354555-c3e9-4c58-b171-13221527e3af&ReadOnly=Yes&ReturnURL=http://publicadministration.un.org/unpsa/database/UNPS A-Initiatives-and-the-SDGs

- **e-Mutation of land – 2017 - Developing transparent and accountable public institutions. Bangladesh:** Financial and social power factors often intervene and interrupt the fair process. Marginal and low-income people with a small piece of land, or a widow who got some land from her late husband, can be affected by a system that can be easily manipulated. The objective of the e-Mutation initiative is to establish a digital mechanism for mutation application, tracking the progress and delivery of timely service, significantly reducing Time, Cost and Visit (TCV) for those availing the e- Mutation service. This case addresses topics related to M&E&R (handbook chapter 5).
  - https://publicadministration.un.org/unpsa/en/Home/Case-Details- Public?PreScreeningGUID=287f1857-ca5d-435f-924f-18fe04eb41de&ReadOnly=Yes&ReturnURL=http://publicadministration.un.org/unpsa/database/UNPS A-Initiatives-and-the-SDGs

- ***Proyecto de Participación Ciudadana* – 2018 – Spain:** The Madrid City Council was faced with the challenge of establishing new models of governance that will lead to more open, transparent, participatory and inclusive governments. Before the initiative's implementation, the Council lacked a channel and a platform for citizen participation and discussion. The Madrid Government website was created as a channel of listening and communication in which all people can directly and individually raise their ideas and needs and propose public services needed to meet them. The platform has a space for discussion open to all citizens to exchange views and discuss their needs. Since 2015, 362,702 users have registered and participated in more than 5,000 debates, made more than 21,000 proposals and generated more than 4 million votes. This case addresses topics related to multistakeholder engagement (handbook chapter 4).
  - https://publicadministration.un.org/unpsa/en/Home/Case-Details- Public?PreScreeningGUID=f2b8af59-b1c7-48eb-bba2-58f6a0478885&ReadOnly=Yes&ReturnURL=http://publicadministration.un.org/unpsa/database/UNPS A-Initiatives-and-the-SDGs

UNPSA Initiatives and the SDGs: Explore eligible UNPSA initiatives and how they link to Climate Action.

https://publicadministration.un.org/unpsa/database/UNPSA-Initiatives-and-the-SDGs

Other transversal cases for reference:

- Seoul city cases [142]: list of city projects for each SDG.
- Incheon eco-friendly city of the future in the Republic of Korea [143].
- Clean Energy K-water Hapcheon Dam Case in Korea [144].
- Ulsan City Case in Korea: vision to become the world's best hydrogen city by 2030 [145]
- Gangwon Province Case in Korea: new deal for the hydrogen industry [146]
- Suwon City Case in Korea: hydrogen charging stations, hydrogen cars [147].
- City of Turku. Circular interventions mapping based on the three equity dimensions [148].
- UN-Habitat 2022 World Cities Report [149]

Other Cases for Thematic Chapter 3:

- Multi-level climate governance - Supporting Local Action [150]

- Multi-Level Governance for Effective Urban Climate Action in the Global South [151]

100 Cases [152]: The C40 The Multilevel Climate Action Playbook for Local and Regional Governments is a repository of examples of collaborative climate policies and processes by region/country/city, identifying initiatives that target a particular barrier or outcome (e.g., localizing climate finance, capacity building, knowledge mobilization) and support advocacy and dialogue/engagement. Each of the nearly 100 case studies contained in the repository includes a brief description of the initiative, key stakeholders involved, associated intermediary programs, and a link to original source documents.

- UNPSA Award Winner project number 1 in section 2.1 above
- Various Cases, as detailed in section 2.2 above

Other Cases for Thematic Chapter 4:

- Good climate governance in practice: Case studies from leading cities [153]
- See UNPSA Award Winner project number 2 from the list in section 2.1 above
- Various cases, as listed in section 2.2 above
- **Various cases [154]:** The C40 on Public-Private Partnerships for Delivering Climate Action lists real cases from different sectors contributing to climate action.
- **Various cases [155]:** The C40 on Cities Work Together collects experiences and advice from a diverse selection of city-driven collaborations and draws lessons for other cities interested in partnering to advance aspects of their climate change response.
- **Various cases [156]:** The Climate Governance Commission for Strengthening the Current Climate Governance System provides a mapping of 41 countries and 35 initiatives that are all rooted in the multilateral arena, have a multi-actor approach, and tackle an array of sectors connected with climate.
- **Various cases [157]:** The Economist Intelligence Unit, through its Green City Index, presents the cases of more than 120 cities worldwide to help stakeholders to better understand their specific challenges, provide them insights into effective policies and best practices, and support their decision-making. and offer key lessons on how to build a greener city.
- **Various cases [158]:** The UNPAN, through the Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development, provides worldwide case studies on this topic.

Other Cases for Thematic Chapter 5:

- **UNPSA Award Winner project number** 1 in section 2.1 above
- **UNPSA** – other projects listed in section 2.2 above
- **Various Cases [159]:** The C40, through the Clean Construction Policy Explorer, provides an interactive dashboard to explore exemplary policies and actions that cities around the world are taking to tackle the embodied emissions of their built environment in a transition towards a low-carbon and clean construction sector.
- **Various Cases [160]:** The C40, through Using Data for Policy, provides examples of best practices on defining objectives and metrics, data collection and sources, data cleansing, data analysis and communicating results for the purpose of making good use of data on building energy efficiency for policy making.
- **Various Cases [161]**: The C40 sustainable financing and policy models for municipal composting share successful municipal composting projects in Austria, Bangladesh, Brazil, Bangalore, Sri Lanka and other countries in Europe.

Various Cases [162]: How to identify adaptation goals and strategies: This article explains the steps involved in identifying the most appropriate and effective adaptation strategies, including case studies of successful approaches and preparing cities to prioritize the climate actions to be included in their CAPs.

- **Various Cases**: C40 Adaptation and Mitigation Interaction Assessment (AMIA) tool: This tool is designed to support city practitioners in climate action planning by mapping the synergy potential, trade-off potential, mal-investment risk and piggybacking opportunities of a wide range of actions, such as switching to electric buses and investing in building-scale solar energy. It also includes 60 examples of city initiatives that aimed to maximize synergies and address these interdependencies. https://www.c40knowledgehub.org/s/article/Adaptation-and-Mitigation-Interaction-Assessment-AMIA-tool?language=en_US

- **Various Cases:** C40 Climate Action Planning Vertical Integration Guide: This guide explains the principles and practices of enabling climate action through vertical integration and provides a series of good practice examples from around the world. It also introduces a suite of tools and resources that can help city governments to evaluate barriers and opportunities for vertical integration and support the planning and implementation of strategies to improve it. https://www.c40knowledgehub.org/s/article/Climate-Action-Planning-Vertical-Integration-Guide?language=en_US

- **Various Cases:** C40 Good Climate Governance: Case studies from cities around the world with the approaches they took, the challenges they faced, the lessons they learned and the outcomes they achieved on good climate governance. The case studies illustrate how good climate governance can help cities to realize opportunities and overcome barriers to implementation, as well as to engage more effectively with external stakeholders and other levels of government to influence national and state policies, secure financing, attract political support and deliver complex cross-sectoral actions. https://www.c40knowledgehub.org/s/article/Good-Climate-Governance-in-Practice?language=en_US

- **Various Cases:** C40 How to strengthen climate governance for an effective climate action plan: provides examples of metro-area CAPs that cross municipal boundaries, including Guadalajara, Mexico, Washington, D.C. and Metro Kansas City in the United States and Melbourne, Australia. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideArticleRecordId=a3s1Q000001iahrQAA&guideRecordId=a3t1Q0000007lEWQAY

- **Various Cases:** C40 Seizing the Urban Opportunity: This report focuses on six major emerging economies that together account for one-third of global GDP (China, India, Indonesia, Brazil, Mexico and South Africa) to explore the extent to which they can unleash the power of cities to catalyze sustainable, inclusive and resilient growth. https://www.c40knowledgehub.org/s/article/Seizing-the-Urban-Opportunity?language=en_US

- **Various Cases:** UN Urbanization and sustainable development in Asia and the Pacific: linkages and policy implications https://www.unescap.org/sites/default/d8files/event-documents/E73_16E.pdf

- **Various Cases:** UN-Habitat Climate Change and National Urban Policies in the Asia-Pacific - A regional guide for mainstreaming climate change into urban related urban-related policy, legislative, financial and institutional frameworks https://unhabitat.org/sites/default/files/2020/06/regionalguide_print_newversion.pdf

- **Various Cases:** Global Climate Governance report published by Cambridge University Press in 2020: This report takes stock of the current state of the global climate change regime, illuminating the scope for policymaking and mobilizing collective action through networked governance at all scales, from the subnational to the highest global level of political assembly. https://www.cambridge.org/core/services/aop-cambridge-core/content/view/033486F6DA7F2CD1F8F3D6011B17909B/9781108418126AR.pdf/Governing_Climate_Change.pdf?event-type=FTLA

Other Cases for Thematic Chapter 6:

- UNPSA Award Winners project numbers 1, 2 and 5 as listed in section 2.1 above
- UNPSA – other projects as listed in section 2.2 above
- **Various Cases [163]:** The C40, via its Inclusive Community Engagement Playbook, which includes case studies from cities around the world

Other Cases for Thematic Chapter 7

- UNPSA – other projects as listed in section 2.2 above

9.3 Additional Tools

Additional Tools for the Chapter 3

- The Future of Asian & Pacific Cities Transformative Pathways Towards Sustainable Urban Development [164] from the UN focuses on four essentials that cities in Asia and the Pacific must get right: urban and territorial planning, strengthening resilience to future risks; supporting the effective interplay between people and technology; and financing tools. Chapters 1 and 2 of this resource relate to multilevel governance and provide an overview of the state of planning in the region. Recent successes such as strengthening local planning and developing national systems of cities are acknowledged, even as the region as a whole struggles to make effective planning systems a cornerstone of national policies. Chapter 2 highlights the extensive resilience activities that have taken place to date in the region, including cities that have tasked high-ranking city officials with this cross-cutting topic and those that have prepared resilience strategies and climate action plans.
- Cambridge University produced “Governing Climate Change," [165] an approach that brings together contributions from some of the world’s foremost experts to provide the first systematic test of the ability of polycentric thinking to explain and enhance societal attempts to govern climate change.
- The UNDRR provides a Guidance Note on Using Climate and Disaster Risk Management to Help Build Resilient Societies towards Integrating Disaster Risk Reduction and Climate Change Adaptation in the UN Sustainable Development Cooperation Framework [166].
- UN-Habitat provides tools to dive into multi-level climate governance from a different perspective https://unhabitat.org/sites/default/files/2022/02/1-master_tool_for_local_and_urban_climate_action.pdf.

Additional Tools for the Chapter 4

- C40 [167] How to advance your city’s climate action through city diplomacy: This article outlines the established channels and approaches those cities can take, including a list of major global networks active on climate issues for local governments
- European Cooperation in Science and Technology -Polycentricity. Innovations in climate governance [168]: This brochure summarizes the main findings of a large international project (INOGOV - Innovations in Climate Governance) that has - for the very first time - explored what is actually gained by thinking about and enacting climate governance as an evolving polycentric system.

- Climate Governance Commission - Strengthening the Current Climate Governance System: Mapping Leading States and Initiatives [169]: The goal of this report is to better understand the existing decentralized climate governance landscape. The report seeks to identify states and multi-actor initiatives that are at the forefront of international governance innovation for climate action and that may therefore be advancing international climate governance. It also identifies a number of key bottlenecks and barriers to effective state and global action. Finally, the report offers recommendations on how to increase ambition and delivery.

- UNDRR - Integrating Disaster Risk Reduction and Climate Change Adaptation in the UN Sustainable Development Cooperation Framework - Guidance Note on Using Climate and Disaster Risk Management to Help Build Resilient Societies [170]

- C40 City-Business Climate Alliances: A step-by-step guide for developing successful collaborations [171]: a guide to building strong partnerships through City-Business Climate Alliances, designed for city officials, planners and project managers in cities big and small; explains how to identify climate-related goals that will benefit most from private sector collaboration, whom to partner with and how to govern these relationships to facilitate further and faster action on climate change; walks through four phases for setting up an alliance

- UNPAN – Training Workshop on Strengthening Institutional Arrangements and Governance Capacities for Policy Coherence [172]

- Economist Intelligence Unit - The Green City Index - A summary of the Green City Index [173] research series: provides information disaggregated by region to help stakeholders to better understand specific challenges, provide insights into effective policies and share best practices, support their decision-making. and offer lessons on how to build a greener city.

- The C40 Mayor's Agenda for a Green and Just Recovery, developed by a group of city leaders convened by C40 Cities, presents an evidence-based, collective vision for a green and just recovery, with shared principles and priority actions that cities can implement to achieve it. Among other things, it calls on the support of national and regional governments, central banks and international financial institutions to invest in clean energy, protect and champion mass transit, end all public investment in fossil fuels and invest in resilient cities as the engines of the recovery. The data and arguments presented also are designed to support cities' advocacy. https://www.c40.org/what-we-do/raising-climate-ambition/green-just-recovery-agenda/

- The Economic Case for Greening, the Global Recovery through Cities from the Coalition for Urban Transitions, includes seven priority areas of investment for the national government. They include green construction and retrofits, clean mobility and renewable energy, which can yield substantial economic dividends, rapidly create and protect millions of jobs, and deliver inclusive economic, health and environmental benefits. The report also provides policy options and assessment resources based on high/medium/low indicators for incremental investment, carbon reduction, job potential, ease of implementation and wider benefits. https://urbantransitions.global/wp-content/uploads/2020/09/The_Economic_Case_for_Greening_the_Global_Recovery_through_Cities_web_FINAL.pdf

- Vivid Economics' Greenness of Stimulus Index, aimed at G20 countries and other major economies, offers a Green Stimulus Toolkit of archetypal green measures that deliver both environmental and economic benefits; it also summarizes positive and negative policies in the agriculture, energy, industry, transport and waste sectors https://www.vivideconomics.com/casestudy/greenness-for-stimulus-index/

- The World Bank's Proposed Sustainability Checklist for Assessing Economic Recovery Interventions is a recovery-planning tool for policymakers. The checklist is split into short-term actions and objectives, such as job creation and boosting economic activity, and long-term outcomes, such as resilience to future shocks, decarbonization and sustainable growth. https://thedocs.worldbank.org/en/doc/223671586803837686-0020022020/original/SustainabilityChecklistforAssessingEconomicRecoveryInvestmentsApril2020.pdf

Additional Tools for Chapter 5

- C40 Adaptation and Mitigation Interaction Assessment (AMIA) tool [174]
- C40 Clean Construction Policy Explorer [175]: an interactive dashboard showing how cities around the world are supporting the transition towards a resource-efficient and low- to zero-emissions construction sector. The dashboard is updated as new policies are developed.

Additional Tools for Chapter 6

- Building Urban Climate Change Resilience: A Toolkit for Local Governments (ICLEI ACCCRN Process) [176]: This toolkit is targeted at city governments and their role in catalyzing community building. It provides a streamlined process that is simple yet rigorous and which can be implemented by the cities themselves, with only minimal need for external support. It enables local governments to assess their climate risks and formulate and implement corresponding disaster risk reduction and resilience strategies. The toolkit was tested in three Indian cities (Shimla, Bhubaneswar and Mysore) and subsequently used in a range of other cities in India, Indonesia, Bangladesh and the Philippines.

- C40 Inclusive climate action planning: Conducting a city needs assessment: This is the first module of the Roadmap for Inclusive Planning toolkit. The toolkit ensures that the benefits of climate action are distributed fairly across diverse groups of residents and that vulnerable populations are not left behind. This specific module describes how to conduct the needs assessment of a city, taking into account an inclusive approach.

- C40 Inclusive Community Engagement Playbook [177]: This Playbook is a detailed practitioner's guide on everything cities need to know about how to deliver inclusive community engagement. It includes an innovative and diverse selection of tools of varying complexity to cater to cities with different needs and capacities and case studies from cities around the world.

- C40 How to address infrastructure interdependencies when adapting to climate change: This article explains how cities can address interconnected urban systems in climate action planning and minimize the risks of cascading failures in the urban infrastructure systems for the energy, transport, telecommunications, water and wastewater, solid waste, buildings and food sectors as they are highly interdependent. It also emphasizes the need to facilitate engagement and collective action with stakeholders across multiple sectors. https://www.c40knowledgehub.org/s/article/C40-Infrastructure-Interdependencies-and-Climate-Risks-report?language=en_US

- Cambridge University produced a report on Global Climate Governance that takes stock of the current state of the global climate change regime, illuminating the scope for policymaking and mobilizing collective action through networked governance at all scales, from the subnational to the highest global level of political assembly. https://www.cambridge.org/core/books/governing-climate-change/adaptation/E1E188337B67E2BE9FC23C33FADC0EC3

- UNDRR - Integrating Disaster Risk Reduction and Climate Change Adaptation in the UN Sustainable Development Cooperation Framework - Guidance Note on Using Climate and Disaster Risk Management to Help Build Resilient Societies. https://www.undrr.org/publication/integrating-disaster-risk-reduction-and-climate-change-adaptation-un-sustainable

- Stakeholder Engagement and the 2030 Agenda; A Practical Guide: This guide is designed for government officials and stakeholders interested in enhancing participation and inclusion in the implementation and follow-up of the 2030 Agenda at all levels. It contains key information about participatory approaches in SDG implementation and provides concrete tools and methods in this regard. https://sustainabledevelopment.un.org/content/documents/2703For_distribution_Stakeholder_Engagement_Practical_Guide_spreads_2.pdf

Additional Tools for the Chapter 7

- Consider the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs). It is a key body for developing indicators. https://unstats.un.org/sdgs/iaeg-sdgs/

- United Nations Global Indicator Framework: contains specific indicators, continuous further development https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review_Eng.pdf

- UNSD - E-Handbook on the SDG indicators (2021). This handbook is targeted towards national statisticians to enable them to monitor progress made in the implementation of the Sustainable Development Goals based on data produced by national statistical systems https://unstats.un.org/wiki/display/SDGeHandbook/Home

- UNSD – Web of the IAEG-SDGs Inter-agency and Expert Group on SDG Indicators. Contains guidelines, reference documents, a metadata repository and other resources. https://unstats.un.org/sdgs/iaeg-sdgs/

- C40 Measuring Progress in Urban Climate Change Adaptation: A monitoring, evaluation and reporting framework. The framework covers how to develop a climate change adaptation MER framework in your city, looking at targeting hazards, formulating impact, developing intervention logic, defining indicators, collecting data, reporting, and evaluating. The framework also covers key considerations when implementing a climate change adaptation MER framework in your city, focusing on governance, resources and inclusivity considerations. Available at https://www.c40knowledgehub.org/s/article/Measuring-Progress-in-Urban-Climate-Change-Adaptation-A-monitoring-evaluating-and-reporting-framework?language=en_US

- C40 City Monitoring, Evaluation and Reporting Guidance on How to develop a climate action planning MER system in your city. https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000A904/Gh4.JKcpuH_UeuRmbh2I.2psjc1f3Q85syZFFROiO8o

- Policy Surveillance: Its Role in Monitoring, Reporting, Evaluating and Learning, Joseph E. Aldy. Available at https://www.cambridge.org/core/services/aop-cambridge-core/content/view/20EFEB84279D2377EF26601D4B3A6834/9781108418126c12_210-228.pdf/policy_surveillance.pdf

9.4 Additional Exercises

Thematic Chapter 3: Additional exercises are included in point 2 in the Reference List below.

Thematic Chapter 4:

- Exercise: Adaptation (moving the focus from SDG to CA) of the handout belonging to the “Training Toolkit on Strengthening Institutional Arrangements and Governance Capacity for Policy Coherence in Implementing the SDGs - Action Plan for Policy Coherence” https://unpan.un.org/sites/unpan.un.org/files/Action%20PlanPolicy%20Coherence.pdf

- Exercise: Adaptation (moving the focus from SDG to CA) of the handout belonging to the “Training Toolkit on Integrated Policies and policy coherence for SDGs - Action Plan for Integrated Policy and Policy Coherence” https://www.unitar.org/event/full-catalog/toolkit-integrated-policies-and-policy-coherence-sdgs

Thematic Chapter 6:

- **Exercise [178]:** The UNPAN – Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development proposes a Self-Assessment Questionnaire to provide an accurate picture of the reality on the ground with regard to coherence between national and local or regional levels. (building block 7 of the questionnaire, accessed here:https://unpan.un.org/capacity-development/otc/self-assessment-tools/self-assessment-questionnaire/). The questions can be considered at the national or local level. This is a transversal tool; therefore, for the purpose of this exercise, when reflecting on the questions, focus on climate action.

9.5 Reference List

1. The Royal Institute of International Affairs - Raising climate ambition at COP26 – Research Paper for the Environmental and Society Programme – October 2021: This paper sets out what a positive outcome at COP26 would look like, arguing that substantial progress must be made in three main areas: raising the ambition of 2030 nationally determined contributions (NDCs); providing support to and addressing concerns of climate-vulnerable developing countries; and, agreeing on the remaining details of the 'Paris Rulebook', which provides guidance for implementing the 2015 Paris Agreement. https://www.chathamhouse.org/2021/10/raising-climate-ambition-cop26

2. C40 The Multilevel Climate Action Playbook for Local and Regional Governments (2019). https://www.globalcovenantofmayors.org/press/the-multilevel-climate-action-playbook-for-local-and-regional-governments/

3. UN - The Future of Asian and Pacific Cities Transformative Pathways Towards Sustainable Urban Development: Includes a chapter capturing the digital revolution's undeniable implications for cities and related policy pathway recommendations as well as a chapter focused on urban finance. https://www.unescap.org/publications/future-asian-and-pacific-cities-2019-transformative-pathways-towards-sustainable-urban

4. Governing Climate Change: This book, published by Cambridge University, brings together contributions from some of the world's foremost experts to provide the first systematic test of the ability of polycentric thinking to explain and enhance societal attempts to govern climate change. https://www.cambridge.org/core/books/governing-climate-change/033486F6DA7F2CD1F8F3D6011B17909B

5. UNDRR - Integrating Disaster Risk Reduction and Climate Change Adaptation in the UN Sustainable Development Cooperation Framework - Guidance Note on Using Climate and Disaster Risk Management to Help Build Resilient Societies. https://www.undrr.org/publication/integrating-disaster-risk-reduction-and-climate-change-adaptation-un-sustainable

6. UNPAN – Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development. Self–Assessment Questionnaire:https://unpan.un.org/capacity-development/otc/self-assessment-tools/self-assessment-questionnaire/

7. UNPAN – Training Workshop on Strengthening Institutional Arrangements and Governance Capacities for Policy Coherence. https://unpan.un.org/node/600

8. Economist Intelligence Unit - The Green City Index - A summary of the Green City Index research series, which covers more than 120 cities worldwide to help stakeholders better understand their specific challenges, provide insights into effective policies and best practices, support decision-making and offer key lessons on how to build a greener city. https://assets.new.siemens.com/siemens/assets/api/uuid:cf26889b-3254-4dcb-bc50-fef7e99cb3c7/gci-report-summary.pdf

9. C40 Better together: How cities can collaborate for faster, more effective climate action: This article offers ideas and inspiration for cities interested in pursuing climate actions with other partners. https://www.diplomacy.c40knowledgehub.org/s/article/Better-together-How-cities-can-collaborate-for-faster-more-effective-climate-action?language=en_US

10. C40 How cities can steer national and international finance for a green and just recovery: This article looks at how cities can steer national fiscal stimulus programmes and interventions by Development Finance Institutions and Multilateral Development Banks to meet green and just criteria. https://www.c40knowledgehub.org/s/article/How-cities-can-steer-national-and-international-finance-for-a-green-and-just-recovery?language=en_US

11. C40 City-Business Climate Alliances: A step-by-step guide for developing successful collaborations: explains how to identify climate-related goals that will benefit most from private sector collaboration, who to partner with and how to govern those relationships to facilitate further and faster action on climate change. The guide walks through four phases for setting up an alliance and includes questions cities should ask at each stage. https://www.c40knowledgehub.org/s/article/City-Business-Climate-Alliances-A-step-by-step-guide-for-developing-successful-collaborations?language=en_US

12. European Cooperation in Science and Technology - Polycentricity. Innovations in climate governance (2018): This brochure summarizes the main findings of the Innovations in Climate Governance (INOGOV) project that has - for the first time - explored what is actually gained by thinking about and enacting climate governance as an evolving polycentric system.www.cost.eu

13. Climate Governance Commission - Strengthening the Current Climate Governance System: Mapping Leading States and Initiatives: Summarizes a mapping of 41 countries and 35 multilateral initiatives tackling an array of sectors connected with climate to help better understand the existing decentralized climate governance landscape. It seeks to identify states and multi-actor initiatives that are at the forefront of international governance innovation for climate action and that may therefore be advancing international climate governance. It also identifies key bottlenecks and barriers to effective state and global action and offers recommendations on how to increase ambition and delivery. https://globalchallenges.org/wp-content/uploads/2021/11/FINAL-%E2%80%93-Strengthening-the-Current-Climate-Governance-System-Mapping-Leading-States-and-Initiatives-2021-10-29.pdf

14. C40 Why city diplomacy is vital to meeting your city's climate ambitions https://www.c40knowledgehub.org/s/article/Why-city-diplomacy-is-vital-to-meeting-your-citys-climate-ambitions?language=en_US

15. C40 City Climate Data Management Framework and Self-Assessment Questionnaire: This Framework has been designed to support all cities in implementing sound data management practices that will strengthen cities' understanding of the current situation, drive improvement and achieve climate mitigation ambitions. The Framework also provides a means for city self-assessment of climate data management processes. https://www.c40knowledgehub.org/s/article/City-Climate-Data-Management-Framework?language=en_US

16. C40 Introducing Spotlight On Cities Work Together: collects experiences and advice from a diverse selection of city-driven collaborations and draws lessons for other cities interested in partnering with others to advance aspects of their climate change response. https://www.c40knowledgehub.org/s/topic/0TO1Q000000odG7WAI/cityregion-collaboration?language=en_US

17. UNPAN - Readiness Assessment on Institutional Arrangements for Policy Coherence to Implement the 2030 Agenda for Sustainable Development https://unpan.un.org/node/714

18. C40 Clean Construction Policy Explorer: an interactive dashboard showing how cities around the world are supporting the transition towards a resource-efficient and low- to zero-emissions construction sector. The map is a living document and will be updated as new policies are developed. https://www.c40knowledgehub.org/s/article/Clean-Construction-Policy-Explorer?language=en_US

19. C40 Using Data for Policy: A Manual for C40 Cities that explains how cities can collect and use data to develop and implement policy on building energy efficiency; provides links to additional resources for more information; includes process guidance and examples of best practice on defining objectives and metrics, data collection and sources, data cleansing, data analysis, and communicating results. https://www.c40knowledgehub.org/s/article/Using-Data-for-Policy?language=en_US

20. C40 Sustainable financing and policy models for municipal composting: Strategy, policy and financing recommendations for successful municipal composting, including good practice examples from a wide range of countries. https://www.c40knowledgehub.org/s/article/Sustainable-financing-and-policy-models-for-municipal-composting?language=en_US

21. C40 How to identify adaptation goals and strategies: This article explains the steps involved in identifying the most appropriate and effective adaptation strategies and preparing cities to prioritize the climate actions to be included in their climate action plan (CAP). https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideRecordId=a3t1Q0000007lEWQAY&guideArticleRecordId=a3s1Q000001iaiLQAQ

22. C40 Good Climate Governance: In Practice: Case studies from Delhi, Durban, Jakarta, Johannesburg, Lima, Los Angeles, Oslo, Qingdao and Rio de Janeiro share approaches taken, challenges faced, lessons learned and outcomes achieved. The case studies illustrate how good climate governance can help cities to realize opportunities and overcome barriers to implementation, as well as to engage more effectively with external stakeholders and other levels of government to influence national and state policies, secure financing, attract political support and deliver complex cross-sectoral actions. https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000A8o8/0BS3Ybaj1uErqxSBK18LWJztcNkdCMLeFKaeaVL_.qM

23. C40 Inclusive Community Engagement Playbook: A detailed practitioners' guide on everything cities need to know about how to deliver inclusive community engagement; includes tools of varying complexity to cater to cities with different needs and capacities, and case studies from cities around the world. https://www.c40knowledgehub.org/s/article/Inclusive-Community-Engagement-Playbook?language=en_US (summary)https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000Mea7/3zH_zQzfhUmD_KNamcD1aPz5zvabD4XtoDO9yfEMgFM (full playbook)

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25. German Environment Agency - Towards a joint implementation of the 2030 Agenda / SDGs, the Paris Agreement and the Sendai Framework (2022). https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/cc_47-2021_towards_a_joint_implementation_of_the_2030_agenda.pdf

26. Stockholm Environment Institute - Connections between the Paris Agreement and the 2030 Agenda - The case for policy coherence (2019). https://cdn.sei.org/wp-content/uploads/2019/08/connections-between-the-paris-agreement-and-the-2030-agenda.pdf

27. UNDESA – Workshop Module: M&E for policy coherence. https://unpan.un.org/sites/unpan.un.org/files/Module_7.pdf

28. FAO - GEMI – Integrated Monitoring Initiative for SDG 6 (2019) https://www.fao.org/3/ca8484en/ca8484en.pdf

29. Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development A/RES/71/313, E/CN.3/2018/2 https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202021%20refinement_Eng.pdf

30. IAEG-SDGs - Best Practices in Data Flows and Global Data Reporting for the Sustainable Development Goals (2019) https://unstats.un.org/unsd/statcom/50th-session/documents/BG-3a-Best-Practices-in-Data-Flows-and-Global-Data-Reporting-for-theSDGs-E.pdf

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32. C40 City Inventory Reporting and Information System (CIRIS): The City Inventory Reporting and Information System (CIRIS) is an accessible and easy-to-use Excel-based tool for managing, calculating and reporting city greenhouse gas emissions inventory data. CIRIS provides a systematic and templated way for cities to input information and use it for a variety of processes. It is based on the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) standard and facilitates a transparent calculation and reporting of emissions for all sectors: Stationary energy (buildings). Transportation. Waste. Industrial processes and product use (IPPU). Agriculture, forestry and other land use (AFOLU). Once completed, CIRIS supports cities to report their emissions in the Global Covenant of Mayors' (GCoM) Common Reporting Framework format, which can be directly uploaded to the CDP-ICLEI Track reporting platform.
https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000Mm23/z3y5nxFbnm9imn_tIDniwKA76Sp9VizTv414YCp0k4E
https://www.c40knowledgehub.org/s/article/City-Inventory-Reporting-and-Information-System-CIRIS?language=en_US

33. C40's Climate Change Risk Assessment: A guidance document to help cities conducting a Climate Change Risk Assessment to have a clear understanding of the scale of risk a city, building, etc. and knowing which neighborhoods, facilities, populations, and infrastructure networks qualify as high-priority assets to allow cities to deploy attention and resources most effectively along the process of planning, investing, insuring, and protecting assets.
The Guidance is available at: https://www.c40knowledgehub.org/s/article/Climate-Change-Risk-Assessment-Guidance?language=en_US
The screening sheet (template) to conduct the exercise is available at https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000gSI4/YgrJ_PcQlahf2fkYARsKj.CiJgmtGiW1YTlPopq19lo

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36. C40 How to get started on your city's climate action plan: To set a long-term vision of how a city's low-carbon, resilient and inclusive future should look to determine the extent to which current targets, policies, plans and programmes are consistent with objectives. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideRecordId=a3t1Q0000007lEWQAY&guideArticleRecordId=a3s1Q000001iahmQAA

37. C40 How to use scenario planning to identify mitigation targets and strategies: This article explains the steps involved in adopting science-based targets and identifying the right mitigation strategies for a city's CAP, using a transparent, inclusive and evidence-based process. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideArticleRecordId=a3s1Q000001iaiGQAQ&guideRecordId=a3t1Q0000007lEWQAY

38. C40 How to engage stakeholders for powerful and inclusive climate action planning: This article sets out steps, approaches and tools to help cities design and deliver an inclusive, equitable and strategic engagement strategy for the climate action planning process. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideRecordId=a3t1Q0000007lEWQAY&guideArticleRecordId=a3s1Q000001iahwQAA

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42. C40 How to develop and manage a city-wide greenhouse gas emission inventory. https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideArticleRecordId=a3s1Q000001iai1QAA&guideRecordId=a3t1Q0000007lEWQAY

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52. https://unhabitat.org/sites/default/files/2022/02/mlg_for_effective_urban-related_climate_action_in_dev_count_07022022_2.pdf

53. C40 - Good Climate Governance in Practice: Case studies from leading cities. https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000YQAE/3sxiEcOkfUprMsSslWu4jOCPhxLRHOzO1Mas1eR0EHk

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Annex 1 – Description of Main Global Frameworks

- The 2030 Agenda for Sustainable Development (SDGs) [179]: The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The United Nations Millennium Development Goals have been superseded by the Sustainable Development Goals. The SDGs are 17 Goals adopted by all UN Member States in 2015 as part of the 2030 Agenda for Sustainable Development, which set out a 15-year plan to achieve the Goals. SDG 13 specifically mentions building climate resilience and developing adaptive capacity to climate-related hazards and natural disasters. SDG 13 also includes a target on the integration of “climate change measures into national policies, strategies and planning.” SDG 11 calls for inclusive, safe, resilient and sustainable cities and among its targets, there are several that are directly related to climate action, including sustainable transportation systems, green buildings and the reduction of the environmental impact of cities.

- The 1992 United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty to combat “dangerous human interference with the climate system”, in part by stabilizing greenhouse gas concentrations in the atmosphere. The treaty calls for ongoing scientific research and regular meetings, negotiations, and future policy agreements designed to allow ecosystems to adapt naturally to climate change, to ensure that food production (SDG 12) is not threatened and to enable economic development to proceed in a sustainable manner. By 2021, the UNFCCC had 197 State parties. Its supreme decision-making body, the Conference of the Parties (COP), meets annually to assess progress in dealing with climate change.

- The New Urban Agenda (NUA): The SDG commitments on climate change mitigation are complemented by the NUA from UN-Habitat, which includes various paragraphs that signify the importance of climate change action, including the commitment to promote “international, national, subnational and local climate action, including climate change adaptation and mitigation, and to supporting the efforts of cities and human settlements, their inhabitants and all local stakeholders to be important implementers.” The NUA also highlights the need for “medium- to the long-term adaptation planning process, as well as city-level assessments of climate vulnerability and impact, to inform adaptation plans, policies, programmes and actions that build the resilience of urban inhabitants, including through the use of ecosystem-based adaptation.” (Para 79 and 80).

- The Paris Agreement [180]: The Kyoto Protocol, which was signed in 1997 and ran from 2005 to 2020, was the first implementation of measures under the UNFCCC. The Kyoto Protocol was superseded by the Paris Agreement, which entered into force in 2016, as a legally binding international treaty on climate change signed by 196 Parties. Its goal is to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. Implementation of the Paris Agreement requires economic and social transformation based on the best available science. The Paris Agreement provides a framework for financial, technical, and capacity-building support to those countries who need it. It works on a five-year cycle of increasingly ambitious climate action carried out by countries. The tools for complying with the Paris Agreement are:
    - Nationally determined contributions (NDCs): Countries’ plans for climate action are known as Nationally Determined Contributions (NDCs). In their NDCs, countries communicate actions they will take to reduce their Greenhouse Gas emissions to reach the goals of the Paris Agreement. In the NDCs, countries also communicate actions they will take to build resilience to adapt to the impacts of rising temperatures.

- Long-term strategies (LTSs): The agreement asks countries to articulate their climate change and development aspirations for the middle of the century. The expectation is that these will provide direction to their future NDCs. These strategies should be envisioned as living documents, adapted over time to changing circumstances and building on shorter-term development strategies and plans. While there is no one-size-fits-all solution for this process, it is always possible to make the strategy more acceptable, to give more ownership to the people, and to make it more trustworthy, certain and reliable.
- Nationally Appropriate Mitigation Actions (NAMAs): NAMAs are an important means to deliver on the NDC targets that countries have formulated as contributions to the Paris Agreement. A NAMA refers to any action that reduces emissions and is prepared under the umbrella of a national governmental initiative. NAMAs can be policies directed at transformational change within an economic sector or actions across sectors for a broader national focus.
- National Adaptation Plans (NAPs): NAPs are a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programmes to address those needs. Formulating and implementing NAPs is a continuous, progressive and iterative process that follows a country-driven, gender-sensitive, participatory and fully transparent approach.

- Sendai Framework for Disaster Risk Reduction (SDRR 2015-2030) [181]: The Sendai Framework was the first major agreement of the post-2015 development agenda and provides Member States with concrete actions to protect development gains from the risk of disaster. The Sendai Framework works hand in hand with the other 2030 Agenda agreements, including the Paris Agreement on Climate Change, the Addis Ababa Action Agenda on Financing for Development, the New Urban Agenda, and ultimately the Sustainable Development Goals. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction and advocates for “The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries”. It recognizes that the State has the primary responsibility to reduce disaster risk, but that responsibility should be shared with other stakeholders, including local government, the private sector and other stakeholders. As the Sendai Framework for Disaster Risk Reduction 2015–2030 is approaching its midpoint, the Global Assessment Report published in 2022 encourages reflection on the progress made to date and the road ahead. It clearly highlights that progress is not on track to achieve most of the Sendai Framework’s global targets, but it also provides pathways and solutions to accelerate action and reverse this trend.

- The UN Principles of Effective Governance for Sustainable Development [182]: Public sector reforms needed to implement the SDGs continue to be a major and vexing challenge in many countries. To address this challenge concretely, the UN Committee of Experts on Public Administration (CEPA) has developed these voluntary principles to provide practical, expert guidance to interested countries on a broad range of governance challenges associated with the implementation of the 2030 Agenda.

- **Other climate-related development frameworks:**

  - The Global Framework for Climate Services [183] was established by the international community at the World Climate Conference-3 [184] in 2009 for the better management of the risks of climate variability and change, and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale.
  - The Montreal Protocol on Substances that Deplete the Ozone Layer [185] is the landmark multilateral environmental agreement that regulates the production and consumption of nearly 100 man-made chemicals referred to as ozone-depleting substances. When released into the atmosphere, those chemicals damage the stratospheric ozone layer, Earth’s protective shield, which protects humans and the environment from harmful levels of ultraviolet radiation from the sun. Adopted on 15 September 1987, the Protocol is, to date, the only UN treaty that has been ratified by every country on Earth - all 198 UN Member States. The Montreal Protocol is considered to be one of the most successful environmental agreements of all time. What the parties to the Protocol have managed to accomplish since 1987 is unprecedented. It continues to provide an inspiring example of what international cooperation at its best can achieve.

ENDNOTES

Endnotes

[1] https://unpan.un.org/node/582
[2]Initiative since 2007 by the UK and United Nations.
[3] https://publicadministration.un.org/en/Intergovernmental-Support/CEPA/Principles-of-Effective-Governance
[4]https://www.clubofrome.org/publication/the-limits-to-growth/
[5] https://www.kateraworth.com/doughnut/
[6] A numbered list of References is included in Annex, beginning on page 81. Throughout the main body of the handbook text, we refer the reader to that list. Here: Reference 48, p1
[7] Reference 25, p9
[8]Reference 55
[9] Reference 1.
[10] Reference 58
[11]https://www.un.org/sustainabledevelopment/development-agenda/
[12]The IPCC provides the authoritative scientific input to the parties' deliberations at the UNFCCC.
[13]https://www.ipcc.ch/report/ar6/wg2/
[14] Reference 2
[15]https://www.ig.com/uk/news-and-trade-ideas/the-global-energy-crisis-explained-211022
[16]https://www.weforum.org/agenda/2020/06/now-is-the-time-for-a-great-reset/
[17]https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=670&menu=1515
[18] Roosevelt embraced Keynesian economic policies, which defined modern liberalism and fought to expand the role of the federal government in the nation's economy. To stabilize the economy, he implemented a series of projects and programs called the New Deal.
[19]https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
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[22]Reference 49, p108-121.
[23]Reference 3, p88.
[24]Reference 3, p97.
[25]Reference 49, p108-121.
[26]Reference 49, p108-121.
[27] Reference 50
[28]Reference 50
[29] Reference 52, p31.
[30]Reference 52, p18.
[31]Reference 2
[32] Reference 2, p2.
[33]Reference 3, p77.
[34]Reference 3, p84.
[35] Reference 2, p16
[36]Reference 3, p52.
[37] Reference 53, p7, 38.
[38]Reference 41
[39] Reference 2, p11
[40] Reference 2, p11
[41] Reference 6, building block 3.
[42] Reference 6, building block 2
[43]Reference 6, building block 1
[44] Reference 56
[45] Reference 14
[46] Reference 9
[47]For specific real cases see Reference 9
[48] Reference 10
[49]Reference 4, p91
[50]Reference 4, p51
[51]Reference 4, p172
[52] Reference 43
[53] Reference 56, p44.
[54]Reference 53, p7, 38.
[55] https://www.engineeringnews.co.za/article/why-collaboration-is-key-to-low-carbon-cities-2015-09-30/rep_id:4136
[56] Reference 14
[57]Reference 42
[58]Reference 6
[59] Reference 4, phase 2.
[60]Reference 57
[61]Reference 26
[62] Reference 24
[63]Reference 25
[64]Reference 26
[65]Reference 25, p9-10.
[66] Reference 51
[67]Reference 51
[68]Reference 51
[69] https://www.alliance4water.org/policy/
[70]Reference 4, p120
[71] Policy windows are opportunities for advocates of proposals to push their pet solutions, or to push attention to their special problems. See Reference 4, page 123 for further details.
[[72]Reference 44
[73] Reference 37
[74] Yim, S. (2019, November 24). "Controversy over Ttareungyi delivery." The JoongAng. https://www.joongang.co.kr/article/23640116#home
[75] https://www.unescap.org/sites/default/d8files/event-documents/Session%203_2.Seoul%20Public%20Bike%20Sharing.docx_.pdf

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[76]https://www.unescap.org/sites/default/d8files/event-documents/Session%203_2.Seoul%20Public%20Bike%20Sharing.docx_.pdf
[77]Huh, G. (2021, November 2). Oh Sehun's "Ttareungyi season 2." News1. https://news.v.daum.net/v/kosOVW9I6w
[78]Reference 2, p11
[79]Reference 2, p11
[80]Reference 2, p11
[81] Reference 2, p11
[82]Reference 2, p11
[83]C40 City Inventory Reporting and Information System (CIRIS): tool for managing, calculating and reporting city greenhouse gas emissions inventory data in a systematic and templated way for cities to input information and use it for a variety of processes. See Reference 32 to find the Tool. See Reference 33 to find the guide.
[84]For assessing CC risks: To have a clear understanding of the scale of risk a city, building, etc… and knowing which neighbourhoods, facilities, populations, and infrastructure networks qualify as high-priority assets to allows cities to deploy attention and resources most effectively along the process of planning, investing, insuring, and protecting assets.
[85]Reference 34
[86]Reference 36
[87] Reference 35
[88]Conducting a city needs assessment: The toolkit ensures that the benefits of climate action are distributed fairly across diverse groups of residents, and vulnerable populations are not left behind. This is the first module of the Roadmap for Inclusive Planning toolkit.
[89]Reference 37
[90]Reference 38
[91] Reference 39
[92]Reference 23, see summary
[93]Reference 23, see summary
[94] Reference 8, p42
[95] Follow this document to know what is a good practice: https://sdgs.un.org/sites/default/files/2021-11/UNDP-UNDESA-Stakeholder-Engagement-en.pdf
[96]Reference 57
[97]Reference 4, p92
[98] Reference 4, p93
[99]Reference 41
[100] https://www.unescap.org/sites/default/d8files/event-documents/Session%202_2.Seoul_Nowon%20Energy%20Zero%20Housing%20Complex.docx_.pdf
[101] Zero Energy Building Certificate System. (n.d.). Zero Energy Building (ZEB): Policy trends. Zero Energy Building. https://zeb.energy.or.kr/BC/BC02/BC02_02_001.do
[102] Climate and Environment Headquarters. (2021). 2050 Seoul Climate Action Plan. Seoul Metropolitan Government.
[103] Reference 22
[104]Reference 41
[105]Reference 41
[106] Reference 23, p31
[107]Reference 6
[108] See an example in Reference 23, p46
[109]Reference 23, p49
[110] Reference 46, p9
[111]Reference 8, p11
[112]Reference 27
[113]Reference 27
[114]Reference 23, see summary
[115] Reference 45, p25
[116]Reference 45, p24
[117]Reference 29, p23
[118]Reference 27
[119] Reference 27
[120]Reference 28, p6
[121 https://www.unwater.org/sites/default/files/app/uploads/2017/09/G1_Good-practices-for-country-monitoring-systems_Version-2017-07-12a.pdf
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[124] Reference 8, p11
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[127]Reference 27, p35
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[131]Reference 27, p35
[132]Reference 27, p32
[133]https://unstats.un.org/sdgs/files/meetings/webex-26feb2020/Tier%20reclassification%20requests.zip
[134] Reference 6
[135]Reference 46
[136]Reference 8, p46
[137]Reference 8, p46
[138]Reference 8, p44
[139] Reference 8, p39
[140]Reference 8, p39
[141] Reference 4, p93

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[142]http://urbansdgplatform.org/upload/pdf/20190430142346303_Seoul_Sustainable_Development_En.pdf and https://kostat-sdg-kor.github.io/sdg-indicators/public/report/17.pdf
[143] https://www.climatescorecard.org/2021/06/incheon-the-eco-friendly-city-of-the-future-in-republic-of-korea/, https://www.businesskorea.co.kr/news/articleView.html?idxno=59265,https://www.incheon.go.kr/en/EN020401/2069098,and https://www.incheon.go.kr/en/EN020401/2069101
[144]https://www.kwater.or.kr/eng/busi/water03/cleanEnergyPage.do?s_mid=1828
[145]https://www.yna.co.kr/view/AKR20190226019600057, http://www.weeklyseoul.net/news/articleView.html?idxno=57507, and https://www.mk.co.kr/news/special-edition/view/2020/03/220432/
[146]https://www.chosun.com/special/future100/fu_general/2020/12/31/TUXCA5KNXFBRDH5WP5NUVEZ5QU/, http://www.igasnet.com/news/articleView.html?idxno=12605, http://www.todayenergy.kr/news/articleView.html?idxno=236085, https://www.mk.co.kr/news/special-edition/view/2021/05/520599/ and http://www.gasnews.com/news/articleView.html?idxno=95653
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[149] Reference 59
[150] Reference 53
[151] Reference 54
[152] Reference 2, Annex Inventory of Multilevel Climate Examples.
[153] Reference 55
[154] Reference 15
[155] Reference 16
[156] Reference 13
[157] Reference 8
[158] Reference 17
[159] Reference 18
[160] Reference 19
[161] Reference 20
[162] Reference 21
[163] Reference 23, see the summary
[164] Reference 3
[165] Reference 4
[166] Reference 5
[167] Reference 42
[168] Reference 12
[169] Reference 13
[170] Reference 5
[171] Reference 11
[172] Reference 7
[173] Reference 8
[174] Reference 31
[175] Reference 18
[176] https://www.preventionweb.net/publication/building-urban-climate-change-resilience-toolkit-local-governments-iclei-acccrn-process
[177] Reference 23
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[181] https://www.undrr.org/implementing-sendai-framework/what-sendai-framework
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[183] https://gfcs.wmo.int/
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[185] https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol