GLOBAL COVENANT *of* MAYORS *for* CLIMATE & ENERGY

THE MULTILEVEL CLIMATE ACTION PLAYBOOK

SECOND EDITION

Policies and Enablers for All Levels of Government

NATIONAL
REGIONAL
LOCAL
GOVERNMENTS

Table of Contents

A) Executive Summary 2

B) Policy Levers for Multilevel Climate Action 5
a. Economic Instruments
b. Regulatory Instruments
c. Voluntary & Information Instruments

C) Enablers & Processes to Build Institutions for Multilevel Climate Action 17
a. Vertical and Horizontal Collaboration & Coordination
b. Multilevel, Multi-Actor Capacity
c. Unlocking Finance through Multilevel Collaboration
d. Public Procurement
e. Civil Society and Civic Engagement Processes

D) Trailblazers: Comprehensive National and Subnational Profiles 31
a. Australia
b. Chile
c. Ghana
d. India
e. Regional: From Egypt to UAE

E) Key Recommendations 40
a. Calling on National Governments
b. Mobilizing action by Local Governments

F) Key Terms and Definitions 42

GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY

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Executive Summary

Due to the global climate emergency, there is an unprecedented need to collectively scale up climate action in a well coordinated approach that is facilitated by multilevel governance for a multi-actor partnership. Innovative approaches in this regard are being implemented around the globe – with several cases shared in this second edition of the Playbook.

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment reports released in the past year have made the need for faster and more progress on climate change mitigation and adaptation abundantly clear. This is echoed by world leaders, multinational companies and youth around the globe that have also expressed their desire to respond to the global climate emergency through faster, more efficient action to reduce global warming and adapt to known and expected changes. It has been said before but the urgency for action remains and this action must be multilevel.

National as well as local and regional governments hold the key to unlocking more ambitious and effective climate action. More than 12,500 cities and local governments have committed to climate action under the Global Covenant of Mayors for Climate & Energy (GCoM). Many others are also setting increasingly robust, ambitious, and science-based emissions reduction targets – alongside risk and vulnerability assessments and plans to adapt to the worst effects of the climate crisis, and enhance local resilience. Local and regional government led implementation of priority climate actions is well underway. Working with and supported by GCoM alliance partners, local and regional governments have established themselves as committed, also hotbeds of innovation and action that can be scaled within and across countries around the globe.

Key to achieving the credible, just, and ambitious commitments – to avoid a climate catastrophe – is effective multilevel governance and coordination. This means collaboration, communication, engagement and reporting, among and across all levels of government in a process led by Parties, i.e., national governments. This Playbook second edition is a follow-up to the Multilevel Climate Action Playbook for Local and Regional Governments published in November 2021, which recommended key elements of an enabling environment that can weave climate ambition and action of local and regional governments into Party policy developments.

RLCs are:

The climate commitments, actions, and achievements of local and regional governments – across mitigation, adaptation, energy access and poverty – whose value in bolstering Nationally Determined Contributions is formally acknowledged by the UNFCCC and its Parties. RLCs are designed to be integrated into the development of each Party's NDC in a process of complementarity with existing commitments, with the potential to strengthen their ambition and robustness.

Nationally Determined Contribution (NDC) policy development and integration are led by national governments. Vertical integration, meaning climate ambitions and actions come together across all levels of government from local, regional and national is important not only for NDCs but also successfully implementation of National Adaptation Plans, achievement of the Sustainable Development Goals, National Biodiversity Strategies and Plans and it is a cornerstone of National Urban Policies.

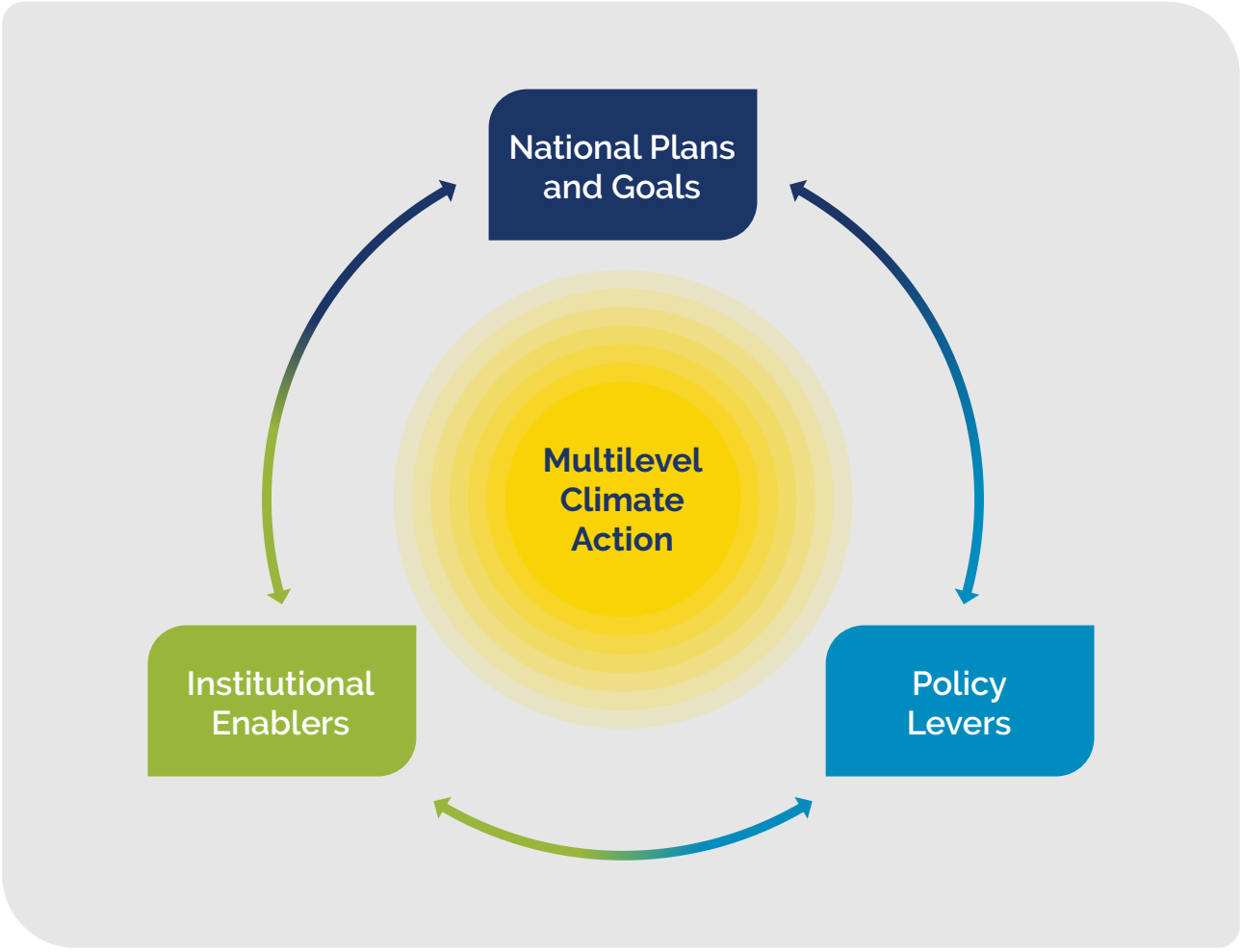
This second edition of the Playbook is a guide that lays out the options for national, regional and local authorities from policy levers to institution-building, drawing on examples from national, regional and local level of both mitigation and adaptation. It emphasizes the multi-actor, multilevel areas for action that bring together national, regional and local governments with civil society, local and indigenous communities, researchers and businesses. It also aims to highlight connections with ongoing policy and program development for climate, sustainable development, urban development and biodiversity.

Described in the publication are potential options in the form of policies and levers that can be undertaken by national, regional and local governments. The right mix of action depends on the city, regional, and national context so decisionmakers need to take into account what works for them. In many cases, cities and countries are already undertaking some of these options and we have highlighted examples with specific instruments and enablers as well as in the final section on trailblazers. However many leaders are looking for more actions to compliment existing steps taken to help close the gap between ambition and action at all levels.

The report is divided into three sections. The first section covers Policy Levers which are categorized by Economic instruments, regulatory instruments, and voluntary and information instruments that can be utilized at national and/or subnational level. The second section is about Enablers & Processes to build institutions for multilevel climate action of which five are highlighted: (1) Vertical and Horizontal Collaboration & Coordination (2) Multilevel, Multi-Actor Capacity (3) Unlocking Finance through Multilevel Collaboration (4) Public Procurement (5) Civil Society and Civic Engagement Processes.

The final section are profiles of trailblazers that demonstrate innovative and comprehensive approaches to multilevel action. The first profile is on Australia and highlights the ongoing partnerships, data and planning for multilevel climate action on mitigation and adaptation. The second profile focuses on Chile and multilevel climate action focused on mitigation and specifically energy-efficiency and transport. The third profile on Ghana provides a perspective on advancing action and building capacity at the subnational level on climate adaptation and related collaborations and instruments to support these efforts. The following profile is on India and examines progress in planning and capacity-building at the subnational level. The final profile takes a look at the Middle East and North Africa region and specifically COP27 host Egypt and COP28 host UAE and their respective efforts on advancing climate action at the regional, national and subnational levels.

Each instrument, intervention type and trailblazer example is marked with the following symbols to show if it covers mitigation and/or adaptation and whether it involves national and/or regional/local government to help users find policies, enablers and cases that are most relevant for areas that they wish to pursue. There are connections made to potential funding sources or financial solutions and resources, where relevant, as this is a critical challenge for many actors from subnational to national level.



Graphic 1: Linkages between enablers/ processes and policy levers

Policy Levers for Multi-level Climate Action

Finding the right policy levers to sufficiently reduce emissions and address climate impacts can be a major challenge for national, regional and local governments. The following section details three types of policy levers which have been utilized for climate action (1) Economic Instruments (2) Regulatory Instruments (3) Voluntary and Information Instruments. For each category, there are details of the types of instruments which have been utilized by national and/or subnational governments to advance adaptation and/or mitigation.

The multilevel connection between these policy levers varies. In some cases, they are national policies which require implementation at the regional and local level, in other cases, adoption of policies at regional and local level has spurred action at the national level. In many places, a strengthening of multilevel connections would have greater impact and advance climate action.

This section provides a list of potential plays i.e., policies that governments can choose to advance mitigation and adaptation action. There is also potential for policies that can advance both adaptation and mitigation, for example policies to incentivize green infrastructure can benefit both adaptation and mitigation goals. There are also risks that need to be considered such as ensuring that policies do not exacerbate systemic inequalities but rather contribute to building social equity at the national and subnational level. In addition, some of these policies may be more appropriate in some national and subnational contexts than others. It is important that policymakers determine what are the best instruments to meet climate as well as societal and development goals that are important in their country, city, and region.

⟶ Economic Instruments

Economic instruments for climate action are policies that provide financial incentives to reduce emissions and/or promote adaptation actions. For both adaptation and mitigation, these can take the form of subsidies, taxes, tax credits, and grants. Offsets and emissions trading systems (ETS) can also be economic instruments specifically for mitigation.

Economic Instrument #1: Carbon Taxes/ Carbon Pricing

A carbon tax is a charge on carbon dioxide or other GHGs. Most of these taxes are applied to fossil fuels used for transportation and heating, and can help to incentivize investment into renewable energy or use more modern and efficient technologies.

Twenty-seven carbon taxes had been implemented by national governments, mostly in Europe as of April 2021 (World Bank 2021).

In comparing jurisdictions with and without carbon pricing, studies demonstrate that it is a successful GHG emission reduction instrument, however they have the least public support among mitigation policy options (IPCC 2022). As the example from British Columbia, Canada shows, success at the subnational level can inspire national uptake of carbon pricing.

Also at local level carbon taxes offer cost-effective means of reducing greenhouse gas emissions and the carbon tax revenues can be spent on urban development projects, just as it is illustrated by the example of Boulder, USA.

Provincial government inspires Canadian National Carbon Price

The Canadian province of British Columbia adopted a broad-based carbon taxation system in 2008 that proved so successful (increasing GDP by 19% between 2007 and 2016 while reducing emissions by 3.7%) that it was taken up by the national government and scaled across the country. The British Columbian system put a tax on the purchase and use of fossil fuels ($40 per tCO_2e as of April 2021, affecting ~70% of regional emissions) and directed revenue toward tax relief and affordability improvements, maintaining industry competitiveness and encouraging new green initiatives. Inspired by this success, the Canadian government introduced a national carbon price in 2016, including a benchmarking system and a federal carbon pricing backstop to encourage provinces and territories to develop regional carbon pricing systems. Since 2019, every jurisdiction in Canada has a price on carbon pollution.

For more information on British Columbia, click here

For more information on Canadian national level, click here

Boulder, Colorado, USA

In November 2006, voters in Boulder, Colorado passed what is said to be the first municipal carbon tax. It is a tax on electricity consumption (utility bills) with deductions for using electricity from renewable sources. As of 2015, the Boulder carbon tax is estimated to reduce carbon output by over 100,000 tons per year, and allows the city to collect $1.8 million in revenue that is interjected back into the city. Those funds are infused back into the community by providing bike lanes, energy efficient solutions, rebates for business and homeowners to further invest in green energy, and community based programs to further still bring awareness to the movement.

Source: https://insideclimatenews.org/news/02112015/boulder-taxed-its-way-climate-friendlier-future

https://www.smartgrowthamerica.org/app/legacy/documents/Boulder-Carbon-Tax.pdf

Economic Instrument #2: Emission Trading Systems/ Schemes (ETS)

The most common ETS design – cap-and-trade – sets a limit on aggregate GHG emissions by specified sources, distributes tradable allowances approximately equal to the limit, and requires regulated emitters to submit allowances equal to their verified emissions.

There are international, regional and national cap and trade systems. Some, but not all ETS are regulated by the Paris Agreement. Carbon markets can also be mandatory or voluntary. Mandatory markets, also known as compliance markets, can be established at different levels of government. Cap and trade is usually the mechanism of the compliance (mandatory) carbon markets.

Successful local emissions trading schemes in Japan inspire national action

Japan's first emissions trading scheme was launched in the Greater Tokyo Area in 2010, followed closely by the Saitama Prefecture in 2011, with the aim to ramp up climate action and achieve emissions reduction targets which have become more ambitious overtime. Based on the success of these subnational schemes, the Japanese Government has tasked a committee of experts with examining how carbon pricing could support Japan's transition to a decarbonised society and boost its economic growth.

For more information, click here

Voluntary schemes are non-compulsory for companies and individuals to participate in to demonstrate reduction of emissions.

ETS can be seen as more complex to set up due to difficulties in setting up stable pricing for carbon and need to consider short-term efficiencies with long-term gains and factoring in potential market distortions. However, there is emerging evidence that ETS help achieve carbon reductions at the places of the lowest costs to industry.

Besides the carbon trading between developing and developed countries, regulated by the Kyoto Protocol, and now by the Paris Agreement, some countries have established their own domestic or regional carbon trading systems. Thirty eight countries[1] have ETS for GHGs at national or subnational levels (World Bank 2021). Thirty-one of these countries are part of the European Union's ETS set up in 2008, today covering industrial emissions in all 27 EU Member States, Iceland, Norway, Switzerland and the United Kingdom. In China, ETS with different designs were piloted in several regions and provided input into how the national system was designed (IPCC, 2022a). The table below shows similarities and differences between the regional pilots including differences in baseline years and sectors covered.

[1] As of April 2021

	Beijing	Chongqing	Guangdong	Hubei	Shanghai	Shenzhen	Tianjin
Reduction Goal (intensity-based)	18% over 2010 levels	17% over 2010 levels, with a further goal of increasing	19% over 2010 levels	17% over 2010 levels	19% over 2010 levels	21% over 2010 levels	19% over 2010 levels, with a further goal of less than 1.69 ton/CO_2
Trading period	2013-2015	2013-2015	2013-2020	2013-2015	2013-2015	2013-2015	2013-2015
Threshold	+5,000 tons CO_2 per year as the average from 2009 to 2011	+20,000 tons CO_2 per year from 2010 to 2014	+20,000 tons CO_2 per year from 2010 to 2012	+60,000 tons coal consumption for major sectors in 2010 or 2011	+20,000 tons CO_2 per year for industrial sectors in 2010 or 2011. Above 10,000 tons per year for other sectors	+3,000 tons CO_2 per year and any building larger than +20,000 sqm	+20,000 tons CO_2 per year in any year since 2009
Cap coverage	40% of the city 's total emissions: 543 companies (600 entities are expected) from heat supply, power generation, cement, petrochemical, car manufacturing, and public buildings	40% of Total Emissions covered: 242 companies, 6 sectors: electro-plated aluminum, metal alloy, calcium carbide, caustic soda, cement, steel & iron	55% of the province's total energy consumption: 211 firms are listed (power, cement, steel, ceramics, petrochemical, non-ferrous, plastics, paper)	35% of the province's total carbon emissions. 138 entities are listed (steel, chemical, cement, automobile manufacturing, power generation, non-ferrous metals, glass, paper and etc.)	57% of the city 's total emissions: 190 entities are listed (steel, petrochemical, chemical, non-ferrous metal, power, building materials, textile, paper, rubber and chemical fiber industry)	38% of the city's total emissions: 832 entities listed from 26 sectors which cover various forms of industry in addition to power, gas and water supply; Participation open to any financial institution. 197 public use buildings	60% of the city's total emissions: 114 entities (iron and steel, chemicals, electricity, heat, petrochemical, oil and gas mining, civil construction)
Other sectors	Transport, Airport and banks	—	Transportation, textiles, and buildings	—	Airlines, ports, airports, railways, large commercial shops, hotels and banks	Public transport	—
Baseline years	2009-2011	2008-2012	2011-2012	2010-2011	2009-2011	2009-2011	2009-2013

Regional ETS designs in China, adapted from the IETA report China: An Emissions Trading Case Study

Economic Instrument #3: Offset credits

Offset credits are voluntary GHG emission reductions for which tradable credits are issued by a third party. In a voluntary carbon market (VCM), governments, firms and individuals purchase credits to offset emissions generated by their actions, such as air travel. The traditional approach of the voluntary market consists of the purchase and cancellation of credits generated by baseline-and-crediting programs. In a VCM, private entities or entitled standard-setters, are responsible for the project certification. Developers of projects resulting in the avoidance, decrease or removal of carbon emissions can apply to these entities to certify and prove the amount of carbon emissions avoided, decreased or removed. As a result of certification, the developer can obtain voluntary carbon credits (or "VCCs"). One carbon credit represents 1 ton of CO_2e emission reduction.

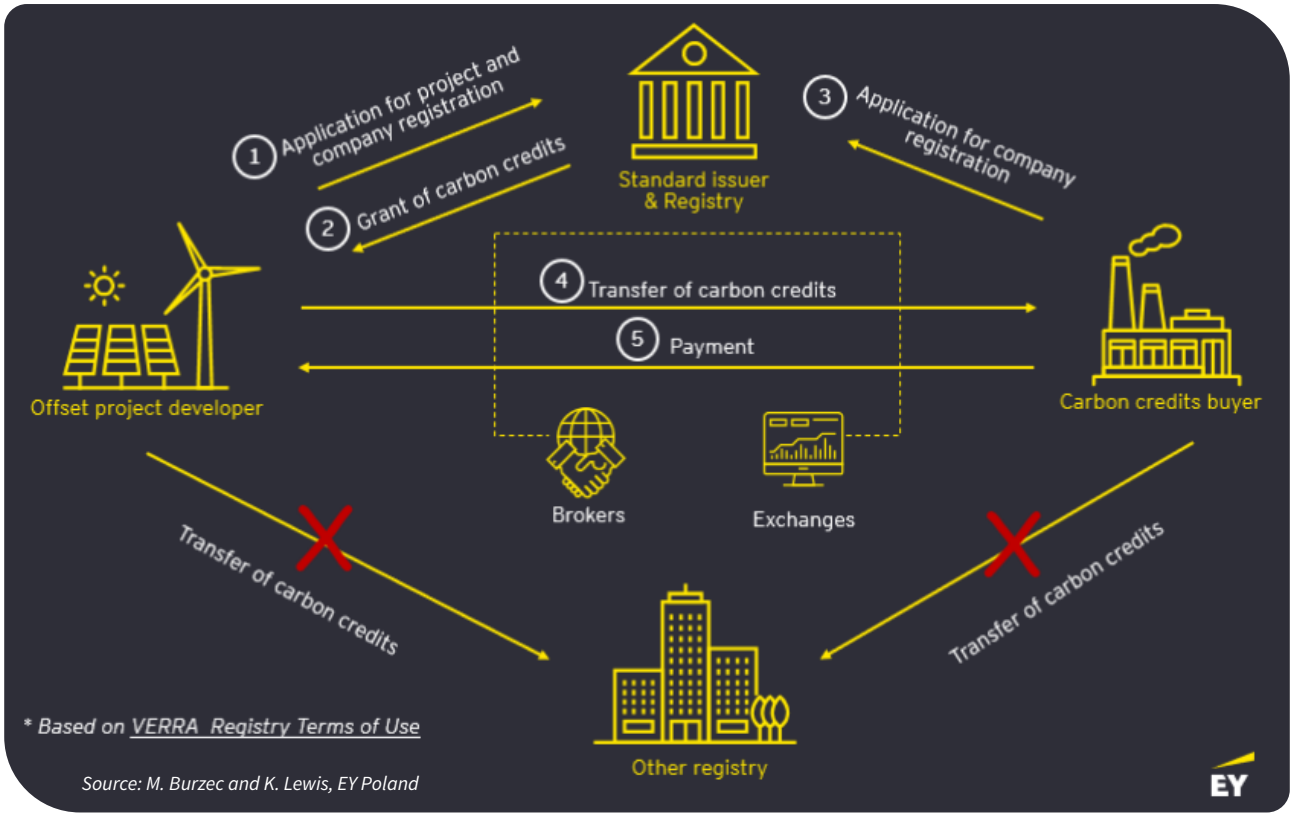


Diagram of how carbon offset credits work

A compliance market allows specified offset credits to be used for compliance with mitigation policies, especially ETSs, carbon taxes and low carbon fuel standards. In this case credits are sold under regulated emissions trading schemes and are typically certified by national governments or independent certification bodies. Under Article 6 of the Paris Agreement, only parties i.e., national governments can certify credits however subnational governments can participate in purchasing offset credits to reach net-zero emission goals.

Click here for further details on the types and mechanisms of Carbon markets.

Economic Instrument #4: Reduction/ Elimination of Fossil Fuel Credits & Subsidies

Most national governments still subsidize fossil fuel consumption and/or production through a variety of mechanisms. Existing fossil fuel subsidies result in lower prices paid by consumers, for example lower sales tax on gas for residential heating, and in many cases reduce the costs for fossil fuel producers.

Globally, government support for fossil fuels in 51 countries almost doubled in 2021 to $697.2 billion USD, from $362.4 billion USD in 2020, and consumption subsidies are anticipated to rise even further in 2022 due to higher fuel prices and energy use (OECD and IEA analysis). Reducing fossil fuel subsidies would lower CO_2 emissions and increase government revenues that could be utilized for climate change adaptation or mitigation, however transitioning away from fossil fuel subsidies need to account for context to ensure burdens do not disproportionately impact on certain segments of the population.

Economic Instrument #5: Grants from governments for Adaptation and Mitigation

National, regional and local governments can provide grants for adaptation and mitigation projects. In some cases the national government may provide grants to local governments and in other cases, eligible grantees are academic institutions, community groups/civil society, indigenous groups, and small businesses. Grants may be shared by different stakeholders to increase partnership and collaboration. Grants are utilized to support delivery of national policies and climate targets. In some cases national governments set up funds to facilitate the distribution of grants to the local level as is the case with the Democratic Republic of Congo's Reducing Emissions from Deforestation and Forest Degradation (REDD+) fund which focuses on mitigation. The US has an example of a grant program focused on adaptation with the National Oceanic and Atmospheric Administration (NOAA) providing Coastal Resilience grants. Eligible entities included universities, nonprofit and for-profit organizations, U.S. territories and states, Native American tribes, and local governments including counties, municipalities, and cities.

Economic Instrument #6: Research & Development (R&D) funding and subsidies

Governments can provide funding and subsidies for R&D and academia for green innovation and adaptation technologies and approaches. For example, Horizon Europe has a budget of €95.5 billion EUR ($95.4 billion USD). Launched in 2021, it is the world's largest transnational research and innovation program. It includes dedicated Missions on climate adaptation, and the Mission on 100 climate neutral cities supporting cities to reach climate neutrality by 2030.

The Urban Transitions Mission is another initiative which focuses on accelerating capacity-building and closing the gap between research, development and deployment so that cities can be empowered to adopt innovative solutions. It is doing so by starting work with a cohort of 50 ambitious cities worldwide to demonstrate integrated pathways towards holistic, people-centered urban transitions built around clean energy and innovative net-zero carbon solutions. By 2030, these pathways will be validated by an additional group of 250 cities and inspire cities across world regions on their journey towards decarbonization. The Mission encourages directing and substantially increasing the national R&I budgets towards activities channeled for and through their cities and local government. Support provided also includes the launch of a Global knowledge exchange center, and funding calls providing €60 million EUR for transnational research and innovation projects.

Regulatory Instruments

Regulatory Instruments include controls, bans, licensing, and standards which can be utilized for mitigation or adaptation. Regulatory instruments can take the form of performance standards related to outcomes, technology-specific standards or utilizing existing instruments such as zoning to achieve climate mitigation or adaptation specific outcomes. Energy efficiency standards, vehicle emissions standards and methane regulations have been utilized for mitigation whereas building codes, land use controls, and zoning can be used to enable both mitigation and adaptation. Many regulatory instruments are sector specific especially with transport and energy, and tend to have greater political support as a mitigation measure but can be more economically costly than pricing instruments (IPCC, 2022a).

Regulatory Instrument #1: Performance Standards

Performance standards prescribe compliance outcomes and in some cases allow flexibility to achieve compliance, including the trading of credits. Vehicle emissions standards are a common form of performance standard with flexibility. Another example are low carbon fuel standards (LCFS), which set an average life-cycle carbon intensity for energy that declines over time and have been applied to petroleum products, natural gas, hydrogen and electricity.

Building codes are another type of performance standard which can be utilized for adaptation by requiring structural stability to reduce risks from extreme weather events, allocated amounts of permeable surface for rainwater runoff or for mitigation related to levels of energy efficiency. However in some cases these are voluntary. The European Union has adopted requirements that mainstream climate considerations and mandate climate-proofing of all infrastructure developed with EU funds.

Regulatory Instrument #2: Technology Standards

Technology standards, also known as command-and-control regulation, take a more prescriptive approach by requiring either specific pollution abatement technologies; specific production methods; or requirements for specific goods such as energy efficient appliances. Technology standards may also take the form of phase-out mandates, as with the US policy to phase out incandescent light bulbs to be replaced with more energy efficient models of LED and compact fluorescent.

Energy Efficient Measures in Georgia

In 2019, the Georgian Government finalised a National Energy Efficiency Action Plan, through an intensive stakeholder consultation process, involving 100 organizations, including most national ministries and major municipalities, the private sector and international partners. The Plan outlines the implementation of energy efficient measures, including those that fall in the jurisdiction of municipal governments, and capacity-building activities for existing institutions, including municipal governments.

Regulatory Instrument #3: Land Use Planning

Land use planning can be an effective regulation instrument to reduce GHG emissions through decreasing auto-dependency as well as building climate resilience by increasing permeable land cover, green space and limiting development in flood-prone areas.

There are many opportunities for positive co-benefits for health, livability and economic development as well as building synergies between adaptation and mitigation. There is also the potential for more integrated approaches that bring together the private sector with insurance industry standards, land use plans, and building standards.

Zoning and land use planning for climate change adaptation in Kadıköy, Turkey

Kadıköy is a district Istanbul that has a 21 km long coastline adjacent to the Sea of Marmara that prepared the Climate Adaptation Action Plan in 2018. The municipality mapped out the open and green fields of the city, which are natural defense mechanisms against climate change, created urban heat map, improved forecasts on precipitation and water management and estimates on public health impacts.

Kadıköy Municipality, as a district municipality, has limited authority and financial power to address climate change. However, the local government pursues its fight against climate change with the tools it can access. It tries to create more green spaces and to reduce the urban temperature with the arrangements made in the zoning plans and license regulations. Rehabilitation of streams, encouraging the use of bicycles by the citizens, rainfall management and participatory governance are among the main strategies of local government.

Voluntary & Information Instruments

Information instruments include training, research and development and awareness campaigns all with the end goal to produce and share information on mitigation and/or adaptation. Voluntary instruments include codes, labeling, management standards or audits that are undertaken voluntarily and are not binding but can provide incentives for adaptation and mitigation actions. In both cases, these instruments tend to be lower in cost and low-risk but implementation and impact vary and effects may be uneven, with those stakeholders already committed to wanting to take action participating and benefiting the most. Many times voluntary and information instruments can be used alongside mandatory instruments and can support behavioral change of consumers.

V&I Instrument #1: Communications & Awareness Raising

Communications and information campaigns can raise public awareness about the need for mitigation or adaptation action. When effective, they support better understanding about the consequences of individual actions, including consumption choices and behaviors that can result in changing social norms. They can also be utilized to build public support for regulatory and economic instruments.

Communication campaigns can be led by national governments, municipal governments or governments working in conjunction, many times involving civil society and businesses to expand messaging and uptake.

Multidimensional communication strategy for input into climate planning in Latvia

A strong communication strategy targeting citizens, professionals, academia and businesses was at the centre of the Latvian National Energy and Climate Plan (NECP) drafting process. The national government utilized diverse opportunities to discuss energy and climate goals by organising multiple campaigns: via information sessions on national TV, hosting public conferences/ hearings and a series of virtual meetings (also uploaded online for later reference). Such open processes were reflected also in the development of the document itself, where national government representatives were joined in dedicated working groups by key municipalities and planning regions, as well as experts from academia and others sectors, to discuss the NECP, action by action.

For more information, click here

V&I Instrument #2: Data and Information Systems

Collecting, sharing and disseminating data and information on both adaptation and mitigation remains a challenge to vertical integration and multi-stakeholder collaboration. Systems which facilitate coordination and sharing of data on GHG emissions, vulnerability and risk, and hydrometeorological statistics across sectors and different levels of government can support more effective and coordinated adaptation and mitigation actions. It can also help to improve localizing data, reporting, and identification of data gaps. This links with the 2021 Playbook's recommendation for *Data visualizations – paired with a strong narrative and strategic, targeted engagement – are impactful and accessible means for evidence-based arguments focused on how cities can enhance national climate ambition and implementation effectiveness.* Ultimately these stronger data structures can support more informed and coordinated policy-making at national, regional and local level.

Integrating data systems in Indonesia

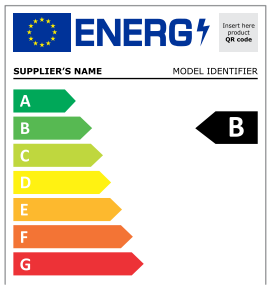
The Sign-SMART database is used to collate the National GHG Inventory, and is a simplification of the widely accessible IPCC 2006 method. The system assists in facilitating coordination of the relevant ministries and agencies. Through this web-based system, data on the activities of relevant agencies, including from the subnational levels, can be delivered to the Ministry of Environment and Forestry. It combines a top-down approach (using national aggregated data with national ministries/institutions involvement) with bottom-up data (using subnational aggregated data with involvement of local government units (LGUs). Indonesia is also piloting the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) which was jointly developed by ICLEI, the World Resources Institute and C40.

For more information, click here

V&I Instrument #3: Certification and Labeling

Labeling and certification programs can be utilized to demonstrate that municipalities, businesses and even individual users are supporting efforts to measure, reduce and offset GHG emissions. Energy efficiency labeling is in widespread use, including for buildings, cars and appliances. Carbon labeling has been used for food and tourism. There is evidence that this has been effective in changing consumer behavior with consumers who are shown energy efficiency labels on average buy more energy efficient appliances than those who are not (Stadelmann and Schubert 2018).

There are examples from around the world including the EU Ecolabel Award program which provides consumers with science-based information on the environmental impact of products during their entire life cycle. In Singapore, the National Water Agency started a Voluntary Water Efficiency Labeling Scheme (Voluntary WELS) in 2006 which was followed by a Mandatory Water Efficiency Labeling (Mandatory WELS) in 2009.



Energy efficiency labels used in Europe for appliances, buildings and other products

Climate protection certificates for municipalities in Costa Rica

The Ministry of the Environment and Energy (MINAE) of Costa Rica awards certificates to municipalities to encourage them to measure, reduce and offset GHG emissions as part of the Programa País de Carbono Neutralidad 2.0: Categoría Cantonal (PPCNC, Municipal Contribution to the National Low Emission Strategy Program) https://cambioclimatico.go.cr. Cities and municipalities can take part in the program voluntarily and receive certification for steps taken to reduce GHG emissions: from calculating their carbon footprint to developing and implementing measures to achieving climate neutrality.

For the source/more information, click here

V&I Instrument #4: Technology Transfer

Technology transfer is a broad set of processes covering the flows of technology, knowledge, experience and equipment for climate change mitigation and adaptation. This exchange can take place between national and local governments, private sector entities, financial institutions, non-governmental organizations (NGOs), and research/education institutions. The Climate Technology Centre and Network (CTCN) established under the UNFCCC, and Article 10 of the Paris Agreement helps to facilitate these exchanges especially between developed and developing countries. Increasingly, exchanges also take place between subnational governments with technology and innovation focused on urban mitigation and adaptation challenges.

Enablers & Processes to Build Institutions for Multilevel Climate Action

Beyond policies, there are many ways in which subnational and national actors are building the institutions necessary for multilevel climate action. Subnational actors are experimenting with innovative solutions, coordinating human and financial resources, building on existing entities and, where needed, establishing new ones (IPCC, 2022a).

A good example in the European region is the Committee of the Regions, an EU institution that brings together all regions and cities in the European Union, with a say in policymaking. It also acts as a network of networks, joining forces with associations and other subnational actors to reinforce the multilevel governance.

National governments are leading processes including updates to NDCs, creations of National Adaptation Plans (NAPs), refining National Urban Policies (NUPs), and reporting on the UN Sustainable Development Goals (SDGs) that enhance coordination and horizontal and vertical alignment. Drawing on existing ways of doing businesses, such as harnessing public procurement for more sustainable ends and further processes to increase availability of finance at the local level can form a fundamental part of building the right mix of institutions needed. To meet the scale of the challenge, enhancing capacity at national and local level is critical and extends beyond government actors. Engaging civil society and local and Indigenous communities is also critical to ensure policies are sensitive to local contexts and have people-oriented and place-specific scenarios (IPCC, 2022b).

There are many existing and ongoing tools and processes that can be utilized to catalyze climate action in the short and long term. An important starting point for determining what processes need to be undertaken or strengthened is a stocktaking of existing platforms, policies and capacities to understand what can be utilized or built from, however in some cases new institutions and processes will need to be developed. Institutions built now will need to address the increasing challenges of the next decades as the climate crisis intensifies and more drastic emission reductions are needed.

Vertical and Horizontal Collaboration & Coordination

Information instruments include training, research and development and awareness campaigns all with the end goal to produce and share information on mitigation and/or adaptation. Voluntary instruments include codes, labeling, management standards or audits that are undertaken voluntarily and are not binding but can provide incentives for adaptation and mitigation actions. In both cases, these instruments tend to be lower in cost and low-risk but implementation and impact vary and effects may be uneven, with those stakeholders already committed to wanting to take action participating and benefiting the most. Many times voluntary and information instruments can be used alongside mandatory instruments and can support behavioral change of consumers.

What Vertical and Horizontal Collaboration and Coordination can occur around a variety of processes and issues, including data and information sharing, RLCs, policies, implementation of projects and programs, reporting and monitoring for international agreements, national climate policies.

Why Vertical (across levels of government) and horizontal (within a level of government) collaboration and coordination on developing and implementing climate change adaptation and mitigation goals and policies is critical to building synergies, delivering cohesive action and increasing efficiencies. Adaptation and mitigation policies and programs may also require coordination between ministries, divisions, and units that have not historically collaborated. Coordination between city and national government is an asset, where national policy is supportive of city action (Chan and Amling, 2019; Inch, 2019).

Who National, regional and local governments, ministries and departments working in key sectors such as transport, waste, infrastructure, energy, health, emergencies, women and gender, and social services.

How As identified in the 2021 Playbook, designating or strengthening dedicated focal points at national level to engage local and regional governments, and make it possible to include RLCs in countrywide climate and NDC policy processes (GCOM, 2021).

Vertical and Horizontal Collaboration to respond to heat waves in Greater Manchester, UK

In the summer of 2022 the UK experienced one of its worst heatwaves with many locations surpassing 40°C, prompting the Met Office to issue its first ever red warning for extreme heat. Thanks to a new initiative at the national level, in which the Met Office and UK Health Security Agency had included heat within the National Severe Weather Warning Service and linked it to trigger levels within the Heatwave Plan for England, agencies at a local level could respond rapidly to the challenges posed. In addition to the new Early Warning System, earlier in the year the two national bodies had hosted webinars for first responders and others to understand the potential impact of heat on health and on wider urban systems such as infrastructure.

In Greater Manchester, where records were broken by over 3°C, the long-standing Resilience Forum (GMRF), which brings together multiple agencies, across different sectors, to anticipate and plan for emergencies, had already undertaken work to plan for potential heatwaves. In the face of the unprecedented heat of the summer, these national and local arrangements were tested for real.

Greater Manchester used its established and well-rehearsed emergency arrangements to stand up a multi-agency, cross-sector Strategic Coordinating Group to assess the impacts of the heatwave and to coordinate the response across different agencies, capitalizing on its cross-sectoral approach to resilience. It actively monitored the health situation, for example increases in hospital admissions, together with other consequences including those on transport systems, with water safety issues as young people tried to cool off and for the natural environment such as the occurrence of moorland wildfires. This allowed the Strategic Coordinating Group to assess how well the community was coping, whether they needed additional support and where to direct resources.

Data and information were also fed back up to the national level to enable national Government to maintain an overview of the situation.

The horizontal integration of health and other agencies at both national and local levels, combined with the vertical integration between national and local levels, supported a coordinated response in Greater Manchester to the extreme and dangerous high temperatures.

Click here for more information on resilience work in Manchester.

As part of the NDC and National Adaptation Plan (NAP) processes in many countries, national steering or advisory committees with representation from diverse ministries including transport, energy, planning, local government, health, youth, women and gender and disaster management encourage mainstreaming of climate change into these sectors while also building understanding of the synergies between sectors.

A recent publication from UN-Habitat on the urban content on NDC's emphasized the importance of policy coherence with the following recommendations:

- ***Key policy documents such as National Adaptation Plans (NAPs), which are expected to serve as a tool for finance mobilization, need to be adequately referenced and aligned with the NDCs to maximize potential.***
- ***Integrate and harmonize national, sectoral and subnational policies and planning frameworks with the measures, targets and actions proposed in the NDCs to ensure horizontal alignment between mitigation and adaptation challenges and responses in the urban sector.***
- ***Incorporate key elements of existing local climate plans to inspire a multiplying national effect.***

Norway strengthens institutional arrangements in NDC update

New institutional arrangements were introduced as part of Norway's NDC update to foster cross-sectoral coordination and implementation of the NDC and improved financing and guidelines for climate and energy planning in municipalities. The Ministry of Climate and Environment has the overarching cross-sectoral responsibility for coordination and implementation. The Ministry of Finance is responsible for the tax schemes and the other ministries are responsible for policies in their respective sectors. Norway's 7th National Communication, Ch 4.1.3. states that: "Local governments are responsible for implementing policies and measures at the local level, for example through waste management, local planning and some transport measures."

For the source/more information, click here

Ormoc City's collaborative climate planning process to engage key actors

The Philippines Government Climate Change Act requires each Local Government Unit (LGU) to plan and prepare for climate change by developing a Local Climate Change Action Plan (LCCAP). The National Framework Strategy on Climate Change further directs LGUs to align their local climate plans with national policies such as the National Climate Change Action Plan as well as to integrate their LCCAPs into local development plans. Ormoc City has established a collaborative climate planning process that engages local government departments and stakeholders in sharing knowledge and making decisions. Key departments of the local government were mobilised through an executive order that created an institutional innovation: the interdepartmental climate change Technical Working Group (TWG). The broad involvement in planning and decision-making resulted in public officials' heightened knowledge and skills for climate advocacy, collaborative problem solving, and the use of climate science and information in policymaking. Ormoc City used its LCCAP formulation process as a tool to access funds, which helped secure finance for the implementation of the adopted climate actions.

For the source/more information, click here

Vertical collaboration between line ministries of key sectors such as transport, waste, and energy with corresponding divisions and units at the regional and local level can improve data sharing and coordinated action.

Within cities, development of programs and activities can bring together actors from different sectors to define contributions, share knowledge and coordinate actions which produce effective collective outcomes (IPCC, 2022b).

Integration of the NDC and sectoral planning in Cote d'Ivoire

The energy and waste sectors are critical for successful implementation of the NDC in Cote d'Ivoire so the country has worked on integrating the NDC into the sectoral planning of these sectors. The country is also building the capacity of local governments on integrating climate change in local planning, which includes information, sensibilization and building ownership for the new NDC.

For the source/more information, click here

Climate change mitigation and adaptation strategy for the Emilia-Romagna Region in Italy

The Emilia-Romagna strategy creates coherence by tackling mitigation and adaptation at the same time and instead of replacing existing plans it works on coordinating them. It has created a governance and coordination Platform which is useful to engage all stakeholders and citizens including for better use of structural funds.

Promoting the role of municipalities in climate action in Togo

In 2021, the Government of Togo, in partnership with UCLG, GCoM and CEMR, initiated a series of workshops with local government associations, such as the National Association of Municipalities, to introduce them to climate action and promote their role as the bridge between local and national governments, and even regional governments. These workshops resulted in a better connection between national and local governments in discussions around climate action objectives, and included stakeholders such as local governments associations, cities, national governments, regional donors (development banks), regional organizations (political organizations), international organizations (UN agencies and EU delegations) and civil society (academia and NGOs).

For the source/more information, click here

Colombia's regional governance "nodes" shape integrated climate change policy

Following the success of a self-organised Regional Climate Change Node established in the Columbian Eje Cafetero region in 2016, the national government rolled out Nodes for all nine regions with the aim to facilitate multi-stakeholder climate change planning, strengthen climate change management by empowering territorial entities, and implement coherent regional and national climate change policies, strategies, plans and actions in line with the NDC. The Nodes provide a point of coordination between national, regional and local institutions, but each Node establishes their own operating regulations and stakeholder groups which can include civil society stakeholders, indigenous communities and academic institutions relevant to the region.

For the source/more information, click here

Multilevel, Multi-Actor Capacity

What There are many aspects of capacity which are needed, including specifically (1) the capacity for horizontal and vertical coordination and administrative capacity related to compound problems (Domorenok et al. 2021) (2) Capacity for sectoral implementation (3) Capacity-building in different communities to advance equity and inclusion. In order to align mitigation goals of decarbonization, equitable and just adaptation action, and delivery of SDGs, capacities to deliver transformative change are needed (IPCC, 2022b). Building capacity in marginalized and disadvantaged communities, including building leadership capacity in these communities, is also critical to ensuring those actors are part of this transformative change.

Why Capacity to implement climate action remains a challenge at local and national level and without increased capacity for multiple actors at every level it will not be possible to meet the scale of the climate crisis. One study found that 113 developing countries out of 169 studied listed capacity-building as a condition of NDC implementation (Pauw et al. 2020). Government capacity can impact the ability to implement climate actions strategically or at all.

Who National, regional and local governments; civil society; private sector; local and Indigenous communities; youth.

How Reflective and iterative learning programs; programs to support co-production of knowledge Bringing together capacity-building efforts, collecting data at local level and decision-making on funding are not operating in silos at national or local level can help cities to move to large scale implementation and ensure solutions are more impactful (GCOM & UN-Habitat, 2022).

Educational programs at universities and other institutions can be utilized to build capacity-building to close the digital divide for local governments and communities to ensure that they do not miss out on opportunities (GCOM & UN-Habitat, 2022).

Mutual training support for municipalities in the Province of Barcelona

The Network of Towns and Villages towards Sustainability (Xarxa de Ciutats i Pobles cap a la Sostenibilitat) is an open, voluntary group of committed municipalities cooperating on their own mutual priorities and needs. The Network includes a set of working groups, each appointed with technical staff from the Province of Barcelona, also sometimes inviting national government representatives to provide training and clarifications on applying national law at local levels. It is starting to expand to municipalities from neighbouring provinces, as well as moving toward a transversal approach to climate issues for its already-established working group explicitly focused on the European Covenant, now also integrating relevant academic and business experts.

For the source/more information, click here

German government provides technical and financial support for municipal climate measures

Funded by the German Federal Government, the Service and Competence Centre for Municipal Climate Action (SK:KK) provides cities with technical and financial support for their climate activities, as well as general advice and networking opportunities, which helps to incorporate local experiences into national policy-making processes. Additionally, the German Federal Environment Ministry's National Climate Initiative (NKI) awards national funding directly to municipal climate measures, supports municipal climate strategies and provides funding to local climate managers, thereby building longer-term capacities and competencies.

The NKI has funded more than 32,000 projects, worth EUR 1.07 billion between 2008 and 2019, which have unlocked total investment worth more than EUR 3.5 billion and has contributed to mitigating 13.8 million tons of carbon equivalent (net over the duration covered).

For the source/more information, click here

South African support program enables stronger response to climate change

Following the development of their National Climate Change Response Policy (2011), the South African national government pioneered a large-scale capacity-building program, the Local Government Climate Change Support Program (LGCCSP), to help provinces and municipalities better understand and manage climate change impacts through capacity-building and technical support. The program is designed to “catalyse climate action while building intergovernmental relationships” (Reddy et al., 2021, p.4).

The key objectives are to facilitate peer exchange and vertical dialogue between levels of government, to mainstream climate change into subnational development planning, and to support municipalities in developing and financing climate projects through provision of information toolkits and a Municipal Climate Finance Guide, alongside other guides and templates for engaging stakeholders, assessing vulnerability and developing climate change response plans.

For the source/more information, click here

Unlocking Finance through Multilevel Collaboration

Why National governments hold essential keys to unlocking finance for all levels of climate action. Regional and local governments can be implementers, champions, and innovators for climate action however many times they lack the finance to be able to do so.

Who National, regional and local government; international donors and climate funds; private sector

What Ambitious targets for climate action are being set in NDCs and other national climate processes that require action at the subnational level. A recent report from UN-Habitat emphasized the need to engage all levels and sectors of government and promote authority, financial access and accountability accordingly as part of the NDC process (2022). Regional and local authorities can significantly contribute to NDC policy and implementation developments (as was highlighted in Pathway #2 of the 2021 Playbook). Finance at all levels is critical to undertake this. Playbook 2021 highlighted finance as one of key catalysts for action.

How Many countries have an ongoing decentralization process and/or already have a governance system in which states and local authorities have a high level of autonomy. However even in many of these countries, the capacities (highlighted above) and the mandate on climate change and environment may not be very strong and will require further support from national governments, especially to secure a strong enough financial footing.

In many cases local and regional governments can only access international finance in conjunction with the national government or they are dependent on financial transfers from the national government. Ensuring these pathways are functional for delivering finance to local levels on climate change is essential. Many cities are also not able to get credit ratings to give them access to private sector funding.

There are many resources available to help identify potential funding sources. The State of Cities Climate Finance Report Part II is on Enabling Conditions for Mobilizing Urban Climate Finance which notes the important role of intergovernmental structures and fiscal systems. The Green Deal Going Local Handbook provides a comprehensive guide on financial and technical assistance for adaptation to help local and regional authorities in Europe to have the right resources to deal with the impacts of climate change. The adaptation finance gap is well documented so resources such as this are vitally important!

Kenya's pioneer climate change governance mechanism to increase finance for local climate action

The Kenyan County Climate Change Fund (CCCF) consists of climate legislation enacted by county governments, through the Climate Change Planning Committee (which includes county government officers, technical representatives from government agencies and civil society representatives), and a county-controlled fund (sourced from local, national and international finance streams) that finances climate projects identified and prioritised by local communities.

Originally designed by a multi-stakeholder coalition with the objectives of increasing capacity for local development planning and channelling climate finance to some of Kenya's most vulnerable regions, the CCCF evolved to encompass mitigation measures and effectively influenced national climate policy.

The CCCF mechanism is well established and endorsed by the national government, as a key component in the National Climate Action Plan (2018-2022), and provides a comprehensive national planning and financing framework that strengthens capacity, through provision of planning tools and downscaled climate information, and channels finance to community-driven climate action priorities.

For the source/more information, click here

Public Procurement

Public procurement is the process through which national, regional and local governments purchase goods and services for a wide range of sectors, including transport, IT services, and buildings. It was estimated that globally, government procurement amounted to $11 trillion annually, or approximately 12% of global GDP in 2018. Public procurement rules usually mandate cost effectiveness so green or sustainable public procurement has to shift criteria so that they are not only based on lowest cost but also include indicators to quantify mitigation effects. Sustainable public procurement has been introduced by at least 56 national governments and many more local governments (UNEP, 2013). The role of public procurement in fostering more sustainable growth is also acknowledged in the Sustainable Development Goals (SDG 12.7).

Governments' own vast amounts of building stock, from offices to museums, that are often older and less energy efficient than privately owned stock. Retrofitting them with energy efficiency devices, including sensors and smart meters, could be a critical part of a net zero strategy. Malaysia has a program for green procurement for buildings (Bohari et al. 2017).

Green Public Procurement (GPP) is a voluntary instrument in the EU, which includes criteria for wide range of products including computers, monitors, tablets and smartphones; electricity; cleaning products and services; and road design, construction and maintenance. GPP is intended to decarbonize government organizations and operations as well as to increase demand for green technologies in different sectors that helps to create incentives and new markets for sustainable products. Green Public Procurement is also facilitated by labeling and certification schemes such as energy labels (see section V&I Instrument #3: Certification and Labeling above).

Municipal Investment in Solar Energy in Gaziantep, Turkey

Gaziantep Metropolitan Municipality was the first Municipality in Turkey that prepared a Climate Change Action Plan in 2011 which prompted the municipality to explore clean and sustainable energy resources. Given the proliferation of sunlight, the Gaziantep Metropolitan City has been investing in solar energy since 2015. In 2017, a solar farm of 1MW (1000kW) was built, and it has generated a total of 1.8 million kWh of electrical energy. This farm has prevented the emission of 1020 tons of CO_2 annually and saved almost 100,000 trees in three years.

Furthermore, the Municipality planned another Solar Energy Farm of 15MW to generate 100% of the energy used by the Municipality from renewable resources. According to the calculations, although this is a costly investment, it will amortize itself between 6 to 8 years.

For more information, click here

At the Innovate4Cities conference in 2021, green/Sustainable Public Procurement was highlighted multiple times as a promising area for national and local governments to reduce emissions as it is within the mandate and current operational responsibilities of the government. However it was also emphasized that more information on the topic is needed and the **Findings from Innovate4Cities 2021 and Update to the Global Research and Action Agenda**, highlighted two new research gaps related to procurement:

(1) In the Sustainable Consumption and Production topical area:
Further research is needed on how to best develop national government policy to fit the needs of local governments to maximize the potential for public procurement in building urban climate solutions. Exploring what options exist in terms of evaluation criteria that are not only based on lowest cost, for example, indicators to quantity mitigation and adaptation co-benefits included in project requirements/assessments.

(2) In the Finance topical area:
Further exploration of best practices for public procurement, and other available tools as well as the potential for tools that would unlock finance for local governments to increase implementation is needed.

Civil Society and Civic Engagement Processes

Why Civil society and the public are critical partners in ambitious climate action. Engaging with civil society can raise ambitions as with the Argentinian NDC process example. They also play a key role in supporting governments and their policies that champion the transition needed to address climate change. Civil society, community groups and the general public also provide diverse perspectives on what are the human needs and costs related to action and inaction on climate change.

Who Civil society, community groups, Indigenous communities youth groups, general public

What Civil society, community groups, indigenous communities, youth groups and other key stakeholders need to be engaged by the national and local governments to discuss commitments and policy changes. They also need to be informed on the latest data and information from the scientific community and have their capacity built on a range of issues. They can also bring innovative, thoughtful and human-centric solutions for adaptation and mitigation.

How There is a wide range of methods to engage civil society and broader communities. Online engagement, including social media, is a growing platform to inform large parts of the public. Radio and television remain a key medium in many parts of the world and many demographics. Creating virtual and in-person platforms for exchange, including trainings, is also important to institutionalize this engagement.

NDC, NAP and other national and local climate policy processes also offer more formal avenues to engage different stakeholders. It's important to recognize that these processes may not be able to engage with all stakeholders at local levels so its key for engagement and outreach at the local level to take place and for processes to integrate that engagement, feedback and exchange into national processes.

Multilevel dialogues on climate and energy in the EU

In addition to their NDCs, EU Member States are requested to develop **National Energy and Climate Plans (NECPs)** under the EU's Governance Regulation. The aim is to meet the EU's energy and climate targets for 2030 and include information on energy efficiency, renewables, greenhouse gas emission reductions etc.

As part of developing their NECPs, the EU Member States are encouraged to establish multilevel energy and climate dialogues with relevant stakeholders, and engage with regional and local actors who bring forward concrete measures and explore synergies with local existing forums such as the **Covenant of Mayors**.

Peruvian Government establishes NDC dialogues with local actors

In July 2016, in response to the NDC ratification, the Peruvian National Government established a Multisectoral Working Group on the NDCs which, in collaboration with the National Commission on Climate Change (established in 1993), developed a multisectoral, multilevel participatory process – "Dialoguemos sobre las NDC" (Dialoguemos) – to engage non-state actors in the NDC process. Through this process, local and regional governments, alongside actors from private sectors, academia, indigenous communities, NGOs and civil society, work with the national government to coordinate NDC implementation, identify needs and expectations, and commit to a climate change response that responds to their respective needs, interests and functions (including a shared medium- and long-term vision for multilevel climate action).

"Dialoguemos has become the permanent site for dialogue between different actors of Peruvian society – creating alliances, agreements and opportunities for NDC implementation" (NDC Partnership, 2019, p.3). For the source/more information, click here

The Peruvian Government also constructed a new Framework Law on Climate Change (Ley Marco sobre Cambio Climático del Perú – (LMCC)) through an intensive public consultation process that included 48 workshops with 2,200 participants and incorporated perspectives from private sector, civil society, local and indigenous people (1,433 indigenous leaders) and promoted gender mainstreaming into the process (61% women and 39% men). Within the framework of these agreements, in the Twelfth Final Complementary Provision of the LMCC Regulation, the Indigenous Peoples Platform to face Climate Change was created.

For the source, more information, click here (May 2020 report)

Community-based approach to energy in Prague

The Prague Renewable Energy Community is the first example of a community-based approach to producing and sharing energy which encourages engagement and provides an example to follow. It will help change attitudes and to move away from centralised energy, getting individuals and groups of people involved and reducing CO_2 emissions.

Tallinn 2035 – Strategic framework for the green transition in Tallinn

Tallinn 2035 is a 21st century societal contract in an EU capital. It has strengthened participation, design thinking, cooperation, strategic planning and other dimensions, building a better, more citizen-centric and green city. It sets out a completely new framework and goals around which the whole city organization focuses on.

Incorporating indigenous and local knowledge into a gender-responsive NDC in the Republic of Marshall Islands

In the 2018 NDC, the Republic of Marshall Islands committed to secure technical assistance and resources to strengthen capacity across national and local Governments, as well as civil society and NGO networks, to design and deliver gender-responsive climate change programs and services. They committed to follow a best-practice adaptation and resilience approach, taking into account the latest scientific evidence, building on relevant lessons from other countries and regions, and working with development partners. They acknowledged that a knowledge-first evidence-based approach will be critical, as will be taking into account indigenous knowledge and the knowledge of rural communities.

For the source/more information, click here

Nationwide consultation in Argentina results in increased buy-in and ambition for NDC

In 2016 the Argentinian Government engaged in a nationwide consultation process to align climate targets with subnational and cross-sectoral efforts to mitigate climate change, which resulted in the development of a more ambitious NDC. Led by Argentina's new National Cabinet on Climate Change (NCCC), discussions with representatives from key sectors, civil society, NGOs and the scientific community contributed to the revision of Argentina's I/NDC and resulted in strong buy-in from key stakeholders on all levels and raising its unconditional target from 15% to 18% and the unconditional target from 30% to 37%.

For the source/more information, click here

Trailblazers

As outlined in the two previous sections, there are many policy levers and enablers which can be utilized for multilevel action on climate change. The following trailblazer countries demonstrate how a mix of different approaches builds integration between national, regional and local levels and advances climate action. Successful countries do not rely on just one policy or enabler but rather choose a suite of options, many times led by a champion city and engaging with multiple stakeholders and issues to find the right mix for the national and local context.

Australia: Partnerships, data and planning for multilevel adaptation & mitigation action

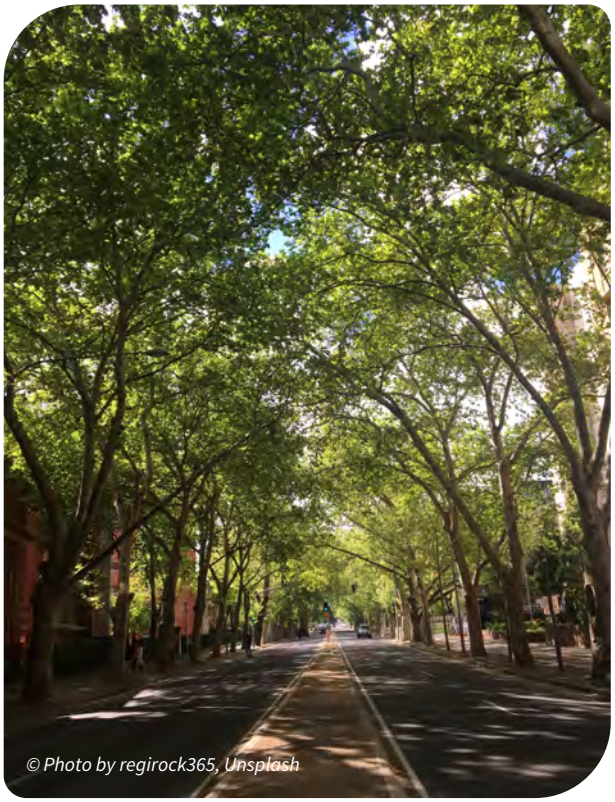
- **Vertical and Horizontal Collaboration & Coordination**
- **Voluntary & Information Instruments**
- **Regulatory Instruments**

Australia has been advancing mitigation and adaptation action by promoting partnerships for vertical and horizontal collaboration and coordination, consolidating local government climate data into a single web platform as an information instrument and advancing urban heat, transport and planning guidelines for climate resilience as a regulatory (or voluntary) instrument.

On the partnerships for vertical collaboration and coordination front, the Australian Government has set up City and Regional Deals program, which establishes partnerships between local, state, and the national government to align planning, investment, and governance. Each deal is different, and while few focus on climate action activities specifically, many have initiatives to improve coordination on infrastructure projects, resilience for communities and environment. Another example is the Carbon Neutral Adelaide partnership between the Government of South Australia and Adelaide City Council to realise the goal for the City of Adelaide to be the world's first carbon neutral city. The Carbon Neutral Adelaide vision document sets out a policy framework for collaborative implementation, including actions targeting businesses and individuals, investment in energy efficiency and renewables, transport, and waste. The South Australian Government's Climate Change Action Plan (2021-2025) also identifies local government as a key implementation partner.

Snapshot Climate provides pathways to actions that will lead to most effective emissions reductions in each local government area and in each sector. Annual updates enable users to track emissions overtime and monitor progress to local or state emissions reduction targets. Basic+ profiles and subsector data enables effective decision making and targeting of emissions reduction at speed and scale, specific to geographic area or sector.

Engagement through the 2021 Local Government Climate Review ensures the platform remains valuable to councils and communities around Australia and empowers local people to understand and reduce their own local emissions.



Adelaide, Australia

The Australian Government's National Climate Resilience and Adaptation Strategy (2021 - 2025) includes a multilevel governance objective to: Drive investment and action through collaboration; and a focus area on the built domain – referencing urban infrastructure (natural and built form). This bult domain section outlines initiatives such as: climate change guidance for public, road and rail transport; CSIRO's research on wind design standards reducing the risk of damage to all new housing, and partnering with cities to reduce urban heat island effect.

In lieu of integration with other levels of government, at the scale required for energy transition, there are some impressive examples of local governments joining up for large scale emissions reductions projects, including the Victorian Energy Collaboration where 46 local councils joined up to purchase renewable energy to reduce greenhouse emissions by 260,000 tons of $C0_2e$ every year.

Chile: Multilevel Mitigation Action on Energy Efficient Transport

- **Civil Society and civic engagement processes**
- **Multilevel, multi-actor capacity**
- **Vertical and Horizontal Collaboration & Coordination**
- **Voluntary & Information Instruments**
- **Regulatory Instruments**
- **Public Procurement**

Chile has advanced an ambitious update to their NDC and the adoption of a strategy and legislation to greatly reduce emissions from transport and energy thanks to an inclusive, multistakeholder process and a leading example from the capital city of Santiago. Chile is an example of how combining a variety of policies and enablers has resulted in advanced commitments and action on climate mitigation.

Chile has also demonstrated effective **civil society and civic engagement processes** at national and regional level through the establishment of Regional Committees on Climate Change (CORECCs) that advance climate change management in the regions by strengthening institutional structures and providing access to tools and information for decision making, including regional greenhouse gas inventories.

The CORECCs are led by a regional authority (governor) and work across public entities (including regional councils and municipalities), private sectors, citizens, NGOs and academia with the aim to promote and facilitate the elaboration and implementation of climate related policies, plans and actions based on local and regional needs and abilities, and to align these with national policies, including the NDC. The Chilean government has developed Regional Climate Action Plans in four administrative regions (Los Lagos, Los Rios, O'Higgins and Atacama) with plans to expand to two additional regions this year.

This builds on its first-ever explicit national urban policy, the National Urban Development Policy (Política Nacional de Desarrollo Urbano) which was approved in 2013. The policy was co-ordinated by the Ministry of Housing and Urban Development (Ministerio de Vivienda y Urbanismo) (MINVU) and drafted by an advisory committee mandated by the President of Chile, which composed of 28 people representing civil society, labour unions, academia, members of parliament, current and former ministers, and professional experts. It was supported by academic working groups, regional authorities, and representatives from eleven ministries. The policy's overarching goals are to improve quality of life by addressing urban development, to decentralise decision making, to foster institutional coordination, to provide a reference for policy reform, and to create certainty for social development and public and private investment (MINVU and UNDP, 2014).

Exhibiting the effectiveness of combining **regulatory instruments, public procurement and vertical and horizontal collaboration and coordination**, Chile's National Electromobility Strategy, was formalized through legislation by the Ministry of Energy, drawing on experiences of Santiago's Green Zone Project for Transport and its procurement of electric buses. Chile has ambitious goals for electric transport as part of its National Electromobility Strategy:

Santiago, Chile

by 2035, 100% of light-duty vehicles (gross weight < 2700 kg), medium-duty vehicles (2700 ≤ gross weight < 3860 kg), and urban public transport (buses and taxis) will all be zero-emission. By 2045, 100% of freight trucks (gross weight ≥ 3860 kg) and intercity buses sales are expected to be zero-emission. In 2021, Santiago pushed ahead of electric bus procurement when the Metropolitan Public Transport Directorate (DTPM) finalized an order for 991 electric buses which will result in a total of 1,770 electric buses for the city's public bus fleet raising the share of zero-emission vehicles in the city's bus fleet from zero to 25% in just five years. DTPM used non-tax incentives for the bus operator and supplier to choose zero-emission over internal combustion vehicles. If operators chose more than 50% of buses as electric during the bidding process, they are awarded a seven-year contract, renewable to fourteen years, instead of the traditional five-year contract, renewable to ten. The evaluation criteria for the bus supply tender also included a score for energy efficiency. DTPM did not grant new direct financial subsidies for electric buses, because total cost of ownership is already lower than that of diesel buses, and therefore that the high procurement costs could be covered using annual savings in operational expenses.

Based on the success in Santiago, the national government is promoting the acquisition of electric buses for regions outside the capital through developing urban transit "electric corridor" projects in some of the largest cities outside the Metropolitan Region of Santiago: Rancagua, Antofagasta, Concepción, Temuco, Valparaíso, and Puerto Montt. The original DTPM process in Santiago was supported by C40 Cities, the International Council on Clean Transportation's ZEBRA alliance, and the Mario Molina Center of Chile. ZEBRA also secured commitments from more than a dozen financial and industry partners to ensure the commercial availability of zero-emission buses and the financing of projects in other Latin American cities. As Chile continues to transition its entire bus fleet, it is hoped that future tenders should be even more competitive and attractive to investors.

On **multilevel, multi-actor capacity**, Chile developed a Strategy for *Capacity Development and Empowerment* as part of its 2020 NDC update which includes strengthening the capacities of citizens and public and private organizations at national and subnational level to achieve mitigation and adaptation targets. Chile has also involved strong multilevel engagement in the process for developing its Action for Climate Empowerment (ACE) Strategy and its Long Term Strategy (LTS) for the UNFCCC, including specific engagement with subnational governments. This also led to integrating multilevel elements in the Climate Change Framework Law, obligating all subnational governments in Chile to develop CAPs within three years, among other elements.

Ghana: Nationally supported local adaptation action

- **Multilevel, multi-actor capacity**
- **Vertical and Horizontal Collaboration & Coordination**
- **Voluntary & Information Instruments**

Ghana has 261 local metropolitan, municipal and district assemblies (MMDAs) each with their own set of adaptation and development priorities and challenges. As part of the National Adaptation Plan (NAP) process, the Environmental Protection Agency (EPA) is working to build **multilevel capacity, vertical and horizontal collaboration**, and the use of **voluntary and information instruments** to advance adaptation planning and action at the district level. There has been considerable leadership on climate action – both adaptation and mitigation from the capital city of Accra.

The NAP process is being coordinated at the national level by the EPA, which has established the Cross-Sectoral Policy Group (CSPG) which includes representation from working on ministries and departments including energy, transport, finance, gender, and local government as well as civil society, private sector and academia. The CSPG fosters horizontal coordination on adaptation as well as efforts to mainstream adaptation into the relevant sectors. A significant part of the NAP process is the development of district level costed adaptation plans based on risk assessments that combine regional climate projections and district level social, economic and environmental conditions. With multiple international actors supporting efforts to develop risk assessments and adaptation plans at the local level, the CSPG also plays an important role in ensuring there is not duplication of efforts and that districts chosen through different programs represent the ecological, economic and social distinctions in the country. In the next few years, the EPA will work closely with over 20 district governments to develop these risk assessments and costed adaptation plans.

Given the capacity challenges that many local governments face, the EPA as part of its strategic plan for 2019-2021 began placing officers at regional level and in districts as part of a decentralization agenda. As of 2022, they have representation in all 16 regions and almost 20 staff at district level. This is instrumental in building the capacity to deliver on adaptation and mitigation and support EPA is present in all the 16 regions and some 17 or so districts as part of our decentralization agenda.

The NAP process is also focused on developing data and information that is disaggregated and accessible at district level. A data portal with a vulnerability mapping tool will be available for use in the districts to better understand local climate risks and hotspots of vulnerability for targeted adaptation plans.

This process is also building from the city of Accra's leadership on climate action both adaptation and mitigation. Accra is a member of GCoM and has been supported by several international partners including C40, ICLEI, the World Bank, Cities Alliance, and 100 Resilient Cities in the development of low-carbon, climate resilient action plans and projects.

Accra, Ghana

As a product of its involvement in international cities & climate networks in the last ten years, Accra has increased their capacity to collect, process and utilize climate impacts data; learnt and implemented smart urban transport systems; better sanitation; etc. All of these have improved the city's planning and execution of climate action, increasing their attractiveness as front-runner for investors and international cooperation.

Continuing this learning and positioning process, in December 2017 Accra hosted a regional workshop for other African cities – in collaboration with all the partners mentioned above – to discuss best practices in climate adaptation and resilience, as well as to open a direct line of dialogue with the national government to discuss climate adaptation action. This policy dialogue set the precedent upon which Ghana's nationally supported adaptation action has been built.

India: Promoting Low-Carbon & Climate-Resilient Development Planning and Implementation in Indian Cities

- **Multilevel, multi-actor capacity**
- **Civil Society and civic engagement processes**
- **Voluntary & Information Instruments**
- **Unlocking Finance through Multilevel Collaboration**

Indian cities are at the cusp of major transformation as the Government of India made its commitment to reduce the emission intensity of its GDP by 45 per cent by 2030 from 2005 levels and aiming to achieve net zero emissions by 2070. While India is on track to meet some of its NDC goals for non-fossil fuel energy installations and emission intensity, there are still significant barriers to expanding the adoption of cutting-edge climate technology for the transition to low-carbon pathways and for increasing the adaptive capacity of communities most at risk of being negatively affected by climate change. To advance these aims, there are efforts to increase multilevel, multi-actor capacity; civil society and civic engagement processes; voluntary and information instruments to strengthen data and planning processes; and initiatives to unlock finance. These policies and enablers are facilitating achievement of climate-compatible urban development that contributes to India's climate commitments and ensures the achievement of Sustainable Development Goals (SDGs).

Biomethanation Plant at Coimbatore City Municipal Corporation in Ward 69 under CapaCITIES Project by ICLEI South Asia, 2019

The four Indian cities namely Coimbatore, Rajkot, Siliguri, and Udaipur have prepared Climate Resilient City Action Plans (CRCAPs) (available here) under the Swiss Agency for Development and Cooperation (SDC) and supported Capacity Building for Low Carbon and Climate Resilient City Development project (CapaCITIES) phase I project with technical support from the ICLEI Local Governments for Sustainability, South Asia. CRCAPs were prepared using the first-of-its-kind integrated and local government-specific ClimateResilientCities (CRC) methodology following the multi-stakeholder consultative driven processes. Cities have prepared the city-wide GHG emission inventories compliant to the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) and Climate Risk and Vulnerability Assessment (CRVA). All four CRCAPs have been adopted by the city governments which have a combined investment potential of $0.73 billion USD.

Notably, through the CRCAPs and technical capacity-building of cities, investments of $83.6 million USD (10% of total investment) have been secured through municipal budgets in the four cities for implementation of the identified climate-resilient projects. The CapaCITIES phase I program has also resulted in the implementation of 15 quick-win pilot solutions across Coimbatore, Rajkot, Siliguri, and Udaipur, including grid-interactive rooftop solar PV systems in municipal service facilities and different buildings, waste to composting and bio-methanation plants, e-mobility, air quality monitoring, groundwater recharge solutions, and water supply leak detection. Cities have also received technical assistance to assess bankability for 18 urban infrastructure development projects.

The ongoing CapaCITIES phase II project is helping Gujarat and Tamil Nadu and eight cities (including Ahmedabad, Vadodara, Tiruchirappalli and Tirunelveli in addition to the aforementioned four cities) to institutionalise urban climate action planning process at the city level, to ramp up climate resilient policies and programs and support their integration into city and state governments budgets. Cities and states are benefitting from mainstreaming climate considerations in planning processes through inclusive approaches. Three of the project cities – Rajkot, Ahmedabad and Vadodara – earned 4 stars and two project cities – Coimbatore and Udaipur – earned 3 stars in the Government of India's Climate Smart Cities Assessment Framework 2.0 (CSCAF).

One of the good practices under the project is the involvement of women's self-help groups in climate resilience development planning and implementation. Women's Self-Help Groups were made the operational partner for a 2 tons per day (TPD) bio methanation plant in Udaipur city with support from the Mohan Lal Sukhadiya University and Udaipur Municipal Corporation. Local women were trained on the operations and maintenance aspects of the plant. This has enabled not only the smooth and continuous functioning of the plant but has also helped the women to earn a regular monthly income via the National Urban Livelihoods Mission. The city of Udaipur has implemented a 20 tons per day (TPD) bio-methanation plant based on the learnings and experience of implementing the 2-TPD pilot during Phase I of the project.

Further, Nagpur and Thane have also developed the comprehensive CRCAPs using the Climate Resilient Cities (CRC) methodology through technical support from the ICLEI South Asia under the European Commission supported Urban-LEDS II – Accelerating climate action through the promotion of Urban Low Emission Development Strategies. The project has also supported the implementation of pilots to showcase low-emission development strategies including groundwater recharge, flood sensors and monitoring, solar PV, and sensor-based ambient air quality monitoring systems.

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Udaipur, India

From Egypt to the UAE: MENA region inspiration for national and local climate action

- **Voluntary & Information Instruments**
- **Multilevel, multi-actor capacity**
- **Regulatory Instruments**
- **Vertical and Horizontal Collaboration & Coordination**

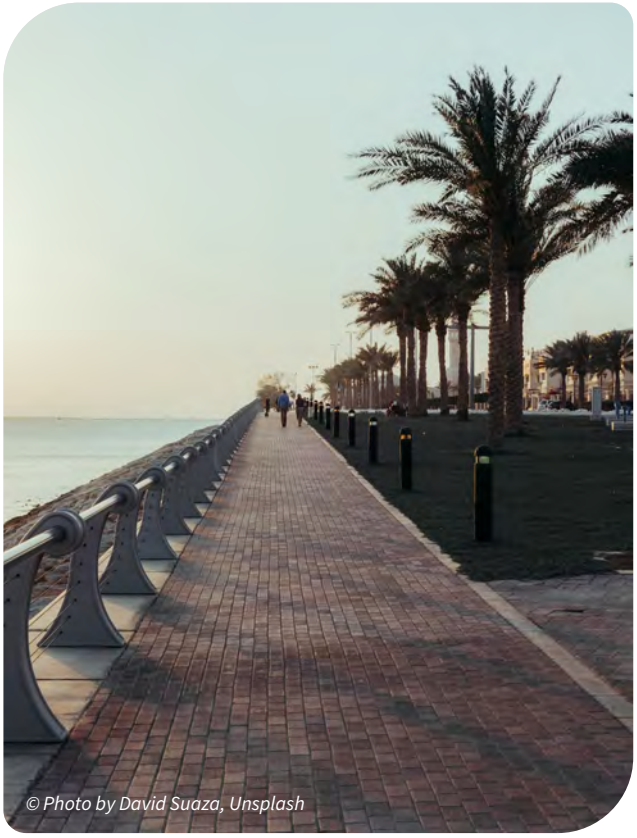
With Egypt hosting the UNFCCC COP27 in 2022 and handing over to the United Arab Emirates (UAE) in 2023, the Middle East and North Africa (MENA) region is taking center stage for the international climate change negotiations. But the global level is not the only active level in the region as there is growing engagement from national to local levels to develop climate change plans with countries from Iraq to Lebanon developing National Adaptation Plans and cities and local governments from across the region undertaking local climate risk and vulnerability assessments.

Municipalities and national governments are implementing projects that focus on **multi-actor capacity** and **enhancing vertical and horizontal collaboration** while developing and adopting plans that include **regulatory instruments** and **voluntary and information instruments**.

El Qanater El Khayreya, Egypt (Delta Barrages)

In Egypt, there is a focus on enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions of Egypt through the development of an integrated coastal zone management (ICZM) process and the installation of soft protection measures along 69 km of high vulnerable coastline to directly address climate change risks. The approach combines **long-term planning, capacity-building, and data generation** and management. The project will reduce flooding threats in the Delta and integrating additional long-term projections of climate risks into coastal planning, budgeting, and implementation of risk reduction measures. The project aims to address the lack of appropriate data to enable planning and decision making; propose a framework for the implementation of integrated approaches and; strengthen the weak institutional coordination and capacity needed for multilevel climate action. This combination of immediate actions with the installation of 69 km of sand dune dikes along five vulnerable hotspots within the Nile Delta with the long-term planning from the development of an ICZM and collection of data to support the setup of a National Coastal Observation System that connects local data collection with national efforts results in climate action across time and geographical scales.

In Abu Dhabi, **the resilient, zero carbon eco-city Masdar City** has been designed with inspiration from the unique mixture of age-old Middle-Eastern urban planning knowledge and modern technology to address heat risks, reducing energy consumption and sustainable transport elements. Masdar City is designed to capture prevailing winds and offer naturally cooler outdoor spaces than those found elsewhere in Abu Dhabi with traditional narrow, shaded street design. Buildings are powered by solar energy, consume 40% less energy and water than similar conventional buildings, aided by the use of sensors contributed to cut the consumption of electricity by 51% and water by 55%. Besides, the insulation properties inside the buildings have limited the heat radiation and have reduced the demand for air conditioning by 55%. Power production is ensured by one of the largest solar field worldwide called Shams 1, using photovoltaic technology and producing 100MW. The heat created at Shams 1 generates electricity that saves 175,000 tons of CO_2 a year, equivalent to planting 1.5 million trees or removing 15,000 cars from Abu Dhabi's roads.
(Source: www.masdar.ae)



Abu Dhabi, UAE

Regional collaboration and learning is also particularly important as evidenced with the inaugural MENA Climate Week (MENACW 2022) which was held from 28 to 31 March 2022 in Dubai. The MENACW 2022 brought together thousands of stakeholders to explore enhancing resilience against climate risk, transitioning to net zero emissions and collaboration on shared challenges.

Key Recommendations

Calling on National Governments to:

1. **Enhance national enabling frameworks and align policies** across all levels of government, for effective, accelerated local implementation through coordinated good governance.

2. **Regularly inform and engage subnational governments** on evolving national policy and programs to jointly meet mitigation and adaptation goals.

3. **Connect with – and learn from – other countries** facing similar adaptation and mitigation challenges to replicate good practices with regional and local relevance.

4. **Engage with the academic and research community** – at home and abroad – for the latest physical and social science to inform national, regional and local approaches in line with emerging findings on all topics – from good governance to sectoral implementation.

5. **Regularly engage business leaders** – at home and abroad – on coordinated policy enhancement with a sustainability focus, including via enablers such as public procurement.

6. **Build on – and update – existing policies and processes**, including the NDC, NAP, and NUP to address climate risks, adaptation needs, emission reduction goals and societal trends and changes.

7. **Cultivate institutions, skill sets and capacities** across levels of government and sectors of society to enable a holistic systems transformation.

8. **Direct at least one-third of research, development, and deployment (RD&D) funding** towards programs and activities channeled through cities, regions, and their governments. (As outlined in the Urban Transitions Mission Statement of Need September 23, 2022).

9. **Unlock vital financing and funding opportunities across sectors** – together with regional and local governments – to accelerate climate action on mitigation and adaptation.

Calling on Regional and Local Governments to:

1. **Regularly reaffirm commitments to climate action at all levels** of regional and local government to maintain public and administrative momentum.

2. **Engage cross-sector stakeholders** – especially youth and vulnerable communities, business, and civil society – on policy and action options to meet GHG emission reductions and adaptation goals towards safe, just, and resilient communities.

3. **Connect with – and learn from – other cities, regions and their governments** to replicate good practices and generate new ideas with regional and local relevance.

4. **Engage with the academic and research community** – at home and abroad – for the latest physical and social science to execute and inform inclusive local approaches in line with emerging findings on all topics – as highlighted in the City Research and Innovation Agenda and the Global Research and Action Agenda.

5. **Enhance connections with national government** through shared perspectives, ambitions, and priority gaps to identify opportunities for funding, collaboration and delivery through regional and local communities.

6. **Build on existing policies and processes, regularly updating all assessments** – climate risks and vulnerabilities, GHG emissions, energy access / poverty, economic and sustainable development opportunities, etc. – to continuously inform whole territory adaptation needs and emission reduction plans.

ENHANCE
INFORM
CONNECT
ENGAGE

UPDATE
BUILD ON
CONSTRUCT
UNLOCK

Key Terms & Definitions for Policymakers

Term	Acronym/Abbreviation (where relevant)	Description
Adaptation		The process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities.
Climate Risk		The potential for adverse consequences of indeterminate scale that endanger something of value. The risks depend on vulnerability factors, exposure level and potential for hazards.
Conference of the Parties	**COP**	The supreme body of the UNFCCC which meets once a year to review progress. Parties to the UNFCCC are national governments.
Global Covenant of Mayors for Climate and Energy	**GCOM**	
Greenhouse gases	**GHG**	The gaseous component of the atmosphere, which may be natural or anthropogenic. Greenhouse gasses absorb and emit radiation, which causes the greenhouse effect.
Intergovernmental Panel on Climate Change	**IPCC**	The IPCC is the United Nations body for assessing the science related to climate change. It provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.
Mitigation		Human-led actions to reduce greenhouse gas emissions or enhance sinks of greenhouse gases.
National Adaptation Plans	**NAP**	The NAP process is for Parties to identify medium- and long-term adaptation needs and developing and implementing strategies and programs to address those needs.
National Urban Policy	**NUP**	A NUP is an overarching coordinating framework to support sustainable urban development in a country.
Nationally Determined Contribution	**NDC**	NDCs are the documents in which countries set targets for mitigating the greenhouse gas emissions that cause climate change and for adapting to climate impacts. Each Party to the Paris Agreement is required to establish an NDC and update it every five years.
Regional and Local Contributions	**RLCs**	The climate commitments, actions, and achievements of local and regional governments – across mitigation, adaptation, and energy access and poverty - whose value in bolstering Nationally Determined Contributions is formally acknowledged by the UNFCCC and its Parties.
Resilience		The capacity of human and natural systems to cope with shocks and stresses, including those resulting from climate change.
Science-based Targets	**SBT**	Science-based targets are measurable, actionable, and time-bound objectives, based on the best available science, that allow actors to align with Earth's limits and societal sustainability goals.
Sustainable Development Goal	**SDG**	In 2015, all the United Nations countries approved the 17 Sustainable Development Goals that make up the 2030 Agenda which is a universal call for action to end poverty, protect the planet and improve the lives and prospects of all people throughout the world.
United Nations Framework Convention on Climate Change	**UNFCCC**	
Vulnerability		The propensity or predisposition to be adversely affected. Vulnerability is determined by sensitivity to damage and the lack of capacity to respond and adapt.

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— United Nations Development Programme (UNDP)

— United Nations Environment Programme (UNEP)

— United Nations Framework Convention on Climate Change (UNFCCC) Secretariat

— UN-Habitat

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