CLIMATE CHANCE

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CLIMATE CHANCE

Since 2015, Climate Chance has been working to create a favourable environment to strengthen climate action and contribute to the attainment of the goals of the Paris Agreement. It is the only international organisation that aims to bring together all the non-state actors recognized by the United Nations Framework Convention on Climate Change (UNFCCC) – local authorities, companies, NGOs, trade unions, the scientific community, agricultural, youth, indigenous peoples' and women organisations – to develop common priorities and proposals and to strengthen stakeholder dynamics through networking within thematic coalitions, during the Climate Chance Summits and through the action portal.

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CONTENTS

A GLOBAL SYNTHESIS REPORT TO TRACK PROGRESS AND BEST PRACTICES FROM LOCAL GOVERNMENTS FIGHTING CLIMATE CHANGE

More than six years after the Paris Agreement, and less than two years before the Global Stocktake planned in the Article 14, the world is still not on track to limit global warming to 2°C compared to pre-industrial area, and even less to 1.5°C (Climate Action Tracker, 2021). It is now certain that even the Covid-19 pandemic did not stop the rise in greenhouse gas (GHG) emissions: it just paused it.

Every year, in order to better understand how to set the wheels in motion for an effective and robust 1.5°C path, the Climate Chance Observatory publishes a Global Synthesis Report on Local Climate Action to track progress of climate action reported by local and regional governments (LRGs) throughout the world. Although the absence of consolidated and comparable data remains a challenge, this does not mean that there is no action or mobilisation. The analysis of the evolution of emissions at the local level, the monitoring of the development of the main international initiatives led by networks of local authorities, and the review of the publications of academic and specialised literature, make it possible to draw global trends.

Assessing Local and Regional Governments (LRGs)' Impacts and Reduction Potentials Remains A Challenge

The aggregate impact of cities and regions on greenhouse gas emissions remains very difficult to quantify, due to the great heterogeneity of inventory methods and practices. Moreover, individual monitoring of emissions at local level still falls short of data and robustness to provide a clear and picture of emissions on the territory over time.

More than just estimating the impact of these actors, tracking and monitoring the Local and Regional Governments' (LRGs) emissions is also important to understand the most effective levers to reduce GHG emissions. Indeed, LRGs are crucial in implementing climate measures: 70% of mitigation measures and 90% of adaptation measures cannot be implemented without them (European Committee of the Regions, 2021). Through direct actions (through the services they provide and the facilities they own) or indirect actions (as a territorial organising authority), they are key actors to create an environment that is favourable to a low-carbon society. Thus, a reporting of climate action and of GHG emissions can help to have a better understanding of how LRGs can participate in the fulfilment of the Paris Agreement.

In first part of the report, we identify three pathways opened up in recent years to strengthen the robustness of the data:

- First, the "real-time" monitoring of emissions through a more refined use of activity data available in all sectors brings the inventory exercise closer to the time of policymaking.
- Second, the spatialization of emissions through atmospheric measurement by satellite and ground sensors facilitates the geographical identification of greenhouse gas sources at a precise scale, while also reducing the temporal gap between information and decision-making. By revealing discrepancies with statistical inventories, atmospheric measurement also helps to identify areas where data collection can be improved.
- Finally, the harmonisation of emission reporting methodologies and platforms over the past few years is part of this movement to steer players towards homogenised practices, with a view to enabling comparisons, facilitating aggregation, and improving transparency. This harmonisation is made possible by organizations gathering several LRGs: the LRGs climate networks and initiatives.

Networks and Initiatives, Key Accelerators of Climate Action

Many national and international networks and cooperative initiatives exist to support local governments in their climate action. By exchanging good practices, sharing resources and setting common goals, these structures encourage and support action.

Networks, like ICLEI, UCLG or Energy Cities, allow their members to benefit from their services and take part in their projects through membership systems. International cooperative initiatives offer spaces for collaboration of local and subnational governments, with a commitment system. The signatories voluntarily commit to align themselves with a set of shared principles and targets. Their progress can be subject to monitoring process and abidance to the rules set out by the initiative. Some are administered by several networks of local governments, with separate secretariats, as in the case of the Global Covenant of Mayors; some are opened to members of a single organisation, as RegionsAdapt, an initiative from Regions4; others are open but administered by a network, as the Under2 Coalition, for which The Climate Group is the Secretariat. According to the NewClimate Institute, if the targets set by international climate cooperation initiatives were met by all their members, a reduction of 2 GtCO2e/year would be possible by 2030 (NewClimate Institute, 2021).

Besides, there are hybrid organisations supporting the various networks and initiatives or working in complementarity with them and directly engaging with LRGs, be it in their administration, in providing research and capacity building, or a common platform for reporting and disclosure – as in the case of CDP.

These organisations emerge from many situations and actors: some have been created by philanthropic organisations, other by national governments, other by international organisations, other by LRGs themselves... Their governance and their relationships between each other is still evolving, as we describe in Part II.

Each of them, at their own scale and with their own methodologies, implement projects and programmes to help their members to reduce the emissions of their territories. Through a participatory process with several networks and initiativesa, we are able to present 14 key networks and initiatives in the Part III, their main recent programmes and projects, as well as climate actions of one of their members.

These case studies, and other examples of climate action that we describe in the beginning of the Part IV show that despite a negative impact on their finances, the pandemic has not stopped local and regional governments from pursuing their action on climate. However, it may have triggered a slight change: efforts to decrease greenhouse gas emissions increasingly try to integrate the long term and secure the necessary funding, and perhaps pay more attention to vulnerable people to leave no one behind. Through greening policies (Athens, Madre de Dios), low-carbon electricity supply (Cadix, Alba Iulia), fight against energy poverty (Rüsselsheim am Main, Cadix, Zagreb), participatory elaboration of climate plans (Bobo-Dioulasso, Kigali, Molina de Segura), integrated adaptation and mitigation climate plans (Athens, Flanders, Cape Town), access to finance (Dannieh) and the support of the networks and initiatives they belong to, LRGs often resort to cross-cutting policies that link mitigation and adaptation, across the sectors of action where they have the most autonomy to act.

European Green Deal gives a new impetus to Region-Led Climate Policy

This year, the GSR on Local Climate Action is closely linked with the Climate Chance Summit Europe, organised on the 7th and 8th March in Nantes (France). It will be the first in situ event since COP26 gathering non-state actors from all across Europe to discuss how accelerate the implementation of the Green Deal at local and regional level.

Thus, to feed the debates and discussions of this Summit Part IV of this GSR on Local Climate Action analyses how the European regions can influence their territories towards a low-carbon economy.

Historically, European regions have been more associated with climate adaptation than mitigation. It is illustrated recently with the five "Missions" launched by the Commission as part of the Horizon Europe fund: whereas the mitigation mission aims to make a hundred cities "carbon neutral" by 2030, the adaptation mission set the challenge of helping 150 regions to become climate resilient. European regions fit quite well this role: through their competencies or their more and more numerous energy-climate observatories (especially in Western Europe), they demonstrate that, as relatively uniform climate territories, they are a relevant tier for these challenges.

But their mitigation role is increasing, especially through the launch of the European Green Deal in late 2019, and the start of a new multi-annual financial framework (MFF) in 2021. Although the Recovery Plan for Europe, supposed to create a

a Climate Chance Observatory is very grateful to Eduardo Bilsky (UCLG); Amy Bills, George Bush (CDP); Floriane Cappelletti, Thibault Maraquin (Energy Cities); Heloise Chicou (Regions4); Noelani Dubeta (Climate Alliance); Roisin Gorman (Climate Group); Nina Hotop (Global Covenant of Mayors); Ariane Luttenauer (European Energy Awards); Myriam Makdissi (Clima-Med); Marina Reyskens Lutz (ICLEI Afrique), who contributed to the Part III of this report.

"green, digital" Europe, gives nation States a driving role, the climate dimension of the EU Cohesion Policy, which is aimed at regions, gains strength with the Green Deal.

Our analysis shows that this general overview however hides some considerable disparities between European regions in their climate roles, on at least two levels: geographic and economic. Firstly, for mainly historical reasons, the regional scale has a particular importance in western European countries, but not for their neighbours in the East. In France, Spain, Germany, Italy, Austria, Belgium or the Netherlands regions are major actors, sometimes autonomous (especially in Spain, and in federal countries), and can find themselves in competition with the national level. However, in the East, when they exist, regions mostly date from the point of accession to the EU. This East-West line thus draws some strong disparities in terms of jurisdictions and resources that are particularly apparent in the management of EU funds, which are mostly national in the east, but also in terms of climate action, which is more proactive, visible and monitored in western European regions.

Next, the economic situations of European regions mean that they are very unequally prepared and armed for the transition. It is easier to build a low-carbon economy in a rich, urban, tertiary region than it is in a coal-mining region, where the often-depleted economy centres on fossil fuels. The European Just Transition Mechanism attempts to address this challenge by helping the most vulnerable regions, such as Silesia in Poland.

By providing examples of successful climate policies driven by LRGs and international cooperative initiatives, the Global Synthesis Report on Local Climate Action 2022 aims to inspire the Summit participants to deliver concrete and impactful proposals to include local-level actors in the implementation of the European Green Deal.

PART ONE

EMISSIONS RESULTS, INVENTORIES AND REPORTING PRACTICES

IN EUROPE, MUNICIPALITIES COMMITTED TO CLIMATE ACTION HAVE LARGLEY MET THEIR 2020 EMISSION REDUCTION TARGETS

Among the Global Covenant of Mayors (GCoM)

GCoM, 2021

1.012 billion

POPULATION COVERED BY GCOM SIGNATORY CITIES

-1.9 $GtCO_2e$

ANNUAL GCOM EMISSIONS REDUCTION POTENTIAL

Based on current targets and action, compared to a BAU scenario.

11,719

NUMBER OF GCOM SIGNATORY CITIES

GCoM is the largest global alliance of cities for climate action..

SHARE OF EUROPEAN CITIES IN GCOM SIGNATORIES

The CDP-ICLEI Unified Reporting System: despite a slight slowdown in reporting, more cities are reporting reduced emissions from their previous inventories

	NUMBER OF CITIES HAVING REPORTED THEIR TERRITORIAL EMISSIONS ON THE CDP-ICLEI UNIFIED REPORTING PLATFORM	TOTAL GHG EMISSIONS REPORTED ($GTCO_2e$)	POPULATION COVERED (MILLIONS)	CITIES REPORTING EMISSIONS OUTSIDE BOUDARIES (SCOPE 3)	TOTAL EMISSIONS REPORTED OUTSIDE BOUNDARIES
2015	119 (46 ↓ / 31 ↑)	1.25			
2016	187 (84 ↓ / 36 ↑)	1.29	260		
2017	229 (101 ↓ / 45 ↑)	1.41	279		
2018	284 (115 ↓ / 45 ↑)	1.91	315		
2019	332 (176 ↓ / 94 ↑)	1.84	332	207	89 $MtCO_2e$
2020	401 (191 ↓ / 120 ↑)	2.19	367	253	233 $MtCO_2e$
2021	370 (198 ↓ / 78 ↑)	1.94	329	222	221 $MtCO_2e$

↓ *Cities having reported a decrease in their emissions compared to the previous inventory*

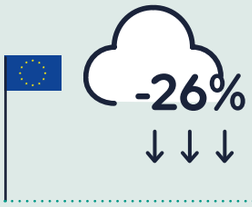
↑ *Cities having reported a increase in their emissions compared to the previous inventory*

Source: CDP, online database, downloaded on 12/11/2021

The latest tracking of the progress of the European Covenant of Mayors for Climate and Energy 2020 conducted by the European Comission's Joint Research Centre covers a sample of 1,643 municipalities within the EU-27 having at least one Monitoring Emission Inventory (MEI) following their accepted Baseline Emission Inventory (BEI) and Sustainable Energy Action Plan (SEAP). This covers 32.5% of CoM 2020 signatories, 63% of the population covered by the initiative, 19.2% of the EU-27 population. The significant heterogeneity in baseline years and monitoring years do not allow to draw comparisons or weigh CoM 2020 signatories responsability in the EU-27 emissions evolution from 1990 and 2019.

The EU is on a trend of structural decarbonization ...

European Environmental Agency, 2021



i.e. a reduction in emissions of 464.6 $MtCO_2e$

EVOLUTION OF ANNUAL GHG EMISSIONS IN THE EU-27 FROM 1990 TO 2019

AVERAGE EVOLUTION OF EMISSIONS PER CAPITA IN THE EU-27 FROM 1990 AND 2019

From 11.2 tCO_2e in 1990, emissions per capita in the EU-27 decreased by more than a third (36.36%) to 7.8 tCO_2e in 2019.

... with Covenant of Mayors 2020 cities signatories mostly align with their target

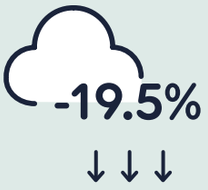
Rivas, S. et al., 2022

EU-27 POPULATION COVERED BY THE COVENANT OF MAYORS IN 2020

As of December 31 2020, EU-27 had 6,620 cities signatories of CoM 2020, covering 160 million inhabitants.

2020 MITIGATION TARGET

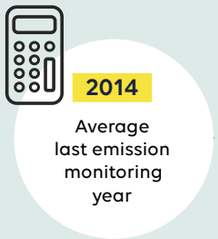
for CoM 2020 signatories from their baseline year of emission



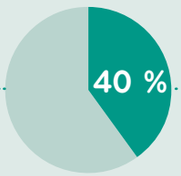
AVERAGE EMISSION EVOLUTION IN COM 2020 SIGNATORY CITIES FROM THE EU-27

(from their Baseline Emission Inventory (BEI) to their last Monitoring Emission Inventory (MEI))

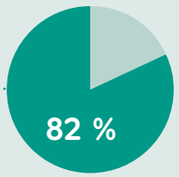
The 1,643 signatories of CoM with at least one MEI report an average 19.5% reduction from their baseline emissions.



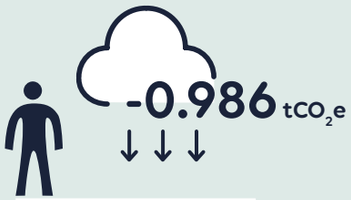
Rivas, S. et al., 2022



SHARE OF SIGNATORIES WITH MEI HAVING REACHED OR OVERSHOT THEIR TARGET



82% ARE APPROACHING THEIR TARGETS



THIS AMOUNTS TO A TOTAL OF 127.7 $MTCO_2e$

AVERAGE EVOLUTION OF EMISSIONS PER CAPITA IN COM 2020 SIGNATORIES

(between their BEI and MEI)

Between harmonisation of practices and methodological innovations, the emission accounting and reporting from cities and regions are getting more robust

"***We need pledges to be implemented. We need commitments to turn concrete. We need actions to be verified. We need to bridge the deep and real credibility gap*".** This statement by Antonio Guterres, Secretary-General of the UN General Assembly, in an address to COP26 delegates, preceded the announcement of the creation of a high-level panel of experts to measure and analyse the "zero" commitments of non-state actors (UN News, 11/11/2021). With two years to go until the Global Stocktake under the Paris Agreement (Article 14), the need to assess the progress of climate action is becoming ever more pressing.

Calculating the greenhouse gas (GHG) emissions of a territory, whether it is a State, a region or a city, is strategic to help the authorities steer mitigation efforts in the short and long term. Carbon accounting is as much a policy tool to drive evidence-based public policy as a political instrument for greater accountability and transparency towards citizens and the international community. As such, it is a cornerstone of the international cooperation under the Paris Agreement.

Naturally, it is easier to analyse the progress and results of the 193 States who signed the Paris Agreement together than of the countless local and subnational governments that make them up. This balancing act between the global viewpoint of assessing progress and the local origin of actions therefore invites us to turn to aggregation tools: voluntary reporting platforms, to which cities and regions communicate their GHG emission results. The **infographic (see below)** highlights that, despite progress in reporting practices, the aggregate impact of cities and regions on greenhouse gas emissions remains very difficult to quantify, due in particular to the great heterogeneity of inventory methods and practices. Moreover, individual monitoring of emissions at local level still falls short of data and robustness to provide a clear picture of emissions on the territory over time.

In the following analysis, we propose an overview of the practices and methodological innovations that contribute to the robustness of the monitoring of emissions by cities and regions.

Statistical carbon accounting, the basics for monitoring emissions of territories

Measuring one territory's carbon impact implies to delineate the boundaries that one stands in to observe emissions. Specifically, "*unlike the national accounts, cities home to 50% of world's population but comprise only approximately 3% of land mass, which means they have to outsource a large number of emissions to outside the city boundary*" (Chen et al., 2019). In this respect, there are two main instrument to carbon accounting for cities and regions that can be distinguished, according to their geographical and administrative limits:

• **The emissions inventory** is a statistical accounting instrument for direct emissions produced by activities *within the administrative or geographical boundaries* of a territory. It is used to identify their sources. The French Agency for Ecological Transition (Ademe) compares it to a "land register" for emissions, as it focuses on GHGs "physically" emitted in the territory. It can also include the production of electricity outside the territory used for its productive activities (Ademe, n.d.).

• **The carbon footprint** is another instrument used to aggregate direct emissions generated by the territory's production activities and indirect emissions induced by its production *outside its own boundaries*. In some cases, a carbon footprint can also include emissions induced by consumption activities, through the accounting of emissions embodied in imports and life-cycle assessments of products and services. Consumption-based or not, carbon footprint is a broader approach that aims to consider all the greenhouse gases that were necessary to support the territory's activities, regardless of their origin (Citepa, 2020).

Whatever the boundaries chosen, accounting systems and standards are based on the association of "emission factors" with the data on economic activities collected within the boundaries of the territory in order to obtain their carbon equivalent. Yet, there is a broad range of methodologies and standards to implement carbon accounting that have been developed by specialised agencies and global standards. They differ from each other in their scope of calculation, each with its advantages and disadvantages in terms of data access and aggregation, monitoring over time, translation into concrete policies, etc. These tools can be distinguished according to three "approaches" (**tab. 1**).

TABLE 1

CHARACTERISTICS OF THE THREE ACCOUNTING APPROACHES RELATED TO EXISTING CARBON ACCOUNTING TOOLS

Source: Association Bilan Carbone

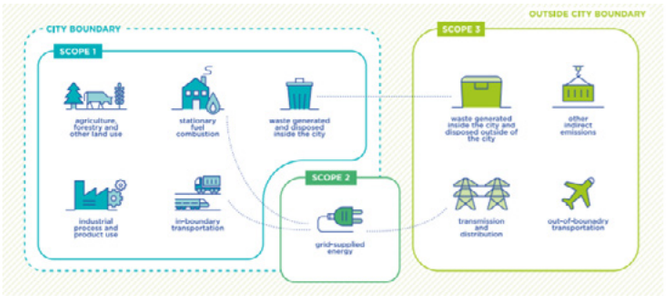
Approach	Territorial approach	Global approach	Consumption-based approach
Scope	*Scopes 1 and 2* This calculation of GHG emissions emitted directly on the territory by all actors by activity sector (Scope 1) does not take account of indirect emissions caused by meeting the needs of territories, other than indirect emissions linked to the consumption of energy originating in a production unit on its territory (Scope 2).	*Variable scopes 1, 2 and 3* Emission accounting taking account of all GHG emissions, whether direct or indirect, in other words, whether they are emitted by or for the territory. This is a more complex method because it requires a form of data collection that might prove difficult given the dispersed nature of information and a lack of statistical data at community level. A large degree of uncertainty is involved in accounting for indirect emissions. Finally, the use of scope 3, whose accounting methods are specific to each tool, renders comparisons impossible.	Accounting for all goods and services required by the territory (from internal production and imports) and therefore all sectors required for the final consumption by the inhabitants of the territory (sectors present on the territory or otherwise). This approach essentially takes account of the issue of consumption-based emissions as this is an emission source. As emissions are related to the end consumer, actions will naturally focus more on citizens and consumption-based behaviours and production and service companies.
Advantages	• More precise method • Reductions target based on this method • Robust • No double counting	• Comprehensive coverage of emissions • Raises all issues	• Easy to interpret • Communications oriented towards the citizen
Disadvantages	• It has a degree of bias in measuring emission reductions (e.g. outsourcing, electricity, etc.) • Excludes international maritime and air transport	• Not standardised • Complex to interpret • Double counting • Integrated approach with other territories: enables identification of the degree to which the activity of a different territory can impact its emissions count and vice versa	• Difficult to calculate • Calculations cannot be standardised
Uses	• International standard • Basis for all other methods • Permits aggregation to higher levels	• Design of a territorial action plan (PCET, PCTI etc.)	• Citizen mobilisation
methodologies and standards	• National inventory similar to UNFCCC or equivalent • Basemis	• Bilan Carbone® Territory • Global Protocol for CommunityScale • Greenhouse Gas Emissions Inventories (GPC) • BEI/MEI • US Community Protocol	• PAS 2070

FIGURE 1

SCOPES DEFINITION FOR CITY INVENTORIES IN THE GPC FOR CITIES

Source: GHG Protocol, 2014; C40, 2018

Scope	Definition
Scope 1	GHG emissions from sources located within the city boundary.
Scope 2	GHG emissions occuring as a consequence of the use of grid-supplied electricity, heat, steam and/or colling within the city boundary.
Scope 3	All other GHG emissions that occur outside the city boundary as a result of activities taking place within the city boundary.



Initiated by the World Resource Institute, C40 and ICLEI, the Global Protocol for Community Scale GHG Emission Inventories (GPC)[a] is the most globally used methodology for city-level carbon accounting. This framework was derived from the GHG Protocol Corporate Standard. To draw up the **carbon accounting of a territory**, the GHG Protocol for Cities uses three "scopes" to segment the boundaries of greenhouse gas sources (**fig. 1**).

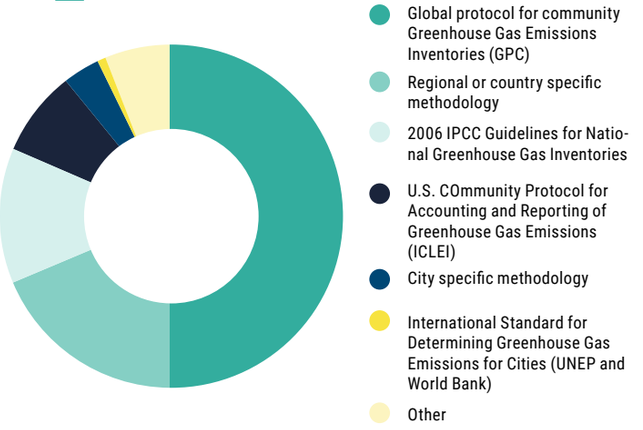
Most of carbon accounting systems are based on a territorial approach. These approaches only take account of emissions stemming from energy production located within the geographic or administrative boundaries of the territory (Scope 1) or include emissions from imported electricity necessary to in-boundary activities (Scope 2), territorial approaches fall short of reflecting emissions embodied in imported goods and services. Therefore, they do not take account of spatial, socio-economic inequalities embodied in the carbon footprint of consumption behaviours (Scope 3, consumption-based approach).

In practice, carbon accounting based on statistics rely on the ability of the decisionmakers to collect data on their territory's activities, as well as on the existence of carbon factors adapted to the local context. The reliability of inventories can therefore vary greatly (**ref. "Experience Feedback"**), and there is currently no universal standard for harmonising the rules and controlling the quality of emission inventories. Thus, within the same voluntary reporting database such as those of the CDP or the Covenant of Mayors, one may find very different calculation practices depending on the methodologies used (**fig. 2**), the selected year for the baseline inventory, the date of the monitoring inventory, the scopes covered, the available data, etc. In view of monitoring emissions, this poses a problem of aggregation and comparison between cities. Furthermore, the time required to collect data and build inventories often results in a time lag of several years between the date of publication of the inventory and the emission period covered. This time lag is at odds with the political time of the elected representatives' mandate and can weaken the steering and continuity of public policies. Therefore there is a whole field of research aimed at developing tools for better short-term monitoring of emissions.

FIGURE 2

SHARE OF EMISSION INVENTORY METHODOLOGIES USED BY REPORTING CITIES ON CDP PLATFORM IN 2021

Source: CDP, 2021



a The Global Protocol for Community Scale GHG Emission Inventories (GPC), also called GHG Protocol for Cities, was created in 2014 by WRI, ICLEI and C40 to provide cities with robust emission accounting standards and methodologies.

EXPERIENCE FEEDBACK

THE UNDER-REPORTING OF EMISSIONS IN AMERICAN CITIES RAISES THE ISSUE OF THE ACCURACY IN CARBON ACCOUNTING

On average, U.S. cities underestimated their fossil fuel related CO_2 emissions by 18.3%. This is the result of a recent study that compared voluntary GHG emissions inventories from 48 of the 100 highest emitting cities in the U.S. with data produced by Vulcan, a tool which aggregates emissions data from national public databases between 2010 and 2015. The largest differences observed by the authors of the study and developer of Vulcan, range from -145.5% to 63.5%. Cumulatively, these underestimated emissions represent 129 $MtCO_2$, or 25% more than the emissions of the State of California. Taken together, the 48 cities surveyed represent 13.7% of city emissions and 17.7% of the US population in 2015. The article points out that there is no systematic, peer-reviewed methodology to assess the quality of a voluntary emissions inventory. Consequently, they are likely to present large differences in approach that can lead to significant gaps in the consideration of certain emission sources in a territory. The most common differences concern the omission of petroleum fuel use, industrial and commercial emissions on site ("point source emissions"), differences in the consideration of marine and aviation emissions, and methodological differences for estimating road emissions. Such discrepancies are meaningful, as a miscalculation of emissions from a territory can distort one local government's judgement when adopting mitigation strategies. However, cities are not to be blamed, say the authors: inventories are perfectible, and could be improved by further documenting the boundaries of the urban system. They suggest that one solution could be to combine these voluntary bottom-up reporting systems with atmospheric observation and modelling systems.

Source: Gurney et al., 2021

From real-time monitoring to atmospheric measurements, ground-breaking tools emerge to complement statistical accounting, yet in their pilot phases

In addition to **statistical inventory** systems, new tools are emerging to measure and monitor emissions through spatialization. Per se, **mapping emissions** through spatialized inventories is not new: it consists in linking emissions estimated in statistical inventories to their geographical origin in order to map them on the scale of administrative or geographical boundaries (Citepa, n.d.).

For instance, in France, spatialized inventories are carried out at the regional level by the "recognized associations for air quality monitoring" (AASQA), provided for by the 1996 Law on Air and the Rational Use of Energy (known as the LAURE Law). As an example, in the Brittany region, Air Breizh, the regional air quality observatory, produces every two years a spatialized inventory of atmospheric emissions (ISEA) for about thirty pollutants (PM10, PM2.5, NOx, SO_2, NH_3, heavy metals, greenhouse gases, etc.) generated by nine sectors of activity (Energy industry, Residential, Tertiary, Non-energy industry, Road transport, Other transport, Waste, Agriculture & Forestry and Biotic). The ISEA spatializes the emissions at regional, departmental and local levels and presents them on an online platform in the form of maps and emission inventories (Air Breizh, n.d.).

This practice is pushed further by new tools being developed to enhance spatialized inventories with high frequency, localized and cost-effective data. By optimising the use of these data sets produced by all sorts of actors as administration, national statistic agencies, satellite monitoring systems, researchers and entrepreneurs propose to move towards "real-time" monitoring of emissions, in order to bring the inventory exercise closer to the time of policymaking.

The **City Climate Intelligence** (CCI) is an open platform which aims to provide "*high-resolution, near real-time* CO_2 *monitoring to increase citizen buy-in, support decision-making, and drive* CO_2 *emissions reduction investments within cities.*" This umbrella project promotes a "nested approach" to deliver emission data on three levels of spatial resolution: country and city level (Tier-1), district-level (Tier-2) and street or building-level (Tier-3). Currently in development and pilot phase, CCI is compounded of the Rocky Mountain Institute, an American think-tank, NEXQT, a young company working on climate data, the HESTIA Project (Northern Arizona University), which quantifies fossil fuel CO_2 emissions for individual cities in the US at street and building level, IG3IS (Integrated Global Greenhouse Gas Information System), an initiative led and hosted by the World Meteorological Organization, and Carbon Monitor.

At the country level (Tier-1), the **Carbon Monitor** provides regularly updated daily estimates of CO_2 emissions from fossil fuel use and cement production, using statistical and geospatial data. For example, to measure road transport activity and derive emissions based on national fleet characteristics, Carbon Monitor uses congestion data from GPS navigation system manufacturer TomTom (Liu, Z., Ciais, P., Deng Z., et al., 2020). In October 2021, the **Carbon Monitor Cities** platform was launched using the same principles to track the emissions of forty-seven major cities (Tier-1) around the world, including Paris, Berlin, Copenhagen, Sydney, Guangzhou, London, Mexico City, New York, Osaka, Rome, Seoul, Stockholm, Tokyo, Toronto and Johannesburg. Paris and Los Angeles currently are the only two cities to have a Tier-3 level of information at street and building-level. The Tier-3 project in the Paris region is also supported by Ai4Cities, an EU city-led initiative to harness the power of artificial intelligence to accelerate urban CO_2 emission

reductions. Carbon Monitor Cities is due to scale up to nearly 1,500 cities over the world, with the contribution of CDP as for the convergence with their reporting system time series. CCI is also foundational for the work on standardizing science-based GHG monitoring services for cities and businesses.[b]

Among the datasets used by these projects, **atmospheric measurement** using ground sensors and satellite observations consists of mapping greenhouse gas flows in a geographical area at a certain moment in time and observing their evolution over time. It offers several advantages:

- By comparing the data collected by atmospheric measurement with the city's statistical inventory, it is possible to pinpoint sectors where the data do not match, and then to look for ways to improve the statistical method.

- At high spatial resolution, it makes it possible to locate emission sources precisely at the scale of a city, a district or a street, and thus to better target the public action decisions to be taken accordingly.

- At high frequency, the rapid updating of the data collected allows near "real-time" monitoring (from a few weeks to a few months) of emission trends, much closer to the time of the political decision than inventories, which always require several years to collect the data.

- Finally, atmospheric measurement can help verify the effectiveness of CO_2 reduction measures taken by city authorities.

However, the spatialization of emissions by atmospheric measurement has some limitations:

- By definition, it is limited to the Scope 1 of the territory observed, whereas a statistical carbon accounting will make it possible to measure the emissions linked to Scope 2 and 3, and thus to assess the territory's carbon footprint;

- In dense urban areas, it may be difficult to distinguish the territorial origins of emissions due to wind flows;

- Not yet industrialised, the most accurate measuring stations are expensive (up to €100,000). However, some basic sensors can be more affordable (up to €5,000);

- To be operational over time, these methods require a highly qualified expert to master modelling software, as well as political support from the local authority.[c]

The atmospheric approach to urban CO_2 emissions is relatively new, most often in pilot phase and focused on large cities. As a result, only a few cities around the world are experimenting with these technologies to measure and monitor their emissions:

- In Mexico City, Mexico City Regional Carbon Impacts (MERCI-CO2) is a Franco-Mexican research project that aims to measure CO_2 concentration gradients and their evolution over time by deploying a dense network of ground-level and upper-air CO_2 sensors in the Metropolitan Area of the Mexico Valley. It involves the Laboratoire des sciences du climat et de l'environnement (LSCE) of the Institut Pierre-Simon Laplace (IPSL) on the French side, and the Grupo de Espectroscopía y Percepción Remota (EPR), Centro de Ciencias de la Atmósfera (CCA) of the Universidad Nacional Autónoma de México (UNAM) on the Mexican side. Funded by a call for tenders launched by the French National Research Agency (ANR), the project is supported by the Secretariat for the Environment (SEDEMA) in Mexico City. It began in early 2017 and was expected to finish by the end of 2021; yet the pandemic has caused some delays.[d]

- In Paris, the city council has unanimously voted to set up a system for the continuous measurement of CO_2 emissions in the city. To this end, a partnership agreement was signed with the LSCE and Origins.earth, a start-up belonging to Suez, in order to deploy a Météo Carbone®, an Origins.earth service combining data processing, atmospheric measurement of CO_2 concentration, emissions mapping and the publication of monthly indices to monitor the evolution of emissions and measure the gap with low-carbon objectives. Measurements started in July 2020.

Thus, these new methodologies open up prospects for increasing the robustness and credibility of territorial carbon accounting, but are not yet ready to be deployed on a large scale. Local government networks and initiatives are therefore striving to harmonise the different methodologies currently used by their members, in order to gain transparency and be able to aggregate results.

Harmonisation of emission reporting practices to strengthen the frameworks for transparency, monitoring and steering of the territories' action

Faced with the heterogeneity of emission accounting methodologies and perimeters, international networks of local governments have for several years been harmonising the rules and standards of voluntary reporting platforms in order to align practices.

The Global Covenant of Mayors (GCoM), the world's largest climate alliance of cities and local governments, has established a Common Reporting Framework (CRF) to facilitate comparison and aggregation of results to "assess the collective impact of GCoM cities in addressing climate change". This framework defines the rules for monitoring and reporting on

b This information was provided by Fouzi Benkhelifa, city climate action expert and founder of Nexqt.

c All of these points were made during an interview conducted in February 2021 with Michel Ramonet, CNRS researcher at the Laboratoire des sciences du climat et de l'environnement (LSCE) of the Institut Pierre-Simon Laplace (IPSL), coordinator of the MERCI-CO_2 project, and Thomas Lauvaux, CNRS researcher in atmospheric and carbon cycle sciences at LSCE-IPSL.

d Find the full case study in the Global Synthesis on Local Climate Action 2021

the progress of signatories in the three pillars of the initiative: mitigation, adaptation and energy access.

Presented at the Global Climate Action Summit in San Francisco in September 2018, this framework takes up the guidelines followed so far by European cities and developed by the Joint European Research Centre (JRC) and aims to be flexible enough to adapt to the context of each regional convention. It sets out the principles and rules for monitoring and reporting signatories' progress on the main deliverables expected under the initiative: the emissions inventories, mitigation and adaptation target setting, risk and vulnerability assessment, and climate action and energy access plans.

Three levels of reporting requirements are set: mandatory (minimum level required by the initiative), recommended (recommended good practice) and supplementary (voluntary acceptable options). The common framework is intended to be flexible, to take into account local needs and situations such as the use of different methodologies, access to data, limited capacity of smaller governments and geographical locations. It also allows for adaptation to existing national and sub-national frameworks.

In particular, with regard to emissions reporting, the city is required to submit a first GHG inventory within two years of joining the GCoM, and then to update its GHG inventory every two years after submitting its climate plan.

The CRF applies to the two official reporting platforms that feed the GCoM:

- The "**CDP-ICLEI Unified Reporting System**". Since 2019, the merger of the CDP Cities reporting process and ICLEI's carbon*n*® Climate Registry (cCR) has created a single reporting space for cities, especially for GCoM signatories (72% of cities using the unified reporting system). In concrete terms, cities now fill out only one form on the CDP platform, whose data is automatically transferred to the cCR.

- "**My Covenant**". The extranet platform of the European Covenant of Mayors for Climate and Energy gathers data from the cities of CoM Europe, the Mediterranean, Eastern Europe, Central Asia, and Sub-Saharan Africa Convenants. The platform allows signatories to report all the documents required by the European Covenant of Mayors: baseline and monitoring emissions inventory, Sustainable Energy Action Plan, Adaptation Plan.

In 2021, an increasing number of cities contributed to the annual reporting on the CDP platform, from 770 cities in 2020 to 989 in 2021. However, not all these cities are reporting quantitative greenhouse gas emissions data. There has even been a decrease in the number of cities reporting their territorial emissions data from 401 to 371 (-7.5%), including a larger share of cities reporting a decrease in their emissions (198 in 2021 compared to 191 in 2020, i.e. 53.4% of the reporting cities). 56 cities reported their first inventory that year.

In view of the heterogeneity of the responses, it is difficult to clearly identify the reasons behind the decrease in emissions. "Technological change" is the first factor mentioned by more than a quarter (26.2%) of the municipalities reporting a decrease in emissions, followed by "behavioural change" (11.5%) and "policy change" (8.9%). It should be noted that a total of 13.6% (25) of respondents attribute their emissions decrease to a change in accounting methodology or in the quality of data access (CDP 2021 City-wide Emissions, 2021).

As for My Covenant platform, the latest analysis available from the Joint Research Centre shows that cities committed to the CoM 2020 targets of reducing emissions by 20% in 2020 from their baseline have nearly reached their targets (19.5% in average). This includes 40% of EU-27 cities signatories having presented their monitoring emission inventory who reached or overshot the target. However, the average latest monitoring emissions inventory was produced in 2014, which underlines the time gap between reporting practices and policymaking (**infographic**; Rivas, S. et al., 2022).

KEY TAKEAWAYS

Six years after the signing of the Paris Agreement, the emissions inventory and reporting practices of cities and regions are improving. The continued growth of local and sub-national governments' participation in voluntary initiatives such as the Covenant of Mayors and its regional chapters demonstrates a willingness to make a long-term commitment to a collective effort to reduce greenhouse gas emissions. However, the analysis of emissions data reported by local levels still suffers from heterogeneous methods and practices.

Emissions reporting by local and sub-national governments to major international platforms is largely based on voluntary engagement. Although there are a number of rules and methodological principles that underpin these commitments, the voluntary engagement of actors with major international climate initiatives relies on a form of flexibility in reporting rules to accommodate the disparate methodologies and means of cities and regions. Methodological diversities and uncertainties on the quality of inventories, absence of a universal standard and control and voluntary nature of reporting to international initiatives thus make it difficult to obtain an aggregation of emissions results communicated by local and regional authorities. Going beyond the contingencies of accounting and bottom-up reporting would allow to present aggregated results that can account for the effectiveness of government action and reinforce the credibility of these commitments.

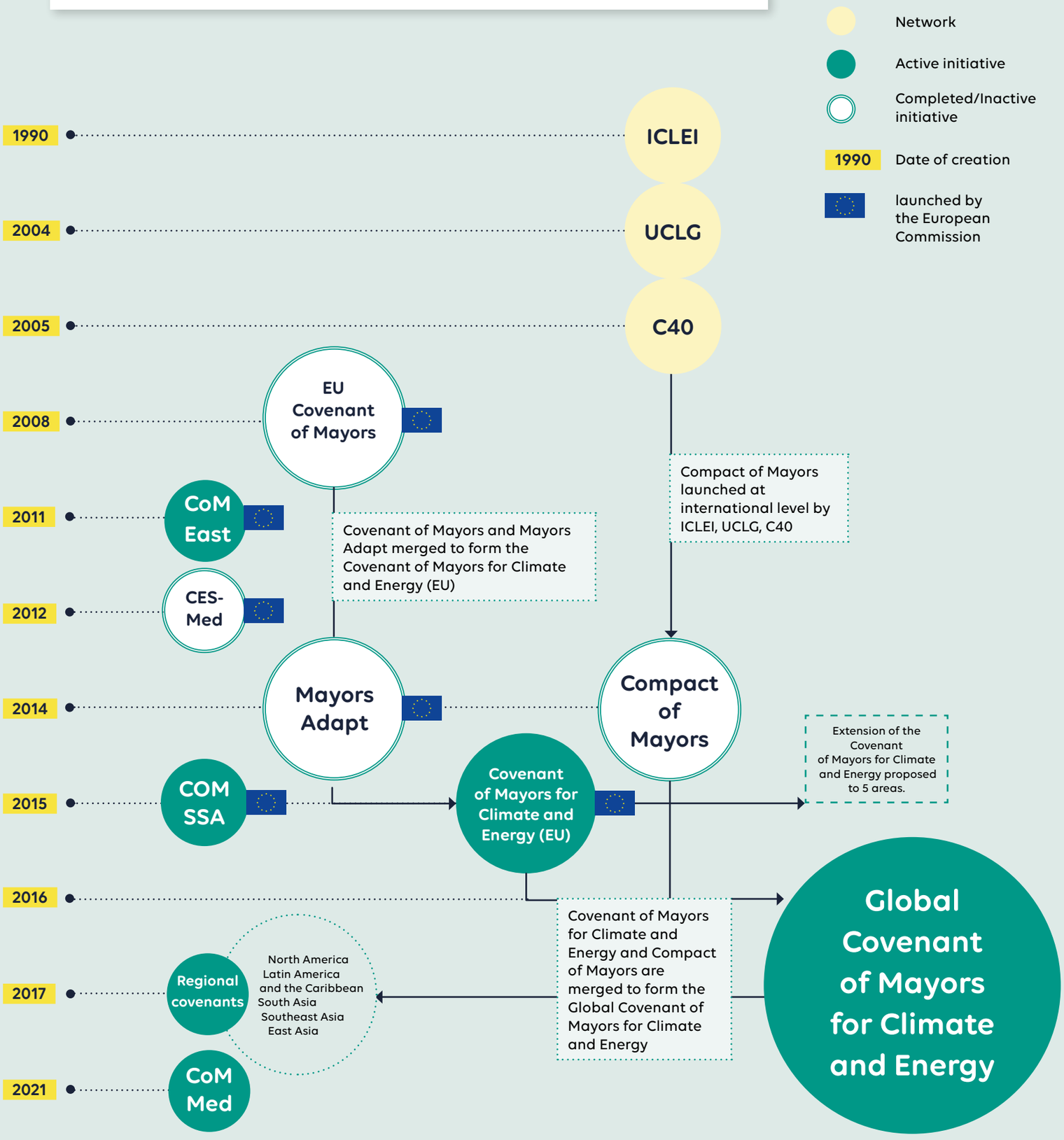
We have identified three pathways opened up in recent years in the research community and in climate cooperation initiatives to strengthen the robustness of the data. First, the "real-time" monitoring of emissions through a more refined use of activity data available in all sectors brings the inventory exercise closer to the time of policymaking. Second, the spatialization of emissions through atmospheric measurement by satellite and ground sensors facilitates the geographical identification of greenhouse gas sources at a precise scale, while also reducing the temporal gap between information and decision. By revealing discrepancies with statistical inventories, atmospheric measurement also helps to identify areas where data collection can be improved. Finally, the harmonisation of emission reporting methodologies and platforms initiated by the GCoM's common reporting framework and the unified CDP-ICLEI reporting system over the past few years is part of this movement to steer players towards homogenised practices, with a view to enabling comparisons, facilitating aggregation, and improving transparency.

PART TWO

THE GOVERNANCE OF NETWORKS AND INTERNATIONAL COOPERATIVE INITIATIVES


EU-NGO Forum
beings are
born free and
qual in digni
nd rights

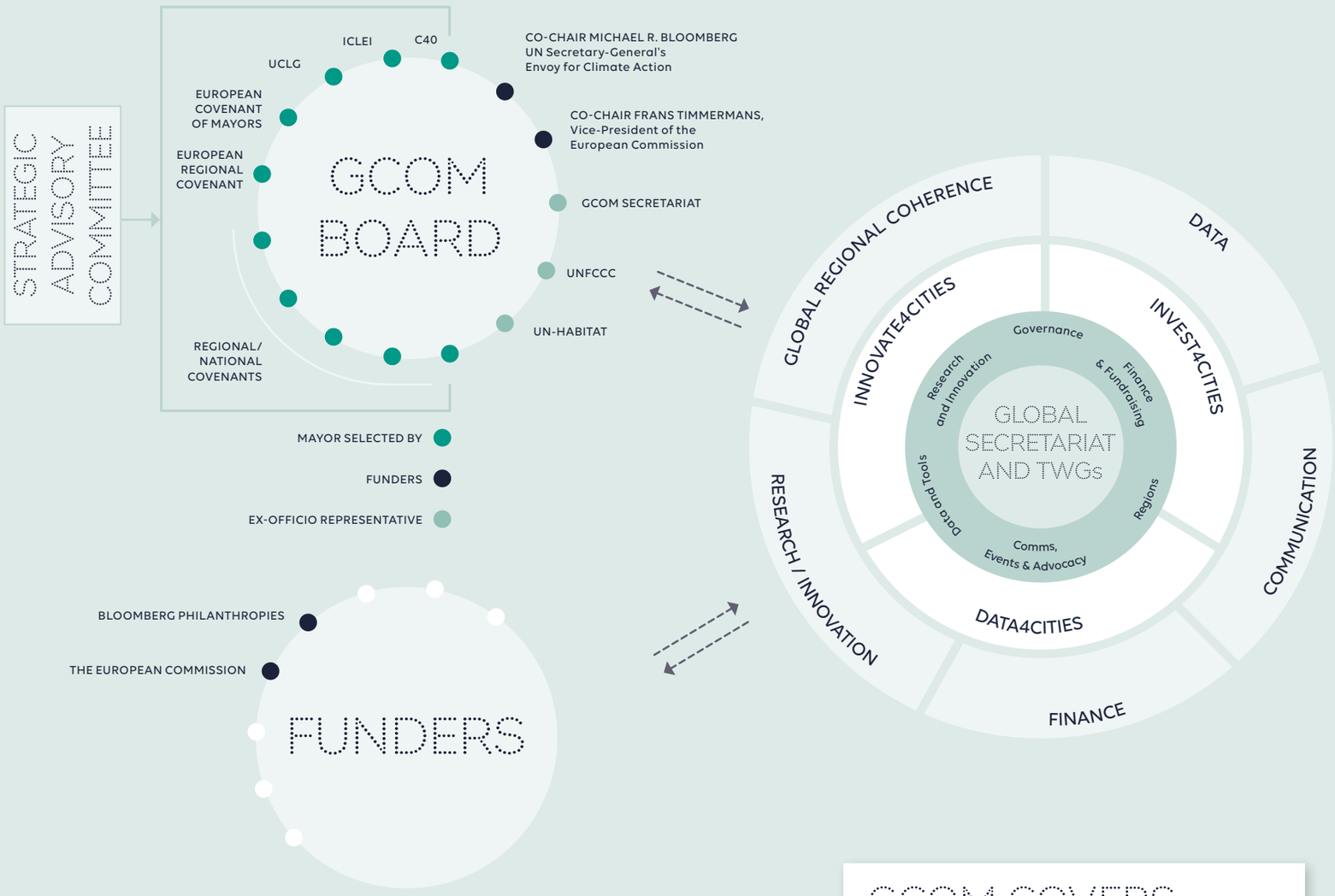
FROM PIONEER NETWORKS TO AN ALL-ENCOMPASSING INITIATIVE: THE STORY OF THE LOCAL GOVERNMENTS' COOPERATION FOR CLIMATE

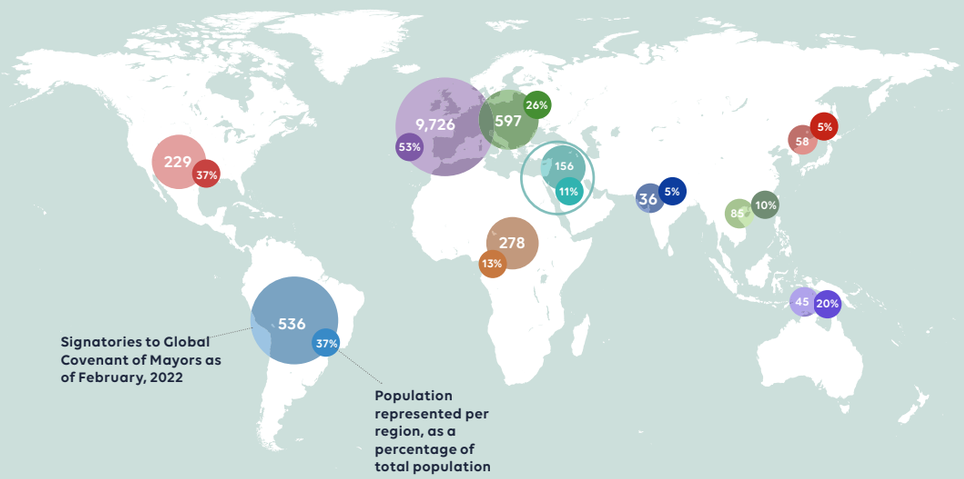


Covenant of Mayors, n.d. & authors' compilation

THE GOVERNANCE AND ADMINISTRATION OF THE GCOM: PLACING MAYORS AT THE CORE WITH THE BACKING OF THE SECRETARIAT AND THE MAJOR FUNDERS

Source: GCoM, n.d.





- SOUTH ASIA
- EAST ASIA
- SOUTHEAST ASIA
- OCEANIA
- MIDDLE EAST & NORTH AFRICA
- SUB-SAHARAN AFRICA
- LATIN AMERICA & CARIBBEANS
- NORTH AMERICA
- EASTERN EUROPE AND CENTRAL ASIA
- EUROPEAN UNION & WESTERN EUROPE

GCOM COVERS NEARLY 13% OF THE WORLD POPULATION, WITH THE STRONGEST PARTICIPATION FROM EUROPE AND THE AMERICAS

SIGNATORIES TO GLOBAL COVENANT OF MAYORS AS OF FEBRUARY, 2022

Source: Signatories and represented population: GCoM, 2022, population projections: INED, 2022.

The International Governance of Networks and Cooperation Initiatives

The global landscape of local actors in climate is marked by a constellation of networks and initiatives, supported by partner organisations and platforms. In complementarity with the infographic, this section will initially look at the different scales at which these networks and initiatives operate, and the increasingly complex links between them. Through the example of the Global Covenant of Mayors for Climate and Energy and its governance, the largest initiative that involves most of the networks at various levels, this section will also provide an idea of how the collaboration of local actors can take on a global form.

Climate Action, Catalyst for Transnational Cooperation Between Local and Regional Governments

Transnational cooperation is an oft resorted to "orchestration" instrument to deal with issues that cut across various policy areas and involve actors across state and non-state, and geographic levels, climate change being a prime example (Hale, Roger, 2014). In addition to their capacity for individual initiatives at the local level, networks of local and regional governments (LRGs) have a central role in the transnational governance of climate change in three ways:

- by supporting learning and exchange processes between local governments and other sub-national organisations
- by bringing together local resources and knowledge to provide complete solutions
- by strengthening the role of cities on international agendas by engaging political and private actors. (Castán Broto, 2017)

Since the 1980s, the expansion of these national, regional, and international networks and cooperative initiatives (ICIs) of LRGs (**ref. Keys to Understanding**) has led to the building of an extended "transnational climate change governance". (Bulkeley et al., 2014) Accordingly, there has been "a surge of transnational partnerships" seeking to address various aspects of climate policy, from information collection, sharing of best practices and experiences, and capacity building and implementation, to common rule and standard setting. (Streck, 2021).

KEYS TO UNDERSTANDING

NETWORKS OR INITIATIVES?

In this analysis, as in the all the report, we distinguish between networks and initiatives of LRGs. **Networks** designate full-fledged, stand-alone organisations with a membership system. Once a member of the network, the city or the region can benefit from its services and take part in the projects. At the transnational level, this is the case of ICLEI, UCLG or Energy Cities, for instance.

International cooperative initiatives refer to spaces for collaboration of local and subnational governments, with a commitment system. The signatories voluntarily commit to align themselves with a set of shared principles and targets. Their progress can be subject to monitoring process and abidance to the rules set out by the initiative. International cooperative initiatives for climate action can have many forms. Some are administered by several networks of local governments, with separate secretariats, as in the case of the Global Covenant of Mayors; some are opened to members of a single organisation, as RegionsAdapt, an initiative from Regions4 (**ref. Part III Regions4**); others are open but administered by a network, as the Under2 Coalition, for which Climate Group is the Secretariat (**ref. Part III Under2 Coalition**).

Besides, there are **hybrid organisations** supporting the various networks and initiatives or working in complementarity with them and directly engaging with LRGs, be it in their administration, in providing research and capacity building, or a common platform for reporting and disclosure – as in the case of CDP (**ref. Part III CDP**).

Urban Policy Networks, a Centuries-Old Practice that has Spread Across the World

Typically, networks of local governments gather member cities or regions to collaborate on shared issues related to urban policies. National associations of local governments, in their crudest form have existed for centuries, taking on more formalised structures in recent decades. The Convention of Scottish Local Authorities (COSLA), for instance, traces its history back 800 years, to the Convention of Royal Burghs. National networks can be understood as arising from the quest of LRGs seeking a more "granular understanding" of policies, tools and financing available to them within their countries. (Ryan, 2021)

International networks arose as a natural reaction to the difficulty of LRGs in representing themselves in the international arena, as coming together in transitional networks give them the "critical mass" they require to acquire international legitimacy, visibility and strength (Fernandez de Losada, 2019). There exist presently over 200 city networks, each with their own myriad links to and between their members, States, international organisations and corporate actors (Acuto & Rayner, 2016).

United Cities and Local Governments (**ref. Part III UCLG**), for example, is the largest such network at the global level, which works to give a platform for local and regional voices. It was created in 2004 from the merger of the International Union of Local Authorities (IULA) and United Towns and Cities (UTO), formed in 1913 and 1957, respectively. There are also regional networks, gathering members from a certain region of the world, to create regional synergies and give a voice to the local authorities of the region. Eurocities, and the Council of European Municipalities and Regions (CEMR), the European section of UCLG, are examples of such networks at the European level. Networks and initiatives of local actors also often have regional or national "chapters" or branches, not to be confused with independent regional and national networks.

Climate- and Environment-Focused Networks Amount to Nearly One Third of Global Networks

The development of domain-specific focuses has been a more recent step in the evolution of networks. Around 29% of the 200 and more networks existing at various levels have an explicit environmental focus, and 12.4% have an energy-related one, while most of them could be classified as "multi-purpose", due to interconnected nature of urban challenges (Acuto and Rayner, 2016). Networks like ICLEI – Local Governments for Sustainability, created in 1990 (ref. Focus ICLEI), or C40, created in 2005, (**ref. Part III C40**) bring together members to act in the domains of environment and climate. At the European level, which marks the highest level of "municipalisation" (Fernandez de Losada, 2019), there exist networks like Energy Cities or Climate Alliance, with specialised areas of action as indicated by the names. (**ref. Part III Energy Cities and Climate Alliance**) In Latin America, the Argentinian Network of Municipalities facing Climate Change (RAMCC) is one of the most proactive national networks specifically dedicated to climate policy, and counts among the coalition partners of the Cities Race to Zero campaign at global level.

As members of national level networks all operate within the same regulatory and policy frameworks, the knowledge exchanges, collective problem-solving and advocacy can take on a more practical and concrete form; and thus national networks have shown to fill in gaps in multi-level climate governance in the countries that they exist. (Ryan, 2021)

The Creation of Joint Initiatives, The Complexification of Interrelations, and the Effectiveness of the Emerging Governance

One or more networks may launch specific initiatives, to which members can be signatory or participate in, with more specific, and often time-bound goals. In the ecosystem of local and regional government networks and their actions, initiatives often bring networks together, to further channelise their actions. The Global Covenant of Mayors for Climate and Energy (GCoM), for instance, was created in 2016 from the merger of the Covenant of Mayors for Climate and Energy in Europe and the Compact of Mayors, which in turn were founded by networks of local actors coming together (**see below**).

The proliferation of LRG networks and cooperative initiatives has been pushed by a need to fill in the gaps in existing intergovernmental cooperation. The multiplication in recent years of networks and initiatives is also a result of the increasing importance of local actors on the global agenda. This reconfiguration of the ecosystem presents both challenges and opportunities – challenges in terms of a diffusion of efforts and a lack of coordination, and opportunities, evidently, in terms of increased spaces for fostering alliances with various actors. (Fernandez de Losada & Abdullah, 2019)

International cooperative initiatives, as an approach, have been gaining traction in the last decade as complementary to internationally negotiated top-down approaches, to meet the goal of reducing global GHG emissions. This implies a need larger integration of these initiatives into the existing international climate governance system. Measuring the effectiveness of ICIs however is rather complicated, and is conditional to their type, functions, membership and other factors in general, and to the existence of quantifiable targets and "additionality"[a] in particular. (Widerberg & Pattberg, 2014)

Supporting and Partner Organisations: Completing the Picture

The final piece of the puzzle are organisations or structures that aren't networks or initiatives per se, but are crucial to the functioning of and coordination between them. This is often through a wide range of activities, from hosting the secretariats and supporting them in their daily functioning,

a Additionality here means that the emissions reduction considered to be resulting from ICIs should not be a double-counting of reductions listed elsewhere.

to scientific or research-based backing, or the provision of a disclosure platform, as already explained. The roles played by these organisations would also add to the legitimacy and institutional fit of networks or initiatives – identified as important factors influencing their contribution to international climate governance and climate change mitigation. (Widerberg & Pattberg, 2014) The CDP for instance, a "not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts", works closely with LRGs networks and ICIs to support their monitoring practices.

The Global Covenant of Mayors for Climate and Energy (GCoM)

GCoM is the largest global alliance of cities committed to climate action. It was created in 2016 from the merger of the European Union's Convenant of Mayors and the Compact of Mayors, which in turn were created from networks coming together at various points in time, as explained in the **infographic**. 13 Regional or National Covenants are members of the Global Covenant of Mayors alliance, depicted in the **infographic** (and **see below**). The aim of regional/national Covenants is to adapt the common principles to local realities (GCoM, n.d.), uniting all the local, regional and national partners. The regional and national covenants mobilise new signatories around locally relevant commitments, facilitate access to specially adapted tools, guidance, capacity-building and technical support, and also communicate and share experiences. The Global Secretariat promotes coherence, identifies synergies, and facilitates the exchange of best practices among Regional and National Covenants stakeholders.

GCoM Governance

The Board, which provides the strategic direction for the initiative, is co-chaired by the two main funders of the initiative: the European Commission, represented by the Executive Vice President for the European Green Deal Frans Timmermans, and UN Secretary-General's Special Envoy for Climate Ambition and Solutions and former New York City Mayor Michael Bloomberg. Ex-Officio Members include UNFCCC Executive Secretary Patricia Espinosa, UN-Habitat Executive Director Maimunah Mohd Sharif. Ten mayors are members of the Board, representative of all the regional covenants, and ensuring that the Covenant is led by mayors. The mayors on the Board serve a term of two years, which is further renewable for two years.

The Board is supported by a Strategic Advisory Committee which helps to ensure collaboration, bolster governance, and provide support for the mayors, as depicted in the **infographic**.

The GCoM Global Secretariat, co-funded by Bloomberg Philanthropies and the European Commission, carries out the day-to-day working of the Covenant, working with Regional and National secretariats. Currently the GCOM Secretariat supports the coordination of city network partners through five "Technical Working Groups" on the following areas: (1) Global and Regional Coherence; (2) Data Management, Monitoring, and Reporting; (3) Finance; (4) Communications; (5) Research and Innovation.

The Regional and National Secretariats

The GCoM has also established Regional/ National Covenants as regional chapters of the global alliance. Some already existed before the creation of the Global Covenant. Being the primary founder network in 2008, the European Covenant accounts for the largest number of GCoM signatory cities. The European Commission, as the main funder of the European Covenant and co-founder of the GCoM, also finances most of the regional and national secretariats of the GCoM.

The Covenant of Mayors for Sub Saharan Africa (CoMSSA), for instance, is co-funded by the European Union (EU) along with the German Federal Ministry of Economic Cooperation and Development (BMZ), and the Agencia Española de Cooperación Internacional para el Desarrollo (AECID) (**ref. Part III CoM SSA**). Its Secretariat and Technical Helpdesk is led by ICLEI Africa with support from United Cities and Local Governments of Africa (UCLG-A) and the Council of European Municipalities and Regions (CEMR), the European chapter of UCLG. It was born in 2015, just one year before the GCoM was established.

Some Covenants have also been created as the result of multi-actor projects. Among the most recent examples is the Covenant of Mayors for the Mediterranean (CoM Med), was launched as part of Clima-Med, an EU-funded project. Initially funded through the European Neighbourhood Policy (2018-2021), then extended up to 2025 by the Cities4Climate Program, Clima Med established the CoM Med to provide technical assistance to support the formulation and implementation of local Sustainable Energy Access and Climate Action Plans (SEACAPs), in line with the GCoM principles (**ref. Part III Clima-Med**).

PART THREE

FOCUS ON NETWORKS AND INTERNATIONAL COOPERATIVE INITIATIVES

Part II gave us a better understanding of what networks and initiatives are, how their governance is organised, and how it evolved recently.

In **Part III**, as every year, the Climate Chance Observatory uses this Global Synthesis Report on Local Climate Action to offer an insight into the progress of initiatives led by local and regional governments (LRGs) through their networks. It provides some facts and figures surrounding the increasing involvement of local communities in the formulation and implementation of climate strategies, and their organisation worldwide. Each of these organisations, at their own scale and with their own methodologies, implements projects and programmes to help their members to reduce the emissions of their territories. This Global Synthesis Report (GSR) is unique in its literature, in that it seeks to offer a general overview, complementing the individual communications from each of these networks, outlining their goals and ambitions and the links that bind them.

This year, the GSR on Local Climate Action is closely linked with the Climate Chance Summit Europe, organised on the 7th and 8th March in Nantes (France). Thus, to feed the debates and discussions of this Summit, **Part III** of this GSR on Local Climate Action focuses mainly on European or EU-linked organisations. Through a participatory process with international and European-scale organisations, we built 14 "Focuses" on key general and climate-oriented networks and initiatives: the Global Covenant of Mayors for Climate and Energy, the European Covenant of Mayors, the Covenant of Mayors in Sub Saharan Africa, Clima-Med, the Under2 Coalition, Regions4, the European Energy Awards, United Cities and Local Governments, ICLEI, C40, Climate Alliance, Energy Cities, Fedarene, CDP.

This work is a collective endeavour, as most of these focuses result from direct contributions from each of these organisations to keep record of their most recent projects and programmes (see box). Each of the Focuses includes:

• A general introduction of the organisation: short description, year of creation, number of members/signatories, news members/signatories added in 2021;

• A description of the main recent programmes and projects led by the organisation to accelerate decarbonisation at the local level and adoption of climate planning tools and policies;

• A case study analysing trends in emissions and the organisation of public climate policies at the local level for a member of the organisation

From these focuses and activities, we can outline three categories of projects through which networks and cooperative initiatives prove supportive to local and regional governments in climate action:

- Capacity building: Programmes like **Twinning programme** & **Expert missions** (CoM-Europe), **Decarb City Pipes 2050** (Energy Cities) or **ENERGee Watch** (Fedarene) or events like Daring Cities (ICLEI) or Climate Alliance International Conference allow peer-to-peer exchange, showcase of exemplary actions and results, as well as trainings for LRGs.

- Access to finance: Funds and facilities like the **C40 City Finance Facility, European City Facility** (Energy Cities), **Transformative Action Programme** (ICLEI), **Gap Fund** (GCoM) or **Future Fund** (Under2Coalition) help LRGs to finance their climate action.

- Elaboration and implementation of climate plans: Programmes helping LRGs to elaborate mitigation and/or adaptation plans and implementing them are at the core of several organisations like Clima-Med, CoM-SSA, RegionsAdapt, Energy Cities (Tomorrow), ICLEI (Urban LEDS II)...

More broadly, these organisations offer to LRGs a voice: they represent them to international levels (UN-level advocacy of UCLG, #RegionsVoice programme of Regions4...), showcase their climate action and organise their emissions reporting through reporting platform the CDP's.

The case studies show that despite a negative impact on their finances, the pandemic has not stopped local and regional governments from pursuing their action on climate. Through greening policies (Athens, Madre de Dios), low-carbon electricity supply (Cadix, Alba Iulia), fight against energy poverty (Rüsselsheim am Main, Cadix, Zagreb), participatory elaboration of climate plans (Bobo-Dioulasso, Kigali, Molina de Segura), integrated adaptation and mitigation climate plans (Athens, Flanders, Cape Town), access to finance (Dannieh) and the support of the networks and initiatives they belong to, LRGs often resort to cross-cutting policies that link mitigation and adaptation, across the sectors of action where they have the most autonomy to act.

*The following **Focuses** result from contributions received from the organisations they describe : the Global Covenant of Mayors for Climate and Energy, the European Covenant of Mayors, the Covenant of Mayors in Sub Saharan Africa, Clima-Med, the Under2 Coalition, Regions4, the European Energy Awards, United Cities and Local Governments, ICLEI, Climate Alliance, Energy Cities, CDP.*

INITIATIVE

GLOBAL COVENANT OF MAYORS FOR CLIMATE AND ENERGY (GCOM)

Year of creation

2016

Total signatories

11,740 cities

representing 1.017 bn people

New signatories added in 2021

162

The Global Covenant of Mayors for Climate & Energy (GCoM) is the largest global alliance for city climate leadership uniting a global coalition of over 11,700 cities and local governments – representing over 1 billion people, from 6 continents and 142 countries, to raise the bar on climate action. GCoM's committed mayors and local officials work together with city network partners and national governments to accelerate ambitious, measurable climate and energy initiatives that will lead to a zero-emission and resilient future.

Created in 2016 from the merger of the EU Covenant of Mayors, and the Compact of Mayors, GCoM brings together thousands of cities around the world to support local climate action through data-based decision-making, critical funding access and innovative solutions.

Solutions to climate change are being implemented in cities, but mayors cannot succeed on their own. GCoM's network of mayors works together with partners, with the aim to deliver global net-zero by mid-century and mobilize finance to build sustainable infrastructure on a massive scale that will help cities adapt and create resilient communities. Based on current targets and actions, it has been assessed that GCoM cities and local governments could collectively reduce global emissions by 1.9 $GtCO_2e$ annually in 2030 compared to a business-as-usual (BAU) trajectory. In 2050, that figure is estimated to be 3.8 $GtCO_2e$ annually, comprising one-quarter of total urban emissions abatement potential.

Recent programmes and projects

GCoM's three main initiatives are Invest4Cities, Data4Cities and Innovate4Cities. Invest4Cities aims to increase the flow of public and private-sector investment in support of urban climate change mitigation and resilience projects, through programmes like the City Climate Gap Fund explained below. The Data4Cities initiative is designed to measure and manage cities' climate action and ambition, ensuring access to data through the Environmental Insights Explorer, and the Cities Open Data Portal, providing a Common Reporting Framework to streamline reporting practices of climate action and emissions inventories (**ref. Part I**). Data4Cities also provides data and insights for effective decision-making, such as through the publications listed below. Finally, under Innovate4Cities are various research and innovation-driven projects helping cities implement their states ambitions, such as the Mission Innovation 'Urban Transitions' Mission (more about this below).

The City Climate Finance Gap Fund

The City Climate Finance Gap Fund (the Gap Fund) has approved technical assistance for 33 cities since its operational launch in September 2020, filling a critical gap in technical assistance funding to help cities in developing and emerging countries realize their climate ambitions, turning low-carbon, climate-resilient ideas into strategies and finance-ready projects. The Gap Fund is currently capitalised at €55 million, with a target of at least €100 million and the potential to unlock an estimated €4 billion in investments.

The Gap Fund has received more than 140 expressions of interests and approved technical assistance for 33 cities in India, Mexico, Ethiopia, Morocco, Democratic Republic of Congo, Panama, Senegal, Vietnam, Kosovo, Montenegro, Ecuador, South Africa, Vanuatu, Colombia, Indonesia, Brazil, Guatemala, Uganda and Ukraine. An additional 30 cities are currently undergoing a detailed assessment for potential Gap Fund support, with a total target of at least 180 cities.

Mission Innovation 'Urban Transitions' Mission

At COP26 in November 2021, GCoM, the European Commission Joint Programming Initiative (JPI) Urban Europe, and Mission Innovation (MI) launched the cities-focused Urban Transitions mission, a joint effort to mobilize and support 50 pilot cities worldwide to implement large-scale clean energy demonstration projects by 2030. Through Urban Transitions, GCoM, the European Commission, JPI Urban Europe and Mission Innovation will co-develop with the 50 pilot cities customized roadmaps for innovation, implementation, and investment to deploy clean energy solutions across all aspects of urban life–housing, transport, energy and materials, production, and consumption–to accelerate a climate-neutral urban energy transition. The roadmaps – which will be reviewed and refined by 250 cities – will consider available and new technologies, investment frameworks, data, finance, and policy innovation, as well as complementary initiatives to achieve both simplification and efficiency gains.

GCoM 2021 Impact Report

GCoM's annual Impact (Aggregation) Report: Further and Faster Together: The 2021 Global Covenant of Mayors Impact sheds light on the collective influence of its signatories at the frontlines of the fight against climate change, and calls for a significant boost in urban climate finance flows to realize the full potential of city climate action. This report shows the sheer emissions reduction potential of cities and local governments, and makes the strong case for countries to accelerate nationwide systems transformation with greater ambition and at a faster pace. Latest analysis from the report indicates that over 75% of GCoM signatories have set more ambitious GHG reduction targets than their respective national governments, and more than 50% are accelerating the rate at which they aim to reduce their emissions. GCoM revealed that its signatories are on track to cumulatively reduce global greenhouse gas (GHG) emissions by 76.5 $GtCO_2e$ by 2050 – equivalent to removing 16 billion cars off the road for one year.

GCoM Multilevel Climate Action Playbook for Local and Regional Governments:

The Multilevel Climate Action Playbook for Local and Regional Governments recommends key elements of an enabling environment that can weave climate ambition and action of local and regional governments into national governments' and the European Union's policy developments to accelerate vertically integrated Nationally Determined Contributions (NDC) implementation and investment plans. This enabling environment can help produce Regional and Local Contributions (RLCs), which are complementary to – and designed for integration with – NDCs. The Playbook is intended to serve as an all-in-one resource for local and regional governments, with guidance for national governments, GCoM alliance partners and practitioners who aim to support multilevel collaboration.

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
BELGIUM	FLANDERS	6,600,000 (2019)	43.8 $MTCO_2e$ (2018)	GHG EMISSION: -45% BY 2030 (BASELINE YEAR: 2005)

A local energy and climate pact in Flanders of inspiration for all Europe

In the Belgian region of Flanders, Minister Bart Somers launched a Local Energy and Climate Pact (LEKP), which refers to the European Climate Pact, an initiative from the European Commission to invite "*people, communities and organisations to participate in climate action and build a greener Europe*". Focusing on four areas (greening, participatory energy, sustainable mobility and rainwater), the LEKP sets concrete objectives for its signatories (nearly 300 local governments) to tackle the global climate challenge at the local level.

Established in 2019 by the Flanders Regional Government and having entered force in 2020, the Flemish Climate Pact encompasses nearly 300 municipalities and revolves around four key pillars:

- Nature-based solutions, with a focus on urban greening
- Mitigation policies, with a focus on energy efficiency and RES
- Mobility and development of shared, active, and sustainable solutions
- Water management, including re-use and up-use

For example, the LEKP is aiming for one tree per inhabitant, 50 collective renovations per 1,000 housing units, one charging point per 100 inhabitants and one square metre of softening per inhabitant (**figure**).

These four pillars chart a pathway for Flanders – as a region and through each of its municipalities – to align with the 55% emissions reduction requirement set by the European Union and the Covenant of Mayors in Europe, as well as a 1.5°C trajectory.

An inclusive approach

The Flemish Climate Pact holds a stakeholders' climate dialogue every two years inclusive of cities, local governments, and citizens' organizations to co-design climate objectives and actions – facilitating broad inclusivity at a grassroots level. Dialogue is also backed by deeds: as part of the mitigation pillar, local governments have signed up to the Covenant of Mayors – Europe commitments for 2030 as the basis for climate and energy action.

From here, the Flemish Regional Government engages biannually with the Belgian National Government to assess, evaluate, and integrate local and regional plans. The Flemish Climate Pact now aims to leverage MyCovenant, one of the official GCoM reporting platforms, to help feed locally reported climate data into biannual progress reports that can inform national policy and NDC development (GCoM, 2021).

An approach that is part of the European Climate Pact

The LEKP is part of the European Climate Pact, the EU Commission initiative to involve citizens and local actors in the Green Deal, through which they can register their climate commitments. Throughout 2021, more than 24,000 people made pledges to reduce their impact on the planet. Beyond these individual commitments, some 148 companies, 28 cities and two regions in Europe have joined the European Climate Pact, totalling more than 1,600 organisational pledges.

The Executive Vice President of the European Commission, Frans Timmermans, invited Flemish Minister Bart Somers to become an EU Climate Pact Ambassador, in order to disseminate the LEKP throughout the rest of Europe as a source of inspiration for other regional governments and local authorities.

THE LOCAL ENERGY AND CLIMATE PACT (LEKP) FOUR PILLARS

Source: Flemish government

PILLAR 1
LET'S PLANT A TREE

- one tree per inhabitant
- half a metre of additional hedge or facade planting per inhabitant
- one additional natural green space per 1000 inhabitants

PILLAR 2
ENRICH YOUR DISTRICT

- 50 collective renovations per 1,000 housing units
- 1 cooperative/participatory renewable energy project per 500 inhabitant, totalling 216 MW of installed capacities

PILLAR 3
EVERY NEIGHBOURHOOD SUSTAINABLY ACCESSIBLE

- 1 access point for a carbon free transport per 1000 inhabitants
- 1 charging point per 100 inhabitants
- 1m of extra cycle lane per inhabitant

PILLAR 4
WATER THE NEW GOLD

- 1 m^2 softening per inhabitant
- 1 m^3 of additional rainwater collection or infiltration capacity per inhabitant

INITIATIVE

COVENANT OF MAYORS FOR CLIMATE AND ENERGY - EUROPE

Year of creation

2008

Total signatories

10,864 cities

representing
337,291,444 inhabitants
in 30 countries

New signatories in 2021

151

The Covenant of Mayors is the world's largest movement for local climate and energy actions. The Covenant in Europe was launched in 2008 by the European Commission, in cooperation with the main European networks representing local and regional governments and their national associations (CEMR, Energy Cities, FEDARENE, EUROCITIES, Climate Alliance, ICLEI Europe).

The Covenant of Mayors Europe Office, funded by the European Commission, supports the signatories in their endeavours notably through capacity-building activities, a technical helpdesk, information sharing on financing opportunities, dissemination and communication. Signatories pledge to support the implementation of the EU greenhouse gas-reduction targets: initially 20% in 2020, then 40% by 2030 and now 55% by 2030. Over 160 of them are even committed to climate neutrality by 2050. To translate their political commitment into practical measures and projects, Covenant signatories commit to submitting, within two years following the date of the local council decision, a Sustainable Energy and Climate Action Plan (SECAP) outlining the key actions they plan to undertake. The plan will feature a Baseline Emission Inventory to track mitigation actions and a Climate Risks and Vulnerability Assessment. The adaptation strategy can either be part of the SECAP or developed and mainstreamed in a separate planning document.

Main recent programmes and projects

Covenant's reporting trends

To date, 7,611 signatories of the 10,821 submitted a Sustainable Energy Action Plan (70.34%), of which 4,982 have been accepted. 2,543 signatories (23.5%) have monitored their results, as requested two years after the submission of the SEAP. According to the latest assessment from the Joint Research Centre (JRC) over a sample of 1,643 municipalities within the EU-27 with at least one monitoring emissions inventory (MEI) following their accepted baseline emission inventory (BEI) and SEAP, 40% of signatories have reached their 2020 target or overshot it, amounting to an average 19.5% reduction in emissions between their baseline and their monitoring.

Peer-learning programme

The Covenant of Mayors twinning programme has the goal of increasing local authorities' capacity to mitigate and adapt to climate change while creating long-term partnerships between European, local and other subnational authorities. As a recent example, in December 2021, the cities of Brasov, Bucharest (Romania) and Dresden (Germany) have started exchanging experience on air quality, sustainable mobility, and energy. Brasov explained how they incentivise behavioural change through gamification to promote low-carbon lifestyles, implement smart transport management. They also introduced the transition team they set up in 2020 to redesign public services around the needs of citizens and involve them to reach the city's 2030 targets.

Expert Missions

The CoM Expert Missions bring together advanced cities working towards climate neutrality to exchange ideas, build capacity, and develop lasting relationships. Conceived as a mentor-mentee programme, the Expert Missions facilitate an open exchange of ideas between participating cities. As part of this process, the cities of Sunderland (UK), Vitoria-Gasteiz (Spain) and Parma (Italy) met over four days from Monday 18 October to Thursday 21 October 2021. Sunderland introduced the 2030 Shadow Board, which brings together universities, hospitals, business groups, youth representatives, the Voluntary Community Sector, and charities which recently adopted a Low Carbon Framework setting a strategic pathway to make the city carbon neutral in 2040. Vitoria-Gasteiz showcased its Citizen Participatory System to connect social issues and climate action, while Parma unfolded its ambition to build a Climate Neutrality Alliance, replicating the Covenant of Mayors framework to create a city-wide systemic approach to decarbonisation.

Adapting to climate change in European cities: Towards smarter, swifter & more systemic action (publication)

The new EU Strategy and this historical juncture – presenting an opportunity to 'build back better' – make this a timely moment to consider where local and regional governments should best direct their efforts for a more resilient future. In this context, this publication is designed for decision-makers and technical staff working on climate change adaptation and resilience in local and regional governments.

Divided into 4 main chapters - The EU policy landscape (1), Smarter adaptation: improving knowledge and managing uncertainty (2), More systemic adaptation: support policy development at all levels and sectors (3), Faster adaptation: Speeding up adaptation across the board 5.1 Mission on "Adaptation to Climate Change (4), this publication complements existing resources, methodologies and case studies published by the Covenant of Mayors - Europe Office to support local and regional governments implementing climate adaptation in Europe.

Covenant of Mayors for Climate & Energy EUROPE

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION OBJECTIVE
CROATIA	ZAGREB	806,341	2,930,000 TCO_2 (BUILDING, TRAFFIC, AND PUBLIC LIGHTING SECTORS, 2015)	-40% BY 2030

The City of Zagreb fights energy poverty through a University teaching programme

In 2018, the City of Zagreb set up a multi-stakeholder partnership to fight energy poverty in an integrated manner: delivering positive social outcomes while reducing energy consumption and contributing to the city's greenhouse gas reduction target of 40% by 2030. To do so, it partnered with the Faculty of Electrical Engineering and Computing at the University of Zagreb, and with the Croatian civil society organisation DOOR (Society for Sustainable Development Design), to initiate the 'Fair (FER) solutions for a better community' project. The project involved DOOR training students to carry out simple energy audits and implement low-cost energy improvements in energy-poor households in Zagreb. With a total amount of kn1,167,759.73 (around €156,000), the project was funded through the European Social Fund and Croatian state budget via the Government Office for NGOs.

As per the Baseline Emissions Inventory carried out in 2008, and the Monitoring Inventory of 2015, the building sector accounted for more than 66% of the energy consumed in the city, and accordingly was among the largest contributors to emissions, followed by the transport sector. In this context, the building sector is a key area of focus of the city's climate action plan.

Engaging students to tackle energy poverty

The project focused on engaging students to help vulnerable households reduce energy consumption, while developing their skills as part of a university programme. The project had multiple objectives: mapping energy-poor households in Zagreb, implementing low-cost energy-efficiency measures, and providing advice on how to reduce energy use. During an initial mapping and training phase, a group comprising fifteen students, researchers and university teachers was trained by experts to carry out social field research and energy audits, as the topic of energy poverty was not part of the engineering curriculum at the time the project started. The city council identified vulnerable households to target and solicited statements of interest from them for participation in the project. Students conducted field visits to carry out simple, low-cost energy efficiency interventions and gather data through surveys.

In the timeframe of two years, 102 household visits resulted in improved living conditions via simple low-cost energy-efficiency measures such as energy-efficient LED bulbs, draught-proofing of windows and doors, water-saving aerators, timers for electric boilers, etc. that were installed by students at no cost. Using standard calculations, these measures can save households around 200 $kgCO_2$/year, and more than 1200 kWh/year in electricity and heat. The students also advised households on the most cost-efficient and energy-saving measures, based on a model for wall-retrofitting investments developed as part of the programme. The model showed wall-retrofitting investments with external thermal insulation to be cost-effective for 40.3% to 58.1% of households (depending on heating systems and wall materials) with a payback period of under 10 years, and with other ancillary benefits such as improved human health due to better living conditions.

The social benefits of energy efficient housing

These social benefits were complemented by insights from the household survey that allowed researchers to get a picture of energy poverty in Zagreb. The data analysis revealed that most of the households visited live in buildings without any thermal insulation, a significant percentage of which are heated with electricity. This confirmed that a significant percentage of citizens live in low-energy-efficient dwellings, with reduced heating during winter and with draught and mould problems. In terms of demographics, the energy-poor households visited consisted mainly of elderly people, people with disabilities, and users of various social services. With regard to their occupation status, the two most-represented groups were retirees and the unemployed. Another key finding confirmed that the main conditions for energy poverty were present in most households: low household income, high energy prices and inefficient dwellings.

On top of providing increased visibility for this topic, the project has provided educational benefits for current and future students, integrating energy poverty into the university curriculum. Teaching students to carry out simple energy audits and implement field research methods, and improving the transfer of knowledge and skills by university staff will help engineering students become change agents for a fair energy transition.

INITIATIVE

COVENANT OF MAYORS IN SUB-SAHARAN AFRICA (COM SSA)

Year of creation

2015

Total signatories

274

New signatories in 2021

33

The Covenant of Mayors in Sub-Saharan Africa (CoM SSA) is a catalyst for local climate action in the region, with political commitment from over 280 local governments. The purpose of CoM SSA is to support local governments in moving from planning to implementation, with a focus on unlocking climate finance at the local level.

CoM SSA is the regional chapter of the Global Covenant of Mayors for Climate and Energy (**ref. Focus GCoM**).

CoM SSA is co-funded by the European Union (EU), the German Federal Ministry of Economic Cooperation and Development (BMZ), and the Agencia Española de Cooperación Internacional para el Desarrollo (AECID). The CoM SSA initiative supports the external dimension of the European Green Deal, as the global challenges of climate change and environmental degradation require a global response. At the same time CoM SSA moves to strengthen the Africa-EU partnership and supports Agenda 2063 of the African Union Commission.

Covenant of Mayors
in Sub-Saharan Africa

Main recent programmes and projects

The CoM SSA initiative encourages local authorities and invites them to make a voluntary political commitment to implement climate and energy actions in their communities. For this, cities involved in the initiatives commit to produce and implement a Sustainable Energy Access and Climate Action Plan (SEACAP), which is based on a long-term vision to tackle three pillars: climate adaptation, climate mitigation, and access to clean, affordable, and sustainable energy.

Developing SEACAPs:

In 2021, several cities completed and finalised their SEACAP, identifying actions to be implemented in order to address the climate and energy challenges at the local level, and several others are in the process of finalising and validating their SEACAP. The city of Dakar (Senegal) finalised and validated its climate action plan, while the cities of Fokoué (Cameroon) and Bobo-Dioulasso (Burkina Faso) finalised their SEACAP.

The process of developing and finalising a SEACAP is inclusive as it involves numerous actors at the local, regional, national, and even international levels. For example, the Bobo-Dioulasso SEACAP was developed with the support of the GIZ and ICLEI Africa as partners, and saw the involvement of local stakeholders, including associations bringing the voices of youth and women, the regional and provincial authorities, and the private sector. For example, participatory workshops were organised to elaborate the Risk and Vulnerability Assessment (RVA) that led to the adaptation actions (ref. case study).

The SEACAPs represent the contribution of the local governments in Africa to their countries' Nationally Determined Contributions (NDCs) as they cover the same sectors for mitigation - namely, transport, energy and waste, and two optional sectors - which are industrial processes and product use (IPPU) and Agriculture, Forestry and Other Land Use (AFOLU). For climate adaptation, the sectors covered are diverse and consist of those deemed as vulnerable and at risk from the impact of climate change and climate hazards by the cities. It can range from the agriculture sector to health or housing. For the Access to Energy sector, two sectors are considered: access to electricity and clean cooking.

The SEACAP provides a city with a list of actions, including infrastructure projects, sensitisation campaigns or climate and energy legislative measures, identified through its development process and to be implemented at the local level in support of their climate mitigation and adaptation efforts. The city of Dakar will, for example, install solar public lighting in the framework of its SEACAP, to replace parts of its current street lights, thus reducing its energy consumption and using clean electricity.

Peer-to-peer exchanges:

Another strength of the CoM SSA network for African local governments is how it takes advantage of the possibility to engage in peer-to-peer exchanges and learn from the experiences of fellow African local governments in their climate and energy journey. For example, a climate action and decentralisation forum was organised in December 2021 in Yaoundé (Cameroon), where the city of Fokoué shared the lessons learnt from the process of its SEACAP development with other cities in Cameroon.

Development of a Proxy Data Tool

A Proxy Data Tool was developed for ICLEI-Africa, as part of CoM SSA. It is built on the City Inventory and Reporting System (CIRIS) Tool, developed by C40, ICLEI and the World Resource Institute (WRI), as an easy-to-use Excel spreadsheet designed to assist regions in reporting their emissions. The Proxy Data Tool allows users to quickly and easily generate an approximation of a subnational region's Greenhouse Gas emissions. It has already been used in Bobo-Dioulasso (**ref. case study**) and Nakuru County (Kenya).

Covenant of Mayors in Sub-Saharan Africa

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	TARGET
BURKINA FASO	BOBO -DIOULASSO	950,000	548,064 $KTCO_2E$ (2018)	STATIONARY ENERGY: -17.36%; TRANSPORT: -0.63%; WASTE: -4.45%; BY 2030 (COMPARED TO BAU)

Bobo-Dioulasso, development of a SEACAP after signing up to CoM SSA

The city of Bobo-Dioulasso (Burkina Faso) became a signatory of the Covenant of Mayors Sub-Saharan Africa (CoM SSA) in November 2019. With the support of the GIZ and ICLEI Africa, the city finalised and validated its SEACAP at the end of 2021, setting its strategies, plans, and actions for a sustainable and low greenhouse gas (GHG) emission development pathway, while including climate adaptation actions and ensuring access to secure, affordable and sustainable energy, in response to the current and future impacts of climate change in the region.

Mitigation action drawn from a BEI

For the development of its SEACAP, the city of Bobo-Dioulasso conducted a Baseline Emissions Inventory (BEI). The BEI was done using the Proxy Data Tool. The Bobo-Dioulasso BEI was developed based on the methodology laid out in the Global Protocol for Community-scale Greenhouse Gas Emission Inventories (GPC).

The results of the BEI indicate that the total city-wide GHG emissions for Bobo-Dioulasso in 2018 were estimated at 548,064 kilotonnes of carbon dioxide equivalent ($ktCO_2e$). Stationary energy is the key emissions sector and the contributions from stationary energy (228.347 $ktCO_2e$ in 2018), transport (183.179 $ktCO_2e$ in 2018) and waste (136.538 $ktCO_2e$ in 2018) account for 42%, 33% and 25% of the city's emissions respectively.

To address mitigation, the city identified a target equivalent to a reduction of 161.12 $ktCO_2e$ off the BAU scenario by 2030. To achieve this mitigation vision, the city commits to emissions reductions in the stationary energy, waste and transport sectors and formulated a total of 15 emissions reduction actions, covering the stationary energy, transport and waste sectors. Some actions include to expand the existing traffic light network in Bobo-Dioulasso by installing 50 new solar-powered traffic lights and upgrading public transport infrastructure to increase public transport attractiveness in the local population, but also restructuring seven existing household waste collection centres into urban waste sorting centres in Bobo-Dioulasso, including the reorganisation of the collection area to include sorting and recovery.

Adaptation actions drawn from an RVA

The city also developed a Risk and Vulnerability Assessment (RVA) based on data from participatory workshops, interviews, and an extensive literature review. Here, 13 climate hazards were found to be currently affecting Bobo-Dioulasso with impacts on the population including water stress, decreasing agricultural and livestock productivity, an increase in water-borne diseases, infrastructure destruction (e.g. roads and buildings), loss of biodiversity, and soil erosion.

The city identified six sectors as being the most affected by current and future climate risks, and therefore considered as priorities to enable the city to be less vulnerable to the effects of climate change. It set objectives for each of these six sectors to be acheived by 2030:

1. Society, community and culture: Through the media and advertising, raise awareness amongst at least 50% of the population on the value of the environment, climate hazards, their impacts and what can be done to address these impacts.
2. Environment and biodiversity: Rehabilitate and develop 50 ha of green corridors and spaces that have been degraded; and rehabilitate and protect at least 5 km of the Marigot Houet banks.
3. Water supply and sanitation: By 2030, Rehabilitate and develop at least 55,000 linear metres of rainwater drainage infrastructure.
4. Agriculture, forestry and livestock: Ensure that sustainable land and pasture management practices are being implemented on at least 10% of productive land.
5. Transport: Ensure that at least 20% of roads are protected from floods and erosion.
6. Energy: 20% of communal buildings must be made energy efficient by using thermal insulation techniques.

Along with these, 15 adaptation actions (based on existing local and national strategies and plans) to reach the adaptation sectoral targets set for the city were formulated and will be implemented by 2030. Of these, 9 adaptation actions have been identified as priorities and urgent to implement within the framework of the SEACAP. For the target of the Environment and Biodiversity sector, the actions formulated will aim at rehabilitating several green corridors within the city and several green spaces within pre-identified peripheral districts of Bobo-Dioulasso.

Clima–Med
Acting for Climate in South Mediterranean

Funded by the European Union

INITIATIVE

CLIMA-MED ACTING FOR CLIMATE IN SOUTH MEDITERRANEAN

Year of creation

2018

Total signatories

125 signatories, representing
24.3 million inhabitants

New signatories in 2021

17

Clima-Med, Acting for Climate in South Mediterranean is an EU-funded project launched in 2018 to enhance energy security and strengthen the adaptive capacity of partner countries and support their transition towards sustainable, low-carbon and climate-resilient development. This regional project engages directly with central and local governmental authorities as well as non-state actors in European Neighbourhood Instrument (ENI) south countries: Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, and Tunisia.

The 48-month project (2018-May 2022) focuses on supporting sustainable energy policies and strategies both at national and local levels, providing technical assistance to support the formulation and implementation of local Sustainable Energy Access and Climate Action Plans (SEACAPs), in line with the GCoM principles and leading to the implementation of concrete actions by local authorities in the Southern Neighborhood.

Clima-Med has de facto established and launched the Covenant of Mayors for the Mediterranean (CoM Med) and its brand-new website in English, French and Arabic. The CoM Med has been extended to the Gulf Cooperation Countries (Bahrain, Oman, Kingdom of Saudi Arabia, Kuwait, Qatar, United Arab Emirates), as well as Iraq, Iran, and Yemen, accounting for 19 countries in total four signatories from these countries.

Clima–Med
Acting for Climate in South Mediterranean

Funded by the European Union

Main recent programmes and projects

The project has assisted Southern Neighbourhood partners improving their climate change governance and the mainstreaming of climate action in national and sectoral policies. This also included support for the implementation and regular update of countries' Nationally Determined Contributions (NDCs), for the development of adaptation and mitigation plans (integrated to long-term Low Emission Development Strategies) and for enhancing countries' capacities in the field of Measurement, Reporting and Verification (MRV); all in close collaboration with relevant government bodies and in consultation with regional, national, and subnational stakeholders.

Clima-Med also supports countries to increase access to climate finance thereby enabling increased investments for climate action at national and local level.

Clima-Med is a project labelled by the Union for the Mediterranean (UfM).

The SEACAPs

As part of their progress, all Clima-Med beneficiary cities in the south Mediterranean are preparing their Sustainable Energy Access and Climate Action Plans. Clima-Med experts have offered full support to affiliated municipalities and their teams to develop their Plans through training workshops and coaching, using tailored material prepared by the project (syllabi, templates to fill, teaching videos, visual aids, and presentations). In total, 69 SEACAPs for 92 cities (including two Unions of Municipalities, thus twenty cities for the first Union and eight cities for the second) have been developed.

The Climate Action Strategies (CAS)

Clima MED has worked with the National Coordination Groups (NCGs) to develop a Climate Action Strategy for each country. Eight CASs are being prepared in total. The CASs promote advanced recommendations to mainstreaming climate actions. Each of them includes nationally agreed actions to take and recommendations to follow on NDCs, NAPs and MRVs implementation. Jordan, Tunisia, Israel, and Palestine CASs are already finalized and available on the Clima-Med website..

Publications

The preparation of the "Climate Finance Guidebook per Country" (CFG) has started and will be addressing recommendations for NDCs investment strategies. The content will include: "An Assessment of Climate Finance State of Play", followed by "Climate Finance recommendations for Donors and International Financing Institutions (IFI)s, National Authorities, and Local Authorities", The Guidebooks propose steps to improve national finance for cities ; Establishing operational SEACAP Support Mechanisms (SSMs); Consolidating the budgeting of climate actions; Developing Energy Service Companies (ESCOs); Strengthening third-party finance; and Setting new business models for local projects.

The Covenant of Mayors for the Mediterranean, CoM Med

CoM Med is open to all local authorities in the South Mediterranean region where a growing number of cities sharing a long-term vision to combat climate change wish to drive the change and actively advance climate solutions. More than 120 Mayors from eight South Mediterranean countries have already made the political commitment to join the CoM Med initiative, and 92 municipalities are currently in the process of finalising their Sustainable Energy Access and Climate Action Plans (SEACAPs).

Currently, there is a waiting list of 389 additional local authorities that have requested: Helpdesk support to prepare their SEACAPs. Clima-Med is working on establishing a SEACAP Support Mechanism (SSM), a national system to support the preparation and implementation of SEACAPs in each country. In parallel, the initiative is aiming to provide a Helpdesk through the CoM Med, to provide practical support and resources to cities interested in joining the initiative. Clima-Med operates the CoM Med office functions from Beirut and Rabat.

The Climate 4 Cities (C4C) programme in the Southern Neighbourhood

Clima-Med has now been extended to 2025, in part to support beneficiaries of the Climate for Cities (C4C) programme, launched by the European Commission, which aims to further contribute to a transition towards greener and climate-resilient cities in the Southern Neighbourhood, in line with countries' commitments under the Paris Agreement, and making optimum use of climate finance instruments.

The EU has selected six projects for funding under the C4C Programme, following a competitive selection and award process. These projects will be implemented in the following countries of the Southern Neighbourhood region: Jordan, Israel, Lebanon, Palestine, and Tunisia. They support the implementation of cities' Sustainable Energy Access and Climate Action Plans (SEACAPs). The project partners will benefit from technical assistance from the Clima-Med project, throughout the projects' implementation.

Clima–Med
Acting for Climate in South Mediterranean

Funded by the European Union

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
LEBANON	DANNIEH	150,000 (2018)	23.2 $MTCO_2e$ (NATIONAL EMISSIONS, 2016)	-15% BY 2030 FROM BAU (NATIONAL OBJECTIVE)

In Dannieh, the SEACAP works as a climate finance tool

The Dannieh agglomeration falls within the boundaries of the Minieh-Dannieh district (qaza) of north Lebanon. Composed of 20 villages and towns, the Union of Dannieh has developed its SEACAP with the support of the Clima-Med initiative. Along with six other municipalities in Lebanon, it has been chosen for the implementation of municipal pilot and demonstration projects, under the EU-funded UNDP Country Entrepreneurship for Distributed Renewables Opportunities (CEDRO 5) project. The actions selected from the SEACAPs include long-term energy production and consumption measures and patterns, and cover municipal, residential, and commercial buildings, urban transport, waste, local green electricity production as well as adaptation actions related to the impacts of climate change.

Dannieh: An example of cooperation between EU Clima-Med and CEDRO V projects in Lebanon

Despite the richness in natural resources, the Dannieh region faces economic stagnation and has a struggling agriculture sector. The region faces enormous challenges regarding the sustainable development of economical and infrastructure sectors, including sewage collection and treatment, the solid waste management, the urban planning and the development of the agriculture and tourism sectors.

The Union of local authorities in the region came together to work on their SEACAP, with the support of Clima-Med. It was then chosen for the CEDRO 5 project, for actions to be implemented. During the implementation, both projects' teams have worked closely together alongside municipalities, starting by selecting the first five actions into developing their necessary technical and financial feasibility studies, first of which are actions to reshape and rehabilitate municipal buildings with regards to their energy efficiency. More specifically, the projects will install small-scale photovoltaic power plants in public facilities.

The projects are also providing training to municipality technicians on energy efficiency and financial management in project implementation.

Funding the implementation of actions

Some of these actions will be directly funded by the EU through the UNDP CEDRO 5, while others will be funded through a Crowdfunding Platform/Mechanism, as "pilot initiatives that can be replicated and scaled". To facilitate the replication, funding guidelines will be available to explain the finance models applied in these municipal projects. They will be in line with the recommendations of the Climate Finance Strategy document, which is being prepared by Clima-Med for each affiliated country.

Based on the agreement made between Clima-Med and UNDP CEDRO-V project 377,850 USD (in addition to 10,000 USD collected through crowdfunding) were allocated to finance small-scale SEACAP projects to install photovoltaics systems on public municipal buildings. Fourteen projects were implemented, with a total cost of 138,624.57 USD. The remaining 239,277 USD have been allocated to implement in the coming months 10 additional projects and to purchase more equipment for 8 of the implemented ones.

SEACAPs as Climate Finance Tools

So far, many local authorities have succeeded to overcome their limited capacities and managed to implement many (in some cases most) of the projects proposed in their SEACAPs without relying on international funds. The reliance on national and local funds to finance projects included in CES-MED's 28 SEAPs, and others proposed in Clima-Med's SEACAPs (even before completion of the documents), has proven that the SEACAP is an applicable national and local climate finance tool and that funding the plans' climate actions are not conditioned by external sub-national funding – as highlighted by Dannieh and the other Lebanese municipalities.

UNDER2 COALITION

Year of creation

2015

Total members

260 members

New members added in 2021

14

The Under2 Coalition is the largest global network of states and regions committed to reducing emissions in line with the Paris Agreement. With 260 members representing 50% of the world's economy it has been named one of the international partnerships with the highest potential for emissions reduction – 3.3-3.9 $GtCO_2e$/year in 2030 – more than the current annual emissions of the EU (NewClimate Institute et al., 2021).

State and regional governments are vital to the international climate process. Not only do they have unique powers to develop and implement climate laws – with effects on air quality, transport, energy and buildings – but they are able to influence governments globally and push them to be more ambitious.

Main recent programmes and projects

In 2021 the Under2 Coalition revised its Memorandum of Understanding to reflect a new push for net zero emissions targets – and consistent reporting on those targets – across its entire membership. The aim is to become a net zero coalition by 2050. This ambition is being progressed and amplified through a series of projects and programmes being run through the Under2 Coalition's main workstreams, policy action, pathways and transparency:

Net Zero Futures

Spearheaded by the Scottish Government and Bloomberg Philanthropies, NZF was launched in 2021 with the intention of matching governments with net zero targets with those who had yet to develop them. More than 80 state and regional governments from around the world have now taken part in peer learning and knowledge sharing opportunities through the project, allowing them to make connections, learn from experts and better understand what it takes to set a credible net zero emissions target. 38 Under2 Coalition members now have net zero carbon or all-GHG emission targets and more are joining the UN's Race to Zero campaign.

The Climate Pathway Project

The Climate Pathway Project was implemented from May 2019 to October 2021, to support six state and regional government members of the Under2 Coalition to develop long-term «decarbonization pathways». These pathways include tailored mitigation actions selected by the governments to reduce emissions from a range of economic sectors, including AFOLU, while supporting continued socioeconomic growth.

The project aimed to 1) provide a tailored package of technical assistance and training to enable participating states and regions to develop ambitious long-term emissions reduction plans and their social and economic implications; 2) disseminate lessons learned from this project to other states and regions in the Under2 Coalition and Governors' Climate & Forests Task Force and 3) align regional pathways with national ambition to promote integrated climate action.

After two and a half years of work, each of the six participating governments from Brazil, Mexico and Peru successfully developed a pathway towards decarbonization.

The project was funded by Norway's International Climate and Forest Initiative and was led by Climate Group, in partnership with:

- The Governors' Climate & Forests Task Force (GCFTF), a network of 38 subnational governments acting as the primary land-use and forestry knowledge partner on this project
- Winrock International, a non-profit organisation acting as the lead technical partner
- The Center for Climate Strategies, the decarbonization pathway technical implementer of the project

The Alliance for Regenerative Ranching in the Peruvian Amazon (AGRAP)

Launched in 2021, the AGRAP is using nature-based solutions to transform extensive deforested pasturelands into silvopastoral systems that benefit the environment, farmers and economic development. With WWF and Tropical Forest Alliance, through UK PACT, this Under2 Coalition project has been training farmers in deforestation-free livestock practices through farmer field schools, sharing knowledge and best practice among farmers and government officials, removing bottlenecks to accessing finance and creating a regional public-private coalition for sustainable production in the state of Madre de Dios, Peru. Regenerative agriculture refers to "*farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity – resulting in both carbon drawdown and improving the water cycle*".

Road to Carbon Neutral

Delivered with the Climate Reality Project and OpEPA through UK PACT, the Road to Carbon Neutral project has been working with five Colombian departments to develop and strengthen their decarbonisation pathways through supporting them to develop long-term visions: particularly in the transport and energy sectors. Antioquia, Atlantico, Boyacá, Cundinamarca and Valle del Cauca have all now identified how they will work towards reducing their carbon emissions this decade and play an active role in fighting climate change.

The Future Fund

Established in 2017, the Future Fund supports climate activities in developing and emerging economy regions. In 2022, it is funded by member governments Baden-Wurttemberg, Québec "Navarra", Scotland, and Wales. In 2021, it ensured that 12 representatives from subnational governments from the Global South were able to attend meetings in the fringes of COP26. In the past two years it has also supported the State of Rondônia (Brazil), in installing photovoltaic panels at the João da Mata dos Santos Municipal School to improve access to education, provided free training on solar energy systems in São Paulo (Brazil), and helped West Kalimantan (Indonesia), to measure, and so reduce, its greenhouse gas emissions.

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	MITIGATION OBJECTIVES
PERU	MADRE DE DIOS	174,000 (2020)	11.3 $MTCO_2E$ (2016)	-26% BY 2030, -66% BY 2050 (BASELINE 2016)

Madre de Dios – From pathways planning to implementation

Emissions in Peru amounted to 205 $MtCO_2e$ in 2016, according the latest inventory published by the Ministry for the Environment in June 2021, including more than 65% coming from the AFOLU (agriculture, forestry and other land use) sector (Minam, 2021). Completing its decarbonisation pathway through the Climate Pathway Project early last year, the Amazon region of Madre de Dios, Peru, set an emissions reduction goal of 66% by 2050, which aligns with limiting warming to 2°C and started projects for improving the productivity of livestock activities in the regions, while incorporating silvopastoral systems (the practice of locating trees and grazing livestock together). The overall objective is to reduce deforestation and increase carbon capture, while supporting local smallholder farmers.

With 44.6% of its territories is classified as Protected Natural Area, at over 3 million hectares, Madre de Dios is the Peruvian department with the largest area of Amazon forest: over 7.5 million hectares. The Regional Climate Change Strategy of Madre de Dios acknowledges that the region is both a significant carbon sink for Peru and one grappling with the impacts of climate change through challenges such as more pronounced wet and dry seasons with increased flooding, drought and fire.

Given that 37% of Madre de Dios´ emissions come from the AFOLU sector, with 61% of these arising from deforestation, the regional government focused its pathway planning process on this sector. It used learnings from the Climate Pathway Project to prioritise 11 related mitigation actions, with the ultimate aim of reducing emissions by 61% by 2050. If implemented these would account for 18 $MtCO_2e$ avoided. The plan aims to align with the National Livestock Development Plan 2017-2027.

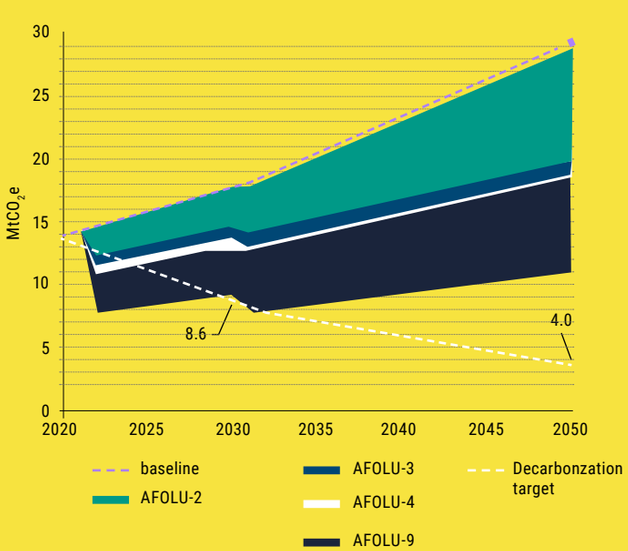
The decarbonisation actions that Madre de Dios has prioritised include:
1. Conservation activities in native community forests and community forestry
2. Increased productivity and efficiency of agricultural activities
3. Increased productivity and efficiency of livestock activities
4. Forest plantations for protection/restoration purposes
5. Community forest plantations
6. Promoting stakeholder participation in the management of protected natural areas and local forests
7. Agroforestry systems for the recovery of degraded areas
8. Reducing the risk of forest fires
9. Reducing the conversion of forest land to mining areas

Additionally, Madre de Dios prioritised two actions that were not quantified in terms of emissions due to limited data: a programme to combat illegal logging, and sustainable forest management for raw materials (timber).

To move from planning to action, the regional government kicked off the Alliance for Regenerative Ranching in the Peruvian Amazon (AGRAP) – Madre de Dios pilot with the support of WWF, Tropical Forest Alliance and Climate Group in June 2021. It aims to train farmers in deforestation-free livestock practices. In November 2021, the AGRAP implemented 10 Farmer Field Schools in Tampobata and Tahuamanu – two of the three provinces of Madre de Dios – in order to combat the impact of extensive cattle farming, the leading cause of deforestation in the region. Farmers are being trained on silvopastoral and regenerative ranching methods, while financial and marketing solutions are also being discussed, designed and developed.

As an active member of the Under2 Coalition, Madre de Dios has committed to ambitious climate action in line with limiting global temperature rises to 1.5°C. As such it is part of a growing consortium of state and regional governments that are implementing positive climate solutions and pushing national governments to go further, faster by revising their Nationally Determined Contributions (NDCs) and working towards a just transition that meets the needs of all people, everywhere.

MADRE DE DIOS´ DECARBONISATION PATHWAY



european energy award
ACTING LOCALLY FOR THE CLIMATE

INITIATIVE

EUROPEAN ENERGY AWARD

Year of creation

2003

Total members

34 organisations,
1700 participating cities and communities

New members added in 2021

5 members
100 cities and communities

The European Energy Award is a certification process that supports local authorities in establishing interdisciplinary planning approaches and implementing effective energy and climate policy measures through the rational use of energy and increased use of renewable energies. Technical eea advisors, nationally adapted eea catalogues of measures and the eea auditing process assure the quality of local energy and climate policies.

The Association European Energy Award (eea) brings together all national eea organisations and various European Energy Award Gold municipalities as members. The international organisation of the European Energy Award is based on the subsidiarity principle, and the Association eea therefore exclusively takes on tasks that national eea trustees are unable to perform. The role of the Association eea essentially consists of coordinating national developments and calibrating and harmonising the work of the eea in order to ensure that a consistent, high standard is achieved at the international level. It offers a platform for the international exchange of ideas and for quality assurance and further development of the tool. Another important task is to position the eea internationally, and the Association finally supports the establishment of national eea programmes in new countries.

Main recent programmes and projects

Several steps lead to the eea Award: the local government takes a top-level decision to enter the process, and set aside staff for this purpose, including an energy team responsible for implementing the eea programme in 6 areas: development and spatial planning strategy, municipal buildings and facilities, supply and disposal, mobility, internal organisation, communication and cooperation. Based on the results of an initial energy review using the eea-Management-Tool (EMT), the energy team prepares an energy policy programme and makes sure it is implemented by policymakers and the administration. This is followed by the audits, once a year for the internal audit and every four years for the external one. Once both the eea auditor and the national eea committee have confirmed the municipality's exemplary energy and climate protection policy and implementation, based on the results of the external audit, the municipality is certified either under the European Energy Award (implementation of minimum 50% of the scope of action) or the European Energy Award Gold (implementation of minimum 75% of the scope of action).

EXCITE

The main goal of the EU-funded H2020 EXCITE project is to introduce the well-established energy management scheme of the European Energy Award in Bulgaria, North Macedonia and Slovenia (at least in 3 pilot municipalities per country) as well as in additional Ukrainian and Romanian municipalities. EXCITE delivers specialized training for local energy managers, tailored business models for local climate actions, and broad civil engagement campaigns.

Through this support, the project aims to stimulate the implementation of local energy and climate plans, to attract private investors, promote public entrepreneurship and to successfully leverage the scarce public resources.

IMPLEMENT

The eea activities launched in 2018 in the four European countries of Belgium (Flanders and Wallonia), Croatia, Greece and Poland as part of the EU-funded H2020 IMPLEMENT project *(Improving Local Energy and climate policy through quality management and certification)* continued in 2020, despite the pandemic. With a budget of €1.4 million for 48 months, the IMPLEMENT project aims at introducing the quality management and certification system European Energy Award (eea) in Belgium, Croatia, Greece and Poland, and working with 30 pilot municipalities to develop and implement their climate and energy strategy by using the ee standards.

While the primary focus was on work within pilot communities and training for national offices and national eea advisors in the early stages, the emphasis shifted towards establishing national eea programmes in 2020. Due to the Covid-19 pandemic, it was unfortunately not possible to visit successful eea programmes in Germany, and the international seminar for policymakers from implementing countries was postponed to 2021. However, preparatory works for national programmes have been carried out: possible funding models and subsidy programmes have been analysed, business plans have been considered, and initial talks have been held with potential key partners.

CoME EASY Project

The Association European Energy Award and the European Covenant of Mayors (CoM) have been cooperating closely for many years, as their tools and processes are complementary in many ways: while the CoM provides a methodological framework for both setting ambitious quantitative energy and climate targets aligned with the European targets and developing a matching Sustainable Energy and Climate Action Plan (SECAP), the eea is able to offer systematical guidance for municipalities to continuously improve and implement their action plans. The eea is therefore officially recognised as an efficient implementation tool for the CoM. The close cooperation between the eea and CoM was confirmed by a Memorandum of Understanding signed in 2019.

During 2020, discussions and working group meetings between the eea and CoM continued successfully within the framework of the EU-funded H2020 project CoME EASY. The aim of the CoME EASY project, which ended in September 2021, was to combine forces between the most important European energy and climate initiatives for local authorities and to facilitate multiple engagement in several initiatives. With this in mind, various tools and aids were developed, both Excel-based and as part of the online eea Management Tool (EMT), particularly in order to enhance the compatibility of the eea and CoM. As a result, eea communities are now able to enter quantitative data for CoM reporting (baseline emissions inventory, monitoring emissions inventory) in the EMT and then simply export the data. Current discussions between the eea and CoM are focused on how data can be exchanged automatically between the two initiatives' online platforms.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGETS
ITALY	FLORENCE	378,839	1,500,000 TCO_2 (4.02 TCO_2/HAB) (2019)	-20 % IN 2020 (ACHIEVED), -45 % IN 2030, -75% IN 2050 (BASELINE YEAR: 2005)

eea Gold for Florence in 2021

Since a long time, Florence has had an emissions reporting system linked to spatial planning acts that is fully integrated (Smart City master plan) and aimed at achieving ambitious results in line with European policies: the city has been a CoM signatory since 2010, and it has already achieved the 2030 emission target by 2018. It received the eea Gold certification in 2021. The energy and climate (eea) working group, established in 2010 with a broad and flexible structure constantly collaborates on all initiatives to make Florence a sustainable city.

Ambitious plans, successful outcomes

In 2010, Florence signed the Covenant of Mayors, subsequently approving its Sustainable Energy and Climate Action Plan (SECAP) in 2011, and entering the eea process. The SECAP set the objective of reducing its GHG emissions by 20 % in 2020 compared to 2005, and contained policies on public properties, buildings, mobility and planning with quantified objectives for 2020. In 2015, the Smart City Plan (SCP) extended the climate objectives to medium and long-term deadlines: the city aims to reduce its GHG emissions by 45 % in 2030 and by 75 % in 2050 compared to 2005. The Smart City Plan is built on a "System Thinking" approach, setting objectives related to GHG emissions, but also to energy efficiency, renewable energy (20 % of electricity in 2030, 40 % in 2050), private and public transport, housing, as well as digital inclusion (internet access, public wifi...), education and culture.

Florence achieved its 2020 objective before the deadline, being even below its 2030 objective in 2018 and 2019. The Smart City Plan states that the 2005-2010 decrease is mainly due to actions in the building sector (building renovations) and in the transport sector (reduction of road traffic).

Local action through international initiatives

Florence is using eea tools for its climate action management. An energy and climate working group is leading climate action of the city on the six eea areas: development and spatial planning strategy, municipal buildings and facilities, supply and disposal, mobility, internal organisation, communication and cooperation. The SECAP and the SCP have been the subject of popular consultation (100 places, listening marathon) and have been widely communicated to the public. The monitoring is carried out annually.

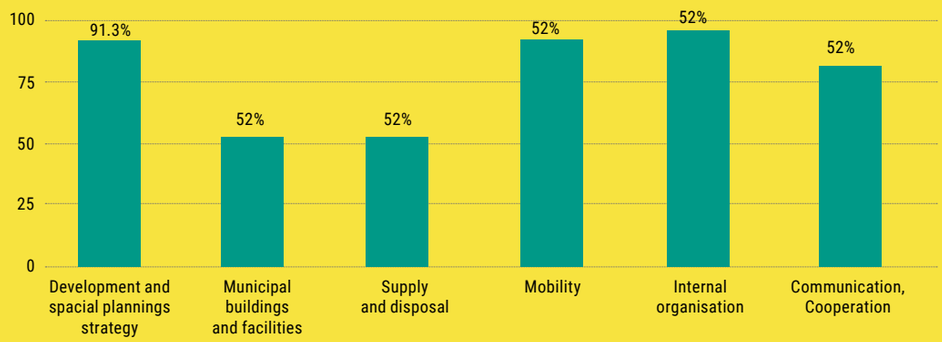
In 2021, Florence was given the "gold" certification of eea for its climate action, with a total score of 77.9%% (**ref. figure**).

The 2030 SECAP is currently being elaborated under the CoME Easy project that brings together the European Covenant and eea.

Besides the Covenant, Florence is also part of Mayors Adapt, the Covenant of Mayors initiative on urban adaptation to climate change, and recently the Green Cities accord, an initiative from the European commission "to make cities greener, cleaner and healthier".

ACHIEVEMENT OF FLORENCE FOR THE 6 EEA MAIN AREAS IN 2021

Source: eea



UNITED CITIES AND LOCAL GOVERNMENTS (UCLG)

Year of creation

2004

Total members

240,000
local and regional governments from 140 countries

New reporting LRGs in 2021

19

United Cities and Local Governments (UCLG), as the largest international organization of cities and local, regional, and metropolitan governments and their associations in the world, is committed to representing, defending, and amplifying the voices of subnational governments to leave no-one and no place behind. UCLG is a decentralized structure composed of seven regional sections (Africa, Asia-Pacific, Eurasia, Europe, Latin America, Middle East and West Asia, North America), one metropolitan section and one section for regional governments.

Through collaboration, dialogue, policy and advocacy, knowledge-sharing, researching and learning, UCLG as a global network is working to advance global response and action through ground-breaking commitments and agreements that become common threads that transcend borders and tie communities together, to uplift and empower the local level.

UCLG is a convener of the whole global local and regional governments' constituency through the Global Taskforce of Local and Regional Governments (GTF). The network provides the mechanisms through which the local and regional governments' constituency deliberate and agree upon its political voice in the international agenda.

Main recent programmes and projects

The Ecological Transition Manifesto

Since its 2019 World Congress, UCLG has developed a Manifesto on Ecological Transition, with a focus on climate adaptation and mitigation. With the COVID-19 pandemic, this issue was raised as a key priority by the membership and their citizenship: a call for a redefinition of our linkages to nature and of our patterns of consumption and production, as well as a call for a more just and sustainable recovery.

The Ecological Transition strategy has a strong territorial perspective, based on the mechanisms of the World Forum of Regions and the Forum of Intermediary Cities. The **World Forum of Regions** (16-18 Nov. 2021) affirmed, the territorial balance of rural and urban areas as the key driver for a new way of achieving the Carbon Neutrality objectives for 2030. The **Kütahya Declaration of Intermediary Cities of the World** (8 Oct. 2021) stated intermediary cities have a fundamental role in pursuing climate justice in the territories.

The **Global-Regional Coordination** project was developed in coordination with GCoM and ICLEI to seek unity through the UCLG membership for a global climate policy dynamic. It allowed to build a global policy mapping on the political, strategic and technical priorities of the regions, regarding the needs and challenges that LRGs are encountering regarding climate change. Current activities are based on the priorities identified, and undertaken by UCLG's regional sections and the World Secretariat. The World Secretariat's activities have been concentrated on ensuring a larger access of LRGs to Cities Race to Zero and Cities Race to Resilience global campaigns.

UCLG is also co-chair of the Global Coordinating Committee of the unique cross-stakeholder Making Cities Resilient 2030 (MCR2030) initiative, for improving local resilience through advocacy, sharing knowledge and experiences, establishing mutually reinforcing city-to-city learning networks, injecting technical expertise, connecting multiple layers of government and building partnerships.

In line with Culture 21 Actions and the commitment to consider the cultural factors as accelerators of environmental responsibility, the UCLG Committee on Culture carried out a report on "The Role of Culture in Climate Resilient Development".

UN-level Advocacy

UCLG has been contributing to strengthening the roles of LRGs within the governance of food systems as a member of the Committee on World Food Security (CFS) Bureau and Advisory Group, the Urban Food Systems Working Group of the FAO, and within UN processes such as the UN Food Systems Summit.

UCLG has been advocating to strengthen the link between public transport and the implementation of the SDGs and to include LRGs in decision making. Most recently, UCLG has contributed to the United Nations Global Sustainable Transport Summit by convening actors from all sectors to exchange best practices and contributed to a policy paper on effective land use.

Emergency Governance and City-level Resiliency

The Emergency Governance Initiative for Cities and Regions (EGI), jointly led by UCLG, Metropolis, and the London School of Economics (LSE Cities), was launched in May 2020 to facilitate renewed knowledge exchange on adaptive governance responses to grand global crises such as climate change, through series of Policy Briefs and Analytics Notes. Next publications will focus on local democracy and will dedicate special attention to citizen emergency assemblies, building on many inspiring experiences of climate assemblies all around the world. It is scheduled to be published in April 2022.

UCLG developed Resilience Learning Modules with UN-Habitat and UN Office for Disaster Risk Reduction (UNDRR), highlighting the importance of adequate multi-level governance, and showing how crucial is appropriate financing at local level for climate resilience investments and achieving the SDGs. They are used by UCLG members and regional sections and helped facilitate national-local linkages in Indonesia, provincial trainings in the Philippines, and city-to-city exchanges and trainings hosted by Seoul, and Buenos Aires. They also facilitated cooperation with other partners and projects, including the International Federation of Red Cross and Red Crescent Societies (IFRC), INTERLACE, MCR2030 initiative, etc.

UCLG Regional Sections

The Council of European Municipalities and Regions (CEMR) expresses local and regional governments' perspectives to contribute to current and future discussions and decisions in Europe (and internationally) on climate, energy, environment and natural resources; as well as to work in partnership with European/international networks. The CEMR Expert Group on Climate and Energy follows these files: the climate law; the 2030 climate target; energy efficiency, performance and renewable energy directives; climate adaptation; the forest strategy; the social climate fund; carbon neutrality; UNFCCC COP negotiations on climate; and participates in the Global Covenant of Mayors.

In Asia-Pacific, UCLG-ASPAC, together with Pilot4DEV, ACR+, ECOLISE, AIILSG, and the Gustave Eiffel University, proposes the Climate Resilient and Inclusive Cities Project (CRIC) to contribute to sustainable urban development, good governance, and climate adaptation through a unique cooperation between cities and research centres.

In Latin America, FLACMA created with the Costa Rican National Union of Local Authorities (UNGL) the INTERLACE project, to empower local governments to restore urban and periurban ecosystems.

UCLG United Cities and Local Governments

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
SPAIN	MOLINA DE SEGURA	71,000	N/A	-40% BY 2030 (BASELINE YEAR: 2008)

In Molina de Segura, a Youth Climate Participatory Budget to mainstream climate action into a city-wide participatory budgeting process

Inspired by Lisbon's experience on Participatory Budgeting (PB), the Youth Climate PB in Molina de Segura (Murcia, Spain) was the first of its kind when it was launched in 2020. Its explicit aim is to raise students' awareness on tackling the effects of climate change and get them involved in proposing and implementing ecological initiatives. The dramatic effects of flooding in the city in the previous year constituted an opportunity for the municipality to introduce the idea of greener PB that could address the challenges of climate change. Since then, inspiring projects based on students' proposals were voted on and implemented.

The municipality of Molina de Segura started Participatory Budgeting (PB) in 2015. Since then, under 2% of the successful proposals have been related to the environment and climate change. Against this background, the Town Council decided to reactivate the citizen-based Municipal Council for Environment, which has a consultative status and is composed of experts, volunteers and political activists. The municipality also decided to allocate the entire Youth PB to 14 to 15 year-old students' initiatives tackling the effects of climate change. Molina de Segura launched the first-ever Youth PB for climate change in early 2020, with information sessions in schools using visualisation materials on the effects of climate change at both the international and local level. One source of inspiration for this initiative was the Portuguese Lisbon Green Seal PB for schools.

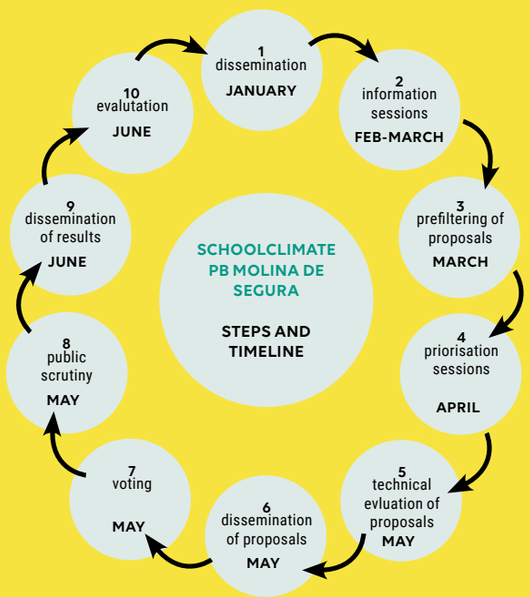
Learning from experience

After the disastrous rains and floods of 2019, the impacts of climate change had become a crucial issue citywide, and the municipality decided that the 2020 PB cycle should take it into account. The authorities launched an innovative communication campaign highlighting their desire to "*make Molina de Segura a reference for combating the effects of climate change.*" Issues related to climate change were then discussed with citizens.

The swift shift to greener PB and innovative school based PB is largely due to the combination of different elements. The municipality made good use of communication and mobilisation strategies, through seminars and local media, creating public debates to envision possible ways of facing climate challenge, as well as grassroots lobbying. In particular, the Federation of Neighbours Associations played a critical lobbying role, highlighting the importance of raising political awareness of local issues caused by the effects of climate change. It should also be noted that contrary to the Lisbon's PB model for instance, which is led by the municipality, in Molina de Segura the rules and norms of the Climate PB are defined by the federation of local associations, which somehow lead the process even though it is technically implemented by five members of staff within the municipality. In turn, this contributed to successfully putting the issue on the local political agenda.

Citizens are consulted in establishing the rules and norms for the PB, which ensures that it is tailored to their expectations, encourages greater appropriation, and ultimately facilitates engagement in the process. Despite being paralysed during the outbreak of the COVID-19 pandemic, students' participation increased by 13% in the 2021 edition of the PB compared to previous year. The Youth PB for this year 2022 will continue to focus on the environment and climate change, thus giving continuity to the process.

SCHOOL CLIMATE PB MOLINA DE SEGURA, SPAIN. STEPS AND TIMELINE (2020) - *Source: Cabannes, Y., 2021*



ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY

Year of creation

1990

Total members

2,500+

New members added in 2021

87

ICLEI - Local Governments for Sustainability is an international network of local-governments (cities and regions) founded in 1990. It now includes more than 2,500 communities of all levels of population and governance (cities, towns and regions) in 125 countries.

Its funding depends partly on contributions from its members and mainly on partnerships with national governments (particularly Germany), the European Union, the UN, and other international organisations and NGOs. The organisation offers local governments various types of support, which translates into nearly 130 different activities including training, advice, a members' platform for collaboration and exchange, as well as acting as a catalyst for funding territorial projects.

It is currently the main organization of local governments dedicated to sustainable development in the world, and the focal point for the Local Governments and Municipal Authorities (LGMA) constituency of the UNFCCC. It is a founding member of the Global Covenant of Mayors for Climate & Energy (GCoM).

Main recent programmes and projects

Urban LEDS II

The Urban Low Emission Development Strategies (Urban LEDS) project helps countries and local governments to implement integrated low emission and resilient development by offering guidance, tools, and technical assistance; mobilising cities to commit to the GCoM; exploring access to financing; and supporting multilevel governance.

The first phase of Urban-LEDS (2012-2015) led to an estimated emissions reduction of 5.9 $MtCO_2e$ over 79 $MtCO_2e$ reported in cCR (ref. below) from 30 cities in Brazil, India, Indonesia and South Africa. Urban-LEDS II (2017-2021) proceeds from the first phase of Urban-LEDS (2012-2015) and aims for an emissions reduction of 12 $MtCO_2e$ in Colombia, Bangladesh, Lao PDR, and Rwanda (phase II) (ref. case study below). The project also supports the improvement of effective monitoring and reporting systems through an integrated MRV (Measuring, Reporting, and Verifying) process, vital to tracking progress and accelerating climate action within cities. Local governments' planning and implementation of climate action will not only lead to regional benefits but will also support national climate action plans that effectively contribute to global climate change mitigation and adaptation, and provide access to secure, affordable, and sustainable energy. The Urban-LEDS II project is funded by the European Commission and jointly implemented by ICLEI and UN-Habitat.

Transformative Actions Programme (TAP)

Launched in 2015, the TAP aims to act as a project incubator to connect local governments' climate infrastructure projects to potential investors and provide technical tools and services to support the project preparation, thereby accelerating low-to-no emission and climate-resilient developments. Since it was created, TAP records over 300 projects submitted through annual calls. Currently, the TAP Pipeline includes 74 projects for a value of €2.4 billion, mainly in Africa (29), Latin America and Caribbean (18) and Asia (11). Most of them are related to energy (38), forestry (22), waste (21) and land use (20). Of these, 45 projects have been connected with potential partners and 27 have successfully accessed financing or Project Preparation Facilities.

The carbon*n* Center

Since 2019, ICLEI's carbonn™ climate registry (cCR) and CDP's reporting have been streamlined to form one unified reporting system. (**ref. Part I**). ICLEI uses the reported data to inform research and analysis activities and represent local and regional governments on the global stage through their advocacy work. To date, 1,153 local and subnational governments are registered to the carbon*n* Center, covering 8% of the world population with 26.8 $GtCO_2e$ committed GHG emissions reductions by 2050.

Transformative Urban Mobility Initiative (TUMI)

Launched by the German government, TUMI aims to advance sustainable urban mobility in developing and emerging countries, by focusing on networking among committed cities. ICLEI is a partner of the project, together with C40, SLOCAT, World Resources Institute and UN Habitat. The initiative is based on three pillars: innovation, knowledge, investment. It supports innovative pilot projects around the world; shares knowledge with planners about modern mobility concepts, in workshops and conferences; and invests in the construction and modernisation of sustainable urban infrastructure.

• For example, the **TUMI Global Urban Mobility Challenge** is an initiative to support local leaders in their mobility transformation efforts. From 2018-2021, it supported cities around the world with up to €200,000 for their innovative pilot projects to start the urban mobility transformation.

• With the **Women Mobilize Women** project, TUMI specifically addresses the need to involve and empower female change-makers in the transport sector to progress mobility systems and to cater to women's needs.

• The **ACT** coalition (Action towards Climate friendly Transport) brings together States, companies, NGOs and local governments to promote low carbon transport.

Finally, with **TUMIVolt**, TUMI supports cities in the global south in introducing electromobility solutions. As part of TUMI E-bus Mission, initiated in September 2019, Bogota, Mexico City, Kampala, Jakarta, Mumbai, and four other Indian cities are among the 20 "Deep Dive Cities" that have been selected to receive support for developing and implementing individual e-bus-roadmaps. More than 100 mentee cities are expected to be trained on scaling up e-buses deployment by the end of 2022. The mission aims to deploy 100,000 buses in 500 cities until 2025 and cut up to 15 MtCO2.

CitiesWithNature

Along with The Nature Conservancy (TNC) and the International Union for the Conservation of Nature (IUCN), ICLEI founded CitiesWithNature, a platform to strengthen collective action and impact to protect biodiversity and reconnect urban communities with nature. In December 2021, New York City became the 200th city to join the initiative, across 58 countries. In October 2021, a sister platform RegionsWithNature was launched during the Daring Cities global forum (an ICLEI-organized forum for urban leaders taking on the climate emergency), in partnership with Regions4. To join CitiesWithNature, cities share their policies, plans, commitments, actions and results related to nature and the services of ecosystems in a Registry, which is in return a resource where cities can connect, share, learn from and inspire each other to accelerate actions and raise ambitions.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
RWANDA	KIGALI	1,667,021 (2017)	917 $KTCO_2e$ (2017) (WITHOUT LAND USE)	-38% BY 2030 (COMPARED WITH BAU SCENARIO)

ICLEI projects in Kigali: combining mitigation and resilience

In 2020, Rwanda was the first among the Least Developed Countries (LDC) group to renew its Nationally Determined Contribution (NDC). As part of its mandate to implement national policies on its territory, especially the commitment of a 38% reduction in GHG emissions compared to BAU in 2030, the City of Kigali developed an *Integrated Climate Action and Low Emission Development Plan* (2021) thanks to the support of the Urban-LEDS II project.

The *Integrated Climate Action and Low Emission Development Plan* is based on the Greenhouse Gas Inventory (GHGI) and the Climate Risk and Vulnerability Assessmeent (CRVA) conducted also through Urban-LEDS II.

The GHGI showed that total GHG emissions for the City of Kigali in 2017 from stationary sources, generation of electricity supplied to the grid, transportation and waste are estimated at 917 ktCO2e, with a further 583 ktCO2e estimated to be generated from livestock and land.

The CRVA was carried out in line with the requirements included in the ICLEI's GreenClimateCities (GCC) Programme, which offer cities a proven process methodology for walking step-by-step toward climate neutrality, as well as the GCoM Reporting Framework. This was the first initiative of its kind at the local level that used desktop research, interviews with officials, and workshops with stakeholders from each of the communities, using a *Participatorry Vulnerability Assessment* approach to identify the hazards that they face, the impacts they encounter, and the sectors that they deem to be most affected by the hazards.

Besides, the Urban-LEDS II project enabled concrete actions in Kigali to reduce its climate impact and increase its resilience. Here are descriptions of two of them.

Upgrading healthcare centres as part of green recovery

During early 2021, the Urban-LEDS II project designed two of its pilot projects on improving the water and electricity access at two healthcare centres in the City of Kigali and the District of Muhanga.

The pilot projects provided the following at each health centre:

• **Water**: Rainwater harvesting tanks with solar-powered pumps created an integrated rainwater harvesting system connected to the existing pipes.

• **Energy**: A range of efficient lighting solutions, including indoor and outdoor energyefficient bulbs with motion sensors, and solar streetlights decrease the operational costs usually associated with energy supply. High-pressure 300 litre solar hot water geysers ensure the new water supply can also be heated for day-to-day use in the healthcare centre.

• **Evidence-based monitoring:** The project installed water and energy metres to monitor the resource needs and usage and to enable the health centres and technicians to track the impact of the project. The data can also be used to bolster future applications for climate finance to scale these projects

• **Training**: Technicians from the centres received training on maintenance of all of the installations, as well as how to read the metre for effective monitoring and communication of electricity and water usage

To upscale and replicate this work other health centres and District hospitals across Rwanda, the project in Muhanga has been submitted to the Transformative Actions Programme (TAP).

Peer to peer exchange

Key training and peer to peer exchanges were organized for Kigali as part of Urban-LEDS II :

- One training per month for all Rwanda cities and the National Planning Advisory Group (NPAG) members was conducted from July to November 2020. These virtual training sessions covered the topics of GHG emissions inventory, data collection and compilation and climate risk and vulnerability data collection.

- In addition, three training sessions: one on risk and vulnerability assessments and two on climate finance were hosted for Kigali officials in October and November 2020.

- During ICLEI's Daring Cities 2020, leaders of Kigali participated as high level speakers at various sessions, as well as other representatives of government of Rwanda.

C40 CITIES CLIMATE LEADERSHIP GROUP

Year of creation

2005

Total members

97,

making up more than 25% of the global economy and covering 700 million people

New members added in 2021

n.a.

The C40 Cities Climate Leadership Group is a global network of major cities created in 2005, at the initiative of the Mayor of London along with 18 megacities to implement climate actions and to reduce GHGs. Today it brings together 97 of the world's largest cities, representing more than 650 million people and a quarter of the world's economy. Created and run by the cities, the C40 facilitate dialogue amongst city officials and focuses on the fight against climate change, the implementation of urban programs to promote low-carbon and resilient development of cities, and the economic and social co-benefits.

It is mainly financed through foundations, in particular donations from Bloomberg Philanthropies, the Children's Investment Fund Foundation and Realdania. Michael Bloomberg is President of the C40 Board of Directors, while Mayor of Los Angeles Eric Garcetti handed over the C40 Chair to Sadiq Khan, Mayor of London, in December 2021.

Main recent programmes and projects

C40 emissions reporting

The C40 Greenhouse gas emissions interactive dashboard publicizes the emissions from the C40 member cities which reported their emissions in line with the Global Protocol for Community-scale GHG Emission Inventories (GPC). Emissions are accounted according to the BASIC Greenhouse Gas Protocol methodology, including stationary energy, transportation and waste. The 75 reporting cities emit an average 15.7MtCO_2e, ranging from 56.2MtCO_2e (Tokyo) to 0.9 MtCO_2e (Heidelberg). In total, the emissions reported by C40 cities amount to a total of 3.554 GtCO_2e, i.e. nearly 10% of global emissions.

Cities Race to Zero

Launched on the initiative of High-Level Champions for Climate Action Nigel Topping and Gonzalo Muñoz, Race to Zero is a campaign that aims to mobilize all non-state actors to halve global emissions by 2030 and achieve net-zero emissions by 2050 at the latest. Together with ICLEI, Global Covenant of Mayors, CDP, UCLG, WRI and WWF, C40 launched the Cities Race to Zero to involve cities in the campaign. By joining the movement, Cities commit to (among others):

• reach net-zero before mid-century and set interim targets for 2030

• explain ahead of COP26 what steps are to be taken to achieve net zero, in the short- to medium-term, and set an interim target to achieve in the next decade.

• immediately proceed to planning at least one inclusive and equitable climate action as listed on www.citiesracetozero.org, and begin implementation no later than 2022

• report progress annually

1,049 cities have joined the campaign.

Global Green New Deal

Launched in 2019 during the C40 World Mayors Summit in Copenhagen, the Global Green New Deal (GGND) is a set of principles to be adopted by cities around the world and takes a collaborative approach to climate action. It promotes a holistic, intersectional approach to climate action, recognising that climate, social and economic justice can only be achieved together. The coalition is composed of political leaders, investors, businesses, labour unions, young people, civil society and communities disproportionately impacted by the climate crisis and poverty. In April 2021, a Global Youth and Mayors Forum was launched as part of the C40 Global Youth Initiative, which aims to bring together mayors and young people aged 15 to 24 to advance ideas to implement the GGND. It led to the publication, in November 2021, of a "Youth Engagement Playbook for Cities: How to tackle the climate crisis through collaboration with youth".

C40 Cities Finance Facility

The C40 Cities Finance Facility (CFF) supports cities in developing and emerging economies to develop finance-ready, bankable projects that address climate change. It is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), the Government of the United Kingdom, and the Agence Française de Développement (AFD). The CFF provides a dedicated in-city sectoral expert to help the city-administration develop a technically and financially robust infrastructure investment project. For instance, the CFF supported Bogota in developing the business case for a public bike sharing system. It led the city to announce an open tender in September 2021 to receive proposals in order to set up a 2,030 bicycles system distributed in 152 stations throughout 5 city areas, to cut 300 tCO2e/y. The CFF has provided a lot of support to deploy e-buses fleet in several cities as Quito (Ecuador), Guadalajara (Mexico), Jakarta (Indonesia) or Bengalaru (India). It also supported projects related to green spaces.

C40's Urban Nature Declaration

Thirty-one mayors signed the C40's Urban Nature Declaration in July 2021, committing further big investments in urban nature to protect cities from the impacts of climate change and ensure everyone has access to green spaces. There are two pathways for signatories to reach their target:

1. The Quality Total Cover pathway. Cities following this pathway have to ensure that 30-40% of the total built-up city surface is green spaces and/or permeable spaces to protect and restore biodiverse and climate resilient ecosystems.

2. The Equitable Spatial Distribution pathway promoting accessibility and connectivity for vulnerable communities, ensuring that 70% of the city population has access to green or blue public spaces within a 15-minute walk or bike ride by 2030.

Among the numerous examples of implemented policies in line with the Declaration, the C40 quotes Durban (eThekwini)'s Transformative Riverine Management Programme, supported by the CFF, and Barcelona's Green Roofs Competitions which subsidises up to 75% of winning projects greening the roofs of the city in 2017 and 2020.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
GREECE	ATHENS	661,278	4,581,962 TCO_2e	-40% BY 2030 (BASE YEAR: 1990)

In the municipality of Athens, a whole department for developing resilience

As the warmest European city, Athens is considered as one of the cities most exposed to climate change-related increase of heat waves. Over the past few years, actions have been taken by the municipality to both mitigate Athens' climate impact and adapt the city to future impacts, especially by greening the city. As a C40 member since 2007, the city signed the Urban Nature Declaration in 2021, and is a signatory of the Cities Race to Zero.

A highly impacted city

Athens already finds itself facing a relatively high level of heat stress and related challenges, which is only set to increase with climate change. Between 2000-2012, Athens had observed a 5.2% increase in mortality for every 1°C increase in daily max temperatures over 31.5°C. A Newcastle University study, assessing future changes in flood, heat-waves and drought impacts for 571 European cities identified Athens as one of the most vulnerable cities to these future climate change impacts. Facing these challenges has made the city a pioneer in terms of resilience policy.

An integrated approach linking mitigation and adaptation

In 2014, Athens joined the 100 Resilient Cities network pioneered by the Rockefeller Foundation, after a competitive process. This led to the creation in 2016 of a Department of Resilience and Sustainability, headed by a Chief Resilience Officer, who elaborated the Athens Resilience 2030 Strategy, planning 65 actions and 53 supporting actions with a "clear vision of how the city can best cope with the increasing interdependency of shocks and stresses." Each action is linked to the related Sustainable Development Goals (SDGs). The city obtained a €55 million loan from the European Investment Bank to implement the strategy. The same year, an integrated Climate Action Plan for both mitigation and adaptation was published, supported by C40. Its sets the objective of achieving a 40% reduction of GHG emissions by 2030 compared to 1990, as well as maintaining and increasing green spaces or using sustainable materials for the built environment.

As part of the supporting actions for the Climate Action Plan and the Resilience Strategy, the municipality launched #CoolAthens, a public health protection, public information, and awareness campaign. It includes actions such as promoting publicly available personalized information linking high temperatures to health risks; preparing guides as well as Near Field Communication (NFC) tags to orient high-risk populations to an enhanced network of municipal "Cool Centers" which protects people during high temperatures; linking all heat-related data sources; establishing information and awareness-raising campaigns and activities, and engaging the private sector in the activities.

Cooling the city through green spaces

Increasing the total surface of green areas is key to the Athens' strategy to reduce its vulnerability to extreme heat. In 2018, Athens already had one of the highest rate of area covered by green space among European capital cities (15%, after Stockholm (19%)), while overall, cities in the north and west of Europe have more total green space within their area than cities in southern and eastern Europe. With the support of the Greek State, companies and European funds, the budget for green spaces has quadrupled in the recent years. Green roofs, parks, trees and water fountains have grown in number in the whole city.

In 2019, Athens was the first city to benefit from the Natural Capital Financing Facility (NCFF), the European Investment Bank's new tool to help cities financing green or blue infrastructure projects. The €5 million NCFF loan aims to finance and support the integration of green components into the restoration of public squares and streets, create green corridors between different greened areas and contribute to the natural restoration of Athens' second landmark hill after the Acropolis, Lycabettus hill.

In Summer 2021, the city signed the Urban Nature Declaration, committing to make 30-40% of the total built-up city surface area green or permeable to water, and/or to ensure the access of at least 70% of the population to a blue or green space within a 15-minute radius. In the meantime, the Chief Resilience Officer Elini Myrivili became "Chief Heat Officer", following the examples of Miami-Dade County (United States) and Freetown (Sierra Leone).

CLIMATE ALLIANCE

Name of network

Climate Alliance

Year of creation

1990

Total members

1,909
from 28 countries
(January 2022)

New members added in 2021

42

With some 1,900 members spread across 28 European countries, Climate Alliance is the largest European city network dedicated to fair and comprehensive climate action. For over 30 years, Climate Alliance member municipalities have been acting in partnership with indigenous rainforest peoples for the benefit of the global climate, upholding the association's principles for climate action that is fair, nature-based, local, resource-saving and diverse. Recognising the impact our lifestyles can have on the world's most vulnerable people and places, Climate Alliance pairs local action with global responsibility. Each member city, town and district has committed itself to continually cut greenhouse gas emissions and promote climate justice. The Climate Alliance European Secretariat is based in Frankfurt (Germany) and Brussels (Belgium) and the network additionally maintains six National Coordination Offices for Austria, Germany, Hungary, Italy, Luxembourg and Switzerland that serve as national coordination points for Climate Alliance members in their respective countries. Climate Alliance has also been instrumental in shaping the European Covenant of Mayors since its launch in 2008, and is currently part of the managing consortium along with Energy Cities, Eurocities, CEMR, Fedarene and ICLEI-Europe.

Climate Alliance

Main recent programmes and projects

Targets & Action

Each Climate Alliance member commits to at least a 10% emissions reduction every 5 years. In late 2021, Climate Alliance members additionally adopted a Charter recognising the need to strive for a 95% reduction in greenhouse gas emissions by 2050 compared to 1990 levels. Members also go beyond emissions targets by committing to climate action in line with Climate Alliance principles and to the promotion of climate justice with indigenous peoples. The network places an emphasis on action – evident in the new charter, which provides concrete recommendations for the promotion of a sustainable and just transformation as well as in the network's project work, tools, campaigns, advocacy efforts and role in driving the Covenant of Mayors.

Making Connections

Once a year, the network comes together at the Climate Alliance International Conference (CAIC) to discuss tackling the climate crisis and taking local action. In 2021, the network organised the first hybrid CAIC with almost 500 participants. Throughout the year, Climate Alliance coordinates several pan-European working groups on topics such as adaptation, financing, monitoring and buildings. These working groups, some national by nature and others international, provide a platform for the regular exchange of knowledge and expertise within the network and beyond. Each links to the policy landscape in the fields they address, bringing the latest EU and/or national developments into perspective in the context of concrete municipal climate action.

Acting on the local level

Within European and national projects, Climate Alliance focuses on many areas of action including buildings, energy poverty, nature-based solutions and climate justice. The network also offers campaigns for the local level. The City Cycling campaign invites citizens and their city councils to get on their bikes and cycle for the climate. In 2021, the campaign set new records with 804,077 participants, 2,172 municipalities, some 160 million kilometres cycled and over 23,000 tonnes of CO_2 emissions avoided. The Green Footprints campaign motivates children to choose climate-friendly transport and other sustainable habits, and thereby collect «green footprints. These are then officially handed over to the UNFCCC each year during the annual UN Climate Summits. In 2020 and 2021, more than 350,000 children participated, collecting more than five million green footprints.

Climate Alliance also offers a variety of tools for its members. The Climate Compass helps municipalities across Europe map where they stand, giving tips on what further measures can be taken while RADar!, integrated into the City Cycling app, helps municipal administrations improve cycling infrastructure and networks on the basis of real-life reports by their citizens.

Partnership with indigenous peoples

Since its founding in 1990, Climate Alliance has cooperated closely with COICA (Coordinator of Indigenous Organizations of the Amazon River Basin), the umbrella association for the indigenous peoples of the Amazon. As part of its work, the association advocates for the political integration of indigenous peoples in international processes, supports funds, supervises partnerships between cities and indigenous communities, organises delegation tours, and supports community projects in the Amazon region. The provision of solar lamps and the training of indigenous youth in the use of renewables are cases in point. Over the last two years, Climate Alliance has supported its indigenous partners in fighting Covid-19 locally and combatting the increasing deforestation resulting from the pandemic.

Climate Alliance

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION OBJECTIVES
GERMANY	RÜSSELSHEIM AM MAIN	66,000 INHABITANTS (2021)	553,000 TCO_2E (2017, -3% FROM 2011)	"CLIMATE NEUTRALITY" BY 2045

In Rüsselsheim am Main, an Energy Caravan to promote deep renovation

The German city of Rüsselsheim am Main is taking on the task of involving homeowners to reduce emissions on with the help of the Climate Alliance's Energy Caravan – a campaign that aims to promote the energy-efficient refurbishment of buildings. In a context where Europe's building stock is responsible for a large portion of its emissions, making it a key driver of climate change, unlocking the huge potential of building renovation is crucial if the EU is to reach its climate ambitions. The European Commission's Fit for 55 legislative package addresses this challenge with the Renovation Wave, aiming to improve the energy performance of existing buildings. Cities are key to leading this transformation first and foremost by retrofitting their own building stock. But as privately owned buildings are responsible for more than 25% of total emissions, they can also play a key role by addressing homeowners, as in the case of Rüsselsheim.

Bringing private building owners into the fold

"*Private buildings offer enormous savings potential, especially due to their sheer number. In Rüsselsheim there are also many private residential buildings dating from the 1950s to 1980s that are very much in need of renovation,*" comments Jule Rump, project manager for climate action and adaptation and project manager for the Energy Caravan of the City of Rüsselsheim.

Since late 2021, Climate Alliance has teamed up with the association fesa e.V. to offer the Energy Caravan campaign to its members. The Energy Caravan reverses the traditional principle of energy consulting. Municipalities proactively offer citizens in a selected neighbourhood free advice from neutral and qualified energy consultants. Typically, an average of 60% of the consultations carried out result in the implementation of energy-efficient renovation measures. With the transfer of knowledge to the municipalities and support during all project phases, municipalities would also be able to carry out the campaign independently in other neighbourhoods in the future, explains Brice Mertz, campaign manager of the Energy Caravan at fesa. So far, well over 100 municipalities of all sizes have been made fit for the campaign in Germany.

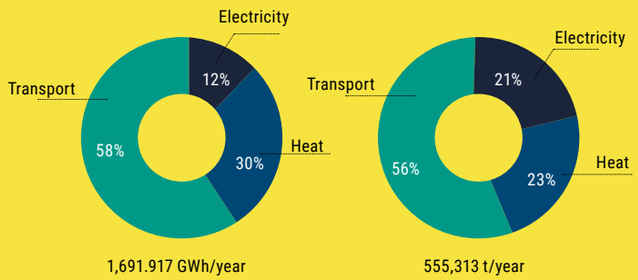
Rüsselsheim's climate emergency

Since declaring a climate emergency in 2019, Rüsselsheim has stepped up ambitions. Climate change mitigation and adaptation have become a stronger focus for the city administration, with a catalog of measures being drawn up. In 2021, climate managers were added to the city's administration for climate protection and climate change adaptation, forming a new 'Climate Team'. The Energy Caravan is now run by the city's new climate task force. The city decided to implement this campaign because it saw an opportunity to reach many citizens with its proactive approach, offering information and drawing attention to the topic of energy-efficient renovation. The feedback since the local campaign launch at the end of October 2021 has been very positive so far and more than 40 homeowners have already expressed interest in advice.

Carrying out the Energy Caravan has of course not come without its challenges. Rüsselsheim organised the campaign in in just four months, turning the idea into reality and involving many areas of the city administration had to be involved in the planning. Rüsselsheim also learned and benefitted from the numerous experiences of other municipalities and is convinced by the campaign's approach.

Heating accounts for a large share of the city's energy consumption (**ref. figure**), and the Energy Caravan is helping the city meets its goals in this area. With the example of the Energy Caravan, the City of Rüsselsheim is demonstrating how municipalities can actively contribute to an energy-efficient building stock in Europe. In the future, the city is planning to continue using the Energy Caravan and wants to expand the campaign to other neighbourhoods in the future.

TOTAL ENERGY CONSUMPTION IN 2017 (LEFT) AND TOTAL GHG EMISSIONS IN 2017 (RIGHT) (CLIMATE PROTECTION PLANNER 2020) - *Source: Umweltbericht 2021 Stadt Rüsselsheim am Main, 2021*



REGIONS4 SUSTAINABLE DEVELOPMENT

Year of creation

2002

Total members

41 members of Regions4

77 signatories of RegionsAdapt

New members added in 2021

1 new member, 7 new RegionsAdapt signatories

Since 2002 Regions4 has worked to bring the voice of regional governments to the main global processes and events on sustainable development. Today, this growing network of subnational leaders serves as **a major advocacy platform** to increase recognition of regional governments, share knowledge, and cooperate to develop transformative solutions to climate change and biodiversity loss, with the 2030 Agenda as the roadmap to ensure a sustainable and resilient future for all.

In 2015, during COP21 in Paris, Regions4 launched **RegionsAdapt**, the first global initiative aiming to step up global ambition on climate adaptation by bridging the gap between the decisions taken at the national level and on-the-ground implementation. In 2021, RegionsAdapt has become an **official partner of the global campaign Race to Resilience** and gathers a community of 77 regional governments, from 29 countries and 5 continents, working collectively to contribute to achieving the resilience of 4 billion people vulnerable to climate change by 2030.

Regions4 endeavours to **inspire and support regions to develop ambitious adaptation plans and strategies**; take innovative actions in areas such as agriculture, energy, biodiversity, water, and infrastructure; and report on their efforts to reduce vulnerability and climate risks. In collaboration with the UNFCCC Local Government and Municipal Authorities constituency (LGMA) and the Marrakech Partnership for Global Climate Action (MPGCA), **Regions4 advocates for a multi-level action COP** by bringing forward best practices, evidence, and key recommendations to co-create and co-design the actions that protect human lives, ecosystems, and livelihoods to truly transition towards resilient economies and territories.

Main recent programmes and projects

#RegionsVoice

The #RegionsVoice campaign is a collective effort to bring the voice of regional governments to the major events and negotiation processes in sustainable development within the UN. In 2021, as part of the mission to provide a united voice for regional governments, Regions4 worked with the Under2 Coalition to provide visibility on the road to COP26 to the impacts of climate change at regional level and what regions stand to lose, while showcasing regional leadership through the initiative #WhatsAtState.

RegionsAdapt

Driven by the governments of Rio de Janeiro and Catalonia, RegionsAdapt is the Regions4 for Sustainable Development climate adaptation initiative, launched at COP21 in Paris. Regions4 coordinates this initiative, which encompasses more than 77 regions from five continents– impacting over 300 million citizens. Through knowledge exchange, capacity building, advocacy, monitoring, and reporting, RegionsAdapt works to catalyse innovation on adaptation, foster cooperation, and support regional governments to improve their resilience.

By joining the RegionsAdapt initiative, regional governments commit to:

1. Prioritize and plan, adopting an adaptation plan or programme (mainstreaming adaptation into other sectors and/or policies) within the first two years of joining.

2. Implement concrete actions on adaptation in key identified priority areas.

3. Report annually on their adaptation progress through the Online Reporting Platform in partnership with CDP.

RegionsAdapt launched in 2021 its new strategy 2021 – 2022 to become a reinforced initiative, with concrete services in implementation and cooperation for its members, that aims to increase ambition in climate change adaptation, support the international visibility of regional governments and consolidate itself as the official voice of regional governments working on adaptation on the climate agenda. Its aim is not only to act as the voice of the regions, but also to enable them to be drivers of transformative and lasting change.

Race to Resilience

The Race to Resilience is a global campaign led by the Marrakech Partnership for Global Climate Action's High-Level Climate Champions – Nigel Topping and Gonzalo Muñoz –, launched in January 2021 to catalyse a step change in global ambition for climate resilience, putting people and nature first in pursuit of a resilient world where we don't just survive climate shocks and stresses, but thrive in spite of them.

The campaign aims to catalyse action by non-state actors that builds the resilience of 4 billion people from vulnerable groups and communities to climate risks, by 2030.

RegionsAdapt is a partner of the Race to Resilience as the global initiative engaging subnational governments (states, regions, and provinces) in the global effort of raising ambition in adaptation to tackle climate change.

Some key numbers of the 2021 annual reporting of RegionsAdapt

• 7 new signatories in 2021: Flanders (Belgium), Guanajuato (Mexico), Hauts-Bassins (Burkina Faso), La Rioja (Spain), Maharashtra (India), Mancomunidad Regional de los Andes (Peru), RAP Pacífico (Colombia)

• 25 disclosing regions

• Vulnerability Risk Assessment: 46% regions have undertaken one; 21% are in progress, 29% intending to undertake in the next 2 years; 4% not intending to undertake

• 87% have an adaptation plan in place; 13% do not have an adaptation plan

• Top 5 priority areas addressed in adaptation plans: Forestry, protected areas and biodiversity, resilience and disaster risk reduction, water resources management, agriculture and zootechnics and infrastructure and planning

• Covid-19 impacts and recovery: 29% reported increased finance available for climate action through recovery plans; 38% reported no change on finance available for climate action; 25% reported reduced finance available for climate action, and 8% other impacts

Regions4
Sustainable Development

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	ADPATATION TARGETS
SPAIN	BASQUE COUNTRY	2,199,711	18.6 $MTCO_2E$ (2019, -27% COMPARED TO 2005)	MAKE THE BASQUE COUNTRY RESILIENT TO CLIMATE CHANGE THROUGH 40 ADAPTATION ACTIONS TO BE IMPLEMENTED IN COAST, RIVER BASIN AND URBAN/PERIURBAN AREAS OVER 6 YEARS.

Urban Klima 2050, the largest climate action project in the Basque Country

Urban Klima 2050 aims to implement in the urban context the Climate Change Strategy of the Basque Country – KLIMA 2050. The project seeks to boost the climate governance at all administrative levels through the development of action plans linked to the strategy as well as to promote the integration of climate change in different sectoral policies, such as land use and urban planning, health, water resource management and energy.

Urban Klima 2050 is a demonstrative and action-oriented project in which case studies are being developed as laboratories for adaptation to climate change. The project is led by a consortium made of around twenty organisations and institutions and is coordinated by the Basque Government's public environment agency, Ihobe. It also involves the regional agencies and departments responsible for the management of water resources, energy, health, and ports. Other members of the project are the three provincial governments, seven municipalities, and five research and technology centres.

The project represents a direct investment of 19.8 million euros through the EU-LIFE project and 51% co-financing from the EU. In addition, the project is expected to contribute to mobilising an additional 625 million euros.

The Climate Change Strategy of the Basque Country - Klima 2050 was approved in 2015 as a pioneer tool with a long-term horizon and the integration of both adaptation and mitigation into its objectives in a coordinated manner. However, since then, the international climate change context has evolved significantly, and global objectives are now much more ambitious. For this reason, the Basque Government is redefining the roadmap to 2050 which, in addition to integrating adaptation and mitigation, it also integrates the energy transition factor, with the concept of just transition at the core. The roadmap to 2050 will be supported by two main policymaking components: a strategy to 2030 with specific lines of action, as indicated in the recently launched Energy Transition and Climate Change Plan of the Basque Country to 2024; and a legislative process run in parallel to approve the upcoming Basque Law on Energy Transition and Climate Change.

In this context, the Urban Klima 2050 project is working on the deployment of ambitious climate action in the territory, with actions such as: the application of organic farming, the renaturation of a dam, the creation of an urban marsh, or a flooded forest, are some examples of planned actions that will be implemented over 6 years through the Urban Klima project. The actions under the project have been divided into five blocks: Analyse, Define, Act, Empower, Manage. Under the results listed so far are reports on the state of knowledge and research, pre-implementation studies, guides for policy, and status reports for projects already underway.

Pilot projects are being implemented across intervention areas across the different levels of actions of the project – coast, river basin and urban/peri-urban regions (**ref. figure**).

URBAN KLIMA 2050 AREAS OF ACTION

ENERGY CITIES

Year of creation

1990

Total members

175

direct members representing over 2,700 local authorities

New members added in 2021

6

Energy Cities is a learning community for cities engaged in future-proofing their economies and societies, built around a "local and sustainable first" approach. There are no conditions to join other than the ambition and the commitment to share experiences. As part of the Energy Cities network, local leaders share, inspire, and learn from each other -building better, more inclusive, and more local sustainable solutions for their citizens. Energy Cities showcases tangible alternatives deployed by municipalities, advocates for change in political and economic governance at all levels. It focuses on four main resources-based systems (energy, food, materials and shared-space system) essential to the thriving of local communities within the planet boundaries.

In practice, Energy Cities provides support to local energy and climate actions through:

- The design and implementation of funded-projects bringing together municipalities, academia, NGOs and any relevant stakeholders
- Policy and advocacy activities
- Capacity-building and knowledge-sharing
- International visibility through diverse communication channels

Main recent programmes and projects

Through the various projects it supports, Energy Cities challenges the way energy is dealt with in all spheres of a municipality. They present an opportunity to fund novel and unheard-of practices in urban and rural areas, and to experiment with other local governments. The successful solutions produced through these projects can potentially serve as blueprints for peers facing similar challenges. Participation of cities in EU-funded projects is also essential to demonstrate to policy-makers how a locally-based energy transition can shape according to local peculiarities.

Decarb City Pipes 2050 - Fossil-free districts and buildings

Decarb City Pipes 2050 showcases how local authorities can build capacity to succeed in showing fossil fuels the door. Bilbao, Bratislava, Dublin, Munich, Rotterdam, Vienna and Winterthur join forces to learn from each other and elaborate roadmaps towards decarbonised heating and cooling systems by 2050. Enriched by an advisory board, the project aims to empower more than 220 public officers and improve over 50 local heating and cooling policies. Ultimately, it strives to motivate and support 80 cities to start the same roadmap process. For cities to achieve their decarbonisation, they need to increase their skills through capacity-building and capitalisation of existing tools. If this does not create new workforce, it can at least favour the replication of best practices, also in terms of resource efficiency. In addition, Energy Cities published a policy paper on why and how fossil fuels in buildings will be history by 2050.

Tomorrow - Future-proof local governance

Tomorrow is an EU-funded project, aiming at empowering local authorities to develop 2050 transition roadmaps together with citizens and other relevant stakeholders. To achieve the ambitious climate neutrality goals locally, municipalities are important stakeholders but not the only decision-makers anymore. In this project, 6 cities – Brasov, Brest, Dublin, Mouscron, Niš, Valencia – implement future-proof local governance mechanisms by promoting a sharing of responsibilities among all local stakeholders. Related to that, Energy Cities published a report on local PACTS and how municipalities create their own COP21. This publication investigates tools and examples of cities and territories to launch local processes that set ambitious climate targets with local stakeholders.

European City Facility (EUCF) - Building the capacity of local authorities

Cities experience difficulties in accessing the funds made available to them. Indeed, there is a disconnect with the culture of the financial world and they lack the capacity to prepare a well-structured plan to respond to a call for projects. Similarly, the world of finance and investment is not familiar with the way cities operate. The aim of the EU City Facility is therefore to bring together the expertise of cities and the financial world in order to empower cities to develop their know-how and gain access to a variety of new sources of funding. In concrete terms, the selected cities in the EUCF receive technical and financial support to develop a mature and credible investment concept. One of the factors that made the EUCF successful is the very easy, accessible and efficient application process. Furthermore, the programme is effective because it targets a specific need of cities: the development of financial know-how and capacities.

Cities Stories – the podcast by Energy Cities

Cities Stories is a podcast with interviews and stories of committed people who are inspiring contributors to the energy transition in cities and towns. Each month, Energy Cities's podcast has a new guest, showcasing a wide range of stakeholders from different horizons and sectors in Europe, all working towards more sustainable and more democratic societies. Each episode presents the story of a member city, sharing experiences and lessons on topics such as community energy, energy poverty, "smart" cities, with the goal of improving local planning and energy practices.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
SPAIN	CÁDIZ	120,000	305,681 tCO_2/YEAR	-40% (BASELINE 2030 SCENARIO)

Cádiz, at the forefront of the municipalisation of energy

A port city of 120,000 inhabitants located in the south of Andalusia, capital of the eponymous province (1,200,000 inhabitants), Cádiz is considered as a model of municipal energy policy in Spain and in Europe. A signatory to the Covenant of Mayors for Energy and Climate in Europe since its launch in 2009, Cádiz committed to reducing its emissions by 21% in 2020, as compared to 2007. Though no results were reported, the city announced the publication of an adaptation plan and an action plan in favour of Sustainable Energy and Climate Action Plan (SECAP) and the update of its emissions inventory at the end of 2021, with a target of reducing emissions by 40% by 2030. In 2016, it was estimated that the city's carbon footprint amounted to 305,681 tCO_2/year.

Participatory municipalisation of energy

The originality of Cádiz is based on the existence, since 2000, of the largest semi-public electricity distribution and supply company in the country, Eléctrica de Cádiz (EdC), which is 55% owned by the municipality (the rest by Endesa and Unicaja Bank).

Since 2015, EdC has encouraged active participation in the public management of electricity through the organisation of round tables on energy transition (MTEC) and against energy poverty (MCPE). A decision by an MTEC led EdC to supply certified 100% renewable electricity, thanks to guarantees of origin. This performance allowed EdC to claim a reduction of 58,500 tCO_2 compared to before.

Cádiz struggled for a long time to develop the production of electricity from renewable energy on its territory, even though the city benefited from one of the highest levels of sunshine in Europe – conducive to the development of photovoltaics. EdC does not produce its own energy and does not directly invest in renewable generation capacities. But it has encouraged self-consumption since 2018. In January 2020, a 50% exemption from the property tax was implemented by the municipality for all housing and premises which installed photovoltaic panels for their own consumption, in addition to a 95% reduction in the tax on constructions, installations and works.

The fight against energy poverty

Since 2015, the fight against energy poverty has become a priority for the government "del cambio", an alliance of the two coalitions "Ganemos Cádiz" and "Cádiz sí se puede". Hard hit by the economic crisis of 2008, Cádiz then had one of the highest unemployment rates in Europe (30%). A diagnosis revealed the municipality's energy wastage and citizens' lack of understanding of their energy bills. The new majority therefore launched a first "Shock plan against energy poverty". Three editions of this plan made it possible to provide personalised follow-up to 2,218 families, the organisation of 155 workshops on energy savings and understanding electricity bills (in which 1,670 people participated, including households suffering energy poverty). In 2017, an MCPE led to the adoption of a social tariff (Bono Social Gaditano), funded in equal parts by the municipality and EdC to reduce the energy bills of the most impoverished families.

In November 2020, EdC signed a new agreement with the municipality of Cádiz and the social services to establish the "Annual Energy Coverage" (Cobertura Energética Annual – CEA), a new aid intended to guarantee minimum access to energy to the neediest families who struggle to pay their bills. In return for this measure, which was trialled for a year in 30 families during a pilot phase, each beneficiary household must attend a training workshop on energy efficiency. The CEA also offers EdC a new pricing rationale for consumers. There is a national social tariff to which each of the country's 500 electricity suppliers contributes, but only a handful of "Benchmark suppliers" are entitled to distribute, thus favouring large national suppliers at the expense of municipal companies.

Source : Eléctrica de Cádiz

FEDARENE

Year of creation

1990

Total members

80+

New members added in 2021

n.a.

The European Federation of Agencies and Regions for Energy and Environment (Fedarene) was created on June 8, 1990, by 6 regional authorities: Rhône-Alpes, Provence-Alpes-Cote d'Azur, Aquitaine, Nord Pas-de-Calais (France), Wallonia (Belgium) and the Basque Country (Spain). Encouraged by various programs of the European Commission, these authorities wanted to make the regions' voices heard in the debate on energy and environmental policies at European level. It seeks to promote the exchange of experiences and the development of transnational projects by providing a forum for discussion, for its members and all stakeholders involved in the energy transition: public authorities, non-governmental organizations, citizens, small and medium-sized businesses and financial institutions. Successive enlargements of the European Union have extended the sphere of influence of FEDARENE. Today, more than 80 organizations from 23 European countries form the FEDARENE cooperation network. In addition, this network is also one of the founding partners of the Covenant of Mayors for Climate and Energy, launched in 2008.

The Network has its office in Brussels, and is directed by a Board of Directors composed of 16 members, representatives of Fedarene regions or Provinces from across Europe.

Main recent programmes and projects

Fedarene has 3 principal missions, along which its activities are organised : building capacity and partnerships by participating in EU programmes and sharing good practices, sharing knowledge by promoting the exchange of experience and the development of transnational projects, and shaping EU policy by providing a forum of discussion for stakeholders of the energy sector and promoting the regional dimensions in energy debates.

There are 10 working groups under the network, facilitating exchanges between stakeholders on specific topics, each within a certain domain, including topics like energy sufficiency, renewables, climate adaptation, circular economy, data monitoring, mobility, and islands and rural communities. Adapting to the evolving health situation, these working groups have had various online sessions in 2020 and 2021, bringing together experts in the field and the members of the network. Fedarene is currently involved in 12 EU projects, listed on the Sustainable Regions in Action 2022 report, including the Covenant of Mayors in Europe (see Covenant of Mayors for Climate and Energy in Europe), and the European City Facility (in partnership with Energy Cities and Climate Alliance – see Energy Cities).

ENERGee Watch

The ENERGee Watch network connects regional and local authorities that exchange on the collection, monitoring and dissemination of climate and energy data at local and regional level. Thanks to a EU H2020 grant, they launched thee ENERGee Watch peer-to-peer learning programme that allow LRAs to define, verify and monitor their energy and climate actions. Seven regional energy agencies are involved: Alba Local Energy Agency (Romania) (**ref. case study**), Auvergne Rhône-Alpes Energie Environnement, Île-de-France Energy and Climate Agency (France), 3 Counties Energy Agency (Ireland), Cyprus Energy Agency (Cyprus), Plovdiv Energy Agency (Bulgaria) and Energy Agency of Savinjska (Slovenia). Concretely, the project is providing learning sessions on Energy data collection, Data monitoring and validation, Indicators for climate change, and Data display, dissemination and validation. The second learning cycle is beginning in March 2022

RELaTED

RELaTED (REnewable Low TEmperature District) provides a demonstrated concept of ultra-low temperature network solution for new district heating systems and the progressive conversion of currently running district heating systems in order to decarbonize energy supplies in urban environments.

It is coordinated by TECNALIA, a center of applied research and technological development in the Basque Country. Several pilot projects across Europe have been achieved:

• A collaboration with the Basque Government has made possible the renovation of the Iurreta's site, to reduce its energy consumption and install a distribution ring at ultra low temperature (35°C) working in parallel to the pre-existing network, allowing demand-driven heat exchanges.

• Three other pilot sites in Denmark, Estonia and Serbia, which are already delivering promising results. For example, the experience in the Tarkon area is now extended over the full district heating network in Tartu (Estonia). With the local partner GREN, RELaTED has already tested the capactiy to reduce distribtion network loss by 5%.

Other projects

Other projects that Fedarene is actively involved in include:

• Opengela, consists in the creation of neighbourhood offices which provide advice and support to the community through the whole process of renovation of their buildings; Thanks to a European Horizon 2020 funding, it will implement offices in two districts in the Basque Country (Spain) that will be then replicated within the region.

• Green Hysland, which aims to create the first green hydrogen ecosystem in the Balearic Islands; It would produce, generate and distribute 300 tonnes of renewable hydrogen per year thanks to solar energy on the island of Mallorca. Enagas, which owns and operates Spain's gas grid, coordinates the project, funded by the EU (Horizon 2020).

• PROSPECT+, enabling capacity building in regional and local authorities in order to finance and implement effective and efficient sustainable energy plans, including their proper monitoring and verification and ensuring synergies with other local plans.

• the QualDeEPC project, which attempts to achieve a high-quality Energy Performance Assessment and Certification in Europe accelerating deep energy renovation.

• REGILIENCE, which aims to foster the adoption and wide dissemination of regional climate resilience pathways, following a demand-driven approach and bearing in mind the expertise and knowledge acquired. It began in 2021, and is coordinated by the Institute for European Energy and Climate Policy.

• REMARKABLE will build a Climate Leadership Programme through a people-centred approach in order to support leaders of public authorities and communities in implementing transformational roadmaps and innovative solutions to achieve climate neutrality by 2050.

• The recently launched ePLANET project aims to improve the coordination between local authorities and regional governments by fostering the digitalisation of energy data available in dispersed data sources, and is set to run between 2021 and 2024.

• The Energy Efficiency Watch 4 (EEW4) contributes to achieving the Energy Efficiency Directive by allowing implementation of policy instruments for energy efficiency.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION OBJECTIVES
ROMANIA	ALBA IULIA	66,369 (2018)	210,189 TCO_2 (2008)	-24 % IN 2020 (BASELINE: 2008)

Alba Iulia takes up the building decarbonisation challenge

The Alba Local Energy Agency (ALEA), created in 2008 with main objective to support local authorities in the Alba county, has been supporting the Alba Iulia Municipality since its establishment. The city has made remarkable progress in its sustainable development, notably in the improving its building sector. The Sustainable Energy Action Plan of the municipality, which is currently under implementation, led to several initiatives being adopted by the city, in line with its commitments upon joining the Convention of Mayors.

The 2008 Baseline Inventory revealed that more than 50% of the city's emissions came from the heating of buildings, and over 21% from transport (**figure**). While electricity accounted for only about 12% of the energy consumption of the city, the emissions related to this were higher due to the low efficiency of electricity generation and the wastage during transmission. Thus, the main areas for action identified by the city in its SEAP were the residential and public building sector, through increasing energy efficiency and increasing the share of renewables, especially locally-generated; the tertiary building sector from improved energy efficiency, building insulation and the automation of energy consumption; and the transport sector, through the promotion of public transport, and soft mobility.

Energy efficiency improvements in public infrastructure

Some of the projects that have been implemented or are in the process of being so include: the modernisation of a large part of the city's public lighting system; thermal rehabilitation of several important blocks of flats that presented really low energy efficiency; carrying out energy efficiency works on several public buildings, especially educational ones; and the acquisition of electric buses for the public transportation fleet (which is an important, ongoing project).

Additionally, there are several large-scale initiatives that have been started this year, including: the implementation of a renewable energy project aimed to supply solar energy to Municipal Olympic Pool; the installation of PV panels on the roofs of 6 public educational buildings; the installation of heat pumps to supply an important elderly home with green thermal energy; the launch of a study to identify the energy poverty levels in the social housing area and to find innovative solutions; the renovation of the building of most important college in the city (the HCC National College) into an Nearly Zero Energy (nZEB) one.

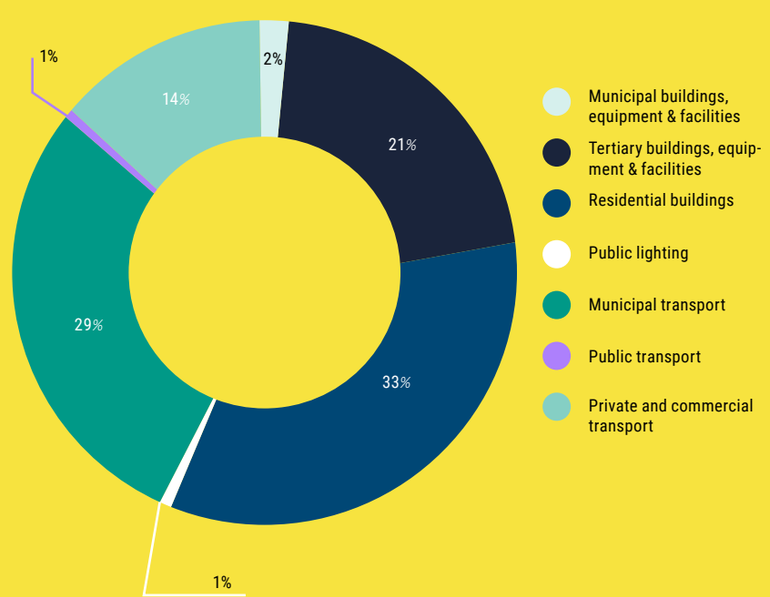
Preparing to adapt to climate risks

Alba Iulia is also working on upgrading its adaptation plan for climate change. The commitment of the city in attaining its targets for sustainable development also extends to its public investment policy, where the share of financing for "green" projects implementation will reach almost 50% from entire investment sum in the next period.

The ALEA, supporting around 15 other municipalities in Romania, has also set up ANERGO – the Alba Energy Observatory. ANERGO supports these cities, including Alba Iulia, in collecting and compiling energy and climate data. The Local Climate Risk Analysis, developed through ANERGO, includes an assessment of the main types of environmental and climate phenomena that can negatively impact one or more municipal sectors, which can cause material damage or endanger parts of the infrastructure built on the territory of the local authority. Those areas of interest are targeted according to the methodology of the Covenant of Mayors.

HG EMISSIONS (TCO_2E) OF ALBA LULIA IN 2008

Source: Alba Iulia PAED, 2019



Year of creation

2000

Total reporting LRGs

1,128 cities, 96 states and regions

New reporting LRGs in 2021

395 cities

CDP is a global not-for-profit charity that runs the world's disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. Over the past 20 years it has created a system that has resulted in unparalleled engagement on environmental issues worldwide. Working with more than 590 investors with over $110 trillion in assets, CDP pioneered using capital markets and corporate procurement to motivate companies to disclose their environmental impacts, and to reduce greenhouse gas emissions, safeguard water resources and protect forests.

Over 14,000 organizations around the world disclosed data through CDP in 2021, including more than 13,000 companies worth over 64% of global market capitalization, and over 1,200 cities, states and regions. CDP is a founding member of the Science Based Targets initiative, We Mean Business Coalition, The Investor Agenda and the Net Zero Asset Managers initiative.

Main recent programmes and projects

CBCA

The City-Business Climate Alliance is a joint initiative between C40, CDP and the the World Business Council for Sustainable Development - a global alliance forging city-business partnerships on climate action. City-business collaboration has huge potential to reduce emissions on a greater scale than the city or individual businesses could manage alone, by maximising the assets of each actor and implementing the ambitious, coordinated local climate action needed to create inclusive, prosperous and climate-safe cities.

The initiative operates a two-tier global model: closely supporting cohorts of cities in building city-business partnerships from conception to long-term self-sustainment, while convening a wider network of cities and global businesses to share expertise, advocacy and learnings. In doing so, the CBCA drives both concrete city-level action and systemic transformation on a global scale.

SBTs

Building on its work as one of the founding members of the Science Based Targets Initiative, CDP is one of six core cities partners in the Science Based Targets Network. As part of this network, CDP is taking a leading role in driving the development and adoption of science-based climate targets for cities.

Science-based climate targets are measurable and actionable city-wide emissions reduction targets that allow cities to align their actions with the goal of limiting global warming to 1.5˚C. They are a core pillar of the UNFCCC's Race to Zero campaign, which has seen over 1,000 cities commit to set a science-based target. CDP is supporting cities to set, disclose and track progress against their science-based targets through annual disclosure.

As of 23 February 2022, it showed 2,530 companies committed to setting a "science-based" emissions reduction target, aligned with the Paris Agreement's 1.5ºC and 2ºC targets. Of these, 1,181 have been certified as «science-based», i.e. their emission reduction targets have been approved in accordance with the SBTi.

In October 2021, SBTi unveiled its Corporate Net-Zero Standard, in partnership with CDP, Global Compact, the World Resource Institute and WWF, in order to guide companies to set net zero targets that are consistent with societal climate and sustainability goals withing the biophysical limits of the planet. Seven companies have validated net-zero targets approved in a pilot validation process for the Standard,a nd over 600 companies are already committed to setting net-zero targets through the Business Ambition for 1.5C campaign – they have 24 months to submit targets for validation by the SBTi.

Urban Health

Over the past two years, the CDP Cities team has been running an **Urban Health Initiative** aimed at helping cities build stronger and more compelling business cases for action and investment by framing climate change as the urgent public health crisis it is.

In doing so, CDP aims to help cities win greater public, political and financial support - investment and support cities can use to build more resilient communities and implement more ambitious sustainability plans. While still very new, this initiative has already experienced some early successes, such as the development and inclusion of new health-related questions and guidance in the CDP Cities questionnaire, the 2020 Urban Health webinar series (which saw record registrations from global cities) and developing city-level climate and health policy briefs with the WHO (launching for pilot cities soon).

Matchmaker

Through Matchmaker, CDP leads capacity development efforts for cities and produces critical data insights into urban climate infrastructure development and finance. Climate-related activities in cities are often isolated from economic development outreach, creating communication and information barriers between cities and potential investors. To address this challenge, Matchmaker works with cities to highlight low carbon and climate resilient projects to potential investors, serving as a clearinghouse for cities to showcase planned projects and better position them to mitigate against, and adapt to, climate change. In their disclosure to CDP in 2021, 530 global cities identified more than 1,500 projects that are seeking funding for climate action.

Disclosures

CDP offers a Unified Reporting System with ICLEI for cities to report their carbon emission accounting. (**ref. Part I**)

Besides, CDP also endeavours to mainstream transparency by supporting companies to demonstrate leadership regarding their environmental practices. In 2021, more than 13,000 companies representing over 64% of global market capitalization disclosed their practices regarding climate change, water security and forests. CDP scores measure the comprehensiveness of disclosure, awareness and management of environmental risks and best practices. Some 272 companies were scored an A regarding climate change; 24 have made forests A List and 118 received an A for their water security disclosure. Questionnaires of CDP are aligned with the recommendations of the TCFD.

CASE STUDY

COUNTRY	CITY	POPULATION	LAST REPORTED EMISSIONS	MITIGATION AND ADAPTATION OBJECTIVES:
SOUTH AFRICA	CAPE TOWN	4,700,000	20,351,323 TCO_2e (2018)	GHG EMISSIONS: -9.41% BY 2030. WATER SUPPLY: 99.5% ASSURANCE OF SUPPLY BY 2030.

Three years after a record water shortage, Cape Town has turned into an award-wining water-saving city

Cape Town is renowned around the world for being a city that risked running out of water due to severe drought. In March 2018, at the height of a multi-year drought – the worst on record – the dams supplying the city dropped to one fifth of their capacity. A disaster was only avoided by the combined effort of residents and the city reducing water use through a range of technical and behavioural interventions. Cape Town has since won an award from the International Water Association as the first city to reduce water demand by half in just three years without resorting to intermittent supply, and has become known as the best example of a water-saving city in the world.

Situated on the coast of the southern-most tip of sub-Saharan Africa, Cape Town is particularly vulnerable to climate change induced droughts, and is predicted to see lower and less reliable rainfall in the decades and centuries ahead. At the same time, Cape Town has challenging socio-economic issues, with many of those facing ongoing water stress being economically and socially marginalised. This combination of challenges became particularly visible during the drought, which lasted from 2015-18.

Cape Town's Water Strategy

As a result, the city is now committed to strengthening its water resilience and thereby improving the quality of life of its citizens. This commitment was made official in the Cape Town Water Strategy, which details five separate commitments aimed at achieving 99.5% assurance of water supply by 2030.

Cape Town's drought adaptation and water security strategy is a key pillar of the city's fight against climate change. Cape Town is opting for a multi-dimensional approach, including behaviour change, demand management through pressure management and leak prevention, and implementing supply augmentation interventions such as desalination, groundwater use, water reuse and clearing invasive alien vegetation.

A core commitment in Cape Town's Water Strategy is safe access to water and sanitation. The Water and Sanitation department can make the most difference here by increasing availability of toilets, locating them strategically, and promoting alternative typologies that remove the need to leave the home at night.

Secondly, the city is committed to promoting the wise use of water by all. This is achieved by revising by-laws and planning requirements, managing the water network more efficiently to reduce losses and non-revenue water, and promoting water-saving behaviour. Overall water use has reduced from 250 litres per person per day in 2004 to 140 litres per person per day in 2021.

Another core pillar of the water strategy is to secure a sufficient, reliable supply of water from diverse sources, including groundwater abstraction, water reuse, and desalination. In total, the city is aiming to bring online approximately 300 million litres per day of new water over the next ten years, and in additional increments thereafter. This will be done through new incentives and regulatory mechanisms as well as through the way the city invests in new infrastructure.

A multifaceted implementation

Tapping into groundwater is well underway with two new aquifer abstraction schemes having been established during the drought and an upgrade of an existing one having taken place. Managed Aquifer Recharge will be employed to maximise groundwater recharge and storage and prevent sea water intrusion at the Cape Flats Aquifer project as this is a shallow/unconfined aquifer. Furthermore, the design of desalination and water reuse schemes are well-advanced. Lessons have been learned during operation of temporary desalination and a water reuse demonstration site that were procured during the drought emergency.

Cape Town's relationship with how it uses and consumes water is thus changing rapidly. With the World Health Organisation stating that each person needs 50 litres of water per day for our basic needs, much is still to do to secure a sustainable pathway to the city's water future for all of the most vulnerable members of society. But the city's pro-active measures to reduce the risk of severe drought and its resilience during the water crisis are great examples of local adaptation leadership, preventing a near catastrophe in 2018 and boosting resilience and preparedness for the future.

This case study is based on the City of Cape Town's 2021 response to the CDP-ICLEI Unified Reporting System, City of Cape Town's Water Strategy 2020, the help of the City of Cape Town staff and other publicly available sources. It has been endorsed by the City of Cape Town.

PART FOUR

REGIONAL GOVERNMENTS IN THE EUROPEAN LOW-CARBON STRATEGIES

OFTEN DRIVERS OF ACTION, LOCAL AND REGIONAL GOVERNMENTS ADAPT THE PACE OF THE TRANSITION TO MATCH THE NEEDS AND CAPACITIES OF THEIR COMMUNITIES

Local and regional governments (LRGs) set to be key players in climate action through their post-2020 commitments

RACE TO ZERO

In total, 1,049 cities and 67 regions have committed to Race to Zero, the global campaign launched by UN High-Level Climate Champions Nigel Topping (COP26) and Gonzalo Munoz (COP25) in 2020 to mobilize non-state actortowards net-zero emission by 2050. *UNFCCC*

>1,500
$MtCO_2e$/year

LRGs IMPACT POTENTIAL

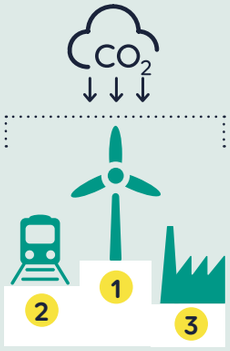
In the ten major emitting economies, the impact of fully implemented, recorded and quantified commitments on global greenhouse gas emissions in 2030 would be reductions of more than 500 $MtCO_2e$/year for cities, and more than 1,000 $MtCO_2e$/year for states and regions. *NewClimate Institute, 2021*

Renewable energy, a key factor in reducing emissions from cities and regions

834
cities

NUMBER OF CITIES HAVING ADOPTED A RENEWABLE ENERGY TARGET

834 cities had, as of 2020, adopted an objective in terms of renewables in at least one sector. 617 set objectives of 100% renewables for their energy procurement. *REN21, 2021*



FACTORS IN REDUCING EMISSIONS FROM REGIONS

The deployment of renewables is the main factor highlighted by European regions reporting a recent decrease in emissions to the CDP in 2021, followed by transport and industry.

Climate chance, from *CDP, 2021*

Learning from Covid, local governments encourage modal shifts towards electric and soft mobility

NEW CYCLE LANES IN EUROPE

1,441 km of new cycle lanes were created in Europe between March 2020 and April 2021, out of 2,591 km announced by cities. *European Cyclists' Federation, 2021*

CITIES WITH A LOW-EMISSION ZONE

231 cities, among which 225 are in Europe, have a low-emission zone. This is 11% more than in 2019. *REN21, 2021*

In the building sector, local regulation accelerate the decarbonation

CALIFORNIAN CITIES HAVING ADOPTED MEASURES SUPPORTING THE ELECTRIFICATION OF HEATING IN NEW CONSTRUCTIONS

In February 2022, Contra Costa County became the 54th Californian city/county to adopt a measure supporting electrification or prohibiting gas in new buildings. *Sierra Club*

CITIES HAVING REPORTED THE IMPLEMENTATION OF BUILDING EMISSIONS MITIGATION ACTIONS TO CDP

These actions include renovation, adoption of energy codes, standards or regulations for construction or renovation, or even programmes for reporting emissions.

Climate chance, from *CDP, up. 2021*

Facing climate change risks, LRGs are developing their adaptation action

ADAPTATION ACTIONS THROUGH THE EUROPEAN COVENANT OF MAYORS

2,376 adaptation actions have been submitted to the European Covenant of Mayors by its 10,868 signatories. 73% of them are related to agriculture.

CoM Europe

CITIES AND REGIONS WITH AN ADAPTATION PLAN AMONG THOSE REPORTING TO CDP

More than half of the cities (57%) reporting to CDP in 2020 and of the regions (53%) reporting in 2021 have an adaptation plan.

Climate Chance, from *CDP, 2021*

SIGNATORIES OF REGIONSADAPT

7 new regions have joined this initiative coordinated by the Regions4 network in 2021, bringing the total to 77. They are committed to developing, implementing and monitoring an adaptation plan.

Several years after their adoption by the States, the Sustainable Development Goals (SDGs) are permeating LRGs' actions

NUMBER OF VOLUNTARY LOCAL REVIEWS (VLRs)

The total number of VLRs worldwide has doubled in one year (from approximately 40 VLRs in June 2020 to more than 100 in June 2021). In these documents, local governments assess the progress of the SDGs in their territories. *UCLG, 2021*

NUMBER OF VOLUNTARY SUBNATIONAL REVIEW

In 2019-2020, some 30 regions published a Voluntary Subnational Review, a new approach at this tier.

Regions4, 2021

SHARE OF EUROPEAN COMMUNITY NETWORKS THAT ARE AWARE OF THE SDGs

This share is slightly higher than last year.

CEMR, Platforma, 2021

European Regions Illustrate the Central Role of Local and Subnational Governments in a Just Transition Towards a Low-carbon Economy

Regional and local governments around the world are subject to the same general trend as other non-state actors: acting to mitigate climate change is ever more urgent, as is the need to anticipate and adapt to its increasingly visible impacts. Caught between dictates, local authorities are innovating: rather than separating their action between climate change mitigation and adaptation, more and more of them are setting up measures that combine both, from electricity supply to transport, and nature in cities. The first part of this analysis takes a closer look at this phenomenon.

In Europe, recent years have also seen a turning point in climate policies, with the launch of the European Green Deal in late 2019, the start of a new multi-annual financial framework (MFF) in 2021 and the setting up of the European recovery plan to help Member States to face difficulties due to the Covid-19 pandemic. Although the Recovery Plan for Europe, supposed to create a "green, digital" Europe, gives nation states a driving role, the climate dimension of the EU Cohesion Policy, which is aimed at regions, gains strength with the Green Deal. The second part of this analysis – the longest – aims to analyse the role that the EU gives to regions for reaching carbon neutrality, and the concrete action taken by regional and subnational European governments to bring down their greenhouse gas emissions.

Climate action in one fell swoop: pushed by the Covid-19 pandemic, local governments take on mitigation while building resilience

Local and regional governments are key players in the reduction of greenhouse gas emissions

According to a study by the NewClimate Institute published in 2021, the aggregated emissions reduction targets set by cities in ten major emitting economies would result in a reduction of over 500 $MtCO_2e$/year in 2030, while the targets set by regions would result in a decrease of more than 1,000 $MtCO_2e$/year[1]. According to the Coalition for Urban Transitions, greenhouse gas emissions in cities could be reduced by almost 90% by 2050 with measures that are both technically feasible and widely available[2]. Moreover, local and regional governments (LRGs) are crucial in implementing climate measures: 70% of mitigation measures and 90% of adaptation measures cannot be implemented without them[3]. Whether directly (via the services proposed and the equipment they possess) or indirectly (as the organizing authority of the territory, able to influence its development), local governments can use numerous levers to reduce greenhouse gas emissions on their territories.

In addition, numerous national and international networks and initiatives exist to support LRGs in their climate action (**ref. Part III**). Through exchanging good practices, sharing resources, and setting common targets, these cooperation structures encourage and support action. According to the NewClimate Institute, if the climate targets set by the main international cooperation initiatives on climate (Global Covenant of Mayors, Under2 Coalition, etc.) were reached by all of their members, it would lead to a decrease of 2 $GtCO_2e$/year in 2030[4].

Weaker finances and capacities for action due to the pandemic

The Covid-19 pandemic generated an unprecedented shock for local and regional governments (LRGs). They found themselves on the frontline to manage a health and social emergency, illustrating their indispensable role in ensuring access to key services. Nevertheless, the numerous impacts of the crisis reduced their revenues, especially from transport, and increased their emergency expenditure (health, social protection, basic services, etc.). In its 2021 barometer, the European Committee of the Regions (CoR) estimated that the pandemic triggered an increase in expenditure by local and subnational European[a] governments of around 125 billion euros for emergency public health measures and support for individuals and business. In parallel, the CoR observed a drop in their income of about 55 billion euros, due to a dive in economic activity and so revenue from taxes. This overall shortfall of 180 billion euros, on average 7% of their earnings, hides considerable national differences: LRGs in Germany, Bulgaria and Cyprus were the hardest hit, with losses representing respectively 15%, 15.3% and 25% of their income[5].

The Cities Climate Finance Leadership Alliance also regrets that only a small amount (according to its analysis) of recovery plans have been directed towards local governments, even less so for their investment expenditure (which is generally related to climate action): in October 2020, of the 20,500 billion dollars that had been announced in the world for recovery by countries, development banks and the private sector, only 1,100 billion were partly or fully earmarked for cities, mainly (80%) to make up their short-term deficits[6].

Yet local and regional governments have not put a stop to their climate action. It even appears to have slightly shifted during the pandemic: in the energy, transport and building sectors, several local public action trends are difficult to classify as actions to mitigate climate change (i.e. action aimed at reducing greenhouse gas emissions), adapt to climate change, or build resilience to tackle future potential shocks. Focusing on three subjects (renewable energy, urban transport and nature in cities), the Observatory looks here at three recent action trends by local governments that are innovating by moving away from the usual way of working in silos.

PPAs, a new way for cities to secure their renewable energy supplies

The pandemic has not stemmed the surge in Power Purchase Agreements (PPAs) observed since 2016. In general, PPAs are long-term contracts with fixed or variable prices, negotiated directly between producers and consumers (purchasers) of renewable electricity, without passing through an intermediate supplier. In 2021, PPAs represented 31.1 GW of installed production capacities of low-carbon electricity (+30% compared to 2020), which is about 10% of the renewable capacities installed in the world[7].

a The expressions "regional governments", "subnational governments" and "intermediate governments" are employed in this report interchangeably.

Highly popular with large companies, PPAs are increasingly attracting public actors, in particular big cities with significant financial resources. In total, between 2015 and 2020, the quantity of PPAs contracted by cities in the USA more than tripled, going from 1,062 MW (2015) to 3,306 MW (2020)[8], during which time their price also rocketed[9]. Over that period, almost 90% of renewable electricity purchased by these cities was the object of a PPA[10]. In Europe, London has signed a 15-year PPA with the French renewable energy producer Voltalia. The city has committed to purchasing all of the electricity produced by a 50 MW solar farm being built in the county of Dorset (southern England)[11]. In Australia, thanks to a PPA, the municipality of Melbourne has met 100% of its energy consumption from its renewable energy infrastructures since 2019. In 2020, the city facilitated the signature of a second PPA involving seven local actors that will avoid the equivalent of 1 $MtCO_2$ over the project's 10-year lifespan[12].

PPAs are a way of reducing emissions, bringing down costs and securing supply. In most cases, the capacities that are the object of the PPA have not yet been installed: the contract helps the producing company to finance the project, while the purchaser saves money in supply costs (about 3 million Pounds in the case of London[13]). The PPA therefore appears to be a way of securing both the amortization of developers' investments in renewable installations, and supply for consumers keen to move towards renewable energy – and this security could become all the more interesting following the hike in energy prices seen in Europe at the end of 2021[14].

Weakened by the pandemic, public transport is diversifying its fleets and financing models

From Hong-Kong to Sao Paulo, and London to San Francisco, most urban public transport systems have been hit hard by the crisis[15]. Local governments have deployed a wide range of measures to revive public transport with a move towards softer modes and ensure the resilience of their service system.

Electric buses have gained ground on every continent. Despite the health crisis, global sales of electric buses soared from 2019 to 2020 (+11.54%)[16]. In Latin America, numerous cities have set about converting their bus fleets to electric: Bogota purchased 406 electric buses in 2020, and Mexico 193[17]. Through the Cities Finance Facility, a technical and financial support tool for climate projects, the C40 network has assisted the rollout of electric buses in Quito (Ecuador), Guadalajara (Mexico), Jakarta (Indonesia) and Bangalore (India) (**ref.Part III C40**). In the European Union, according to the European Alternative Fuels Observatory, about 8,000 electric or hybrid buses were in circulation in 2021, about a third more than in 2020[18]. From Finland[19] to Italy[20], just like in Latin America, the Chinese manufacturer BYD won the lion's share of calls for tender launched by big cities. A study on the city of Trondheim (Norway) published in 2021 showed that the conversion of part of its bus fleet to biofuel or electricity enabled a 37% reduction in the fleet's carbon footprint[21].

In parallel, the crisis has considerably accelerated the development of alternative modes of mobility for individuals, led by the bicycle. The European Cyclists' Federation (ECF) reports 2,591 km of bike-friendly infrastructures announced on the European continent since March 2020, 1,466 km of which have already been installed (**fig. 1**). Cycling infrastructures are also emerging in Africa, like in Nairobi (Kenya), which in 2015 committed to allocating 20% of its road infrastructure budget to non-motorized transportation[22], a challenge undoubtedly facilitated by the nomination of a Bicycle Mayor responsible for developing cycling in the city. This position now exists in 109 cities in the world[23]. All of these measures helped encourage the bike boom when the first lockdowns came to an end. Bicycle sales increased by 25% in France in 2020, 45% in the United Kingdom, and 65% in the United States[24]. More people are buying electric bikes too. In 2020, sales shot up by 29% in France[25] and as much as 145% in the United States[26]. Purchase support programmes set up by cities like Paris, Vienna, Guernsey and Madrid have certainly fuelled the trend.

These efforts move in the direction of a diversification of modes of transport and financing. Alongside "traditional" public transport modes, "micromobility" solutions are now a familiar feature in urban streets. The global market counted about 20 million vehicles in 2020, and is expected to grow by 10% per year until 2025[27]. The sector is largely dominated by bicycles (98% of the fleet of shared vehicles in circulation) either organized into depot stations (often part of public shared bike systems) or *free-floating* (no stations). The "bikesharingblog" lists nearly 2,000 bike-sharing systems in the world (765 in Europe, 673 in China, and 203 in North America), up from last year, when for the first time bankruptcies outnumbered start-ups[28]. These systems, many of which are run by municipalities, offer residents new means of transport and are a way for cities to extend their sources of mobility funding. Besides, a number of towns in the United States, France, and even countries like Estonia and Luxembourg, have made transport entirely free, sometimes in reaction to the pandemic.

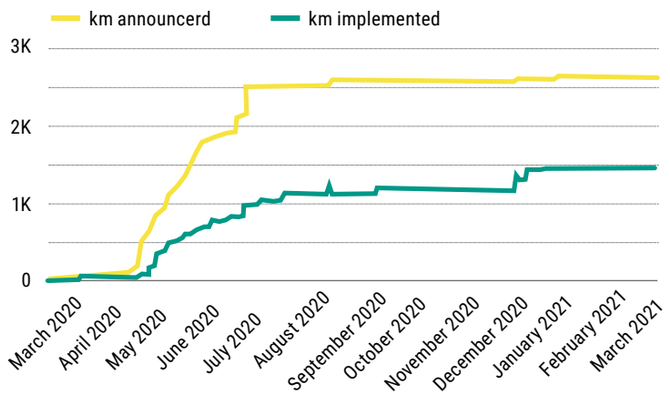
Nevertheless, if these new models are not carefully implemented and combined with an analysis of their social impacts, they can bring the risk of accentuating social inequalities. In the United States, the urban geographer John Stehlin has shown that the development of cycling in Detroit, Philadelphia and San Francisco has gone hand in hand with gentrification, and deepened space, gender and race divisions[29]. Similarly, free public transport tends to benefit often more privileged people living in city centres who have greater access to public transport; and it requires considerable financial resources, which are diverted from other issues just as important for users (punctuality, access for people living on the outskirts of cities, etc.)[30].

Some cities are putting together public policies on transport that take these issues into account. In its new Clean Transportation Electrification Blueprint, the city of Seattle aims to combine the development of electromobility with its commitment towards racial equality and climate justice. The plan targets both reducing emissions from transportation, and promoting electric mobility and active means of transport,

FIGURE 1

NUMBER OF KILOMETRES OF CYCLE LANES ANNOUNCED (IN YELLOW) AND INSTALLED (IN BLUE) IN EUROPE SINCE MARCH 2020

Source : European Cyclists' Federation



while attempting to develop a low-carbon, inclusive economy[31]. In Bogota, where only 24% of cyclists are women, the city has committed to achieving parity in bicycle usage.

Cities look to trees to absorb CO_2 and bring down the heat

In many cities, introducing green spaces and planting trees is a way of mitigating urban heat island effect and building resilience to increasingly frequent and intense heatwaves due to climate change. For example, increasing the surface area covered by green spaces is central to the 2030 Resilience Strategy adopted in 2017 by Athens, one of the European cities most exposed to extreme heat. The city was granted a loan of 5 million euros by the European Investment Bank's Natural Capital Financing Facility in 2019 to restore green areas in its parks and streets, create green corridors between green areas, and restore Mount Lycabettus. In July 2021, the city appointed a "Chief Heat Officer" to organize the capital's resilience to extreme heat, following the example of the US county of Miami-Dade and the city of Freetown (Sierra Leone) (**ref. Part III C40**)[32].

Yet all too often these areas are unequally distributed. In Europe, a recent report by the European Environment Agency underlined the unequal access to nature in cities. Cities in northern and western Europe tend to feature more green areas (in relation to their total surface area) than their peers in the south and east. What's more, within the same cities, green areas tend to be less accessible and of lower quality in disadvantaged neighbourhoods[33]. The situation is similar in the United States: a study published in early 2021 showed that on average, disadvantaged neighbourhoods in US cities have 15% fewer trees than rich neighbourhoods, leading to a temperature difference of around 1.5°C[34].

The European Green Deal propels the regions onto the Climate Action stage

In the European Union (EU), the erruption of Covid-19 coincided with the launch of the European Green Deal, which intends to make Europe "the world's first carbon-neutral continent by 2050". The aim of this new strategy is to guide the next Multiannual Financial Framework (MFF), which establishes the main EU financing for the period of 2021-2027, and in particular its Cohesion Policy. As this new cycle begins, the Climate Chance Observatory has decided to direct its analysis specifically at Europe in an attempt to understand how the Green Deal influences climate action on the continent. A particular focus will be on the climate action implemented by the regions, which are the Cohesion Policy's main targets.

The European Union[b] comprises of many regions, with widely different sizes, populations, administrative statuses, histories and economies. Some of them are federated states, like in Austria and Germany, while others are local authorities within highly centralized states, like in France. In western Europe, regions correspond to historically coherent territories with strong identities that sometimes still maintain rivalry with the central state (e.g. the British nations, the Basque country, and Catalonia). In contrast, in the East, where most countries joined the EU after 2000, regions are simple administrative entities that generally resulted from reforms required by the EU[35]. Five EU countries are not divided into regions: Cyprus, Estonia, Latvia, Luxembourg and Malta.

The Nomenclature of Territorial Units for Statistics (NUTS) of the European Union (EU) is a hierarchical system for dividing up the territory of the EU. It includes 242 "NUTS 2", a scale of reference for its regional policy. This nomenclature does not however correspond to the general usage of the word "region" in all countries, like in France, where former regions that existed prior to the NOTRe Act of 2016 are classed as NUTS 2, and in Germany, where the Länder are generally classed as regions, even though they come into the NUTS 1 category.

The regions form the foundation of the EU Cohesion Policy, where Climate is gaining ground

The project to reduce inequalities between European territories, which dates back to the Treaty of Rome, sees regions as primarily economic entities in the construction of Europe. The founding states of the European Economic Community (EEC), in the preamble to the Treaty of Rome, underlined the concern to "*strengthen the unity of their economies and to ensure their harmonious development by reducing the differences existing between the various regions and the backwardness of the less favoured regions*". At that point in time, the aim of the EEC was to reduce disparities between regions to facilitate the emergence and expansion of a European common market. Three years later, the European Social Fund (ESF), centred on boosting employment, became the project's financial instrument, followed in 1975 by the creation of the European Regional Development Fund (ERDF) to support the economic development of the least advanced regions. Together, the ESF and the ERDF form the "Cohesion Policy", supplemented in 1994 by the Cohesion Fund (**ref. Keys to Understanding**).

At the end of the 1980s, the Single European Act (1986) and the Structural Reform Support Programme (1988) gave EU regional policy a new dimension: the regions became policy partners. The aim was no longer to simply help regions considered to be economically lagging behind, but to also involve them in putting together and implementing EU regional policy, in partnership with the European Commission and national administrations. Depending on the political organization of Member States, regions could even become structural fund managing authorities. The Interreg fund was created in 1990, as part of the ERDF, to promote and finance cooperation projects between regions and/or between different decision-making levels on EU priorities in terms of economic development. Two years later, the Maastricht Treaty created the Committee of the Regions, with a mandate to produce (non-binding) opinions on initiatives and legislative proposals with repercussions on regional and local levels.

The European Green Deal, the European Commission's strategy to reach carbon neutrality by 2050, makes the regions a more obvious option for implementing a low-carbon economy on their territory. Environmental and climate issues are increasingly present in the Cohesion Policy: 20% of funds had to be devoted to mitigation or adaptation projects from 2014-2020, representing about 78 billion euros and up to nearly a third of the ERDF[36]. For the period from 2021-2027, the Green Deal, which was adopted in late 2019 with its numerous sectorial offshoots (Circular Economy, the Renovation Wave, Food, Renewable Energy, etc.), has established a target of bringing the overall figure to 30%, with the rest being subject to the "do no harm" principle. In addition, 10% of annual expenditure from the EU budget in 2026 and 2027 has been earmarked for combating biodiversity erosion[37]. The European Cohesion Policy therefore makes the regions a key level in the implementation of the European Green Deal. To make this central role more concrete, the Committee of the Regions has set up a working group called "Green Deal Going Local" to reinforce the regions' role in the Green Deal's implementation, and showcase their action. A map produced by the EU already features over 200 LRGs steps being taken to decarbonize the European economy.

b This analysis also covers the climate action carried out by the British nations.

The concept of a "just transition", recently made concrete by the creation of a "Just Transition Fund" (JTF) by the European Union, recognizes the role of regions in mitigating their negative economic impacts. The brand new "Just Transition Fund", which was set up as part of the 2021-2027 operational programme, has a budget of 17.5 billion euros to support people who have lost their jobs due to environmental protection policies. It is part of the "Just Transition Mechanism" (JTM), alongside a programme within InvestEU and a loan facility partly managed by the European Investment Bank. To obtain funding, regions need to set up a "Territorial Just Transition Plan" that analyses how this fund works in tandem with the other Cohesion Policy funds (such as the ERDF and ESF+), and the EU carbon neutrality objective must be translated in national policies. The reconversion of the Ruhr, a German region historically known for its mining activities and coal and steel industries, is often put forward as an example of a successful just transition, thanks to long-term planning and constant dialogue between stakeholders[38]. Today, all eyes are on the coal mining regions of Poland (**ref. Silesia case study**), which is set to be the first beneficiary of the fund, with an envelope of more than three billion euros (20% of the fund), followed by Germany (13%) and Romania (11%)[39].

States will also be key actors to support workers and households impacted by transition measures. As part of the new "Fit for 55" package whose target is to reduce emissions by 55% compared to 1990, the European Commission has proposed creating a social climate fund, financed in equal parts by the extension of the EU Emissions Trading System (ETS) to the buildings and road transport and the Member States. With a budget of 144.4 billion euros, this fund could help Member States finance measure to mitigate the social impacts of the new ETS. In a press release published following the announcement of the "Fit for 55" package, the Committee of the Regions made the following observation: "*Europe's regions and cities must be recognised within the Social Climate Fund, alongside the Just Transition Fund, as over centralisation can threaten territorial cohesion and the social fairness of the green transition.*"[40]

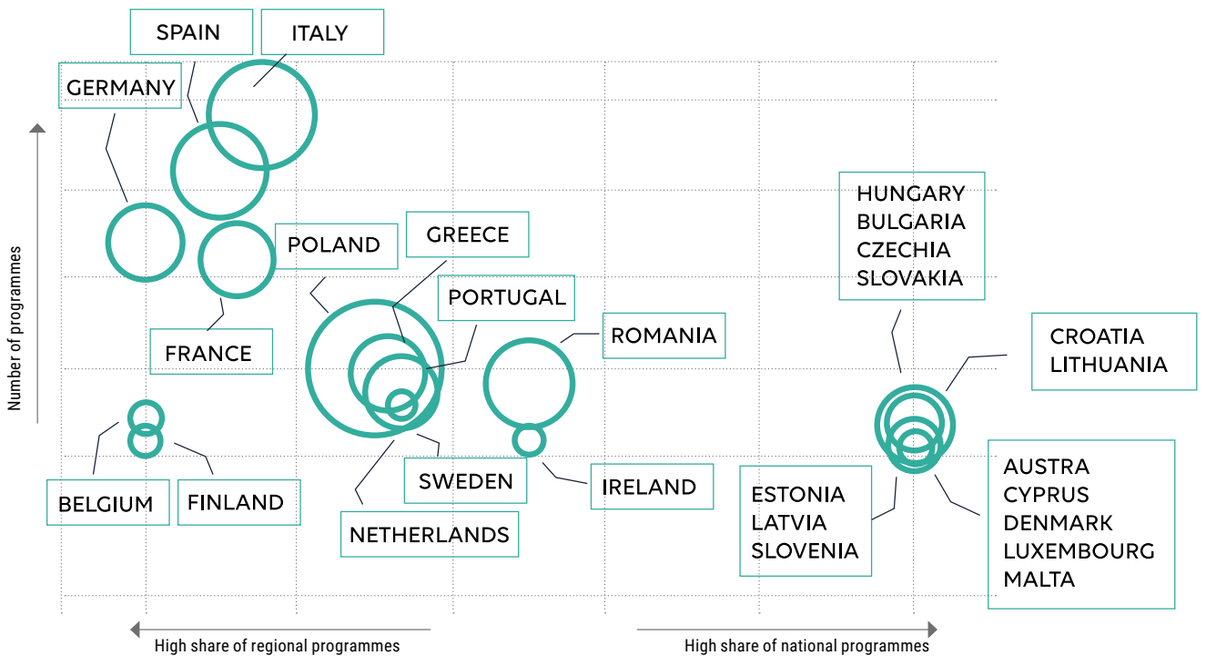
Unequal balance between different levels in the management of EU funds

In western European countries, cohesion programmes tend to target regions more than they do in the East. For 2021-2027, some countries have cohesion programmes at national level only: Hungary, Bulgaria, the Czech Republic, Slovakia, Croatia, Lithuania, Austria, Cyprus, Denmark, Malta and Luxembourg. The other 13 Member States have presented regional programmes. In particular, Germany, France, Italy, Spain and Belgium have put forward a large number (**fig. 2**)[41]. This situation is similar to the previous financing period. Overall, according to a survey carried out by the Committee of the Regions on people involved in putting together operational programmes for 2021-2027, 45% of the programmes consider local and regional features related to implementing the Green Deal, and a little over 15% propose instruments specific to local and regional contexts.

FIGURE 2

REGIONAL AND NATIONAL PROGRAMMES FOR THE MFF 2021-2027

Source: Committee of the Regions, 2021



KEYS TO UNDERSTANDING

EUROPEAN FUNDS AND THE EU COHESION POLICY

The EU Cohesion Policy aims to correct regional imbalances within the EU by providing financial support to projects related to employment, the environment, climate and innovation, through three "structural funds". The biggest one is the European Regional Development Fund (ERDF), which aims to promote and finance cooperation projects between regions and/or between different decision-making levels on EU priorities in terms of economic development (currently: research and innovation, SME competitiveness,the low-carbon economy, and efficient use of resources), is part of the ERDF. Next, the European Social Fund, which recently became the European Social Fund Plus (ESF+) integrating the Youth Employment Initiative, the Fund for European Aid to the Most Deprived, and the Programme for Employment and Social Innovation, aims to support employment and education. As a final point, the Cohesion Fund is reserved to countries whose GNP per capita is lower than 90% of the EU average, in order to promote growth, employment and sustainable development.

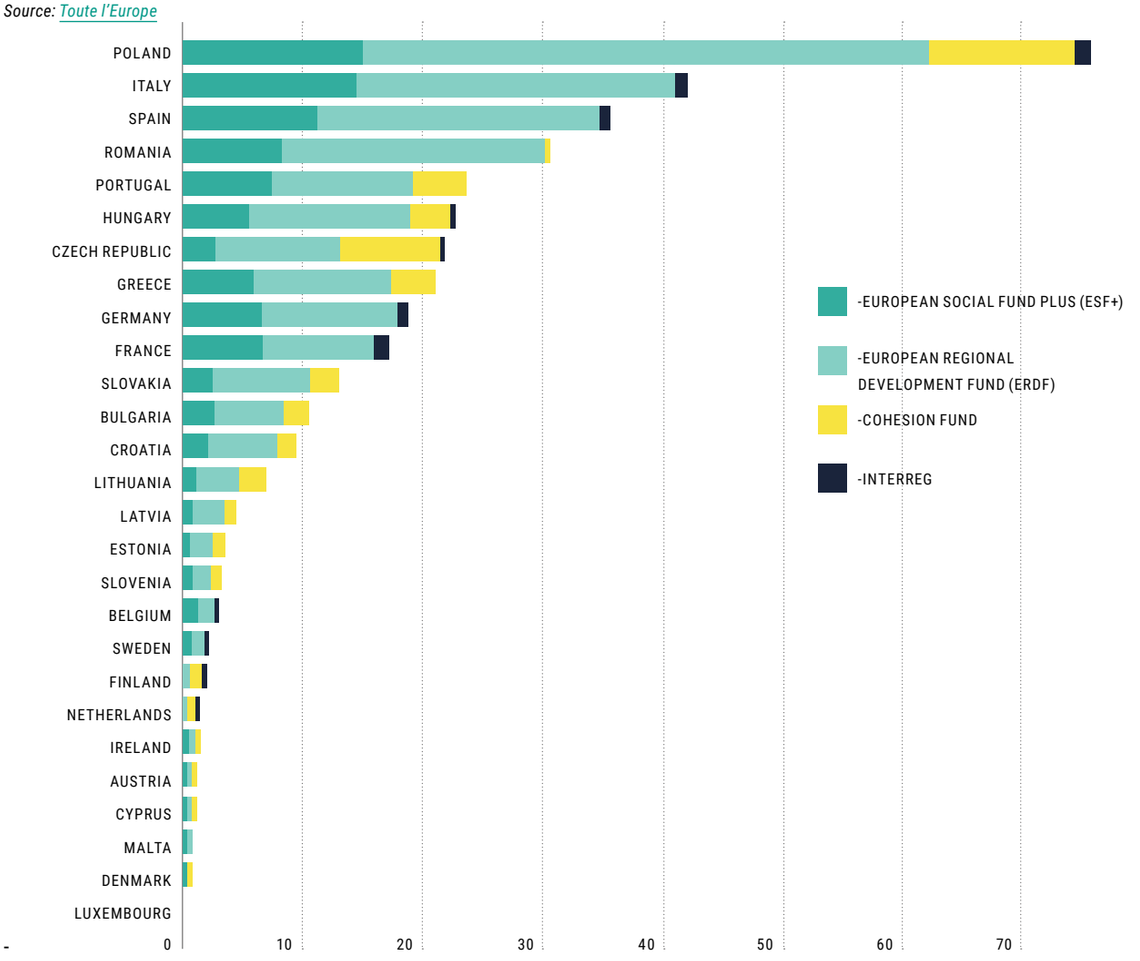
The Cohesion Policy framework is established for a period of seven years, according to "operational programmes" submitted by the managing authorities of these funds in Member States (central state, local authorities, special agencies, etc.). For 2021-2027, the budget amounts to 372 billion euros shared between the 27 members, broken down into 226 billion for the ERDF, 98.5 billion for the ESF+, and 48 billion for the Cohesion Fund. This makes it the EU's second biggest expenditure item (30.5%), just behind the Common Agricultural Policy (30.9%). Five main targets have been set for the 2021-2027 period: the funds must contribute to making Europe "smarter", "more connected", "more inclusive", "closer to citizens", with "more sustainable growth and zero carbon emissions".

The funds are granted based on regions' "NUTS 2" socio-economic characteristics. Similarly, these characteristics determine the level of co-funding from the Cohesion Policy: the more developed a region is, the lower the rate of EU co-funding (share of EU financing for a project). As during the previous period, Poland is the biggest beneficiary of the Cohesion Policy (in volume) for 2021-2027, with about 75 billion euros, way ahead of Italy (42.1 billion euros), Spain (35.4 billion) and Romania (30.3 billion) (**figure**).

Source : *European Commission*

AMOUNT OF EU COHESION POLICY (2021-2027 PERIOD) RECEIVED BY EACH MEMBER STATE (IN BILLIONS)

Source: *Toute l'Europe*



The management of EU structural funds is also left more to the regions in western European countries than it is in Eastern countries. The regions are the managing authorities of at least some EU funds in France, Belgium, Ireland, Italy and Poland, as the Austrian and German Länder and the provinces of the Netherlands. For example, in France, the European Social Fund is managed by the regional councils (35%) and the State (65%), as is the ERDF (75% by the regional councils and 25% by the State). However, in countries like Bulgaria, Croatia, Denmark and the Czech Republic, the State is the main managing authority of EU funds[42].

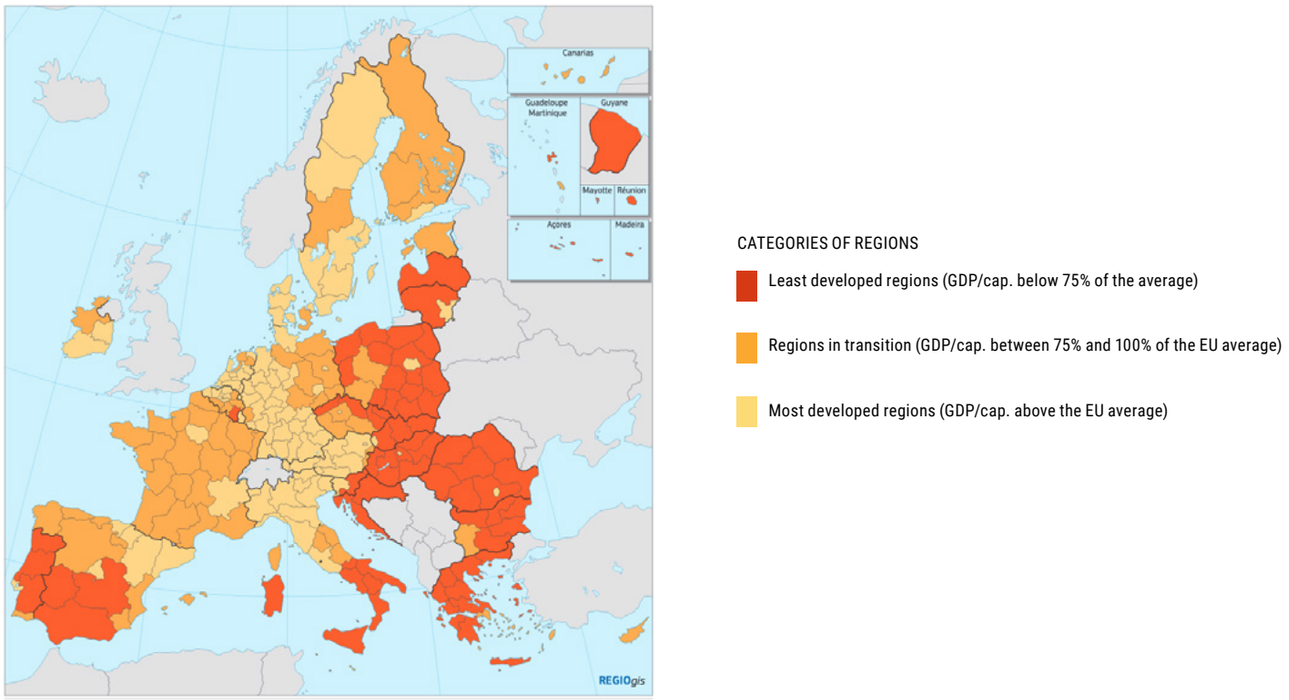
The primacy of the regional scale can disguise local disparities and deprive some areas from European funding. Cohesion Policy funds are distributed according to the development level of NUTS 2 regions (**fig. 3**). This can work to the detriment of a low-developed NUTS 3 region located within a generally developed NUTS 2 region. In the new Just Transition Fund, the method employed to identify the regions concerned considers their economic level, the carbon intensity of their economy, and employment in emitting sectors at NUTS 2 region levels. A report commissioned by the European Parliament's Committee on Budgets points out the risk that this method might be disadvantageous for vulnerable NUTS 3 regions located within NUTS 2 regions identified as not very vulnerable, and therefore not earmarked by the EU for priority funding[43].

During the Covid-19 pandemic, the considerable EU recovery funds made available to Member States reinforced their role, sometimes to the detriment of regional and local levels. In response to the pandemic and the ensuing halt in economic activities, especially in 2020, the EU set up NextGenerationEU, a temporary financial instrument worth 750 billion euros[c], drawing from long-term borrowing on the capital markets. It is made up of a recovery fund called the Recovery and Resilience Facility of 672.5 billion euros that offers loans (360 billion euros) and subsidies (312.5 billion euros) to Member States, and 77.5 billion euros to boost European structural funds (e.g. the REACT-EU fund, endowed with 47.5 billion euros, reinforces the Cohesion Policy, in particular to deal with the consequences of Covid-19). To benefit from these funds, countries must present a national recovery and resilience plan in which at least 37% of expenditure must contribute to the EU carbon neutrality objective, and 20% to digitalization of the economy. Yet, according to a study by the Committee of the Regions, regional and local governments have been only marginally associated with putting together European national recovery plans, and these plans generally only give them a passive top-down implementation role. In particular, they make little reference to the Cohesion Policy, missing a key opportunity to exploit synergies between these different funds[44].

FIGURE 3

INVESTMENT FOR JOBS AND GROWTH GOAL (ERDF AND ESF+) ELIGIBILITY, 2021-2027

Source: European Commission



c - Fund amounts in 2018 prices.

Central jurisdictions for implementing the transition towards a low-carbon economy

Within the Member States, regions, provinces and federal states often have key jurisdictions on climate and the environment. In general, regions have authority when it comes to energy, transport, spatial planning, housing, risk management, management of natural resources and health. **Table 1** lists the jurisdictions related to climate and the environment in regions of 16 EU Member States, as declared in the TERRI Report published by the CEMR in early 2022. The table, put together from numerous contributions from networks of local authorities in member countries, includes typical gaps and is incomplete (e.g. the German Länder do have jurisdictions relating to transport). Nevertheless, it gives a quick overview of jurisdictions that are largely shared by regions in Europe. It shows that all European regions have the authority to decide on the environment and transport, followed by spatial planning. On the other hand, regions appear to have less control over research and energy, or at least it is not identified.

For example, in Spain[d], the considerable political and financial autonomy of the 17 Autonomous Communities (CCAAs) (each has its own legislative assembly and government) makes them key actors in numerous domains related to the environment and climate. CCAAs possess exclusive legislative and executive jurisdictions for everything related to social services, agriculture and animal rearing, domestic fishing, industry, commerce, tourism, youth and sports[45].

In Italy, transportation, public works, culture, tourism and urban planning mainly come under the regions. However, for renewable energy sources, the state has authority over production support measures. The regions' role is limited to facilitating administrative authorization applications[46].

Regions have very different margins for manoeuvre from one country to another. **Table 2** compares the jurisdictions of the regions of France, a historically highly centralized country, with those of the Länder in Germany, a federal state.

- In both countries, the regions have key jurisdictions in the sectors of energy, transport and spatial planning.
- Nevertheless, their margins for manoeuvre are very different. For example, while the German Länder define their strategies for deploying renewable energy, leaving the federal state to manage the national network and set up financial support programmes, French regions are only responsible for applying locally the multiannual energy programme decided at a national level.
- Reflecting this difference in latitude, the average Land budget is over ten times higher than a French region's budget.

In many EU Member States, the regions play a central role in implementing national climate policies.

- In France, regions are the "front runners" on climate action and the energy transition. They are responsible for putting together the regional plan for spatial planning, sustainable development and local equality (SRADDET), which has to apply the national low-carbon strategy (SNBC) at regional scale.
- In Germany, legislation on energy, the environment and climate change is shared with the Länder, which gives them considerable room for manoeuvre. In addition, no federal law obliges local governments to establish a climate plan or climate measures: the Länder are therefore the reference scale for local climate action. Lastly, the federal Climate Change Act explicitly guarantees that Länder can adopt their own legislation on climate change: in 2021, ten had adopted a climate law, eight of which established quantitative CO_2 emissions trajectories[47].
- In Spain, the central state is responsible for establishing basic legislation, while the CCAAs are responsible for applying it on their territories, putting supplementary protection rules in place, and producing annual reports measuring the impact of the measures[48].
- The governments of Scotland, Wales and Northern Ireland must contribute to implementing the measures decided at United Kingdom level, including the 2008 Climate Change Act and the corresponding carbon budgets. However, they can also produce climate policies in their respective nations. In particular, they are responsible for adaptation plans[49].

As managers of European funds in several countries, in particular in Western Europe, regions control the use of these funds by local governments and direct them towards their political priorities. In addition, national laws often mean that local governments have an obligation to the regions when it comes to their climate action:

- In France, local climate plans (PCAET) have an obligation of *accountability* towards regional SRADDETs. This means that PCAETs have an obligation to not go against the basic guidelines of the SRADDET, with a slight margin for manoeuvre to stipulate and develop these guidelines.
- In Germany, the authority to regulate the action of local authorities lies exclusively with the Länder. The federal level cannot legislate on questions concerning territorial authorities or directly transfer obligations to them. Some Länder require that climate objectives be integrated into urban planning tools, like in Bremen, or require specific tools, like heat supply plans to attain carbon neutrality in the Land of Baden-Württemberg. Others provide local authorities with technical support for planning and monitoring, such as in North Rhine-Westphalia[50].

d For reasons of political and historical background, data access, and the natural bias of the authors of this analysis, the jurisdictions of regions located in western Europe are discussed more here.

TABLE 1

OVERVIEW OF REGIONAL JURISDICTIONS ON SOME KEY SECTORS IN 16 EU MEMBER STATES, DECLARED TO THE CEMR

Source: First 6 columns: CEMR, 2022. Last column: analysis by the Climate Chance Observatory.

NB: A green box indicates that the regions in that country have jurisdictions related to the theme in the column. A white box does not mean that they do not.

Approach	Environment	Land and/or urban planning	Transport	Research	Energy	European funds management
Belgium	■	■	■	■	■	■
Croatia		■	■			
Czech Republic	■		■			
Denmark	■		■			
Finland		■				■
France	■	■	■			■
Germany	■					■
Greece	■					
Italy	■	■	■	■	■	■
Malta	■		■			
Poland	■		■			■
Romania	■	■	■			
Slovakia			■			
Spain	■					
Sweden			■			
The Netherlands	■	■	■		■	■

EXPERIENCE FEEDBACK

USE OF EU FUNDS: EUROPEAN REGIONS SET THEIR SIGHTS ON HYDROGEN

Few studies have attempted to analyse how regions use EU funds to reduce their greenhouse gas emissions. A study by the Conference of Peripheral Maritime Regions of Europe (CPMR) shows that the 35 regions questioned employed from 20% to 35% of ERDF funds for climate, mostly on energy and mobility.

Since 2020, following on from national recovery and investment plans, more and more regions have been linking these two sectors and investing EU money in projects related to hydrogen, often to decarbonize transportation.

In the recovery plan that it submitted to the European Commission, Belgium anticipates setting up a regulatory framework for the market and making investments to build a hydrogen transportation network. Belgium is entrusting the Walloon and Flemish regions with a mission to develop an industrial value chain for the transition to hydrogen and its use in industrial processes and heavy goods transportation. According to the Committee of the Regions, it is one of the only recovery plans to give the regions a major role in its implementation.

In the Occitanie region (France), a regional plan for developing green hydrogen with a budget of 150 million euros was adopted in 2019. A spin-off of the plan, the Corridor H2 project, aims to decarbonize transport of goods and passengers on a route that goes from the Mediterranean Sea to the North Sea, thanks to hydrogen-powered transport. By the end of 2023, the plan is to roll out two green hydrogen production units, eight hydrogen fuelling stations, along with 40 lorries and 15 regional coaches powered by hydrogen. The project is financed by a 40-million-euro loan from the European Investment Bank and a subsidy of 12.5 million euros from the European Commission. The region already features a small hydrogen production unit at Toulouse Blagnac Airport, and has placed an order with Alstom for three trains running on a mix of electricity and hydrogen.

The pioneer of hydrogen-powered trains is a German Land: the production plant of Coradia iLint hydrogen trains is located in Salzgitter in Lower Saxony, and several are ready to operate on regional lines following a two-year pilot phase. The Land has also partnered up with neighbouring Land, Bremen, on the Hyways for Future project, which is aiming to launch a green hydrogen production ecosystem. In addition, in partnership with the Dutch island of Ameland, Lower Saxony has received Interreg funds to prepare the region's economy for the arrival of hydrogen. In Germany, the Ministry of the Environment of Baden-Württemberg has adopted a roadmap to develop a hydrogen economy.

Another example: through H2Wielkopolska, the Greater Poland Province supports small and medium-sized enterprises to develop hydrogen.

Source: Committee of the Regions

TABLE 2

COMPARISON OF THE JURISDICTIONS OF FRENCH REGIONS AND GERMAN LÄNDER

Source: Climate Chance, case study on multi-level governance

	18 French Regions	16 German Länder
ENERGY	• Regional Schemes for Connection to the Renewable Energy Network • Energy Efficiency measures	• Regional energy transition strategies and legislation. • Support programmes to expand energy efficiency and renewable energy. • Promote energy efficiency/ renewable energy through building regulations; land-use planning and regulations; local government regulations (i.e. guidelines for municipalities) • District heating regulations and planning. • Regulations on municipal energy management.
TRANSPORT	• Interurban transport networks (regional express trains), school transportation • Civil airports and commercial ports	• Regional transport planning • Construction and maintenance of regional roads • Management of public transport, regional waterways, ports
HOUSING	• Joint funding of housing	
WATER, WASTE AND SANITATION	• Regional waste prevention and management plan	• Regulations on water management • Monitoring and management of regional water bodies, coastal water management • Waste management regulations.
ECONOMIC DEVELOPMENT	• Development of the economic development and regional innovation plan (SRDEII) • Selection of companies meriting support in the region (creations, takeovers, businesses in difficulty) • Management of EU funding	• Support for regional economic development (advisory support and/ or financial support). Location marketing. • Regional land-use and spatial development planning and regulations (e.g. Raumordnungspläne)
URBAN AND SPATIAL PLANNING	• Development of regional land use plans • Interregional management of coastlines and massifs • Water protection	• Building regulations (incl. energy efficiency standards) • Legislation on and financing of social housing • Funding instruments for urban development
ENVIRONMENT AND CLIMATE PROTECTION	• Regional Schemes for land use, sustainable development and equality (SRADDET) • Regional plans for forest and wood - Protected areas and regional parks • Action to promote biodiversity	• Management of regional protected areas and natural resources • Regional planning and regulations on environmental protection; landscape management; soil conservation; climate change (9 Länder have enacted a climate change law) • Public relations, awareness raising and advisory services • Promotion of education for sustainable development • Supervision of local air pollution control, environmental monitoring • Sustainable public procurement
BUDGET (billion euros)	32,26 (2018)	417,203 (2019)

However, this intermediate role sometimes involves blurred jurisdictions and competition with other levels.

- In Spain, despite a large body of legislation at national level, the devolution of jurisdictions on climate is not particularly clear, which can generate conflicts of interpretation of jurisdiction limits at each level. At regional level, the unprecedented adoption over the last three years of energy transition laws in the Balearic Islands, Catalonia and Andalusia takes on a political dimension given the regions' quest for autonomy vis-à-vis the central state. Interestingly, in the summer of 2019, the Constitutional Court of Spain prohibited fifteen articles of the ambitious law on climate change drawn up by the Catalonian regional government, judging that it did not have the authority to establish emissions reduction or energy transition targets. The law was including a timetable to reduce the Autonomous Community's GHG emissions by -40% in 2030, -65% in 2040, and -100% in 2050, and to obtain an electricity mix featuring 100% renewable sources by 2050[51].

- In Germany, the Länder can impose obligations on lower levels for climate and environment issues, but they generally refrain from doing so because any new jurisdiction devolved to the municipalities has to be accompanied by a corresponding budget transfer.

Competition between regions and the State can act to boost climate ambitions.

- In Germany for example, the Länder can adopt more ambitious climate policies than the federal state, initiate their own climate projects, and set up financing programmes. This latitude sometimes leads to a race between the Länder to produce the most ambitious climate package, which can in turn raise ambitions at federal level[52].

- The same observation applies to the United Kingdom, where the ambitious climate policies put in place by Scotland and Wales have forced the central State to step up its own goals[53].

- Based on a survey of its 35 member regions, the Conference of Peripheral Maritime Regions (CPMR) shows that among the regions targeting carbon neutrality, more than one-third (37%) aim to reach it before 2040 (2035, 2040 or 2045), making them more ambitious than their home nations. In total, over 80% of the regions questioned had an objective of carbon neutrality[54].

European regions demonstrate encouraging Climate results

Bucking the global trend, emissions declared to the CDP by European regions have mostly decreased over recent years. **Figure 4** shows regions that declared their emissions to the CDP in 2021, most of which are signatories of the RegionsAdapt initiative. In 2021, Europe was the continent that gathered the most of these regions. Over half of them reported a drop in emissions (15/28) compared to the last reporting period. Five of them reported an increase in their emissions, and three a stagnation (some are not equipped to measure the evolution). At global level, 26 regions declared a decrease in emissions out of almost 100 declaring regions, compared to 22 that announced an increase.

Regions strongly committed to renewable energy have seen their emissions decrease for several years. The development of renewable energy to replace electricity produced from fossil fuels is the main factor behind the drop in emissions by European regions that declare their emissions to the CDP, showcased for five of them (**fig. 4**).

- For example, Andalusia (Spain) reports a 10% reduction in its emissions from 2018 to 2019, which it puts down to the drop in electricity production from coal, coupled with an increase in renewables. The development of renewable energy is also the main reason behind the drop in the region's emissions from 2005 to 2017 (-21.7%). In 2017, renewables represented 38.8% of total electricity production in the region. In particular, Andalusia is a pioneer and global leader in thermodynamic solar power: its 22 power plants alone produce 22.77% of the country's energy production[55].

- Increased use of renewables is also the factor put forward by the Kymi Valley region (Finland) to explain its lower emissions in 2019.

- Scotland (United Kingdom) attributes its 43% decrease in emissions from 1990 to 2019 to the move from coal electricity to a mix that is now mainly based on wind power, which also explains more recent decreases (-2.3% from 2018 to 2019)[56].

- In contrast, Catalonia (Spain) explains the slight rise in its emissions from 2018 to 2019 by the drop in its hydropower production and the increase in electricity production from combined cycle gas plants, which have become widespread in Spain since the 2000s[57].

As well as regions that declare to the CDP, other regions seem to have benefited from the surge in renewables to bring down their emissions levels:

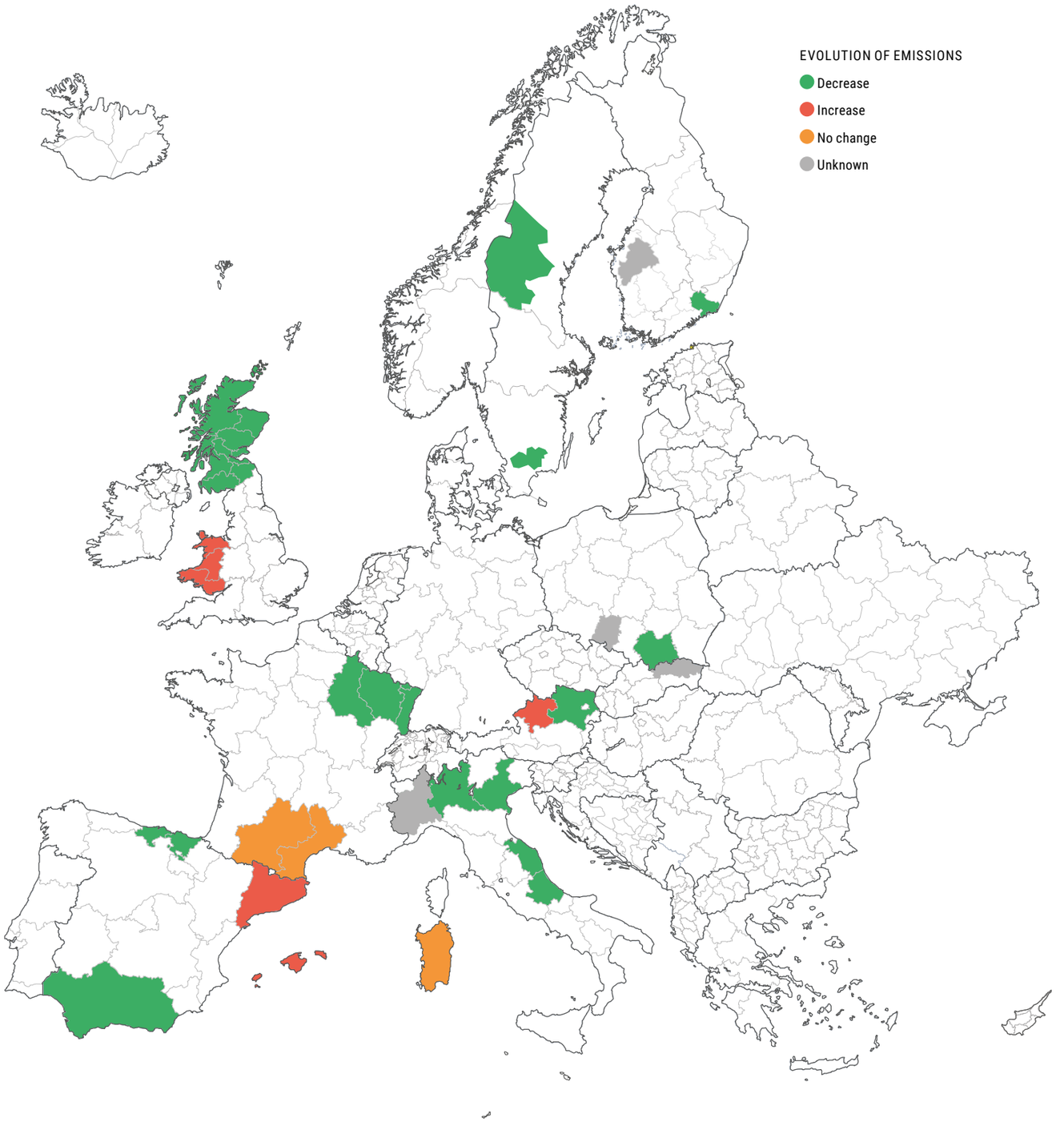
- In the Pays de la Loire (France), the *Basemis* method has been used to monitor regional emissions since 2008. The results show that for an energy consumption that remained relatively stable from 2008 to 2018, greenhouse gas emissions went down by about 8%. Over the same period, production using renewable sources more than doubled, leading to a 10% drop in the carbon intensity of energy[58].

- Similarly, in Thuringia Land (Germany), 57% of electricity production comes from renewables (22.4% wind and 20% biomass). One-third of the electricity consumed in the Land is imported, and renewables provide 24% of its energy consumption – the second highest share among the Länder. Over 30,000 photovoltaic systems installed by households, companies and municipalities provide about 12% of Thuringia's electricity. It is also the Land with the second highest

FIGURE 4

EVOLUTION OF EMISSIONS COMPARED TO THE LATEST REPORT MADE BY REGIONS THAT DECLARED THEIR EMISSIONS TO THE CDP

Source: Author's figure based on the CDP States and Regions Dataset



number of energy cooperatives. Thanks to this strong development of renewables, and also to the residential and road transport sectors, the Land's emissions went down by 23% from 2000 to 2015[59].

Industry is also a key factor in the evolution of emission levels in the regions. Four regions that declare to the CDP (Grand Est in France, Kronoberg County in Sweden, Scotland, and Abruzzo in Italy) esteem that the decline of their industry, in particular steel, explains the recent decrease in their emissions. They admit themselves that this decline is due more to economic difficulties than climate efforts. On the other hand, the Land of Upper Austria declared an increase in emissions in 2018, which it puts down to a rise in steel production, similar to Wales, which identifies its steelmaking industry as the main factor behind its recent emissions increase.

Regions are also setting up programmes to decarbonize buildings. Two regions (Basque Country and Abruzzo) highlight the energy savings made by buildings to explain the drop in the emissions that they declared to the CDP, without however providing details on the actual policies that led to these results. Two interesting examples of such policies have been noted by the Observatory in recent years:

- With a view to reducing final energy consumption by 60% in 2050, the Nouvelle Aquitaine region (France) has provided support to private individuals with 10,000 monitored renovations (audits, third-party financing), representing 84,000 tCO_2eq avoided. The region is also making efforts to stimulate the energy renovation market by providing building professionals and banks with a model. Nouvelle Aquitaine is a pioneer in fostering the eco-materials industry, with its "*Bâtiment du future*" (building of the future) call for projects, aimed at providing technical and financial support for the best renovation and construction projects. In addition, the region supports businesses of all sizes to improve the energy efficiency of their industrial processes by at least 10% in three years[60].

- In Lombardy (Italy), 96 million euros, granted by the ERDF, have been allocated to energy efficiency in public buildings, 52% of which are categorized as class G (highest energy consumers). They must reduce their energy consumption by between 1.7 to 2.7 million tonnes of oil equivalent (Mtoe) out of a consumption of about 24 Mtoe, which is a drop of between 7% and 11%[61].

Lastly, three regions mention the road transport sector to the CDP to explain the drop in their emissions. Regional jurisdictions related to transport generally make regions key actors in mid-distance transportation and inter-modality. In France, the regions lead the way on inter-modality and complementarity between the different modes of transport.

Networks of climate-engaged regions act as their voice, showcase their climate results, and reinforce their role in the eyes of international and state institutions. Regions4, for example, organizes reporting for its members (and signatories of its RegionsAdapt initiative) to the CDP, and brings their results to the attention of international bodies. Through its #RegionsVoice project, the network acts as the voice of regional governments at major events for international climate negotiations (**ref. Part III**). In 2021, with Under2 Coalition, the biggest network of regions committed to aligning with the Paris Agreement (260 members in 2021 – **ref. Part III**), Regions4 expressed regional priorities and aspirations at COP26, and delivered the results of regions' action to combat climate change. In its declaration, the network underlines the importance of establishing multi-level governance for climate action, for example by working with regional governments to produce, coordinate and implement NDCs and National Adaptation Plans[62].

Uniform climates make it easier for regions to organize their resilience

Through RegionsAdapt, Regions4 helps regions organize their adaptation action. Regions4 coordinates the RegionsAdapt initiative, which works to facilitate innovation, tools and good practices for climate change adaptation for 77 regions on all five continents. 87% of its members are now equipped with a climate change adaptation plan (**ref. Part III, Regions4**). The initiative also organizes its members' reporting on emissions and climate actions to the CDP. As well as promoting the adoption of climate change adaptation measures by regional governments, RegionsAdapt therefore improves regions' progress monitoring, visibility and aggregation[63].

In an article from 2020 studying the role of RegionsAdapt in regional climate change, Setzer et al. observed that the place of regions in adaptation policies is increasingly important for at least three main reasons[64]:

- **Regions' jurisdictions make them indispensable actors in climate change adaptation**. In 2019, the Observatory pointed out that the local level is a vital part of the concept of adaptation, making it naturally connected to regional and local governments[65]. In practice, the authority that the regions have over energy, transport, spatial planning, housing, risk management, natural resources management and health make it a key level for implementing adaptation measures, including in highly centralized states.

- **Moreover, positioned between the central state and local governments, the regional scale is particularly suitable for adaptation action**. For example, when regions are responsible for locally applying a national mitigation strategy or action, often devised with a sectorial approach, they necessarily adopt a territorial approach and take into account the actors actually present in the region. In addition, they can promote the replication of local policies that have proved successful in other similar territories[66].

- **Lastly, regions generally cover relatively uniform geographical areas, which makes them ideal for devising adaptation measures adapted to a particular context.**

EU funds are accessible to regions to implement their adaptation actions. For 2021-2027, the LIFE programme, which is the EU's funding instrument for the environment and climate action aimed at companies, local authorities, associations and universities, has made adaptation one of its three climate "priorities" along with mitigation and governance. As part of its Horizon Europe fund for research and innovation, the European Commission launched five "missions" in 2021 aimed at financing concrete action to meet five challenges for 2030: improve the lives of three million people suffering from cancer; restore the oceans; attain carbon neutrality in 100 cities; finance 100 soil restoration project; and help 150 regions become climate resilient. This latter "adaptation" mission has a budget of 122.38 million euros and will be aimed at regional (or intermediate) governments, which may be in a consortium with other actors on their territory. In its implementation plan, it anticipates boosting the Policy Support Facility, a support and financing tool for regional and local governments for implementing their climate plans or adaptation action, which will be coordinated by the European Covenant of Mayors for Climate and Energy[67]. Moreover, the ERDF has financed regional projects on adaptation. For example, from 2012 to 2015, the SEAP_Alps project, which received funding of 1.6 million euros from the EU, made it possible to build a Sustainable Energy Action Plan (SEAP) specifically aimed at Italian Alpine communities, which was then applied to 46 municipalities. From 2016 to 2019, the Interreg fund was at the origin of a similar project, this time in the Pyrenees: the OPCC2 project involved building knowledge on the potential climate impacts facing the mountain range up to 2100, providing valuable data for local decision-makers in the regions.

Through science-policy interfaces, regions are anticipating future climate events and organizing their resilience. Regional climate-energy observatories are flourishing in the EU to evaluate the climate risks specific to different regions and act as spaces of dialogue and proposals. Several French regions have their own regional group of climate experts (GREC) responsible for anticipating the impacts of climate change on the regional territory, or advising the region on public policy: RECO in Occitanie, AcclimaTerra in Nouvelle Aquitaine, GREC SUD in PACA, Ouranos-AuRA in Auvergne-Rhône-Alpes, etc. The same idea exists in Germany: for example, Thuringia Land has created an Advisory Council for Protection from Climate Change and Climate Change Adaption, which advises the ministry for the environment, energy and nature conservation. Legally written into its law on protection from climate change and adaptation to its impacts, voted in 2018 (ThürKlimaG), the council comprises scientists appointed for five years from a wide range of disciplines (hydrogeology, meteorology, biogeochemistry, bioenergy). Similar energy-climate observatories have also been set up on the other side of the Atlantic, like Ouranos (Quebec) and the New York City Panel on Climate Change.

Lastly, when drawing up their SRADDETs, several French regions (Centre Val de Loire, Brittany and l'Île-de-France) organized their own "regional COP", gathering all types of local representatives to decide on common measures. These participative processes aim to make citizens aware and mobilize local actors to act for the climate. In Centre Val de Loire, for example, all private and public organizations can make a voluntary commitment, set up a coalition, organize a COP-accredited event, and finance events or projects related to the COP, etc.

Regions can also finance scientific research programmes to improve their knowledge on the consequences of climate change for their territory. In Spain, for example, Andalusia devoted over a billion euros to funding research on adapting agriculture to climate change from 2014 to 2020[68]. In the Basque Country, five research and technology centres are taking part in the Urban Klima 2050 project alongside local regional governments. The aim is to develop pilot sites to prepare the region's adaptation to climate change (**ref. Part III Regions4**).

Following on from towns, regions are adopting the SDGs and making them part of their policies

Already analysed in the Synthesis Report on Local Climate Action 2021, more and more LRGs have been taking on Sustainable Development Goals (SDGs) since they were adopted by nations in 2015. More than just another analysis framework to communicate about their action, this engagement helps to connect climate action with other dimensions of public life (gender, the economy, inequalities, etc.).

Regional and local governments are using the Sustainable Development Goals (SDGs) to boost recovery. In a survey carried out by the Committee of the Regions and the OECD in May and June 2021, almost half of the 85 regions and towns in the 24 EU countries questioned said that they wanted to use the SDGs as a framework for their recovery policy: 40% had already done so before Covid-19, and 7% intended to take advantage of the pandemic to start using them[69]. The conclusions of the annual report on SDG localisation by the CEMR and Platforma points in the same direction: 15% of local government associations questioned said that they were more committed to the SDGs than they were in 2019[70].

Following on from local governments, regional governments are adopting the SDGs in "voluntary reviews". While the number of "Voluntary Local Reviews" (VSR) (local government documents on their SDG progress) doubled from 2019 to 2021, many "Voluntary Subnational Reviews" the regional equivalent, have sprung up[71]. Regions4 counted about thirty of them for 2019-2020 alone, of which 16 were in Europe (e.g. Lombardy (Italy), Catalonia, Basque Country, Valencia (Spain), Normandy, Occitanie, Pays de la Loire (France), Aland Islands (Finland), etc.)[72].

Besides VSRs, a number of European regions have recently integrated SDGs into their public policies. In Denmark, the Capital Region (Hovenstaden) has put together a Regional Development Strategy 2020-2023 on SDGs, in which it commits for example to stop using fossil fuels for its heating and

electricity by 2035. The same goes for the Region of Southern Denmark, with its Southern Denmark for the Future strategy. Grouped into the Danish Regions Association, the five regions in the country report in the Danish Voluntary National Review (VNR) that they work together to define common indicators to monitor the progress of SDGs on their territories[73]. In Germany, in 2019, a resolution was adopted to share the attainment of the SDGs between the federal government and the Länder. Several local government organizations highlight the progress and action made by German towns, counties and Länder in implementing the SDGs in the annex of the national review published in 2021. They point out in particular that, "*most of the German federal states have adopted or revised own sustainability strategies with reference to the SDGs and have implemented diverse programmes and efforts. Some of them specifically focus on supporting their municipalities in developing and implementing their own sustainability strategies*"[74]. An SDG-Portal has been set up by these organizations to follow SDG progress in the regions with over one hundred indicators, and to compare them with each other. In Sweden, almost half of the country's municipalities and almost all of the regions are involved in the Glocal project, which aims to train political representatives and municipal agents at local authorities[75].

Local and regional governments in Europe are increasingly involved in national reviews. They participated in three-quarters (6/8) of the Voluntary National Reviews (VNRs) in European countries published in 2021, a sharp rise compared to the average of 57% from 2016 to 2020. For example, the Danish government worked with the Danish Regions Association and the Local Governments Association (KL) to produce its VNR. Contributions from the six cities most active on SDGs are presented in a special section of the review. In Spain, regional and local governments presented their own contributions for the VNR and participated in a consultation during the production process. Overall, since the first VNRs were published in 2016, it is in Europe that local and regional governments have been the most closely associated with their production[76].

Along the same lines as voluntary reviews for the SDGs, the localisation of NDCs could raise the climate ambition and lead to greater synergy between the climate agenda and the 2030 Agenda. A recent GIZ report points out that at regional and local levels, the frontier is narrower between policies to make progress on the SDGs and climate policies than it is at national level. Involving regions and local governments in putting together national climate strategies could therefore be a way of bringing these two agendas closer[77]. The Committee of the Regions shares the same opinion, pointing out in their recommendation adopted in January 2022 that, "*Local and regional authorities (LRAs) are best placed to integrate social issues with climate action, since they are the level of government closest to the people and play a key role in implementing legislation*"[78]. They also call for the integration of gender issues when drawing up, implementing and evaluating the Green Deal.

KEY TAKEAWAYS

Despite a negative impact on their finances, the pandemic has not stopped local and regional governments from pursuing their action on climate. However, it may have triggered a slight change: efforts to decrease greenhouse gas emissions increasingly try to integrate the long term and secure the necessary funding, and perhaps pay more attention to vulnerable people to leave no one behind.

In this global picture, European regions are no exception. While the European Green Deal and the new EU financial framework for 2021-2027 give them a key role in reaching the EU objective of carbon neutrality by 2050, the regions are already showing their capacity to engage in the transition (on renewable energy, transport, building, etc.) and anticipate the upheavals that their territories are likely to undergo due to climate change (e.g. via regional energy-climate observatories).

This general overview however hides some considerable disparities, on at least two levels: geographic and economic.

Firstly, for mainly historical reasons, the regional scale has a particular importance in western European countries, but not for their neighbours in the east. In France, Spain, Germany, Italy, Austria, Belgium, the Netherlands, etc, regions are major actors, sometimes autonomous (especially in Spain or federal countries), and can find themselves in competition with the national level. However, in the east, when they exist, regions mostly date from the point of accession to the EU. This East-West division thus draws some strong disparities in terms of jurisdictions and resources that are particularly apparent in the management of EU funds, which are mostly national in the east, but also in terms of climate action, which is more proactive, visible and monitored in western European regions.

Next, the economic situations of European regions mean that they are very unequally prepared and armed for the transition. It is easier to build a low-carbon economy in a rich, urban, tertiary region than it is in a coal-mining region, where the often depleted economy centres on fossil fuels. The European Just Transition Mechanism attempts to address this challenge by helping the most vulnerable regions, such as Silesia in Poland.

The Sustainable Development Goals, initially developed for nations, can also logically be applied at regional level. At the level of these territories, which are relatively uniform in terms of climate conditions but multifaceted in terms of actors and needs, the goal is not just to reduce emissions: the SDGs provide a framework for thinking out climate action and integrating other dimensions of living in society, such as economic life, greater equality, and inclusivity.

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
POLAND	SILESIAN VOIVODESHIP	4,620,624 HAB. (2012)	13.2 MTCO$_2$ DUE TO ELECTRICITY PRODUCTION (2019)	CO$_2$ EMISSIONS DUE TO ELECTRICITY PRODUCTION: -61.2 % BY 2030

In Silesia, a much needed "just transition" to moving on from coal

In 2015, 80% of Poland's electricity and 86% of its heat came from coal, most of it from domestic production. Silesia is a strategic region for the coal industry, with around half (17) of Poland's ~30 remaining mines. The region had the worst air pollution in 2019, on average three times the levels recommended by the WHO. Three years after the Silesian Declaration on Solidarity and Just Transition, signed by many countries at the COP24 in Katowice, the region has a Territorial Just Transition Plan, to be funded by the EU.

Although coal mining in Poland has largely declined over the past 30 years, the coal sector still accounts for 4.2% of employment in Silesia. It is the sector with the highest rate of union membership: 72% of workers are members of a union, compared to an average of 11% across all sectors.

Thus, in addition to the need to significantly reduce coal activities in the region, which emit greenhouse gases and are dangerous to human health, there is a challenge of retraining workers who are attached to the identity of their region and dependent on this industry.

National climate and energy plans focused on the "just transition"

One year after the COP24 was held in Katowice, the capital city of Silesia, in 2019, the national government adopted its National Energy and Climate Plan 2021-2030, where it set a target of a 23% increase in energy efficiency by 2030 and plans to use EU funds to train workers affected by mine closures to work in other sectors. In 2021, the "just transition" is one of the three main pillars of its Energy Policy to 2040.

Poland is set to be the first beneficiary of the Just Transition Fund, set up by the EU to help regions heavily dependent on fossil fuels to socially support their energy transition: 20% of the fund's EUR 19 billion is reserved for the country, ahead of Germany (13%) and Romania (11%). Three Polish regions have been identified by the Commission to receive these funds: Silesia, Eastern Wielkopolska and Wałbrzych. Three others are under negotiation between the Polish government and the Commission.

A national Just Transition plan has been prepared by the Polish Ministry of Climate and Environment. In parallel, the governments of these six regions have established a Territorial Just Transition Plan (TJTP), in partnership with the European Commission, the national government, local governments, organisations representing the private sector, research, trade unions and civil society.

A Territorial Just Transition Plan ready for implementation

The Silesian TJTP foresees the closure of three mines before 2030 (Ruda, Boleslaw Smialy and Sosnica), which will reduce coal extraction from 30 Mt in 2021 to 23 Mt in 2030. According to the plan, these closures will result in the loss of more than 5,000 direct jobs and about 15,000 indirect jobs. Thanks to European funds, Silesia plans to create around 30,000 jobs by supporting the development and creation of companies. The main transition burden is shifted to after 2030, as the remaining eleven mines, on which over 100,000 jobs depend, will be closed between 2030 and 2049. Normally, the allocation of just transition funds by the EU is conditional on a plan to close the mines (or sharply reduce their production) before 2030, but the EU has tolerated this 30-year staggering of closures because of the importance of the Silesia region for the supply of coal to all of Europe.

The TJTP also plans to reduce coal-fired electricity production by 80% by 2030 (from 14,403 GWh in 2019 to 3,079 GWh in 2030) through the closure of four coal-fired power plants (two in 2028, two in 2030), thereby reducing CO$_2$ emissions from electricity production by 62.1%. It also plans to install renewable energy capable of producing 189,827 MWh per year. A report by the Bankwatch Network and the Polish Green Network analysing the TJTPs in Poland finds that on the whole the plans provide adequate measures for retraining of workers affected by the closures of emitting activities, as well as helping companies to employ. However, in the case of Silesia, they regret that the age structure of workers is not mentioned in the plan, although it would help to refine the estimates of job losses and needs.

In 2021, in addition to numerous diplomatic tensions between Poland and the European Commission, a coal mine concession granted in June by the Polish Minister for Climate and Environment in Myslowice (southern Silesia) seems to threaten the credibility of the TJTP and the allocation of EU funds, as evidenced by an exchange between a Polish Member of the European Parliament (S&D group) and the European Commissioner in charge of Cohesion Policy, Elisa Ferreira.

CASE STUDY

COUNTRY	REGION	POPULATION	LAST REPORTED EMISSIONS	MITIGATION TARGET
UNITED KINGDOM	SCOTLAND	5,453,400 (2019)	47.8 $MTCO_2E$ (2019)	-75% BY 2030; -90% BY 2040; «NET ZERO» BY 2045 (BASELINE YEAR: 1990/95)

Linking climate action and the SDGs in Scotland

In the United Kingdom, strong decentralisation allows cities and the four constituent nations to set more ambitious targets than the UK government and to experiment with measures and modes of governance for climate action within certain areas (Climate Chance, 2019). This is particularly the case in Scotland: enacted in 2009 and updated in October 2019, Scotland's Climate Change Act now sets an ambitious target of net-zero emissions of all greenhouse gases by 2045, with 2020 having an interim target of being at least 56% lower than 1990. In addition, climate action is part of a wider strategic framework and has many links to Scotland's work on the SDGs.

In 2007, Scotland adopted the National Performance Framework (NPF), a comprehensive strategy to make Scotland «*a more successful country with opportunities for all to flourish through increased wellbeing*». The NPF sets out eleven targets with indicators to measure the country's development through more than just GDP. A fourth update of the NPF is currently underway.

In February 2020, Scotland published its Environment Strategy, to set out the overall framework for environmental and climate action. A section of the strategy analyses the links between this vision and both the NPF and the SDGs (**figure**).

A collaborative and integrated approach for climate and SDG action

Scottish climate action lays out the collaborative approach: public engagement is a key pillar of Scotland's climate strategy, with Climate Week celebrations every year and largescale public consultations like the Big Climate Conversation.

The collaborative approach is also a pillar of Scotland's SDG policy. The Scotland SDG Network, established in 2017, is made up of over 500 individuals and organisations working together to implement the SDGs. For the elaboration of the UK's Voluntary National Review (VNR) – the assessment of the progress made in achieving the SDGs at the national level, the SDG Network joined forces with the network of Scottish local authorities (COSLA) and the Scottish Government to deliver Scotland's contribution. This initial work then led to the publication of a specific VNR for Scotland in 2020.

The chapter on SDG 13 in this Scottish VNR focuses on the links between climate action and SDGs: "*the range of commitments in our Climate Change Plan mean that our climate action also helps to deliver other SDGs [than SDG 13]*". The link is also made with the NPF: at the end of the chapter, a figure shows the alignment of the Scottish Climate Change Adaptation Programme with the NPF and the SDGs.

An effort that reaches the local level

In 2018, the Scotland SDG Network published an open letter asking Scotland's 34 councils to report on their work in implementing SDGs.

Five cities responded: East Ayrshire, Fife, Aberdeenshire, Glasgow and Dundee.

In its response, the city of Dundee, for example, states that it takes into account the 17 SDGs in its City Plan, its Council Plan and its Sustainable Dundee Plan. Its Climate Action Plan, published after important co-construction work with local stakeholders, sets out the links between the actions provided by this plan and the SDGs in a large table presented in an appendix to the document.

A connection to a Just Transition

Convened in 2019, a Just Transition Commission compounded of civil society experts, delivered its final report in March 2021. In response, the Scottish government created a National Just Transition Planning Framework, and entitled a new Commission to advance work to design a Plan.

A North Sea Transition Deal was firmed in March 2021 betwen the UK government and the offshore oil and gas industry to safeguard jobs and create additionnal 40,000 jobs by 2030 in CCUS and hydrogen production in the region.

REFERENCES

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1 NewClimate Institute, Data-Driven EnviroLab, Utrecht University, German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE), CDP, Blavatnik School of Government, University of Oxford (2021). Global climate action from cities, regions and businesses. *NewClimate Institute*

2 Colenbrander S. et al. (2019). Climate Emergency, Urban Opportunity: The unique and crucial roles of national governments. *Coalition for Urban Transitions*

3 Martinos, H., Todtling-Schönhofer, H., Jeffrey, P. (2021). Equal opportunities and responsibilities in the implementation of the European Green Deal. *European Committee of the Regions*

4 NewClimate Institute, Data-Driven EnviroLab, Utrecht University, German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE), CDP, Blavatnik School of Government, University of Oxford (2021). Global climate action from cities, regions and businesses. *New Climate Institute*

5 CoR (2021). EU annual regional and local barometer. *European Committee of the Regions*

6 Cities Climate Finance Leadership Alliance (06/2021). 2021 State of Cities Climate Finance

7 Chediak, M. (31/01/2022). Amazon Leads Corporate Clean-Energy Purchases in Record Year. *Bloomberg Green*

8 Abbott, S., Goncalves, T., et al. (2021). Local Government Renewables Action Tracker. Rocky Mountain Institute and World Resources Institute

9 Sylvia T. (29/10/2021). Les prix des PPA aux États-Unis pourraient continuer à augmenter jusqu'à l'émergence de nouvelles chaînes d'approvisionnement. *PV-magazine*

10 Gonçalves, T., Liu, Y. (24/06/2020). How US cities and counties are getting renewable energy. *WRI Blog*

11 Voltalia (19/07/2021). Voltalia starts the construction of South Farm solar plant to supply the City of London with green electricity.

12 City of Melbourne (n.a.). Melbourne Renewable energy Project: A new generation of energy.

13 City of London (18/11/2020). City's 'pioneering' green energy deal could be blueprint for local authorities. *City of London*

14 Arnold, M. (07/01/2022). Eurozone inflation hits new record as energy and food prices soar. *Financial Times*

15 Observatory of non-state climate action (11/2021). « In Cities, the Effects of the Pandemic Reveal a Concentrated Low-Carbon Mobility Market » *in* Global Synthesis Report on Climate Action by Sector. *Climate Chance*

16 IEA (up. 29/04/2021). Global EV Data Explorer. *International Energy Agency*

17 UNEP (07/2021). Movilidad Electrica. Avances en america latina y el caribe. *United Nations Environment Programme*

18 EAFO (last consulted 09/02/2022). BEV and PHEV Fleet in the European Union. *European Alternative Fuel Observatory*

19 Hampel, C. (11/08/2021). BYD delivers 76 electric buses to Nobina in Finland. *Electriv*

20 Editorial staff (21/05/2021). BYD in Turin, once again. The beginning of a 50-units delivery. *Electric-Buses*

21 Lie, K.W., Synnevåg, T.A., Lamb, J.J., Lien, K.M. (2021). The Carbon Footprint of Electrified City Buses: A Case Study in Trondheim, Norway. *Energies*, 14, 770

22 AFP (19/02/2021). Dans la jungle urbaine de Nairobi, la pandémie alimente la fièvre naissante du cyclisme. *Le Point*

23 BYCS (03/2021). Bicycle Mayor Network Presentation.

24 Lenglet, F. (09/07/2021). Coronavirus : le vélo victime d'une pénurie mondiale pour cause de pandémie. *RTL*

25 Lelièvre, A. (08/04/2021). Le marché du vélo électrisé par la crise sanitaire. *Les Échos*

26 Glusac, E. (02/03/2021). Farther, Faster and No Sweat : Bike-Sharing and the E-Bike Boom. *The New-York Times*

27 PRNewswire (01/07/2021). Global micromobility market to thrive with bike-sharing set to dominate by 2025. *PRNewswire*

28 The Meddin Bike-sharing World Map (10/2021). Mid-2021 Report.

29 Stehlin, J. (2019). Cyclescapes of the Unequal City: Bicycle Infrastructure and Uneven Development.

30 Grabar, H. (23/06/2021). Le problème des transports en commun gratuits. *Slate*

31 Under2 Coalition (06/2021). Climate justice and equity at the core of Seattle's transport electrification. *Climate Group*

32 Hodgson, C. (30/04/2021). Cities appoint 'heat officers' in response to warming threat. *Financial Times*

33 EEA (01/02/2022). Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe. *European Environment Agency*

34 Mahoney, A. (05/05/2021). In America's cities, inequality is engrained in the trees. *Grist*

35 Pasquier R. (2015). La fin de « l'Europe des régions » ?, *Politique européenne*, 2015/4 (N° 50), p. 150-159.

36 Dijkstra, L. (2017). My region, My Europe, Our future: The seventh report on economic, social and territorial cohesion. *European Commission*

37 Directorate General for Budget (2021). The EU's 2021-2027 long-term budget & NextGenerationEU. *European Commission*

38 Galgoczi, B. (2018). Transition juste vers des économies et des sociétés écologiquement durables pour tous. *ACTRAV & BIT*

39 Directorate General for Budget (2021). The EU's 2021-2027 long-term budget & NextGenerationEU. *European Commission*

40 CoR (14/07/2021). Press Release - Fair, just and deliverable: EU's "Fit for 55" climate package success hinges on bringing every city and region on board. *European Committee of the Regions*

41 Holstein, F., Böhme, K. (2021). Application of the principals of partnership and multi-level governance in Cohesion Policy programming 2021-2027. *European Committee of the Regions*

42 European Commission (n.d.). Managing authorities

43 Cameron, A., Claeys, G., Midoes, C., Tagliapietra, S. (2020). A Just Transition Fund – How the EU budget can best assist in the necessary transition from fossil fuels to sustainable energy. *Bruegel*

44 Valenza, A. *et al.* (2021). Regional and local authorities and the National Recovery and Resilience Plans. *European Committee of the Regions*

45 Observatory of non-state climate action (2021). Spain's upswing in renewables defeats years of headwinds. *Climate Chance*

46 Observatory of non-state climate action (2018). Lombardia - All-out focus on energy efficiency, *in* Global Synthesis Report on Climate Action. *Climate Chance*

47 Observatory of non-state climate action (2021). Germany - Multi-level climate governance. *Climate Chance*

48 Observatory of non-state climate action (2021). Spain's upswing in renewables defeats years of headwinds. *Climate Chance*

49 Observatory of non-state climate action (2019). United Kingdom - A decarbonation model involving all stakeholders. *Climate Chance*

50 Observatory of non-state climate action (2021). Germany - Multi-level climate governance. *Climate Chance*

51 Observatory of non-state climate action (2021). Spain's upswing in renewables defeats years of headwinds. *Climate Chance*

52 Münzner, M. (2014). Energie und Klima Ländersache? Landeskompetenzen zur Förderung von Energiewende und Klimaschutz.

53 Gillard et al. (2017). Can national policy blockage accelerate the development of polycentric governance? *Global Environmental Change,* 45, pp 174-182.

54 CPMR (06/2021). Regions Act! CPMR Regions acting for climate neutrality. *Conference of Peripheral Maritime Regions*

55 Observatory of non-state climate action (2019). Andalousia – The national leader for renewables *in* Global Synthesis Report on Climate Action. *Climate Chance*

56 Scottish Government (15/06/2021). Scottish Greenhouse Gas Statistic: 1990-2019. *Scottish Government*

57 Observatory of non-state climate action (2021). Spain's upswing in renewables defeats years of headwinds. *Climate Chance*

58 https://data.airpl.org/visualisation/emission/ges/region/52

59 Observatory of non-state climate action (2019). Thuringia – A decision-making process backed by science in Global Synthesis Report on Climate Action. *Climate Chance*

60 Observatory of non-state climate action (2018). Nouvelle Aquitaine – Bringing stakeholders together and structuring sectors *in* Global Synthesis Report on Climate Action. *Climate Chance*

61 Observatory of non-state climate action (2018). Lombardia – All-out focus on energy efficiency. *Climate Chance*

62 Regions4 (2021). Regional Governments' Call to Action: What Ambition Should Look Like at COP26. *Regions4*

63 Setzer, J., Sainz de Murieta, E., Galarraga, I., Rei, F., Pinho, M.M.L. (2020). Transnationalization of climate adaptation by regional governments and the RegionsAdapt initiative. *Global Sustainability 3*

64 Setzer, J., Sainz de Murieta, E., Galarraga, I., Rei, F., Pinho, M.M.L. (2020). Transnationalization of climate adaptation by regional governments and the RegionsAdapt initiative. *Global Sustainability 3*

65 Observatory of non-state climate action, Comité 21 (2019). Global Synthesis Report on Adaptation. *Climate Chance*

66 Sainz de Murieta, E. (2021). Raising ambitions on climate adaptation. *Regions4*

67 European Commission (07/2021). European Missions. Adaptation to Climate Change. Implementation Plan. *European Commission*

68 Observatory of non-state climate action (2019). Andalousia – The national leader for renewables *in* Global Synthesis Report on Climate Action. *Climate Chance*

69 CoR (2021). 2021 EU Regional and Local Barometer. *European Committee of the Regions*

70 CCRE, Platforma (06/2021). European Territories Localise the SDGs. Continuity and Change in Times of Covid-19.

71 Global Taskforce of Local and Regional Governments (2021). Towards the localization of the SDGs. Sustainable and Resilient Recovery Driven by Cities and Territories. *United Cities and Local Governments*

72 Regions4 (2021). Regions Voice in UN reporting. *Regions4*

73 Danish Government (2021). Voluntary National Review 2021. *Danish Ministry of Finance*

74 German Federal Government (2021). Report on the implementation of the 2030 Agenda for sustainable development.

75 Government Offices of Sweden (2021). Report on the implementation of the 2030 Agenda for sustainable development.

76 Global Taskforce of Local and Regional Governments (2021). Towards the localization of the SDGs. Sustainable and Resilient Recovery Driven by Cities and Territories. *United Cities and Local Governments*

77 Lyden, P. (2021). Localising NDCs with inspiration from the 2030 Agenda. *GIZ*

78 CoR (27/01/2022). Gender equality and Climate change: towards mainstreaming the gender perspective in the european Green Deal. *European Committee of the Regions*

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