CLIMATE CHANCE

2018 GLOBAL OBSERVATORY ON NON-STATE CLIMATE ACTION

BOOK 2

The mobilisation of the local and subnational governments

PUBLISHED BY CLIMATE CHANCE ASSOCIATION
NOVEMBER 2018

Citation
CLIMATE CHANCE (2018), "THE MOBILISATION OF THE LOCAL AND SUBNATIONAL GOVERNMENTS",

BOOK 2 OF THE ANNUAL REPORT OF THE GLOBAL OBSERVATORY ON NON-STATE CLIMATE ACTION

REVISED AND CORRECTED VERSION - DECEMBER 2018

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We thank the following organizations whose assistance and feedback have greatly enhanced this report :
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Progress of Global Initiatives

THE MOBILISATION OF LOCAL AND SUBNATIONAL GOVERNMENTS / PROGRESS OF GLOBAL INITIATIVES IS AN EXTRACT FROM THE ANNUAL REPORT 2018 OF THE GLOBAL OBSERVATORY OF NON-STATE CLIMATE ACTION

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EDITORIAL

Local and subnational governments, on the forefront of the fight against climate change

The success of the Summit in Lyon, «Climate and Territories», in July 2015, was the beginning of the creation of the association «Climate Chance», the only international association of the "climate galaxy» to gather, the main actors of the major non-state groups recognized by the UN: NGOs, communities, unions, companies, researchers..., to deliver a common message and develop action dynamics.

From this first summit, we insisted on the final declaration, largely signed by the main non-state global structures, and especially all major local government networks, on the importance of the territorial approach.

In Lyon, we also insisted on the importance of the commitments made by these networks of communities, all represented by mayors and presidents of regions, and we ourselves advanced, based on a rather cursory aggregation, the impressive potential saving the equivalent of two gigaton of CO_2 per year by 2020, if all these commitments are met. These local and subnational governments accounted for 13% of the planet's population, and we quickly calculated that that streamlining the commitments would save around 15 gigatonnes per year compared to a «business as usual» scenario, a drop guaranteeing a stabilization of the climate in line with the 2°C trajectory, as proposed by IPCC, an inter-governmental group of climate experts.

Three years later, other major summits of mayors and subnational chairpersons, in Paris during COP 21, in Agadir during the first Climate Chance Summit, in Edmonton in relation with IPCC work, in San Francisco last September ... have reinforced these commitments, made progress and established an outlook.

We are convinced, through the approach of the «Climate Chance Observatory» for non-state action, that the time has come for a first analysis of the action taken.

While doubts are growing about the ability of the international community to stabilize the climate below 2°C, and even more below 1.5°C, if we will convince other actors to engage, we must demonstrate that initiatives taken are working and being multiplied, and their quantitative impact will enable us to build a trajectory compatible with the stabilization of the climate.

Observatory means an uncompromising approach to the actions taken, a method of analysis based on the reliability of the data provided, not only to aggregate commitments. The exercise was not simple, first of all because

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quite a few local and subnational governments provide consolidated data on the evolution of their CO_2 emissions. Only some hundreds of them, mostly in Europe and North America, can be followed over time. It is too little to draw precise quantitative lessons, let alone to venture into a global aggregation that would participate in «bridging the gap», between the insufficient commitments of the States and the efforts highly recommended by the scientific community.

However, it does not mean that the mobilization of local and subnational governments is not at the heart of the response to the challenge of climate change. Through their decisions, elected representatives and territorial actors have a very strong influence on inhabitants' daily lives, their mobility, their habitat, their food ... and therefore their GHG emissions.

To best reflect this mobilization, exceptional in many territories, we have made the choice to move away from a quantitative approach only in terms of CO_2 saved. The three chapters of this Book 2 – 2018 give a trustworthy and pedagogical inventory of the situation and actions taken.

First of all, this 2nd Book focuses on the progress of major global dynamics; the Global Convention of Mayors and the Under2 MOU of regions and states, then on the main local and subnational networks whose action is irreplaceable. Allowing yourself to be oriented in the entanglement of initiatives seemed to be a condition for any impact analysis. Their reinforcement in the last two years is a fact that deserves to be emphasized

We then return, through the analysis of 24 territories, to «success stories» which demonstrate that it is possible to massively reduce CO_2 emissions in a short time, when the political will and the tools of interventions are implemented. However, we do not seek to deny the difficulties of implementation or disappointing results, or the progress made by developing territories whose emissions are not an indicator. Finally, our «Around the World in 80 initiatives», without it being a palmares, shows the extreme creativity and diversity of the actions taken.

The mobilization of representatives and territorial actors is not yet sufficient to stabilize emissions, but this report, one of the most comprehensive to date, shows the reality and the strength of the current dynamic that is not limited to the commitments of tribune, but carries one of the most tangible and increasingly measurable hopes of a global response from the territories, to the climatic challenge.

CLIMATE CHANCE ASSOCIATION

Since 2015, the Climate Chance Association is participating in the mobilization against climate change. It is the only international organisation that aims to bring together all the non-state actors recognized by the UN (the 9 groups of actors: local authorities, companies, NGOs, trade unions, scientific community, agricultural, youth, indigenous peoples and women organisations), to develop common priorities and proposals and to strengthen stakeholders dynamics through networking (thematic coalitions, summits, action portal).

The Climate Chance Association supports the central role of territories in climate action and the inseparable link between the climate agenda and the Sustainable Development Goals. The messages carried by the Climate Chance Association in its advocacy documents and the main themes addressed in the summits, are collectively discussed with the constant concern for the search for consensus, in an orientation council where the most representative structures of non-state actors are invited, in particular the focal points of the 9 major groups recognized by the United Nations Framework Convention on Climate Change (UNFCCC).

• The Climate Chance Association supports the central role of territories in climate action and the inseparable link between the climate agenda and the Sustainable Development Goals •

• THE CLIMATE CHANCE ASSOCIATION AND ITS OBSERVATORY ARE SUPPORTED BY: •

THE CLIMATE CHANCE OBSERVATORY

In order to strengthen the action of non-state actors and give credibility to climate stabilisation scenarios, the Climate Chance Association launched in 2018 a Global Observatory of Non-State Climate Action, which aims to explain the evolution of greenhouse gas emissions, by crossing national public policies, sectoral dynamics, the implementation of the commitments and the non-state actors' best practices at the local level. First-of-its-kind, published in French and English, this report will provide decision-makers, journalists, researchers, students and newcomers with a detailed framework for understanding major program areas and a first level of information and action analysis, particularly at the local level, in order to achieve the Paris Agreement and the Sustainable Development Goals.

• IN BOOK 2 • on « The Mobilisation of local and subnational governments», **SECTION 1** we have synthesised the elements of evaluation and assessment of the main local and subnational networks engaged in fighting climate change. This synthesis, based on their annual communications, their online portal, and our mutual exchanges, allows us to understand the recent trends of the implemented projects and the state of reporting on climate action of local authorities across the world. **SECTION 2** illustrates this first synthesis using 23 study cases of cities and regions which have succeeded in implementing public policies. This series of case studies has been chosen based on the recent activity of local and subnational governments, including the publication of local climate action plans, generally related to the initiatives described in the first section. For each of these cases, thematic axes are put forward. Finally, **SECTION 3** offers a global overview of local public policies recently implemented through 80 short illustrations from a constant news watch, and for many, from the contributions of the project holders themselves made within The Cartography of Action.

• This synthesis allows us to understand the recent trends of the implemented projects and the state of reporting on climate action of local authorities across the world •

The mobilisation of the local and subnational governments

The Climate Chance Observatory has used this territorial mobilisation report to offer an insight into the progress of initiatives led by communities and their networks. This report provides some facts and figures surrounding the increasing involvement of local communities in the formulation and implementation of climate strategies, and their organisation worldwide. It seeks to offer a general overview with a view to complementing and building on the individual contributions from each of these networks. It includes around twenty case studies analysing trends in emissions and the organisation of public climate policies at the local level throughout the world (Section 2), and an analysis of recent trends in 10 sectors of regional public policy included in our "round-the-world trip in 80 initiatives" (Section 3).

In Chapter 2, the Climate Chance Observatory will outline the landscape of the main networks involved in actions to reduce their members' greenhouse-gas emissions, to help readers navigate this "constellation of community networks". This report outlines the background and composition of each of them, this report is one of the few existing summaries to present the main organisations and community initiatives in this area, by outlining their goals and ambitions and the links that bind them. We have based our report on their reporting platforms and reports published in 2017 and 2018, including material presented at the Climate Action Summit in California in September 2018. This outline includes trends in the number of members and signatories, deliverables such as completed actions and published inventories and progress achieved. We have also provided an up-to-date summary of the projects and programmes of the different networks in 2017-2018.

This overview of community involvement reveals first and foremost a similar vitality in towns and regions. The number reporting their emissions to the CDP and carbon*n*® Climate Registry (cCR) doubled between 2015 and 2018, with huge numbers of positive results, some of which could be classed as spectacular. This rapid progress is, nonetheless, especially concentrated in Europe where many communities have enlisted in the European Covenant of Mayors since 2008, and, to a lesser extent, in North America, a region firmly committed to the Compact of Mayors launched in 2014. There has been less reporting and measurable progress in Asia, the Middle East, Latin America and sub-Saharan Africa. In the latter, involvement has grown since the Covenant of Mayors in Sub-Saharan Africa was introduced, with 134 members and more than thirty cities interested in joining the initiative in the near future. Apart from some activity on the part of Japanese cities through the cCR, the poor representation of Asian cities, particularly Chinese regions, is particularly significant and this has led to a global imbalance, given that a large proportion of territorial emissions have consequently not been covered. It should further be noted, interestingly, that if we use the C40 cities reporting (only considering direct emissions and from electricity production – scope 1 and 2), that cities in emerging countries often emit as much as industrialised countries, and that a major challenge lies in providing these cities with support to find urban solutions that emit less CO_2 and access to financing.

In a report published on the occasion of the Global Climate Action Summit (GCAS) *"Global climate action from cities, regions, and businesses"*, the New Climate Institute, the Netherlands Environmental Assessment Agency (PBL) and Data-Driven Yale, found that, in 2018, 8 237 cities in

128 pays, with 16% of the world's population, and 182 regions in 37 countries with 15% of the world's population, were involved in at least one of the main community networks – partly described in this section – and provided climate data. This compilation shows that, in total, local governments have made almost 6,000 commitments. These commitments, broadly concentrated in Europe with 5,679 recorded commitments, from cities and regions with a total of 214 million inhabitants, frequently overlap. However, there are only 81 commitments recorded for communities in East Asia and the Pacific region, and yet these relate to a very sizeable population (98 million inhabitants). Furthermore, the report published on the occasion of the Global Climate Action Summit in California seeks to assess the potential for reducing CO_2eq (or greenhouse gas) emissions of the initiatives taken by major international local community networks between now and 2030. Indeed, the initiatives taken by the C40 could lead to a reduction of 0.8 $GtCO_2$eq/year by 2030, those of the Global Covenant of Mayors to a reduction of 1.3 $GtCO_2$eq/year by 2030, and of 5 GtCO2eq/year for the communities involved in the Under2 MoU network.

• This first year allows us to lay the foundations for monitoring, on a long-term basis, local-government initiatives and global covenants •

The Climate Chance Observatory is interested in assessing the consistency of the actions implemented with this particular potential. At this point, it is totally impossible to aggregate results as reporting scopes, periodicity and methods are far too dissimilar. Nonetheless, a number of results can be identified, from studies conducted by the Joint Research Centre (JRC) for the Covenant of Mayors or C40 cities: the cities and regions where results have been the most spectacular are mainly territories which seek to align all public action, within the framework of their climate plans, as can be seen in several of our case studies. The cities involved are often those with heating networks or those which find it relatively easy to include renewable energy and new technologies and, in most cases, have a strong public grip on these networks. On the contrary, in the case of transport, results are frequently less clear cut. In the case of regions, where the emissions involved are more wide ranging, the determination and performance of major regions is very welcome. These are generally regions with extensive powers as part of federal states (United States, Canada, Germany, etc.). There is also the warning issued by the last annual carbon*n*® Climate Registry report which shows the difficulties involved in effectively implementing a considerable number of these commitments to act, particularly due to a lack of technical and financial resources.

This first year will allow us to lay the foundations for monitoring, on a long-term basis, local-government initiatives and global covenants and our quantitative and qualitative analyses will be refined in future reports, as we keep a watch on new emerging data.

GLOSSARY OF LOCAL GOVERNMENT NETWORKS

CLIMATE ALLIANCE OF EUROPEAN CITIES WITH INDIGENOUS RAINFOREST PEOPLES

international association founded in 1990 with a secretariat in Brussels. The association brings together different levels of governance (local, national, European, international) on projects related to the reduction of greenhouse gas (GHG) emissions, biodiversity, the preservation of tropical forests and awareness of the public on these issues. More than 1,700 cities and local governments are members around the world.

C40 (CLIMATE LEADERSHIP GROUP)

The C40 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 96 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.

CARBON NEUTRAL CITIES ALLIANCE

Created in Copenhagen in 2014 between major cities pledging to reduce their emissions by 80% or more by 2050. It is administered by the North American municipal network Urban Sustainability Directors Network (USDN) in partnership with the C40 and the Innovation Network for Communities (INC). The alliance is made up of 20 cities, most of which are also members of the C40 network.

UNITED CITIES AND LOCAL GOVERNMENTS (UCLG)

Founded in 2004, it is the world's leading organization of twin cities and towns. It ensures the representation of local authorities to international institutions to defend their values and their role in the major issues of global governance such as climate change. As such, UCLG was heavily involved in drafting the Mexico Pact. The members of this association (cities or local government associations) are present in 140 UN Member States and represent nearly half of the world's population.

CITIES CLIMATE FINANCE LEADERSHIP ALLIANCE (CCFLA)

Alliance launched in 2014 at the UN Secretary-General's Climate Summit, composed of more than 40 public and private organizations and investors committed to accelerate and catalyse financing in low-carbon and resilient infrastructure in urban areas. Since 2016, the R20 hosts the Alliance Secretariat, with the FMDV, UNEP and UNDP.

THE COUNCIL OF EUROPEAN MUNICIPALITIES AND REGIONS (CEMR)

CEMR was founded in Geneva in 1951 by a group of European mayors, before opening its ranks to the regions. Its gathers today more than 60 national associations of cities and regions from 41 countries, representing approximately 130,000 cities and regions. CEMR works to promote a united Europe based on local and regional self-government and democracy, by supporting the Council of Europe's European Charter of Local Self-Government, by strengthening the contribution of local and regional authorities, by influencing the legislation and policies of the European Union, by promoting the exchange of information at local and regional level, and by cooperating with its partners elsewhere in the world. CEMR promotes twinnings, which is a network of tens of thousands of local partnerships in Europe, and coordinate PLATFORMA, the coalition of local and regional actors for development and decentralized cooperation at the global level. CEMR is also the European section of the world association United Cities and Local Governments (UCLG).

ENERGYCITIES

European Association of Cities in Energy Transition, created in 1990. It represents 1,000 cities in 30 countries. The association seeks to strengthen the skills of communities in the field of sustainable energy, represent their interests in the European Union, and act as a platform for exchange of experiences for the implementation of projects. In addition, this network is one of the founding partners of the Covenant of Mayors for Climate and Energy launched in 2008.

EUROCITIES

Network founded in 1986 by the mayors of 6 major European cities, now gathering more than 140 cities in 34 countries. The association is open to cities of 250,000 or more inhabitants. Its action is based on three pillars: building networks between cities around different themes, representing the interests of cities in the European institutions and promoting the action of cities at international events. The climate and the integration of the environment are among its priorities. In addition, this network is also one of the founding partners of the Covenant of Mayors for Climate and Energy, launched in 2008.

FEDARENE (EUROPEAN FEDERATION OF AGENCIES AND REGIONS FOR ENERGY AND THE ENVIRONMENT)

Federation created on June 8, 1990 by 6 regional authorities: Rhône-Alpes, Provence-Alpes-Cote-d'Azur, Wallonia, País Vasco, Aquitaine and Nord-Pas-de-Calais. 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 70 organizations from 20 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.

GLOBAL FUND FOR CITIES DEVELOPMENT (FMDV):

International alliance of local and regional governments that enables emerging and developing local governments to access climate finance. The FMDV supports sustainable development and climate projects by providing its technical expertise and financial engineering and acting as a hub of knowledge and recognized facilitator. FMDV has mobilized or collaborated with more than 1,300 cities and regions from more than 110 countries, 250 private companies and most of the technical and financial partners in local development.

ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY

Organization founded in 1990 and it now includes more than 1,500 communities of all levels of population and governance (cities, towns and regions) in 124 countries. It is currently the main organization of local governments dedicated to sustainable development in the world. It is a founding member of the Global Covenant of Mayors for Climate & Energy.

NRG4SD (NETWORK OF REGIONAL GOVERNMENTS FOR SUSTAINABLE DEVELOPMENT)

International network created in 2002 on the occasion of the Johannesburg Earth Summit, made up of regional governments and regional and local government associations committed to promoting sustainable development, biodiversity and the fight against climate change. Today it gathers 50 federated states and regional governments from 30 countries and 7 associations of states and regions. The network is accredited to UNEP, to the UNFCCC and to the Convention on Biological Diversity, and it organized the Saint-Malo Summit of Regions on climate change issues. It is the secretariat of the RegionAdapt initiative.

R20 (REGIONS OF CLIMATE ACTION):

Organization created in 2010 by Arnold Schwarzenegger then governor of the State of California, and other world leaders, in cooperation with the UN. The R20 is a public-private partnership, gathering local governments, private companies, financial institutions, academic institutions, government organizations, intergovernmental organizations and UN agencies to develop and implement carbon-neutral, sustainable regional projects, measurable and scaled up on a large scale. It has more than 50 members regions and more than 130 partners.

MAIN PARTNERS OF THESE NETWORKS

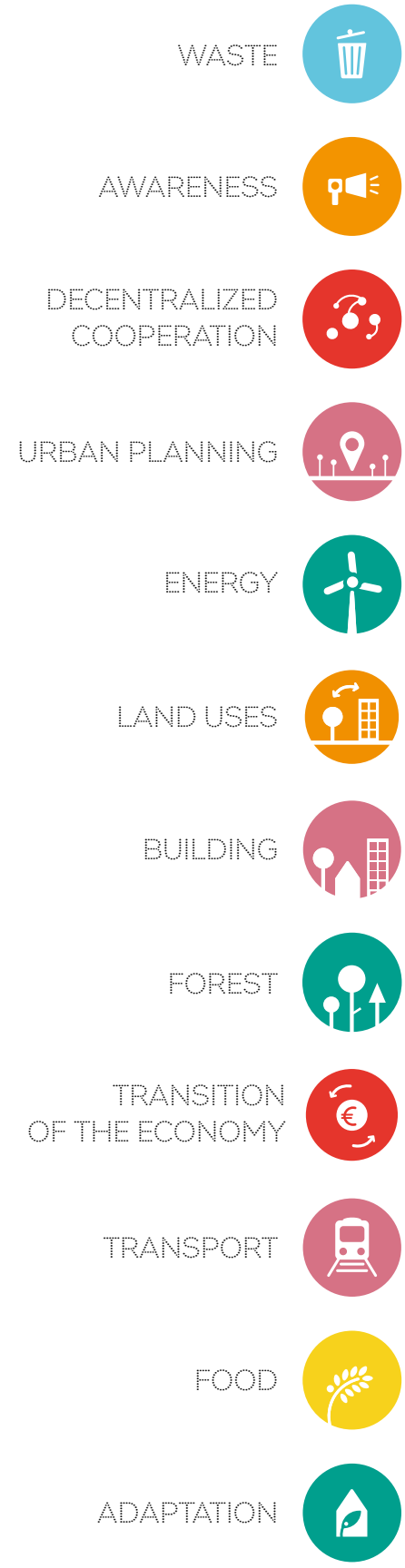
THE CLIMATE GROUP:

Non-governmental organization created in 2004 whose activities focus on the animation of networks of large companies and local governments around the energy transition, the diffusion of new low-carbon technologies and renewable energies. It is the secretariat of the Under2 Coalition. In addition, since 2009 the Climate Group organizes the Climate Week in New York City, in parallel with the United Nations General Assembly.

CDP

International non-profit organization, founded in 2004, which provides a global reporting platform for businesses, cities and regions to measure, disclose, manage and share environmental information, and facilitate decision-making by policy-makers and the network of CDP investors representing more than 1,000 billion assets. More than 500 cities report their emissions and climate actions on the CDP-Cities platform. Cities and regions data are available on their open data portal.

THEMATIC



SECTION I

Progress of global initiatives

A SYNTHESIS OF THE EVALUATION AND TOPICAL ELEMENTS OF THE MAIN NETWORKS AND LOCAL GOVERNMENT INITIATIVES FOCUSED ON CLIMATE CHANGE, TO UNDERSTAND RECENT TRENDS IN PROJECTS IMPLEMENTED AND THE STATE OF REPORTING OF CLIMATE ACTIONS OF LOCAL AUTHORITIES THROUGH THEWORLD.
IT ALSO PROPOSES A CLARIFICATION OF CARBON ACCOUNTING METHODOLOGIES AND EXISTING REPORTING PLATFORMS.

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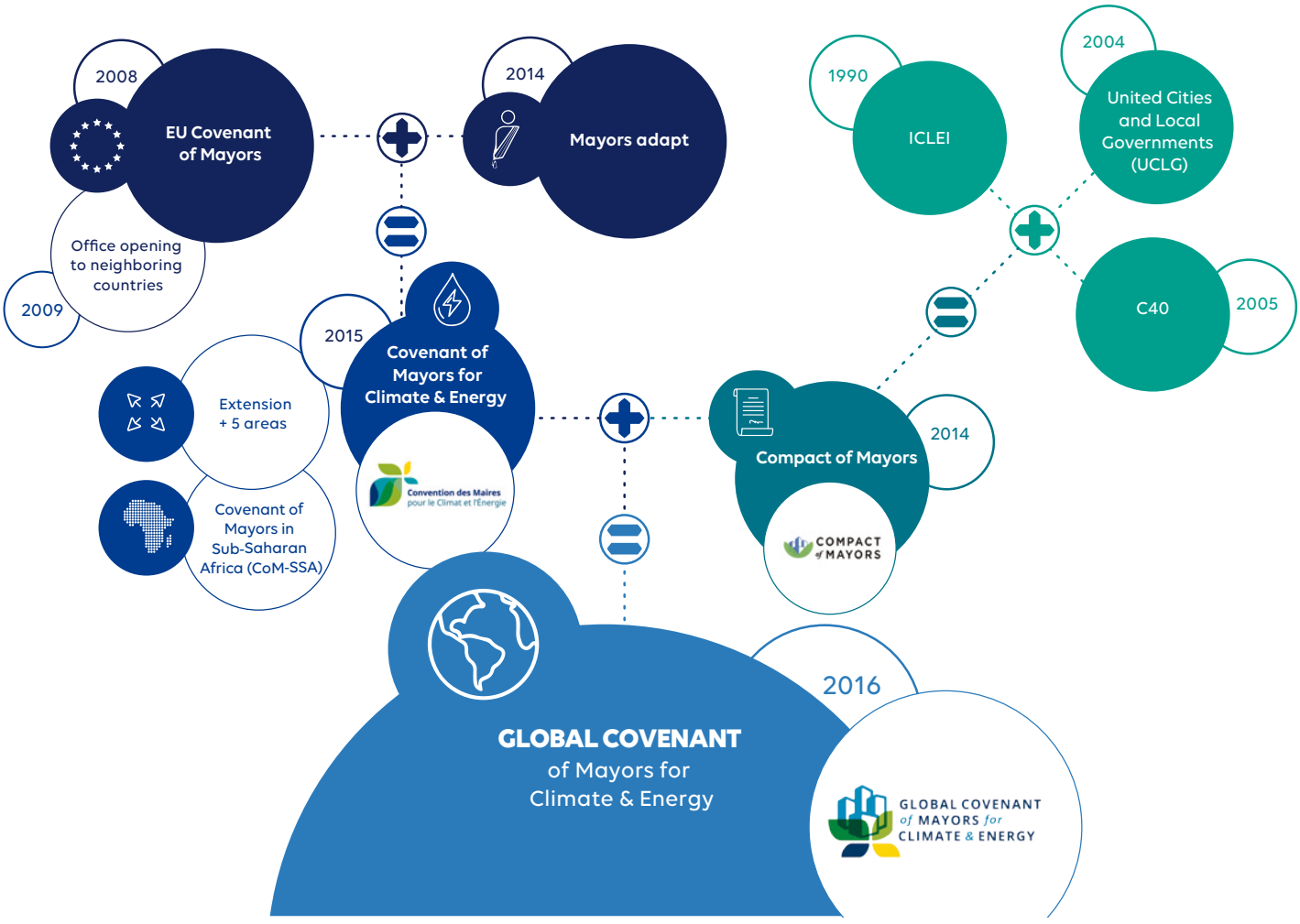
The global covenants

A. THE GLOBAL COVENANT OF MAYORS FOR CLIMATE & ENERGY

The Global Covenant of Mayors for Climate & Energy is an international alliance of cities and local governments arising from the merger in January 2017 between the "Covenant of Mayors for Climate & Energy" launched in 2008 by the European Commission, in cooperation with the main European local government networks (CMER, Energy Cities, FEDARENE, EUROCITIES, Climate Alliance, ICLEI Europe), and the "Compact of Mayors" launched worldwide in 2014 by ICLEI, CGLU and the C40. The aim of this merger was to increase the understanding and consistency of city and regional mobilisation and to facilitate the aggregation and monitoring of local climate data. It also aimed to address several issues relating to the awareness of the regional and national frameworks in which local governments operate, a shared reporting methodology adopted by all, and the nature and level of commitment of the member cities of these two networks, each with its own important history and past achievements.



The European initiative of the Covenant of Mayors for Climate & Energy

• BACKGROUND AND GOALS • The European Covenant of Mayors is an initiative launched and financed by the European Union after it adopted, in 2008, a 2020 climate & energy package, on the initiative of European local authority networks. It is managed by a consortium of European local authority organisations comprising the Council of Communities and Regions of Europe (CCRE), EUROCITIES, Climate Alliance, Energy Cities, the European Federation of Agencies and Regions for Energy (FEDARENE) and, since 2017, ICLEI Europe. In October 2015, the Covenant merged with Mayors Adapt, a further initiative launched by the European Commission to promote adaptation. It thus became the Covenant of Mayors for Climate and Energy, with three main pillars: mitigation, adaptation and access to sustainable energy. The latter component aims to alleviate energy poverty within communities.

Member European local authorities voluntarily commit to meet, and even exceed, the European Union's climate and energy targets by 2020: 20% reduction in greenhouse gases (GHG) compared with a chosen baseline year, through political commitment and the development and implementation of local action plans.[1] Since 2015, signatories have committed (or recommitted if they had already committed to following the 2020 goals) to the EU 2030 goals involving a reduction of 40% in their GHG emissions, and to develop a climate change adaptation plan at the local level. Signatories also commit to submitting, within two years of joining, a "Sustainable Energy Climate Action Plan" (SECAP) including an emission inventory, a climate action plan and a risk-and-vulnerability assessment of the effects of climate change and the key actions envisaged to implement their climate plan. **Finally, members must report their actions by submitting, every two years, a monitoring plan and, every four years, an inventory of climate and energy data.**

In 2009, the Covenant of Mayors extended membership to neighbouring countries outside the European Union as part of the CES-MED programme. This programme is financed by the European Neighbourhood Partnership Instrument (ENPI) to support local and national authorities in preparing their action plans in 10 countries on the Mediterranean rim (CoM-Med) as well as in Eastern Europe (CoM-East), and even in Central Asian countries[2]. In these regions, consortia of regional organisations form Covenant regional offices. Commitments differ depending on the particular office, and the Eastern European cities have committed to reduce their emissions by 30% by 2030 and not by 40% like the European Union cities.

The European online reporting platform entitled "MyCovenant" is made available to signatories of these regions and serves to coordinate all signatories, with, however, separate data management for each region. The European portal centralises the publication of local authority action and monitoring plans from the countries of the European Union, the European Free Trade Association, CoM-Med, CoM-East, and other neighbouring countries.

1 Other goals which are not compulsory but desirable in terms of European goals are the inclusion of 20% of renewable energy in the energy mix and a 20% improvement in energy efficiency.
2 Mediterranean CES-MED: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia. Eastern Europe (East Covenant) and Central Asia: Armenia, Azerbaijan, Belarus, Georgia, Moldavian Republic, Ukraine, and Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

• TRENDS IN COMMITMENTS AND DELIVERABLES 2015-2018 • In October 2018, the Covenant had approximately 8,0133 active signatory local authorities (with action plans either submitted or in progress) in more than 50 countries in Europe and the surrounding area. More than 253 million inhabitants (mainly from European Union countries which account for almost 7,500 active signatories) are involved, namely the equivalent of almost 50% of the European Union population.[4] The Covenant is, however, unusual in that it includes a large number of small towns, with, in 2018, 66% of its signatories representing towns of less than 10,000 inhabitants in their region (Melica et al., 2018).

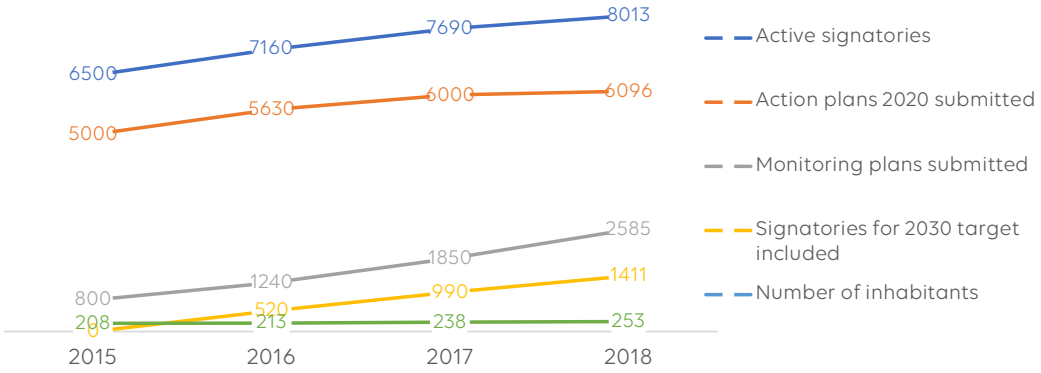


FIGURE 1. DEVELOPMENT OF THE EUROPEAN COVENANT OF MAYORS 2015-2018

(Sources : Compiled by the author from data supplied by the Covenant of Mayors)

A slowdown in the number of active signatories between 2017 and 2018 (see Figure 1) can be explained by a strategic choice made by the Covenant's Secretariat since 2016 which sought to encourage signatories already committed to 2020 goals to recommit to new 2030 goals. The mobilization of new signatories remains an important objective of the consortium. As a matter of fact, the number of cities which are new or former members and which have taken 2030 commitments, has sharply increased this year. Effectively, among the more than 8,000 active signatory local authorities, 1,411 have committed to fulfil or exceed EU objectives by 2030 (including new signatories and 2020 signatories).

In total, more than **6,100 2020 action plans have been submitted since 2008 and more than 30 2030 action plans since the beginning of 2018**. This figure is likely to increase very rapidly in the course of the second six months of 2018 and in 2019, which is the date by which the signatories which committed in 2016 must submit their action plans to meet this new deadline. Of the 5,516 2020 action plans recorded in October 2017 (representing 195 million inhabitants), one study shows that approximately 95% of these plans were from local authorities in the 28 countries of the European Union (Kona A. et al. 2018). 32% of the population of the EU is now covered by a Covenant action plan. 10 countries account for most signatories and, alone, for 5,490 action plans submitted (see Figure 2), representing 120 million inhabitants. Wide disparities exist between the sizes of local authority committed depending on country. In this sense, only 60 German local authorities have submitted SEAPs but these cover almost 17 million inhabitants, whereas the 3,184 action plans from Italian local authorities cover approximately 38 million inhabitants.

3 In addition to the 7,750 signatories there are almost 1,500 signatories who have missed the deadline for submitting their action plans and are, for the time being, deemed to be "postponed". These signatories are, however, included in the number of cities committed to the Global Covenant of Mayors (see section below).

4 512.6 million on 1 January 2018 according to Eurostat

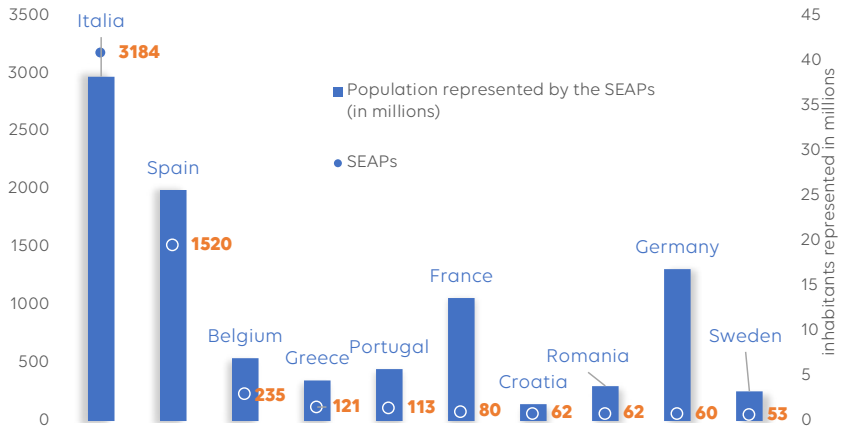


FIGURE 2. THE 10 COUNTRIES WITH THE GREATEST NUMBER OF SIGNATORIES WHICH HAVE SUBMITTED THEIR ACTION PLANS.

(Source : compilation taken from Kona A. et al. 2018).

• PROGRESS SINCE 2015: TOWARDS ACHIEVING 2020 GOALS • Each year, the Joint Research Centre (JRC) reports on the status of the reporting and progress achieved by the Covenant signatories towards the 2020 goals. The Monitoring Emissions Inventory (MIE) shows progress achieved on the basis of Baseline Emissions Inventories (BEI) which generally tend to take 2005 as their baseline year.

On the basis of 315 monitoring inventories received in September 2016 (i.e. 18% of the 1,779 normally expected at that date, and observing annual emissions for the 2012-2014 period, the JRC has calculated a global reduction in emissions of 23% for all local authorities studied compared with the baseline inventories. This overall reduction in GHGs equates to the achievement of 58% of the goal of cutting emissions by 40% by 2030, recently set by the signatories to the Covenant.(JRC, 2016)

To achieve this result, the signatories used three main levers (see Figure 3): making buildings more energy efficient and efficiently generating heat by increasing the share of renewables in its production (-36% emissions); increasing the generation of local renewable energy (-17% emissions); and improving energy efficiency in the transport industry (-7% emissions).

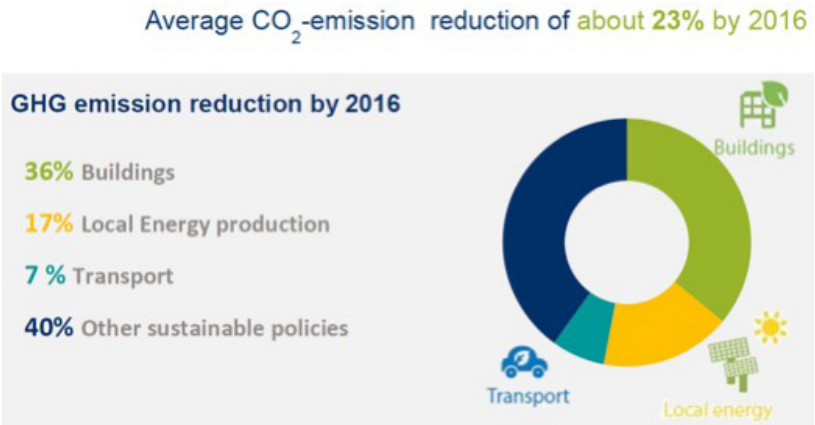


FIGURE 3. SOURCE OF REDUCTIONS IN GREENHOUSE GASES BY SECTOR

(Source : EU Covenant key figures 2017

According to the JRC, these significant reductions are due to an overall reduction of 18% in final energy consumption in the 315 local authorities analysed, i.e. a reduction of 89 TWh compared with the baseline year in each region. By 2030, the signatory local authorities voluntarily seek to achieve an overall reduction of 27% in energy consumption, and 67% of this goal was achieved in 2017. Furthermore, analyses of different energy-consumption sectors show a reduction of 5% in the consumption of electricity, a reduction of 27% in the final energy consumption of buildings and a reduction of 11% in the energy consumption of transport.

Another factor explaining this reduction in territorial emissions lies in an increase in the share of renewable energy in final energy consumption (see Figure 4). Depending on sector, we can see, in comparison with the baseline years, a sharp increase in the consumption of local renewable energy (34.4 TWh/year in 2017 compared with 6 TWh/year on average for the baseline inventory, i.e. an almost sixfold increase in production) and, at the same time, a reduction in the consumption of non-renewable energy in the heating and air-conditioning industries, and in the transport industry.

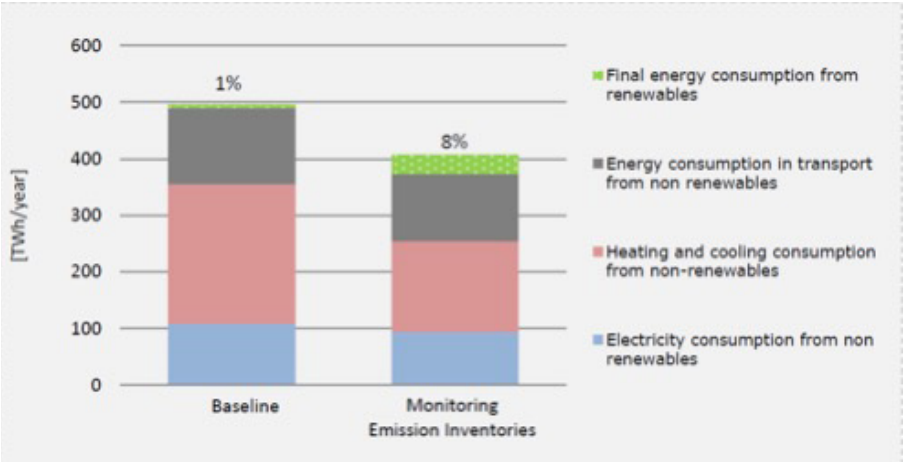


FIGURE 4. FINAL CONSUMPTION OF RENEWABLE AND NON-RENEWABLE ENERGY BY SECTOR, COMPARISON BETWEEN THE BASELINE INVENTORIES AND THE MONITORING INVENTORIES

(Source : Covenant of Mayors in figures - 8 years assessment, 2017

These results show, by extrapolating results from 315 inventories, that in the case of the committed cities, European goals could be achieved or even exceeded by 2020. In effect, this analysis of action plans shows that signatories have committed to reducing their emissions by 27% on average, 7 points more than the goals set by the European Union. **The results observed in 2016 show that these goals are well on the way to being achieved and should represent a reduction of 254 $MtCO_2eq$/year by 2020, i.e. 31% of the reduction effort expected of the European states.**

Finally, in its October 2017 study, the JRC estimated, based on a model extrapolating the results and progress shown by the 533 inventories received by that date covering 21% of the covenant's population, that **the signatories of the Covenant could achieve a level of emissions of 0.15 tCO_2eq/capita by 2050, a level consistent with a global rise in temperature of 1.5 degrees and the achievement of carbon neutrality** (Kona A. et al. 2018).

Significant progress in the energy sector

Energy Cites in "villes vertes en mouvement" published in January 2018, estimates that the European Covenant of Mayors members have doubled the amount of decentralised heat generated locally from renewable sources compared with the baseline year chosen by its members (generally 2005 or 1990), they have increased the renewable energy used in transport by nine-fold and the green energy produced locally by eight-fold, and finally they have increased their final consumption of energy generated from renewable sources by five-fold.

TEXT BOX 1

Extension and replicas of the Covenant since 2015

• THE INTERNATIONAL URBAN COOPERATION (IUC) PROGRAMME'S ENERGY AND CLIMATE PILLAR • In 2015, the European Commission, through its Foreign Policy Instrument (FPI), financed the launch of five new offices (also managed by a consortium of organisations): North America, South America, Japan, India and China-Southeast Asia. The opening of these regional offices constitutes the European International Urban Cooperation programme's energy and climate pillar, which also includes two further pillars on urban development policies and regional cooperation. In May 2018, a South Asian office was officially opened as part of its programme in India, which will be responsible for the six countries in the sub-region: Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.

Now, a total of nine offices (European Union Member States, Mediterranean, Eastern Europe, Covenant in Sub-Saharan Africa, North America, South America, Japan, India which has recently become the South-East Asia and China-East Asia office) are part of the European Covenant of Mayors, supported by different European Union policies: neighbourhood policy, cooperation and development policy, and, more recently, via foreign policy instruments. The Covenant has also extended its actions, through these regional offices, beyond mere mitigation to cover adaptation and energy access. All local authorities wishing to join the Global Covenant which are located outside the areas covered by these regional and national offices must now apply to the Global Covenant general secretariat, based in Brussels.

• THE COVENANT OF MAYORS IN SUB-SAHARAN AFRICA (COM SSA) • In 2015, the European Commission launched the "Covenant of Mayors in Sub-Saharan Africa" (CoM SSA), the African regional branch of the Covenant of Mayors, the secretariat and pilot activities of which it finances. Thirteen pilot cities benefit from direct financing for the development of their "Sustainable Energy and Climate Action Plan" (SECAP), covering the 3 pillars of adaptation, mitigation and energy access: Bangui, Bissau, Bouaké, Dakar, Kampala, Lubumbashi, Monrovia, Nouakchott, Pikine, Tsévié, Yaoundé III and IV, and the Zou joint local authority. The consortium members, coordinated by the Council of European Municipalities and Regions (CEMR), have four years to build the capacity of cities to introduce the Covenant of Mayors, by supporting local authority associations, helping cities to draw up action plans and coordinating with civil-society actors. In the 3rd quarter of 2018, it had **132 signatories from 34 different countries, representing more than 155 million inhabitants, more than 10% of the region's population.**

To help the signatories draw up their SEACAP, the JRC is currently producing a methodological guide specifically designed for African local authorities. During a consultation exercise organised by the JRC at the Climate Chance Summit – Africa in June 2018 in Abidjan, the representatives of African cities who attended had the opportunity to share their experience of preparing these plans and promote awareness of local African issues such as access and data compilation and management. Upon completion of this project, the JRC must verify and validate the plans and inventories of these 13 pilot cities.

The Global Covenant of Mayors for Climate & Energy (GCOM)

• BACKGROUND AND GOALS OF THE COVENANT OF MAYORS • The Compact of Mayors was launched in 2014 by Ban Ki-Moon, General Secretary of the United Nations, and Michael R. Bloomberg, UN special envoy on cities and climate change, and by mayors belonging to global cities networks, ICLEI, C40 and United Cities and Local Governments (UCLG). In 2016, the Covenant had approximately 600 members including the C40 network of the world's greatest cities. As is the case with the European covenant, signatory cities must submit an up-to-date GHG inventory, set themselves an emission-reduction goal, assess their vulnerability and, finally, regularly report their emissions/actions to the carbon*n*® Climate Registry, the initiative's official reporting platform, and also to the CDP.

• MERGER WITH THE COVENANT OF MAYORS • In 2016, the founding members decided to merge the two initiative (Compact of Mayors, and Covenant of Mayors), to form the Global Covenant of Mayors for Climate & Energy (GCOM). It is therefore the largest international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary climate action and move to a low emission, resilient society. Their aim at the time was to align membership processes, communications, reporting and monitoring for network members and the different regional offices created in 2015, and eventually afford greater transparency in the commitments and progress made by local authorities.

The current proposal for commitment, based on member commitments and opinions as of June 18, applies the respective requirements of both Covenants:
• To set an emissions-reduction target and submit a GHG inventory and a risk-and-vulnerability assessment within two years.
• Submit an adaptation/mitigation plan within three years of its signature. The submission of the sustainable energy access plan remains to be determined.
• A monitoring report every two years after the action plan.
• Follow all progress towards meeting these targets.

The framework should, however, be sufficiently flexible and modular in terms of regional offices to take account of the local and national realities of the local authority members. Targets should be set in line with each regional covenant or, for example, national goals. This leaves open the opportunity to report actions on the platforms currently used by the signatories of the two initiatives, such as MyCovenant, the carbon*n*® Climate Registry and the CDP-city (see below the part on reporting plateform for further information). ICLEI and the CDP announced at the COP23 to work towards converging the two reporting platforms.

The merger of these two initiatives should also provide an opportunity to define the use of local government data. Their merger will support advocacy efforts for multi-actor and multi-level climate governance and seeks to facilitate the financing of regional projects, both by States and international bodies. The Global Covenant also seeks to bring together different strands of thought on strategies focusing on individual local realities, through climate data analysis.

• UPDATE ON 2018 PROJECTS AND PROGRAMMES •

Financing • During the One Planet Summit of December 2017, the Global Covenant also announced several partnerships under the title Global Urbis, with the European Commission, the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), to improve city access to financing and increase the flows they receive. The initiative seeks to promote the existence of a one-stop shop for local authorities, as pinpointed by EIB Vice-President, Jonathan Taylor, during the One Planet Summit (EIB 2018).

Several important developments come under this banner. The "**Invest4Cities**" Initiative was launched by the Global Covenant, the EIB and the EBRD, the European Commission and the special envoy on climate change Michael Bloomberg, during the high-level conference on sustainable finance held by the European Union in March 2018. They have called on investors worldwide to fulfil the commitments they made at the One Planet Summit in 2017, by raising USD 200 million to provide technical assistance for 400 southern cities and USD 600 million in credit facilities. This USD 800 million should be enough to mobilise USD 6 billion in total in public and private investment.

During the Global Climate Action Summit in San Francisco in September 2018, the EIB and GCOM officially launched a call for proposals, the Global Climate City Challenge, for technical and financial assistance for the preparation and initiation of major low-carbon infrastructure projects, and the search for joint funding among signatories of the Global Covenant in Africa, Central Asia, Latin America and countries neighbouring the European Union. The first round will support six projects to be selected in early 2019. Furthermore, under the **Green Cities Framework**, the ERBD announced that it has provided USD 50 million in funding for infrastructure projectsand plans a further USD 360 million for projects in 20 targeted cities (EBRD 2018).

Research and Innovation • Starting from the premise that the scientific climate agenda is still not sufficiently looking at local action, the Global Covenant launched Innovate4cities **in 2018,** a collaborative framework involving different actors to identify the specific needs of cities in terms of research and innovation and thereby enrich the global scientific agenda through knowledge produced by local actors, academia and the private sector. This initiative also seeks to develop the scientific knowledge required for sustainable urban projects, by taking account of the specific features of each city: size of population, geographical assets, accessible technologies, etc. (GCOM, 2018). **More specifically, it calls on national governments to allocate a third of their research and development budget over the next 10 years to urban issues related to climate change, on the private sector to collaborate with cities and to disseminate more data crucially needed for decision-making and estimating co-benefits, and on academia to recruit 10 million students by 2025 to courses related to climate change.**

Local-authority access to funding is becoming a reality

A partnership between the Global Covenant and the World Bank City Resilience Program (CRP), announced at the One Planet Summit in December 2017, should ultimately allow the release of USD 4.5 billion to 150 cities worldwide, in the shape of credits to finance low-carbon, climate-resilient programmes or, as technical assistance, to facilitate the mobilisation of significant private capital. In July 2018, the programme included a portfolio of projects currently underway totalling USD 400 million in 55 cities in Africa, Asia, Latin America and the Mediterranean rim (see Figure 5), and it has allowed USD 12 million seed funding to be raised from third-party investors (EBRD 2018).

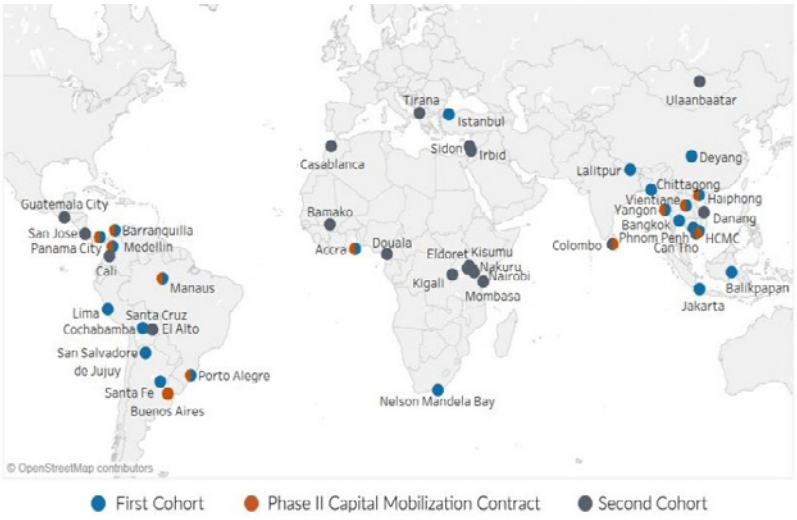


FIGURE 5. DISTRIBUTION OF CITIES FUNDED BY THE CRP

(Source : BM 2018)

TEXT BOX 2

This programme follows the call issued by cities in the **Edmonton Declaration**, adopted as a preamble to the IPCC Cities and Climate Change Science Conference, held in Edmonton (Canada) from 5 to 7 March 2018. It calls for greater collaboration between local governments and the scientific community to develop a research and innovation plan to inform public policy and investment.

Promote a greater awareness of the territorial dimension in IPCC research and activities

The IPCC 5th assessment report of 2014 included, for the first time, one chapter on the adaptation of urban areas to climate change and another on the role of planning in the mitigation of climate change by cities. Notwithstanding, issues related to cities and climate still remain largely undocumented by the IPCC, and consequently the Edmonton conference, in preparing its 6th assessment report, sought to identify needs for documentation, stimulate global research and the production of knowledge on the diverse effects of climate change via contributions by local governments. The Innovate4Cities programme should further offer a substantial contribution to the production of an IPCC report specifically on cities. (Source: Joint declaration of the participants at the Edmonton conference and Cities IPCC) website.

TEXT BOX 3

• STATUS OF COMMITMENTS AND REPORTING 2018 • Although the number of members varies enormously from one region to the next, the Global Covenant is today the largest coalition of local governments in the world with more than **9,000 cities are committed to the initiative, comprising signatories from different regional covenants, in 129 countries, representing more than 780 million inhabitants.**

On its online platform, excluding the 8,259 cities [5] in Europe (including Russia), in September 2018, the Global Covenant listed **720 signatories, 98 inventories and 64 action plans.** The first action plans are expected from the new Global Covenant signatories from 2019 on, in the 3rd year after signing.

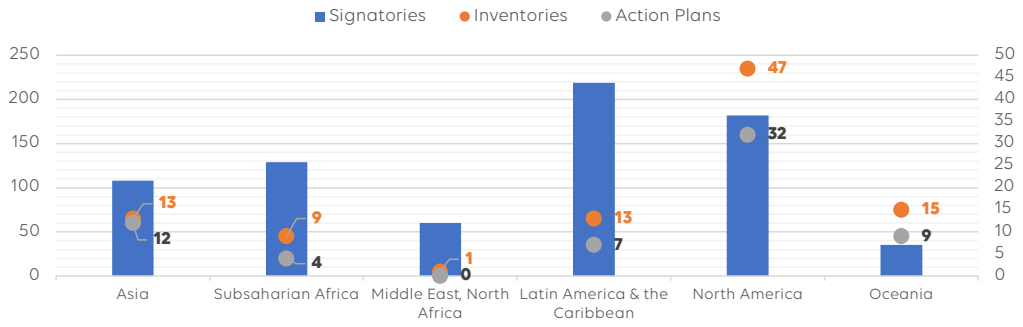


FIGURE 6. GEOGRAPHICAL DISTRIBUTION OF THE SIGNATORIES OF THE GLOBAL COVENANT OF MAYORS AND DELIVERABLES.

(excluding data from the European Covenant of Mayors)

Although these figures reflect the geographical distribution of signatories and not necessarily their membership of a particular Covenant, they do, however, show the respective vitality of merged initiatives. Thus, leaving aside cities in Europe, 50% of all published inventories and plans are from North American cities (see Figure 6).

The 2018 Aggregation Report, the principles of which were presented at the Global Climate Action Summit, estimates that if current members achieve the targets that they have set themselves, they could achieve an effective reduction in annual emissions of 1.4 $GtCO_2eq$ in 2030 and 2.8 $GtCO_2eq$ in 2050.

The only rating data currently available estimates that **1,818 signatory cities have already reduced their emissions by 20% compared with their peak emissions, a reduction of 0.43 $GtCO_2eq$, with the vast majority of these cities being members of the European based Covenant**. At the same time, the reporting of climate vulnerabilities and risks is improving and, this year, shows that the greatest dangers to the populations of the signatory cities to the Covenant are periods of extremely high temperatures (181 million inhabitants affected), floods and rises in water levels (193 million inhabitants affected).

5 This figure reflects the geographical distribution of the signatories but does not correspond to the number of signatories of the European Covenant mentioned earlier, which brings together a number of sub-regional covenants (EU, Eastern Europe, Mediterranean, Central Asia), and makes a distinction between active members and postponed members (whose deadlines for deferring their plans have been exceeded).

B. THE UNDER2 COALITION AND ASSESSMENT OF ACTIONS BY STATES AND REGIONS

Background and composition of the Under2 Coalition

This coalition brings together the signatory regions[6] of the "Under2 MoU" Memorandum of Understanding adopted in 2015 prior to COP21, at the initiative of the states of California and Baden-Württemberg including 12 federal states and regions in its launch. Its text, which is not binding, commits them to maintaining rises in temperature to below 2 degrees by reducing emissions by 80 to 95% compared with 1990 by 2050 and/or achieving an annual emissions target of less than two metric tonnes per inhabitant by 2050. The Climate Group acts as the secretariat of the Under2 Coalition, and works in partnership with CDP for the Annual Disclosure.

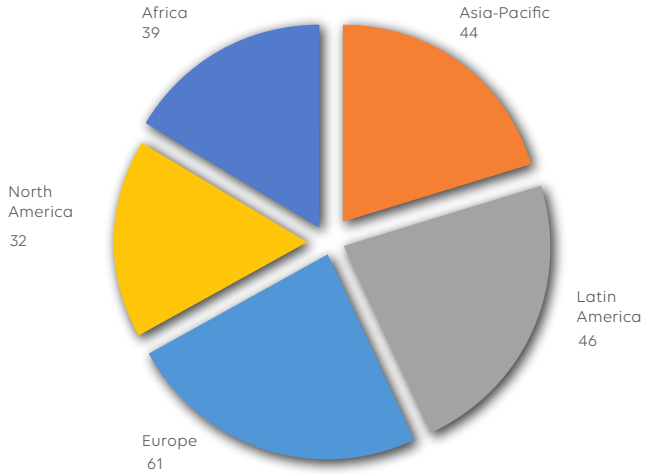


FIGURE 7. GEOGRAPHICAL DISTRIBUTION OF MEMBERS OF THE UNDER2 COALITION

Data provided by the Climate Group

The Under2 Coalition counts **222 signatories, over six continents and 44 countries. It has 21 national endorsers, and 3 states** endorsers which support the Under2 MoU implementation worldwide. These regions represent a total of 1.3 billion inhabitants.

Update on projects and programmes in 2018

• THEMATIC FORUMS • The "Under2 Coalition Highlights "annual report presents the actions and progress of the coalition over the previous year (commitments, events, reporting, programmes) and, particularly, the platforms and thematic forums coordinated by the Secretariat to allow members to exchange good practices, resources and difficulties. The latest peer-learning platform) to date, launched in 2018, is the "Zero Emission Vehicle Project" (ZEV), which should provide the regions with the resources they need to accelerate the deployment of this type of vehicles on the roads of those members who have committed to achieve fully zero-emission vehicles by 2050. Quebec is the first Canadian province to adopt a standard requiring manufacturers to offer more ZEV-certified vehicles, and the additional requirement of also certifying reconditioned models which are more affordable for those on low incomes.

6 In this publication, the term region refers to any intermediate government between municipal governments and national governments.

The Energy Transition Platform

The Energy Transition Platform is one of the coalition's flagship projects. Between 2015 and 2018, this project connected 11 heavily industrialised regions and federal states with particularly high emissions, located in Europe, North America and Australia. The 11 regions in question accounted for a total of 13% of emissions in these three sub-continents and are home to 100 million inhabitants. During the first project phase, participants used webinars to discuss a variety of subjects, ranging from energy storage to smart grids, and this produced six regional case studies available on the Under2 Policy Action Map. In 2017, the project entered its second phase facilitating closer collaboration between participants. Governments worked in small groups (innovation laboratories) on subjects relevant to their regions – community-based renewable energies, the energy efficiency of buildings and the decarbonation of the industrial sector. The governments also came together during two 3-day workshops, the first in Bilbao in June 2017 and the second in Essen in April 2018. Three policy briefs with recommendations and case studies on these subjects were compiled by the Grantham Institute and are available at the Under2 Coalition website.

TEXT BOX 4

• **PROJECT FINANCING** • The Future Fund was created in 2016 with contributions from the local governments of Alberta, Ontario, Quebec, Scotland, South Australia, and Wales to finance initiatives and support the participation in the projects of emerging or developing regions or states. According to the Fund's first progress report, USD 160,000 was made available in 2017 (Future Fund Progress Report - 2017). For this first year, the Future Fund enabled, for example, the government of West Bengal (India) to update its climate action plan and raise its targets, the state of Yucatan (Mexico) to redevelop its MRV carbon-management system's online portal which holds data on the consumption of electricity and fossil fuels, peaks in demand, etc. It also allowed member regions to travel and meet up to exchange expertise, and this is how the government of Gujarat (India) travelled to South Australia to train its managers in energy production and storage, and the government of the Western Cape (South Africa) travelled to California to train in the implementation of a 2050 decarbonation roadmap. Finally, it enabled several beneficiary regions to participate in coalition activities during COP23.

In 2018, the Future Fund was funded by the states of Scotland, Wales and Quebec and launched a new project, in Colima, Mexico, which committed to update and publish its greenhouse-gas inventory. The Future Fund has also enabled new exchanges of expertise between the regions of São Paulo and Wales, on a 2050 decarbonation roadmap, between Cross River State and Quebec on sustainable forest management and reforestation, and between KwaZulu-Natal and Victoria. Finally, the Future Fund enabled 21 regions to attend the General Assembly of the Under2 Coalition which was held in San Francisco during GCAS 2018. This General Assembly brought together a record number of members with 73 regions in attendance.

"Important lessons have been drawn from the first year of the Future Fund – given the aforementioned resource constraints, administrative processes and authorization for such ambitious projects has taken longer than anticipated. In spite of this, in the coming years, we expect to receive increased interest from developing regions and grow the portfolio of climate project proposals."

"Future Fund-Progress" report – The Climate Group, 2017.

Assessment of actions by regions

Since 2015, the Climate Group and CDP have published an annual report assessing the actions and progress made by the regions, the "Annual Disclosure report" (formerly "Compact of States and Regions"[7]), and we have summarised its principal findings in the table below. **Not all regions which publish their data belong to the Under2 Coalition and these results consequently relate to all regions reporting to CDP**. Consequently, in 2017, out of a total of 110 regions, 53 members of Under2 MoU published their emissions through CDP. Furthermore, in 2017, CDP created two new tools to improve the management and transparency of the emissions data provided by regional governments:

The Climate Tracker for states and regions is a tool designed to facilitate decision-making and data management, by allowing users to view emission trajectories on the basis of reported emissions, following planned or implemented targets and actions.

The Climate Analytics Navigator for states and regions allows emissions data to be compared and inventories to be developed amongst the local authorities which report their emissions.

	REGIONS REPORTING THEIR EMISSIONS	INHABITANTS REPRESENTED IN MILLIONS	REPRESENTED EMISSIONS *	NO. OF EMISSION-REDUCTION GOALS PUBLISHED**			AVERAGE REDUCTION IN EMISSIONS COMPARED WITH THE BASELINE YEAR	ACTIONS
				2020	2030	2040		
2015	44	325	2,8 Gt CO_2eq	77			6%	348
				28%	12%	22%		
2016	62	440	3,1 GtCO_2eq	105			6.3%	1,299
				32%	17%	26%		
2017	110 (including 53 from Under-2MoU)	658	3,9 GtCO_2eq	140			8.5%	2,329
				66%	38%	55%		

TABLE 1. REPORTING BY MEMBERS OF THE COMPACT OF STATES AND REGIONS 2015-2018.

(Source : Annual Disclosure – The Climate Group / CDP)

* Only including members having reported their emissions..

** The total number of goals includes other targets such as 2018 or 2060.

7 The Compact of States and Regions was the name given to the reporting mechanism created in 2014 by nrg4SD, the Climate Group and R20, using CDP as a joint reporting platform.

In 2015, the authors of the report estimated that 76% of members were recording an emissions reduction of, on average, 6% compared with the chosen baseline year. In 2017, the number of committed regions increased significantly, with a growing average reduction of 8.5%. In 2017, six governments exceeded their 2020 targets – Lombardy, Catalonia, Carinthia, Wallonia, Provence-Alpes-Côte-d'Azur, and Madeira – and 12 had reduced their emissions by more than 20% since their baseline year.

In the Annual Disclosure 2018, the 56 governments that disclosed their latest inventories (reaching 120 in total since 2015), 70% of them are currently, on average, 20% below their base year emissions. Across all governments, average emissions reduction is 9% since base year.

It is important to note that these are voluntary targets which can vary in terms of baseline years and emissions scenarios, or in whether they seek to reduce carbon intensity or emissions in absolute terms (for example, become carbon neutral by 2050). The monitoring of this progress is important insofar as CDP, on the basis of the 2017 scenarios provided by the International Energy Agency (IEA), estimates that if the regions meet their targets there will be an additional reduction of 0.3 $GtCO_2eq$ by 2020 in comparison with the trajectories calculated on the basis of national commitments, and, by 2050, an aggregated-emission saving of 21.9 $GtCO_2eq$ (States and Regions Climate Tracker, 2018).

Logically enough, 60% of states and regions reporting their missions are European or American (see Figure 8), precisely where many members of the Global Covenant and cities reporting to CDP are already located.

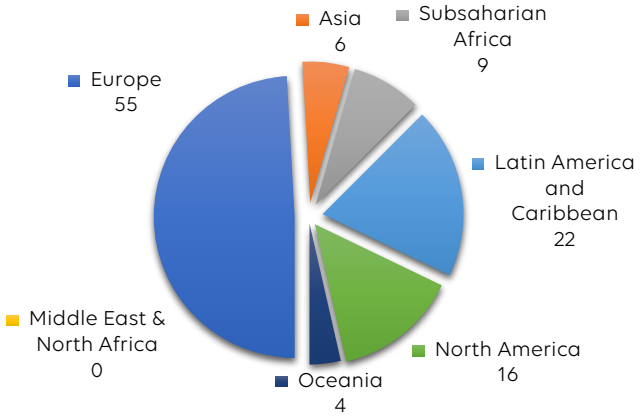


FIGURE 8. GEOGRAPHICAL DISTRIBUTION OF REGIONS REPORTING THEIR EMISSIONS TO CDP IN 2017

(Source : CDP Database 2017).

Regions	Population	Emissions in 2015 (tCO2eq)	Base Year Emissions (tCO2eq)	Evolution emissions
Alberta (Canada)	4,252,900	274,100,000	232,800,000 (2005)	+ 17 %
Andalusia (Spain)	8,393,575	48,746,778 (2016)	65,911,936 (2005)	- 26 %
Lombardia (Italia)	10,008,349	76,400,000	91,603 (2008)	- 16.6 %
Basque Country (Spain)	2,171,886	19,363,627	25,668,646 (2005)	- 24.6 %
Queensland (Australia)	4,808,771	153,004,000 (2016)	171,567,000	- 10.8 %
North Rhine-Westphalia (Germany)	17,870,000	285,388,000	367,000,000 (1990)	- 22.2 %
Scotland	5,300,000	41,481,092 (2016)	72,150,000	- 42.5 %
Wales	3,099,086	45,698,896	56,620,000 (1990)	- 19.3 %
Wallonie (Belgium)	3,589,744	36,125,000	55,999,000 (1990)	- 35.5 %

TABLE 2: EXAMPLE OF EMISSIONS TRENDS OF THE REGIONS.

(Source: CDP Database 2017 States and Regions GHG Emissions; regions and states website and official data)

More results from state and regions are available in the annex of the 2017 annual report of the Climate Group « Annual Disclosure 2017 – Annex »

Effectively, 2,300 actions have been reported by the regions to CDP, and a large majority of these projects are already in progress. Members are concentrating their actions mainly on the construction, energy and transport industries and a large majority of these projects are already in progress (See Figure 9).

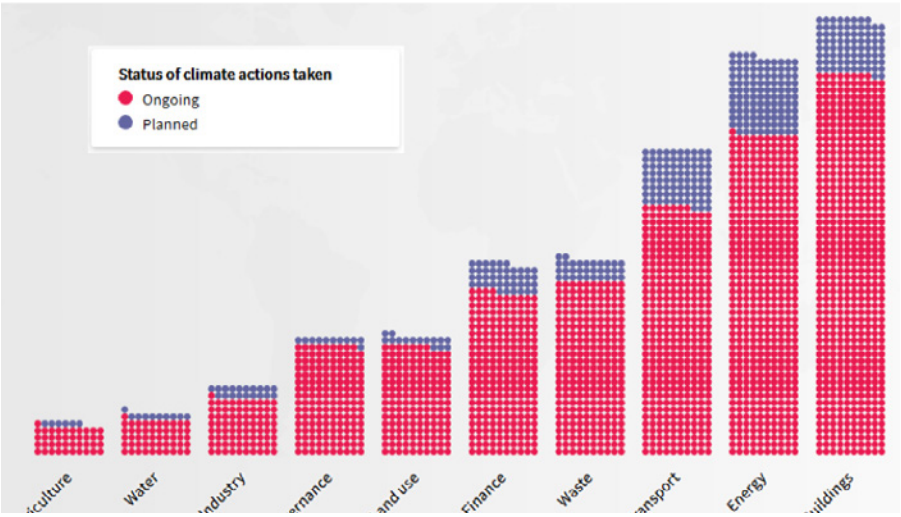


FIGURE 9 - ACTIONS REPORTED BY STATES AND REGIONS TO CDP, BY SECTOR AND STATUS.

(Source : States and Regions Climate Tracker).

Initiatives led by local authority networks

A. LOCAL GOVERNMENTS FOR SUSTAINABILITY - ICLEI

Background and composition in 2018

ICLEI-Local Governments for Sustainability (ICLEI) is an international non-governmental local-government organisation (cities and regions) founded in 1990, sponsored by the United Nations Programme for the Environment (UNEP) whose World Secretariat is based in Bonn, in Germany. 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.

These programmes support the implementation of international covenants and programmes (Agenda 21, the New Urban Agenda, etc.) in territories placed under the responsibility of nine Regional Secretariats (Central America and the Caribbean, North America, South America, Africa which hosts the Biodiversity Centre, CBC (part of ICLEI), East, South and South-East Asia, Europe, Pacific), five national offices (United States, Canada, Japan, Korea, Indonesia), a capacity-building centre in Kaohsiung, Chinese Taipei, and a South India office in Hyderabad. In 2018, four new offices opened: a Quebec office in Montreal, an office for British Columbia, in Canada, in the city of Victoria, a national office in Beijing and finally, a regional office in Colombia for the Aburrá Valley. Also, Brussels, Belgium and Berlin, Germany each have an ICLEI office for liaison with the European institutions and the German government respectively.

On 1 September 2018, ICLEI had 813 members in 91 different countries. As part of its different activities, ICLEI also works with more than 800 additional local governments, and this allows it to impact more than 20% of the global population and more than 25% of the global urban population..

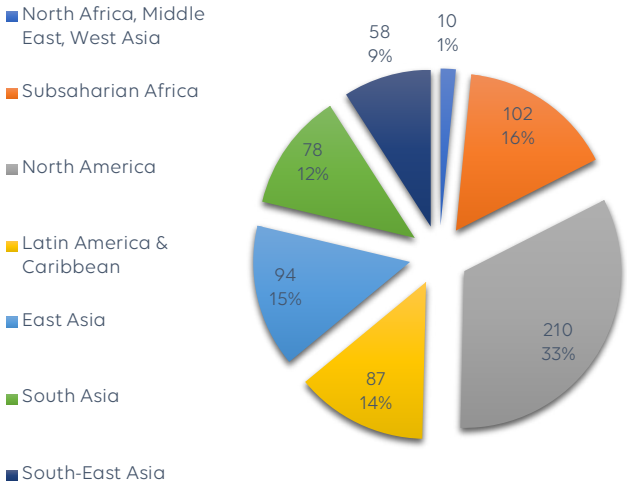


FIGURE 10. GEOGRAPHICAL DISTRIBUTION OF ICLEI MEMBERS

(Data : World Secretariat)

Update on projects and programmes

• **FINANCING AND INSURANCE** • The Transformative Actions Program (TAP) : this programme, launched in 2015, aims to act as a project incubator to catalyse and improve capital flows to cities, towns and regions, thereby accelerating low-to-no emission and climate-resilient development to support national ambitions through *transformative* [8] local infrastructure projects. : By using the TAP, local and regional governments can benefit from an integrated range of tools : project-preparation facilities (PPF), platforms, advocacy. Likewise, the growing TAP partnership serves these local and regional governments, offering their specific plethora of guidance and support within a cohesive framework. The TAP serves Local and subnational governments, and/or their project partners. The condition is that the local or regional government must be a key stakeholder in the project and the project is pre-approved in writing by the local / regional government (e.g. part of the Climate Action Plan). These projects then receive "TAPprouval" certification.

Since its first call in May 2015 and the announcement of a growing pipeline at COP21, the TAP, has been followed with great interest by local and regional governments, as well as national governments and the finance and development communities. A total of 124 projects from 41 countries - equally representing the Global South and Global North - were submitted to the TAP in 2015. These projects related to a variety of domains linked to low-carbon transition (48), waste management (15), transport (13) and adaptation (12). **The investment requirement for these projects is approximately $ 9 billion, demonstrating the urgent need for funding in the territories**. ICLEI facilitated these projects and their sponsors with funders and partners at events organized by ICLEI, with the LoCal Matchmaker, tool, created by ICLEI and the CDP (financed by Climate KIC), or from banks and the ministries of the countries of origin of the project, via the Global Covenant of Mayors or the Cities Climate Finance Leadership Alliance - CCFLA (see glossary). Ten TAP projects were selected in 2017 by the Cities Alliance, and benefited from the free Global Infrastrustrure Basel (GIB) SmartScan tool to assess the economic, social and governance risks of their project.

The second TAP call, announced in September 2018 at the Global Climate Action Summit (GCAS) in San Francisco, retains its main objective: enabling and supporting local and regional governments to access climate finance and project preparation support. The support focus has however

8 The definition of "transformative" action refers to an action that contributes to tackling climate change (low-emission development, mitigation, adaptation and/or resilience, access to secure, affordable and sustainable energy). It supports systematic and sustainable change at the community level, with the potential for large-scale impact and scalability.

shifted to early stage project-screening and connecting the pipeline to other PPFs and support services offered by the TAP partners[9] . Effectively, the first call showed that the services offered by TAP partners did not appear to be sufficiently suitable at the time for the development of major urban projects. TAP strongly builds on ICLEI's own capacities and services along with the support of its renewed and new partnerships. Partners either commit financially or technically are actively involved in the TAP Services, ensuring that transformative project ideas are supported from the project identification phase, and therefore become financeable, robust and investor-friendly projects.

Furthermore, the Insurance Industry Development Goals for Cities were published by ICLEI and UNEP at the ICLEI World Congress in 2018. These ten goals aim to guide the work of insurance companies with local authorities particularly in terms of the prediction and management of natural disasters, the health effects of pollution, the preservation of cultural and natural heritage and infrastructures. They should also further the implementation of SDG 11 and build "inclusive, safe, resilient and sustainable" cities.

• LOW-CARBON TRANSITION • Projet Urban-LEDS (Urban Low Emissions Development Strategy): the objective of this project, funded by the European Union, is to contribute to the reduction of greenhouse gas emissions by the promotion of Urban Low Emission Development Strategies (Urban LEDS) in cities/towns in emerging economies and least developed countries. The project recognises that human activity in cities contributes a significant and growing proportion of global greenhouse gas emissions, driving the demand for energy and other services in urban areas with rapid population growth. Meeting the goals of the Paris Agreement requires a fundamental transformation of how urban infrastructures and services, such as transport, energy, water, waste and urban space, are planned, delivered and maintained. It will also require effective monitoring, reporting and tracking of performance. Urban-LEDS II aims to contribute to this vital component of international climate action, with a focus on local needs and the role of all levels of government to enable action.

Phase II 2017-2021 of this ICLEI flagship project, with a budget of EUR 8 million, aims to offer support to more than 70 cities in the four countries participating in phase I of the project (Brazil, India, Indonesia and South Africa), four new countries (Colombia, Laos, Bangladesh and Rwanda) and in Europe. The aim is to consolidate the achievements of the cities in question and to continue the implementation of their action plans. These cities will be supported in developing or updating an "Urban-LEDS strategy" and an action plan to cut emissions, with the focus now on adaptation co-benefits and their implementation. The project also seeks to build the capacities of workers in the cities (training, peer exchange, etc,) and to promote the integration of their climate plans into their state or region's actions framework (vertical integration of climate policies), with a view to improving reporting by the cities and their access to funding for implementing NDCs.

Nationally, the project will explore and support enhanced vertical and national integration (multi-level governance) of climate action in support of national and local strategies and policies under the framework of the Paris Agreement, through enhanced climate-change reporting in Nationally Determined Contributions and support for local authorities' access to climate financing.

At the global level, the project will help to support systems for the measurement, reporting and verification of the climate actions of the cities in line with national systems and argue for

9 UN-Habitat; Global Infrastructure Basel (GIB) Foundation; Global Fund for Cities Development (FMDV); European Investment Bank (EIB); R20 Regions of Climate Action (R20); Sustainable Infrastructure Foundation (SIF); C40 Cities Climate Leadership Group (C40); Cities Alliance.

local governments to be included in international climate frameworks. International, regional and national cooperation between states and cities in urban climate action is encouraged, while at the same time the Covenant of Mayors on climate and energy is promoted as a key world initiative for local governments.

Results of Phase I of the Urban-LEDS Project

The first 2012-2015 phase led by ICLEI and UN-Habitat guided and supported eight model cities to develop comprehensive "Urban LEDS strategy", and their implementation plans using the ICLEI's GreenClimateCities (GCC) methodology: Fortaleza and Recife in Brazil, Rajkot and Thane in India, Balikpapan and Bogor in Indonesia, KwaDukuza and Steve Tshwete in South Africa. 21 additional "satellite" cities benefited from the capacity building of the pilot cities, particularly with the participation of eight European cities which provided technical assistance.

These strategies have been included in development planning and design via new policies and laws. Local pilot projects on the use of sustainable energy – energy efficiency and renewable energies – have been successfully implemented. The project contributed to the development of a new monitoring, reporting and verification (MRV) process for local climate action, to capacity building and infra-national actions in the area of climate change and has enabled new dialogues to be opened on vertical integration (multilevel governance) with the countries involved in the United Nations Framework Convention on Climate Change (UNFCCC).

The final Urban-LEDS report lists **the implementation, between 2012 and 2016, of more than 60 pilot projects, 447 climate actions, including 334 mitigation actions and 113 adaptation actions.** Furthermore, **30 of 31 participants produced an emissions inventory,** which was then reported to the carbon*n*® Climate Registry representing in total 79 $MtCO_2eq$. Finally, the project provided several opportunities for exchanges (seminars, training, etc.) between the pilot cities themselves and with partner European cities.

TEXT BOX 5

Solution Gateway is an online resource platform for local governments developed under the Urban-LEDS project. The platform operates as a catalogue of low-carbon solutions in different sectors and provides a range of advice in the areas of public policy, regulation, technical expertise, good practices, awareness-raising tools, etc. It currently offers online 23 Solutions by sector, 8 Solution Packages by theme which each offer a range of solutions designed to promote synergies between actions and maximise long-term effects, and finally 94 case studies with a quantified analysis of the implementation of these solutions. "LED Street Lighting Solutions Package and training ", a new package developed in collaboration with Signify, will shortly offer a guide and training to improve public lighting and its energy efficiency, accompanied by two case studies.

Support for the Sustainable Energy for All (SEforALL) accelerators' platforms

Several of these Solutions support the SEforALL "accelerators", particularly these two platforms for which ICLEI provides the reporting platform.

District Energy in Cities Initiative : This initiative, created in 2014 by UNEP and SEforALL, seeks to accelerate the low-carbon transition of the energy systems of districts of emerging or developing cities. It produced significant results in 2017: 62 cities in 34 different countries benefited from assistance and technical and public policy tools provided to develop or renew the energy systems in their districts. The initiative recorded investments of EUR 17.8 million in energy efficiency and renewable energies in Bosnia-Herzegovina, the first urban cooling project in Thane, India and collaboration between the cities of Barcelona and Temuco (Chile) and between Copenhagen and Astrakhan (Russia).

Building Efficiency Accelerator (BEA) : This platform promotes public-private collaboration in constructing low-carbon buildings. 253 cities benefited from phase I (2015-2017) via the organisation of nine events worldwide and 18 local events, and 21 webinars followed by more than 1,000 participants. Phase II 2018-2019 seeks to extend the platform's network and to strengthen partnerships with cities by developing private sector engagement and coordination with national policies, and by facilitating the support and financing of projects.

TEXT BOX 6

The Urban Transitions Alliance is an initiative launched in 2017, financed by the Stiftung Mercator[10] and managed by ICLEI. It seeks to support industrial cities in transition by identifying their shared challenges and facilitating collaboration and exchanges of solutions in the areas of energy, mobility, infrastructure and social transition. It currently has 11 members Pittsburgh, Cincinnati, Buffalo and Baltimore in the United States, Essen, Dortmund, Gelsenkirchen in Germany, Katowice in Poland, Beijing (two districts) and Shijiazhuang (Yuhua district), in China. After the first assembly of industrial cities under the aegis of the TWINS Conference Ruhr and the UN Climate Change conference COP23 in November 2017, Urban Transitions Alliance members met once more during the Forum for Cities in Transition in June 2018, at the ICLEI World Congress in Montreal.

The Ecomobility Alliance, launched in 2012, is now a network of 23 cities worldwide committed to making their transport systems more sustainable, by prioritising walking, cycling, public transport and car sharing. The report for the 2016-2017 period shows that, in member cities, 5,565 km of cycle tracks were added and 72% of members ran a bicycle-sharing system. Several of the projects run by these cities have been awarded prizes for their transport programmes, highlighting the attention they pay to integration, accessibility, safety and energy efficiency in their public transport systems.

• **RESILIENCE AND ADAPTATION** • Recently ICLEI has launched several programmes related to adaptation and resilience in cities:

• The "Frontline Cities and Islands" project (in collaboration with the Global Island Partnership) provides mayors with tools to reduce the risks of natural disasters and build their capacity to implement replicable projects.

10 Stiftung Mercator is an independent, private German foundation. It seeks to strengthen Europe by improving integration through equal educational opportunities for everyone, to drive forward the energy transition as a trigger for global climate change mitigation and firmly anchor cultural education in schools.

• The CITYFOOD, network (with the RUAF Foundation) meets the needs of local governments to improve their knowledge of local and regional food systems and ensure that their food policies meet environmental (land degradation, adaptation) and social (employment and nutrition) challenges. The network now has 22 members, including six cities in the Philippines and three cities in Portugal.
• CitieswithNature is a platform for knowledge-sharing launched by ICLEI, The Nature Conservancy and IUCN at the ICLEI World Congress in June 2018, open to all local governments to exchange information on good practices they have used enabling better interaction between urban and natural ecosystems.
• Since 2011, ICLEI has organised The Resilient Cities congress in Bonn, Germany. In 2018, the 9th annual conference, the key themes of which were digitalisation and the protection of heritage and multilevel governance, attracted 400 participants from 48 countries, with representation from 89 local governments. As an official Cities and Regions Talanoa Dialogue event, the 9th edition of Resilient Cities attempted to answer the three main questions of where we are, where we want to go, and how we get there in achieving a resilient and sustainable urban future. To learn more about the session, refer to the Resilient Cities Report 2018.»

B. C40 – CITIES LEADERSHIP GROUP

Background, mission and status of commitments in 2018

C40 is a network of the world's megacities created in 2006 by the former Mayor of London, Ken Livingstone. The organisation's headquarters is in London and it is presided by the current mayor of Paris, Anne Hidalgo. 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.

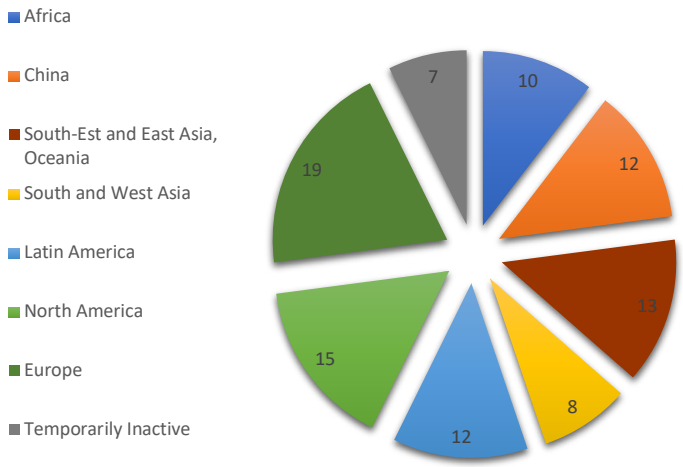


FIGURE 11. GEOGRAPHICAL DISTRIBUTION OF C40 MEMBERS.

(Source : C40 website)

The organisation started with 40 members, a number that grew to 80 during COP21 in 2015 and now contains, **in the first six months of 2018, 96 cities throughout the world, with 650 million inhabitants (8.3% of the world population). These cities have significant economic weight and account for 25% of the global GDP**.

Abidjan, the host city of the Climate Chance Summit Africa 2018, joined the C40 network in April 2018, at the same time as Guadalajara (Mexico), Fuzhou and Zhenjiang (China).

Emissions of the C40 cities

The C40 launched its own online dashboard to view the data emissions of the 55 cities in its network which report their emissions. By including scopes 1, 2 and part of scope 3 on waste (see Section 3 on the description of methodologies), the 55 C40 cities appearing on the dashboard each year emit a total of 996 $MtCO_2eq$ and on average 18 $MtCO_2eq$. The gap between the cities is extremely wide with New York and Tokyo far ahead respectively accounting for 67.5 and 66 $MtCO_2eq$ of emissions per year, and Basel (Switzerland) with 0.85 $MtCO_2eq$ per year. 50% of these cities reporting their emissions emit less than 10 $MtCO_2eq$ per year (See Figure 12).

A reading of these reports of C40 cities emissions contradicts a belief strongly held by general opinion: cities of the North are not necessarily those with the greatest amount of global emissions (Scopes 1 and 2). Although large cities in the northern hemisphere, such as Tokyo, New York and London, remain amongst those cities with the largest emissions, numerous cities in emerging countries, such as Lagos, Tshwane and Lima, report higher emissions than cities in more advanced countries, particularly due to high emissions in the transport and energy-production sectors. There is therefore very significant potential for emissions reduction in cities classed as being in the south, and efforts taken in the coming years will therefore be more strenuous in this area. Clearly, here we refer to direct emissions from urban activities (housing, transport, etc.), but if we include emissions linked to consumption, travel (particularly by air), the inhabitants of cities in the North remain much greater emitters of CO_2. Finally, not all cities report the same emissions sectors, and only 17 cities have calculated their emissions caused by "industrial processes and product use", and 12 cities have calculated those due to agriculture, and land use. On the basis of the common core of emissions sectors covered by these 55 cities, including emissions from stationary combustion, transport and waste (see Section 3 on methodologies for calculating emissions), we can see that 62% of the emissions of the C40 cities are due to stationary combustion, 29% to transports and 9% to waste.

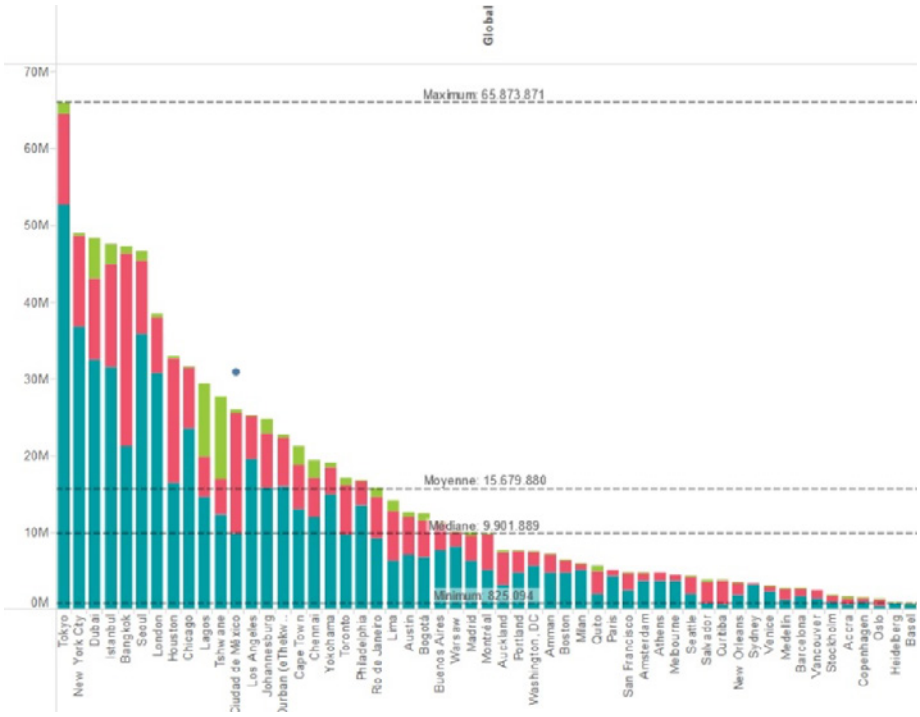


FIGURE 12. TABLE OF EMISSIONS OF C40 MEMBERS (SCOPES 1 AND 2).

(Source : dashboard C40)

The "27 C40 Cities have peaked their greenhouse gas emissions" study, published in 2018 during the GCAS, found that 27 of the largest cities in the world, accounting for 54 million urban citizens and a GDP of USD 6 billion, peaked their greenhouse gas emissions between 1990 and 2013. The compilation carried out by the C40 notes that these cities have seen their emissions levels fall over a 5-year period, and they are now at least 10% lower than the highest values observed. It further notes that these 27 cities have recorded this reduction of 2% on average per year at the same time as their populations have increased by 1.4% per year and their economies by 3% per year on average.

For the C40, these cities have reached a crucial milestone, as demographic growth has increased, and urban economies have expanded. The 27 cities cited in this inventory are Barcelona, Basel, Berlin, Boston, Chicago, Copenhagen, Heidelberg, London, Los Angeles, Madrid, Melbourne, Milan, Montreal, New York, New Orleans, Oslo, Paris, Philadelphia, Portland, Rome, San Francisco, Stockholm, Sydney, Toronto, Vancouver, Warsaw and Washington D.C. Nevertheless, this report implicitly suggests that still very few cities provide regular emissions inventories, and that these interesting results remain concentrated in Europe, North America and Australia. In publishing these results, the C40 decided to focus on a few flagship examples of reductions in sector-based emissions.

Copenhagen, which had peaked its emissions in 1991, appears to have reduced its heating energy needs by 70% since that time through introducing a city-wide heating system, and pooling heat produced by industry and wastewater treatment.

San Francisco peaked its emissions in 2000 and has since concentrated its efforts on reducing electricity consumption (30% of the energy used by the city) particularly in the construction industry. Furthermore, the city, which produced an ambitious target of consuming solely renewable electricity by 2030, has worked actively with the entire electrical industry and closed two of the most polluting fossil-fuel power plants in its territory, achieving, in 2017, the generation of 77% of its electricity consumed from renewable sources.

Tokyo has decided to control its production of electricity while at the same time following a stringent energy-efficiency policy. Tokyo, upon entering the carbon trading system for cities, imposed, in 2010, extremely severe reductions in emissions on the construction industry, leading energy consumption to be reduced by 21% compared with 2000 and total GHGs by 7% compared with 2003.

Paris reduced its emissions from transport by 39% between 2004 and 2014, through a proactive policy extending public transport and soft modes of travel such as by bicycle.

Sydney has reduced its emissions by 20% since 2007, particularly due to a very sharp fall of 80% in the energy consumption of buildings, due to the introduction of a wide range of programmes, subsidies and incentives to improve the energy performance of buildings.

Finally, **Vancouver** reduced the amount of waste sent to landfills by 23% between 2007 and 2016, at the same time as its population increased by 10%, and this caused a reduction of 65% of emissions from the landfill sites. The main levers used by the city to achieve these outcomes included promoting large-scale composting and an effective landfill gas collection system.

When the interpretation of consumption habits modifies perception

In a study published in March 2018 "*Consumption-based GHG emissions of C40 Cities*", the C40, In collaboration with several universities, measured the greenhouse-gas emissions produced by the consumption of the residents of 79 cities in its network. The study found that, in 2011, the emissions produced by consumption in these 79 cities amounted to 3.5 $GtCO_2eq$, 60% higher than the emissions from production by local activities in the same cities which was estimated at 2.2 $GtCO_2$ (an indicative figure arrived at by aggregating inventories carried out at different times between 2011 and 2015). Of these 3.5 $GtCO_2$, one third was due to the consumption of energy, goods and services produced in the territory and two thirds due to imports. This consumption-based approach, albeit indicative, further highlights scope 3 emissions (from importing goods and services) and shows, in this case, that imported emissions are equivalent to emissions produced in the territory. The study further estimates that these consumption-based emissions, in 80% of the cities included in the study, are higher than emissions from the production sector, particularly in Europe and North America, where these consumption-based emissions are on average 3 times higher than production-based emissions. The 20% of cases, where production-based emissions exceed consumption-based emissions, are located in Asia and Africa and are what are known as "producer" cities.

These results naturally reflect the modes and nature of consumption and production, and the distribution of purchasing power between cities worldwide, confirmed by inhabitants per capita emissions which are on average higher in the C40 cities (10.7tCO_2eq/capita compared with an average 8.7 tCO_2eq/capita worldwide) and in European, North American and Pacific cities (between 10 and 25 tCO_2eq/capita). Consequently, consumption-based emissions require just as much attention from local authorities committed to their territory's ecological transition or to carbon neutrality, particularly as the levers for action (production chain, local food systems) available to act on these volumes frequently have a higher potential for global impact.

TEXT BOX 7

The network provides these cities with an important collaboration platform for the sharing of knowledge and expertise between its member cities. From this perspective, the organisation is engaged in some ten programmes to support cities in formulating, implementing and financing projects and also collecting and providing access to data, planning, research, etc.

Capacity building and technical support: The "Climate Positive Development Program" is currently supporting 18 large-scale projects whose building operations and stages should achieve a net negative greenhouse gas emissions balance, by acting on transport, energy and waste and compensating their emissions by reducing those of neighbouring communities. The C40 also provides direct support to cities via the City Advisers programme which funds several dozen technical adviser positions. Beneficiary cities are selected as part of a call for applications based on need and potential impact in the fight against emissions. 10 cities were selected after a first call in 2014. Finally, in the area of **Data Management**, the "City Intelligence" programme seeks to improve data collection and analysis.

Access to financing: the "Financing Sustainable Cities Initiative" programme seeks to improve the design of projects and public policies in order to facilitate investment. It involves an annual Forum, workshops designed for officials in C40 cities, and a platform enabling communication about the most effective financing models made available to all relevant actors (cities, investors, etc.). The C40 Cities Finance Facility (CFF), funded by the German and American governments, supports project preparation and training in emerging and developing cities and improves their awareness of financing instruments. Launched in 2015, it is responsible at present for two projects, a cycling infrastructure project in the city of Bogotá and an electric bus corridor project in Mexico City.

Accelerate the adaptation of major world cities

The C40 also coordinates 17 thematic networks enabling cities to showcase their projects or find technical support to initiate them. These networks include 3 platforms for the exchange of knowledge and good practices with a view to improving the adaptive capacity of cities faced with urban flooding, managing heat islands, and coping with the specific difficulties of cities located on deltas. These last two platforms produced good practice guides published in 2016.

Finally, in 2018, the C40, with GCOM, Acclimatise and the Urban Climate Chance Research Network launched a scientific collaborative project *The Future We Don't Want* to highlight, in a series of thematic case studies supported by facts and figures, the number of cities and their inhabitants who are exposed, at present, or will be by 2050, to the impacts of six major climate risks.

TEXT BOX 8

C. THE NETWORK OF REGIONAL GOVERNMENTS FOR SUSTAINABLE DEVELOPMENT (NRG4SD) AND REGIONSADAPT

Background and composition

Launched in 2002 at the World Summit in Johannesburg, the Network of Regional Governments for Sustainable Development – nrg4SD – consists of more 50 subnational governments and associations of subnational governments from 30 countries worldwide. By joining the network, member regions accept the nrg4SD founding Déclaration de Gauteng, as well as the payment of annual membership fees based on a solidarity principle through which the network is financed. The organisation also serves a representation at UN negotiations, European Union initiatives on climate change, biodiversity, and the 2030 Agenda for Sustainable Development.

On the basis of a "networking method" (facilitation of mutual learning, knowledge exchange, creation of partnerships, etc.), nrg4SD achieves decentralised cooperation among its members and the creation of a like-minded community of practice. It helps its members strengthen their international influence and local governance capacities in regard to several sustainable development themes. Specifically, the network supports and co-funds exchanges of expertise, partnerships and cooperation projects among its members, and with international partners. **Thereby, the network helps its members to deploy and strengthen planning and territorial governance tools in its three sectors of activity: biodiversity, inclusion of SDGs and adaptation to climate change.**

RegionsAdapt

RegionsAdapt was launched in December 2015 at COP21 by the governments of Catalonia and Rio de Janeiro state and is nrg4SD's flagship initiative on climate change, focused on adaptation. This initiative, open to regional governments (or any intermediary government), was initially composed of 27 members and now has 70, including 5 national associations of regions.

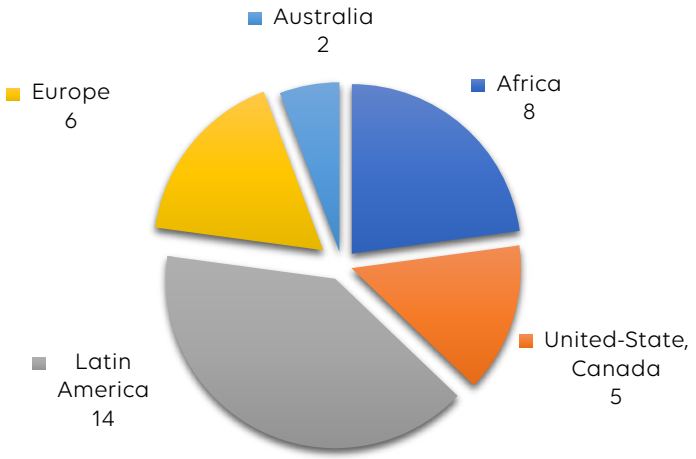


FIGURE 13. GEOGRAPHICAL DISTRIBUTION OF REGIONSADAPT MEMBERS. SOURCE: REGIONSADAPT DATA.

(Source : Données RegionsAdapt)

While the nrg4SD acts as the secretariat to the RegionsAdapt, regions joining the initiative do not necessarily have to be nrg4SD members as well.

By joining the RegionsAdapt initiative, regions commit to:
• to adopt a strategic approach to adaptation and prioritise adaptation action within two years of joining;
• to take concrete action on adaptation in at least one of the seven key priority areas identified by the regions;
• to report data on the progress of the adaptation actions on an annual basis through CDP's states and regions platform.

Finally, with a view to assisting in building the operational capacity of member states and regions to fulfil these commitments, RegionsAdapt organises working and discussion events in the form of 6 thematic working groups, 25 online meetings and 9 webinars. At the end of each year for the two years that the project has existed, nrg4SD has published an annual report assessing, on the basis of actions reported on the CDP platform, qualitative and quantitative trends in the regions' exposure to climatic risks, and reported adaptation measures adopted. In 2017, 35 of 69 members of RegionsAdapt representing 223 million inhabitants, had testified, in the "risks and adaptation section" of CDP to their vulnerability to 19 physical risks from climate change (Figure 14).

Mirroring the geographical distribution of nrg4SD members (Figure 13), Latin American and African states and regions are those which provide the most reporting. In essence, these results already show, for each type of identified risk, which of the 200 reported adaptation measures are the most frequently used by states and regions.

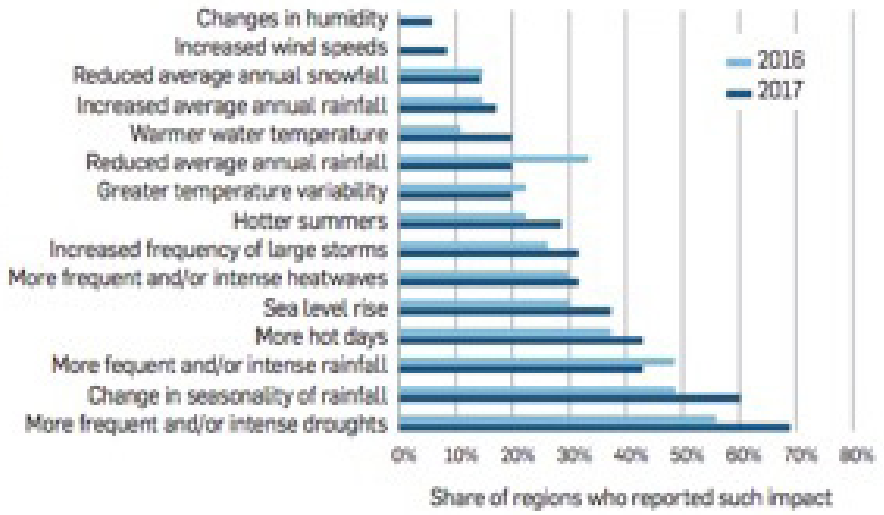


FIGURE 14. TYPES OF CLIMATE RISKS REPORTED BY THE PARTICIPANT REGIONAL GOVERNMENTS.

Source : RegionsAdapt 2017 Report

In the last RegionsAdapt 2017 : report, "Regions accelerating climate change adaptation", nrg4SD offers an initial overview of action taken by the 27 founder members who had two years to honour their commitments. **Only 5 of those regional government still remain to adopt an adaptation plan; all have taken at least one action in one of the priority areas and only 3 have provided no reporting since 2015.** Considering the progress made by these founding members, RegionsAdapt put forward four new commitments which seek to deepen, during the 2018-2019 and 2020-2021 periods, the strength and scope of adaptation measures and the quality of reporting. The nrg4SD nonetheless

identifies progress that could be made in the scope of coverage of the physical risks identified by the regions, since only 68% have been the target of an adaptation measure. The report highlights the many obstacles, such as a lack of human and financial resources and an absence of cooperation with other regional governments, which could hamper members' adaptation actions.

D. EUROPEAN NETWORK SPECIALISING IN ENERGY/CLIMATE ISSUE

Energy Cities

Energy Cities is the European Association of Local Authorities in Energy Transition, created in 1990 and based in Brussels (Belgium) and Besançon (France). Since 2017, Energy Cities has been under the Presidency of the City of Heidelberg (Germany) with a Board of Directors of 11 European cities. The Association seeks to build the competencies of local authorities in the area of sustainable energy, represent their interests to the European Union, and act as a platform for sharing experiences in order to successfully implement projects. It is a member organisation of the European Covenant of Mayors consortium for climate and energy.

As in the case of the Covenant of Mayors, membership of the Association was rapidly extended to neighbouring countries with several members in Morocco, Turkey and Israel. **Energy Cities represents more than 1,000 local authorities in 30 countries**, mainly municipalities, but also inter-municipal structures, local energy management agencies, municipal companies and groups of municipalities. Almost 500 good practices **of Energy Cities members have been disseminated on the association's website**. A large proportion of these members belongs to almost 30 European initiatives, including the Covenant of Mayors, European Mobility week, Display, etc.

Climate Alliance

• MISSION AND COMPOSITION • Climate Alliance is an association of European local governments created in 1990 and a member of the European Covenant of Mayors consortium. Its activities are linked to mitigation and adaptation to climate change as well as the protection of ecosystems of the indigenous peoples of tropical forests. Indeed, "COICA", the umbrella organisation of the indigenous peoples of the Amazon has a seat on its Executive Board for this purpose. Climate Alliance has six national coordination offices (Austria, Germany, Hungary, Italy, Luxembourg, Switzerland), an office for liaison with the European Union, and its Secretariat is based in Frankfurt (Germany).

Members of the Alliance commit to reduce their CO_2 emissions every 5 years, halve their per-capita emissions by 2030 (compared with 1990), preserve tropical forests by avoiding the use of tropical wood and support the projects of their partner indigenous peoples. For this purpose, the Association supports its members in developing CO_2 emissions measuring tools, conducts local authority campaigns and European Union advocacy actions, and facilitates exchanges between members and the completion of their projects.

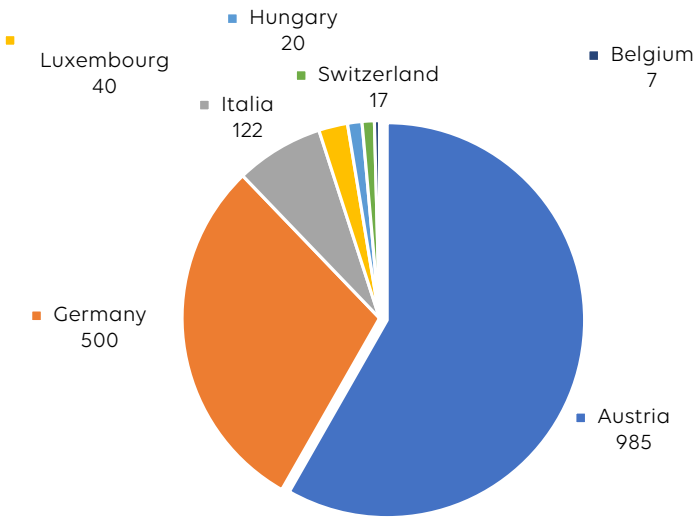


FIGURE 15. NUMBER OF MEMBER LOCAL AUTHORITIES PER COUNTRY (MAY 2018).

(Source : Climate Alliance website).

In May 2018, the Association had **1,723 members in 26 European countries, including 1,654 municipalities and 26 provinces and regions. Between 2015 and 2018, 91 new members joined the Association. 86% of these members are located in Austria and Germany, and more than 98% are in one of the six countries currently hosting a national office**.

• PROJECTS AND PROGRAMMES: 2018 RESULTS • The Alliance has provided several tools and platforms to help its members monitor their commitments. For example, the "Climate Compass" helps European local authorities track local activities in progress in their territories and measure their impact and, on this basis, offers analyses and recommendations. The "Carbon Calculator" allows Ukrainian and Georgian local authorities to monitor their greenhouse-gas emissions. There is also "RADar !", an online platform that allows local authorities and cyclists to work together, with cyclists able to pinpoint problems they have encountered with a view to facilitating the management of bicycle paths on a daily basis. It is currently used by more than 265 municipalities, mainly in Germany. Others also provide methods for observing conditions at district level (Repowermap), or provide platforms for supplying information about energy cooperatives in Europe and facilitating citizen investment (citizenergy).

Increase opportunities for private-sector financing

FALCO (Financing Ambitious Local Climate Objectives) has built on the results of several previous financing-related projects in more than 180 Flemish municipalities which are signatories of the Covenant of Mayors. This project, which has been funded by the European Union for the 2017-2021 period, seeks to use government funding to leverage private funds. This method, unlike the project approach, seeks to facilitate the funding of an entire climate plan. In total, the project aims to raise 17 million in three key sectors: public and private buildings and small and medium-sized enterprises.

TEXT BOX 9

The Alliance also coordinates three working groups on monitoring CO_2 emissions and more recently on access to financing, launched in 2012, and adaptation, launched in 2015. It currently runs eight campaigns at the European level. These can take the shape of certification and awards for local authorities for awareness-raising activities amongst their citizens. In 2018, 880 municipalities participated in the City Cycling campaign encouraging residents to record the distances they had travelled by bicycle over a period of 21 days. The Association estimates this year that this campaign led to 7,413 tonnes of CO_2 being avoided.

Finally, its cooperation with organisations of the indigenous peoples of the Amazon basin has led to several visits by representatives from both sides of the Atlantic, the provision of financial support to the representatives of the indigenous peoples who are fighting to preserve their lands and resources, and to the communities themselves to help them inform the inhabitants of their territories about their rights and the impact of their countries' infrastructure projects. On the project side, the Alliance has supported projects backed by communities for the manufacture and distribution of solar lights of which 439 were distributed in 2014.

Reporting Platforms

MyCovenant, CDP-Cities and the carbon*n*® Climate Registry (cCR) are the 3 reporting platforms recognised by the Global Covenant of Mayors for Climate & Energy. The plateform MyCovenant was created in the framework of the European Covenant of Mayors, and some analysis of the data reported in it are described above. The cCR and CDP-Cities platforms host data reported by several global initiatives and are described below.

To avoid that local governments, have to report multiple times on various platforms, and to improve the comparability of data reported, all the platforms serving the GCoM are going to be aligned (shared reporting requirements) and are following the GCoM reporting framework, while retaining the specific features of each platform. From 2019 CDP and ICLEI will join forces and promoting the CDP platform as the one entrance point for online local government information collection, aligning questionnaire, communication and capacity training procedures.

These platforms offer canvas for reporting GHG emissions, for the targets set by local authorities themselves[11], and climate change mitigation actions, and more recently adaptation actions. They also promote the use of neutral Measurement, Reporting, Verification (MRV) systems for climate actions, to be able to support local governments in coordinating with other levels of governance, enhance transparent communication and ensure tracking results.

This section outlines the key figures between 2015 and 2018 from the reporting on the cCR and CDP-Cities platforms, to give some insight into developments in the commitment of local governments to climate data transparency, progress reporting, as well as the difficulties encountered. It gives eventually an insight of the different methodologies for GHG emissions calculation.

11 Local authorities belonging to the Covenant of Mayors in European Union countries have, as their minimum target, the emissionsreduction objectives set by the EU as part of its 2020 and 2030 climate and energy frameworks.

A. THE CARBONN® CLIMATE REGISTRY (CCR)

The carbonn® Climate Registry (cCR) is the largest reporting platform for GHG emissions, action plans, targets, climate resilience/adaptation actions. It was launched at the World Mayors Summit on Climate in Mexico on 21 November 2010 and is managed by the carbonn® Center and hosted by the ICLEI World Secretariat in Bonn, Germany. This platform allows more than 950 registered entities to exchange and compare their actions and results, and helps them produce their MRV mechanism, by offering them a framework, and facilitating vertical integration of the reporting between different levels of local and national governance. These data also serve to further ICLEI's advocacy work, as a focal point for local governments and municipal authorities (LGMA) in international negotiations.

The cCR serves as a reporting platform for several initiatives including the Global Covenant of Mayors, the Compact of States and Regions, and also for networks of a more thematic nature such as the Climate Clean Air Coalition, the Building Efficiency Accelerator, the District Energy in Cities initiative, EcoMobility, and the 100% Renewables Energy Campaign. **The figures provided below are an aggregation of the figures for cities belonging to one or more of these initiatives: For example, of the 1,059 local authorities currently reporting on the platform, 367 belong to the Global Covenant of Mayors.**

REPORTING YEAR	NUMBER OF ENTITIES REPORTING	COUNTRIES REPRESENTED	INHABITANTS REPRESENTED (IN MILLIONS)	MITIGATION/ ADAPTATION ACTIONS REPORTED	TOTAL GHG EMISSIONS REPORTED	CUMULATED POTENTIAL EMISSIONS REDUCTION BY 2020
2015	608	62	553	6,081	2.2 $GtCO_2eq$/ year	1 GCO_2eq
2016	726	67	660	6,287		>1 $GtCO_2eq$
2017	1,019	86	804	7,083		5.6 $GTCO_2eq$
2018 (october)	1,059	89	836	7,114		>5.6 $GTCO_2eq$

TABLE 3. EVOLUTION OF THE NUMBER OF ENTITIES REGISTERED WITH THE CCR AND THEIR DELIVERABLES 2015-2017

(Source : cCR annual reports)

These figures show that the number of local authorities reporting their GHG emissions and adaptation actions has doubled since the Paris Agreement was signed, going from more than 500 in 2015 to more than 1,000 in 2018. The rate of growth of the number of local authorities reporting their emissions and commitments seemed, however, to slow down in 2018.

The monitoring of the implementation of the commitments taken by local authorities, representing almost 1/8 of the planet, is essential for the implementation of the Paris Agreement. In its latest report "Boosting Subnational Climate Action", ", the cCR, nonetheless, considers that only **10% of the targets set by local authorities are likely to be met, given the evolution observed in GHG emissions.** It calls on national states to identify local authorities on their territories which need greater technical and financial assistance.

The cCR online platform can be used to view the profiles of 715 local authorities which have reported at least one objective, inventory or action (Figure 16). Few cities in North Africa, the Middle East and West Asia are represented, unlike East Asia which accounts for the most registered cities. In Japan, where the first cCR national branch was launched in 2012 to encourage cities to publish their commitments and their progress, more than 100 Japanese cities have reported at least one GHG inventory on the cCR platform.

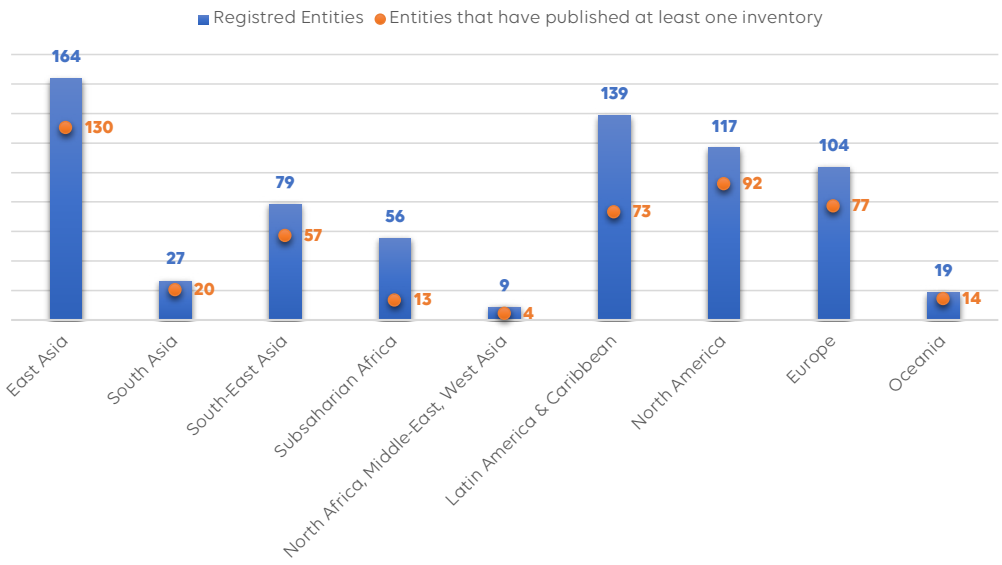


FIGURE 16. GEOGRAPHICAL DISTRIBUTION OF CITIES AND REGIONS PRESENT IN THE CCR

(Source : cCR online platform)

B. CDP-CITIES

CDP is a platform created in 2000 for the reporting of GHG emissions data and environmental performance mainly designed for large companies. It now has more than 6 300 companies which, in 2017, responded to one of CDP's forms on climate change, water, forests and production chains.

With time, the platform has become an important actor in local authority reporting, with more than 500 cities in 100 regions and states in 2017. CDP, using this global data, regularly publishes research reports on the impact of industrial sectors, the climate action of local authorities and the progress they are making. Just like in the case of the cCR, these data, largely placed in the public domain by local authorities, serve to identify local sectors and policies where there is significant potential for action and emissions reduction, and also for research projects and advocacy.

CDP-Cities is the official reporting platform of the C40 network and the Under2 Coalition, and one of the three official platforms of the Global Covenant.

Reporting by cities 2018

Since 2011, the C40 has collaborated with CDP in the reporting of the data of the cities in its network. The total number of cities reporting to CDP is, however, greater than the cities which only belong to the C40, and consequently, of the **229 cities in the 2017 database, only 56 belong to the C40 network, but represent 0.9 $GtCO_2eq$, i.e. 65% of aggregated emissions.**

In 2017, all 229 cities reported their emissions under scopes 1 and 2, and 112 also included waste in scope 3. **Significantly, a stable proportion of cities, between 40 and 50%, have recorded, on an annual basis, progress in terms of reducing emissions compared with their previous inventory or baseline (see Table 4). These data should however be treated with caution as cities use different methodologies and do not cover all the same scopes or sectors**. Similarly, progress achieved by cities in calculating and managing the data may make tracking their progress from one year to the next relatively meaningless. Finally, in table 5 presented here, the column with the name of the city reporting each year does not show a linear development in members as some cities do not report their emissions from one year to the next.

YEAR	NUMBER OF CITIES HAVING REPORTED TO CDP	INCLUDING CITIES OF THE C40	CO_2EQ REPRESENTED	POPULATION REPRESENTED (IN MILLIONS)
2015	119	44	1.25	
	46 / 31			
2016	187	54	1.29	260
	84 / 36			
2017	229	56	1.41	279
	101 / 45			

Number of local authorities reporting a fall in GHG emissions compared with their previous inventory..

Number of local authorities reporting a rise in GHG emissions compared with their previous inventory..

TABLE 4. EVOLUTION IN THE NUMBER OF CITIES PRESENT ON THE CDP PLATFORM.

(Source : City Emissions-Wide 2017)

*Figures based on public databases available from CDP

The remaining local authorities are those which are carrying out their GHG inventory for the first time, whose emissions have not changed, or which have changed methodology.

Cities reporting to CDP are mainly concentrated in North America with 43% in 2017, and in Europe with 28% (see Figure 17). Asia, where the use of the cCR Is more widespread, the number of Asian cities reporting to CDP is relatively low. However, with the announcement of a new partnership between ICLEI and CDP, and a unification of the reporting platforms, all public cities data will be available from the same source.

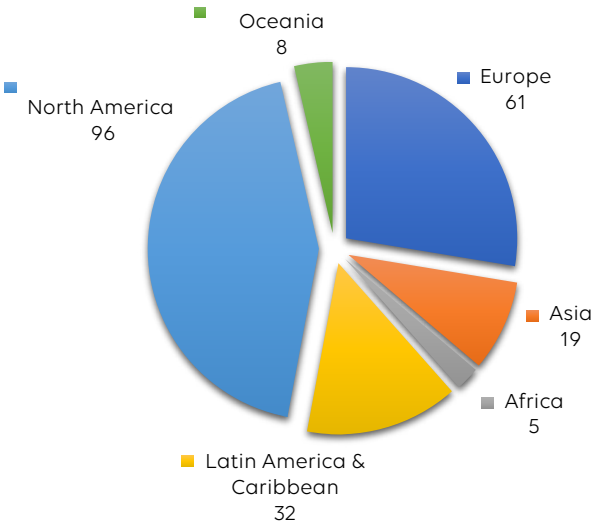


FIGURE 17. GEOGRAPHICAL DISTRIBUTION OF CITIES REPORTING TO CDP.

(Source : "City Emissions-Wide 2017")

Finally, as regards the methods used, CDP databases show that half of the 229 cities that reported their GHG emissions on these in 2017 now use the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC), compared with only 23/119 in 2015 (see IV on methodologies for territorial inventories), showing that reporting is gradually becoming standardised. Thirty-one use the IPCC guidelines and 44 use methods specific to their territories or ones they have already used in a climate initiative such as the Covenant of Mayors (MEI, Bilan Carbone, etc.).

C. NON-STATE ACTOR ZONE FOR CLIMATE ACTION (NAZCA)

NAZCA is a global platform which lists commitments by cities, regions, companies, investors and civil-society organisations, launched in 2014 during COP20 under the presidency of Peru. This platform is the main tool of the Lima-Paris Action Agenda (LPAA) and reports on action by non-state actors in the implementation of the Paris Agreement. This portal is a tracking and reporting tool designed to recognise existing actions and attract new commitments from nonstate actors – **cities, regions, companies and investors.**

In 2016, the Data-Driven Yale report, "Taking Stock of Global Climate Action", provided an inventory of the commitments reported on the NAZCA platform by actor type and emissions sector. These commitments by 2,578 cities involve 757 million inhabitants and those of 211 regions, 908 million inhabitants. They are mainly from European cities and regions (1,769 cities out of 2,578 and 95 regions out of 211), and also from East Asia and the Pacific (212 cities and 42 regions) and North America (211 cities and 30 regions) (Figure 18). The report highlighted the low representation of African cities and regions on the NAZCA platform (1 region and 7 cities). In quantitative terms, the report noted that there were 14,639 emissions-reduction targets listed in 2016, of which 56% had set 2020 as their deadline, 10%, 2030 and 34%, 2050.

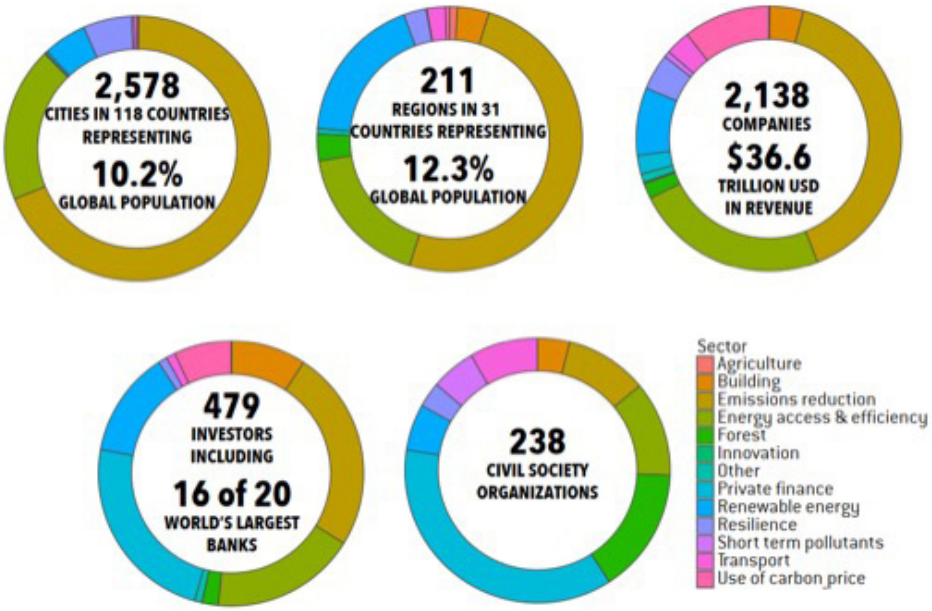


FIGURE 18. COMMITMENTS REPORTED TO THE NAZCA PLATFORM BY ACTOR TYPE AND SECTOR.

(Source : Figure taken from Taking Stock of Global Climate Action, Data-Driven Yale)

A second, more comprehensive and user-friendly version of the NAZCA platform was put online in September 2018 offering non-state actors more control. It contains the contributors to the main platforms and initiatives described in this chapter: CDP, Carbon Climate Registry, Climate Initiative Bonds, the UN Environment's Climate Initiatives Platform, Global Covenant of Mayors, Investors on Climate Change, The Climate Group, and UN Global Compact, etc. In total, 9,524 cities, 78 regions, 2 430 companies, 354 major investors and 17 NGOs have recorded their actions on the new platform.

The report "Cooperative Climate Action : Global Performance & Delivery in the Global South" published on 10 September 2018[12] analyses the 77 main NAZCA initiatives, with 18,907 instances of participation by these non-state actors. **The report, which records progress achieved, notes that there is still a wide gap between actors in the North and the South: only 22% of participants in the initiatives are from countries which are not members of the OECD (Figure 19).**

Nevertheless, while we do not have statistics on the amount of financing by the different regions, **the report notes that 30% of the organisations financing initiatives from non-State actors are from emerging countries and 80% of the initiatives reported to NAZCA involve countries from the South.** It should, however, be noted that, to date, the new NAZCA platform only records commitments by contributors and does not yet mention the outcomes of each of these initiatives in terms of emission reductions.

12 published by the African Centre for Technology Studies (ACTS), the Blavatnik School of Government and Global Economic Governance Programme at the University of Oxford, the German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE), TERI University.

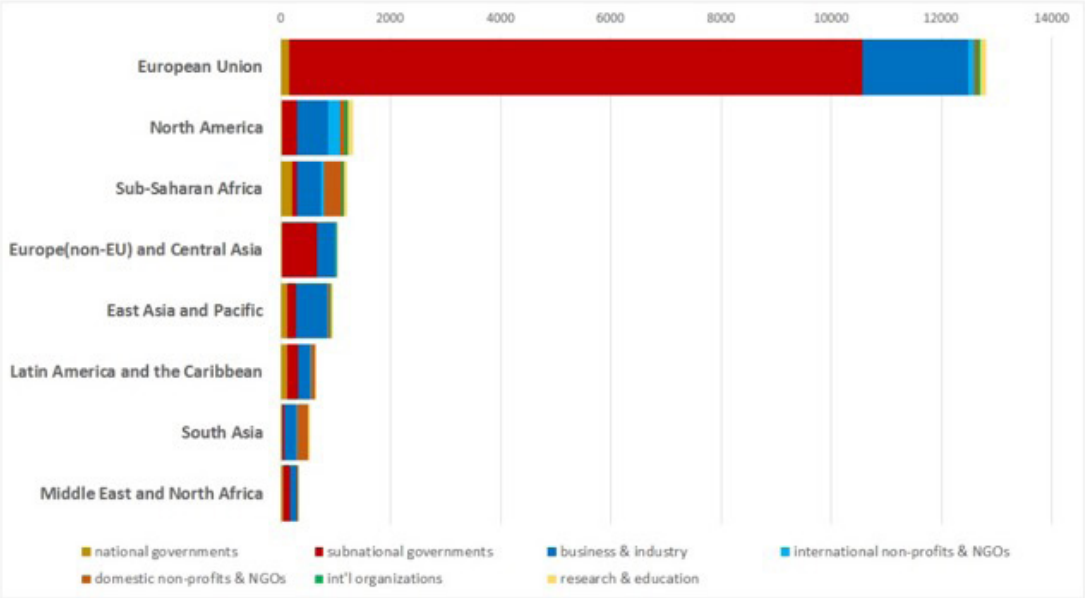


FIGURE 19 - NUMBER OF NON-STATE ACTORS REPORTING ON THE NAZCA PLATFORM BY ACTOR TYPE AND REGION.

(Source : Figure taken from Coopérative Climate Action : Global Performance & Delivery in Global South, Global Economic Governance Programme)

D. METHODOLOGY OF COMMUNITY-WIDE EMISSIONS INVENTORIES

Over the last 10 years or so, measurement, reporting and verification(MRV) of greenhouse gas emissions tools have been increasingly tailored to local needs with the creation of the purpose-built reporting platforms described above, and also with the creation of accounting methods tailored to the specific requirements of local cities and territories, which attempt to mitigate difficulties in accessing and processing secondary data. Consequently, this section seeks to review measurement principles for greenhouse gases and provide a non-exhaustive list of the main accounting methods that the territories can use.

The community-wide approach can be differentiated from the organisation approach which studies GHG emissions from the activities of the local authority itself (city heritage/jurisdiction). A greenhouse-gas inventory at territory level studies all flows that drive activity in a geographical or administrative territory and quantifies the greenhouse gases emitted by these flows.

Scopes

A territory overview can include up to 23 types of emission divided into 3 categories:

- **Scope 1 :** Direct GHG emissions produced by fixed platforms or mobile units on the administrative or geographical territory. These are territory emissions linked to individual and collective habitats, travel by inhabitants (work, school, leisure), waste treated on the territory, industry and agricultural activity.
- **Scope 2 :** Indirect GHG emissions linked to the production of electricity and heating and cooling networks, generated on or outside the territory, but whose consumption takes place within it.
- **Scope 3 :** All other indirect GHG emissions which take place outside the territory but which are generated by activities of actors in the territories concerned. They are caused, for example, by the

production and transport of consumer goods, (air) travel by residents outside the territory, waste treated outside the territory, etc.

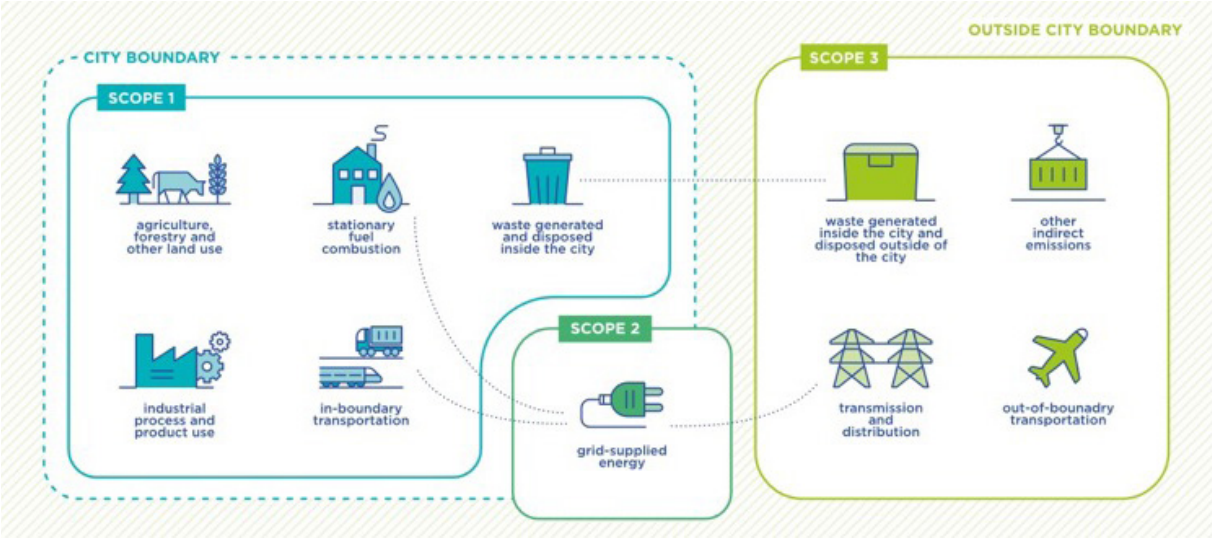


FIGURE 20. EMISSIONS SECTORS ACCOUNTED FOR WITHIN THE SCOPE.

(Source: "Comsumption-based GHG Emissions of C40 Cities", C40, 2018).

3 main approaches for calculating GHG emissions of a territory

The emissions inventory generally uses the same principles as those for national inventories in line with UNFCCC requirements. The "inventory method" is relevant at the level of a national territory and is useful for minimising double counting between countries, but only "global methods" provide a complete overview of the activities of the local territory, by accounting for scope 2 emissions linked to the generation of electricity, steam or heat beyond its boundaries (which is frequently the case with cities), and more generally scope 3 emissions linked to the energy consumed to supply goods and services necessary to the territory's activities.

Global methods can establish diagnoses (inventories) followed by action plans, when the inventory method allows territory emissions to be aggregated, because scope 2 and 3 emissions are frequently scope 1 emissions from other territories and their aggregation could lead to double counting.

The consumption approach offers a method based on the consumption of goods and services by the actors of the territory, its inhabitants, companies and the community's own services. It can be used to identify more specifically other means of action that can be used to reduce its indirect emissions as shown in the recent study of consumption-based emissions of C40 cities "Consumption-based GHG Emissions of C40 Cities".

APPROACH	TERRITORIAL METHOD	GLOBAL METHOD	CONSUMPTION-BASED METHOD
SCOPE	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). Scopes 1 and 2	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. Scopes 1, 2 and 3 (scope 3 is covered on a variable basis)	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 • No double counting	• Comprehensive coverage of emissions • Raises all problems	• 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.)	• Mobilisation of citizen and actors of the territories (industries, compagnies...)
EXISTING TOOLS	• National inventory similar to UNFCCC or equivalent • BASEMIS®	• Bilan Carbone® Territory • Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC) • BEI/MEI • US Community Protocol • GESi Territory (under development).	• PAS 2070

TABLE 5. CHARACTERISTICS OF THE 3 METHODS OF CALCULATING TERRITORY EMISSIONS

(Source : Association Bilan Carbone website)

Existing methods for GHG accounting

• INTERNATIONAL ISO STANDARDS •

All existing methods must comply with ISO (International Organisation for Standardisation) standard 14064 on climate change, and, more specifically, ISO 14064-1:2006 which specifies principles and requirements for the design, development, management, and reporting and the verification of the GHG inventory, which must comply with the following key principles: relevance, completeness, consistency, accuracy and transparency. This revised norm has been available since 2018 on the site de l'ISO.

ISO 14069 provides guidance for the application of ISO 14064-1 and additional information regarding the definition of different types of emission, giving specific examples. It describes the steps to be taken for establishing organisational and operational boundaries and provides guidance to promote transparency regarding the boundaries, the methodologies used for the quantification of direct and indirect GHG emissions and removals, and the uncertainty of the results.

ISO norms also regulates adaptation measures

ISO norms do not only cover greenhouse-gas accounting and reporting and mitigation actions, they also cover adaptation and financing climate change activities. Indeed, in addition to the six ISO standards regulating mitigation, three standards deal with the requirements for adaptation measures (14090), the assessment of vulnerability, risks and impacts (14091), and, finally, adaptation planning by states and local governments (14092). Standard 14097 provides the framework and principles for assessing and reporting investments and financing activities related to climate change.

TEXT BOX 10

• METHODS DERIVED FROM IPCC GUIDELINES •

The vast majority of territories apply the regulatory methods produced by national local authorities, or methods derived from IPCC guidelines. These methods, applied locally, generally classify the activities of the territory as follows (ICLEI 2014) :

Stationary energy: assesses emissions from energy consumption in buildings from networks (electricity, heating, cooling) and not from energy generation.
Difficulties: location of production units is often outside the territory.

Mobile energy: assesses emissions from transport in the territory in question. This is calculated on the basis of fuel sales and statistics relating to the city's modal share.
Difficulties: distinguishing in-boundary movements from cross-boundary movements and accounting for air transport used in transporting actors from the territories.

Waste: Emissions related to the treatment of waste from the territories, treated either within the territory (Scope 1), or outside its geographical boundaries (Scope 3).
Difficulties: (1) Need for a significant flow of secondary data making quantification difficult; (2) whether to attribute waste from a territory to one shared treatment unit, or to another territory.

Industrial Processes and Product Use (IPPU)
Difficulties: how to estimate products produced by factories on the territory which are intended for export.

ICLEI has noted, in addition to difficulties in calculating each of these emissions sectors, several limitations at the local level:
• Overestimates and double counting of emissions, or, on the contrary, underestimates of sectors over which local government has little control (agricultural activities, infrastructure belonging to a higher administrative level).
• Access to data limited by poor disaggregation of national data for geography, lack of access to the data of economic actors on the territory, or simply insufficient financial and human resources for their collection.
• Any emissions related to the consumption of imported goods are direct emissions for other local governments, and this makes comparisons impossible.
• A lack of consistency and numerous inaccuracies have led several organisations to put forward global methods designed specifically for territories.

• GLOBAL PROTOCOL FOR COMMUNITY-SCALE GREENHOUSE GAS EMISSIONS INVENTORIES (GPC) (BY ICLEI, C40 AND WRI) •

Launched in 2014 by the World Resources Institute (WRI), ICLEI and the C40 to offer guidelines to a range of very different local authorities for calculating their own emissions. This is a global method adapted from the GHG Protocol created by the WRI and the World Business Council for Sustainable Development (WBCSD) in 1998 for businesses, replacing the International Local Government GHG Emissions Analysis Protocol (IEAP) developed by ICLEI, and the International Standard for Determining GHG Emissions for Cities of the UNEP, UN-Habitat and the World Bank.

Methodology and tool: It was designed to facilitate the planning of local government climate policies including tracking performance and selected goals, and to compare and aggregate inventories at regional or national levels and better gauge the importance of regions and cities. Consequently, the guide comprises three parts:
• Setting out how to define the inventory's geographical boundaries, specifies reporting requirements and offers a sample reporting template;
• Providing overarching and sector-specific accounting and reporting guidance for sourcing data and calculating emissions, including calculation methods and equations;
• Showing how inventories can be used to set mitigation goals and track performance over time.

The GPC also uses the scopes described above and consequently includes in-boundary and out-of-boundary emissions. Nevertheless, it adopts its own two reporting levels, which map differently onto the scopes:

• **BASIC:** includes emissions sectors common to almost all territories:
(1) stationary energy: scope 1 minus the production of in-boundary energy injected into the network

+ scope 2
(2) transportation to the territory: scopes 1 + 2
(3) waste generated on the territory: scope 1 minus emissions from imported waste + scope 3 emissions from treatment of exported waste.

• BASIC +:
BASIC level sectors
(4) industrial processes and product use: scope 1
(5) agriculture and land use: scope 1
(6) cross-boundary transportation: scope 3
(7) stationary energy: scope 3 linked to losses during transmission and distribution.
transmission.

Further information: CLEI Presentation of GPC et GHG Protocole website

• BILAN CARBONE® TERRITORY •

Bilan Carbone® is a global method created by the Agency for the Environment and Energy Management (ADEME) in 2004 and backed by the Association Bilan Carbone (ABC) since 2011. Version 8 of Bilan Carbone® launched in 2017 was developed to align with post-COP21 best practices, and offers different tools suitable for organisations and territories. It can be used to carry out particularly exhaustive emissions accounting with, as its main objective, emissions reduction.

Methodology and tools: The use and methodology of the Bilan Carbone methodology and tools is supported by training delivered by the l'Institut de Formation Carbone (IFC) (Carbon Training Institute) or by an expert trained in its use.

Bilan Carbone® version 8 offers a 5-step approach:
• Designating a project manager and determining the objectives of the Bilan Carbone® project
• Setting its (organisational, operational, temporal) boundaries
• Collecting and exploiting activity data
• Emissions reduction plan
• Summary and final report

For this purpose, it offers outlines for activity data collection and a dashboard for drawing up an emissions-reduction action plan. These tools can be exported in other formats such as those used by GPC or CDP to meet different existing standards. The method suggests that the approach should be renewed each year with close monitoring of the action plan.

In France, these inventories are part of the wider planning approach of the Regional Climate, Air and Energy Plans (PCAET) which are compulsory for intercommunal authorities of more than 20,000 inhabitants, which provide these residents with a genuine commitment framework. This planning tool has also been exported to other regions of the world. **This method has been adapted as part of a Life Clim-Foot, program, at the scale of 5 European countries.**
Further information: Association Bilan Carbone website **&** Site du Bilan GES

• OTHER METHODS •

Baseline Emissions Inventory (BEI) / Monitoring Emissions Inventory (MEI): Denominations used by the global method of calculating emissions included in the Covenant of Mayors MRV mechanisms and the MyCovenant platform. These inventories are validated by the European Joint Research Centre and are available in 11 languages. These inventories cover CO_2 emissions, and optionally methane (CH4) and nitrous oxide (NH2) emissions, related to the final energy consumption of municipal, tertiary and residential buildings and transportation. Other sectors such as industry may be included in the inventory if they are subject to actions under the Sustainable Energy and Climate Action Plan (SECAP). Similarly, emissions related to local energy generation are counted as indirect emissions, encouraging local governments to reduce the emissions of production units via local renewable energies, etc. Finally, this method allows local governments either to use standard IPCC emissions factors, or to use life-cycle emission factors (accounting for upstream and downstream emissions).
Further information: Joint Research Centre website

US Community Protocol: Global method devised by ICLEI US Office for use by local governments in the United States It is also a global method designed for measuring emissions, formulating emissions-reduction goals and producing an action plan. This method does not adopt the scopes framework described above as it is not suitable for calculating a territory's emissions. Instead, this protocol requires the reporting of emissions for a minimum of five activities: (1) use of electricity by the community; (2) use of fuel in buildings (gas etc.); (3) use of fuel in passenger and freight transportation; (4) use of energy in drinking water stations and wastewater treatment and distribution; (5) generation of solid waste by the community.
Further information: Air Pays de la Loire website

BASEMIS®: Territorial method developed by the cities of Nantes and Strasbourg, in collaboration with air-quality monitoring agencies (agences de suivi de la qualité de l'air - ASQA) in France. It has the advantage of offering an integrated air-climate and energy approach, with a detailed inventory of atmospheric pollutants. It is a territorial or "land registry" accounting method as it counts emissions in the place in which they are emitted, on a defined territory. It inventories all sectors emitting stationary (industrial and agricultural establishments, residential and tertiary sectors) and mobile (road, air, rail transportation, etc.) emissions using the following formula: the quantity of pollutants discharged into the atmosphere over a time period, T, multiplied by a particular quantity of activity (tonnes produced, kms travelled, kWh hours consumed, number of persons, etc.). For energy-based emissions, activity quantity is energy consumption.
Further information: Pays de la Loire regional website

PAS 2070: Double method developed by the British Standard Institute in collaboration with universities, research centres and local government networks (ICLEI, C40), which can also take account of activities outside the territory, enable emission comparisons between territories and identify means to reduce them within the urban value chain. PAS 2070 offers both a global "Direct plus supply chain" (DPSC) method based on the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC), and a consumption-based method which calculates direct emissions and those related to the life cycles of goods and services consumed by a city's actors (but not those intended for export).
Further information: British Standard Institute website

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