SYNTHESIS REPORT ON NON STATE CLIMATE ACTION 2019

4 BOOKS

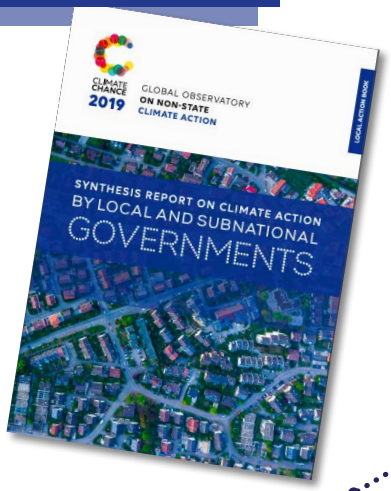
to better understand the non-state actors' issues and strategies to combat climate change

SECTOR-BASED BOOK

A synthesis of climate actions covering 6 major emissions sectors, along with sector-based case studies regularly published on our website.

LOCAL ACTION BOOK

A synthesis of progress made by local governments in 2019, 13 case studies of cities and regions, and «Around the World in 80 initiatives» linking climate and SDGs.



ADAPTATION BOOK

A synthesis of climate adaptation actions in 4 sections : concepts - territories - economic sectors - financing. Published in partnership with the Comité 21.

FINANCE BOOK

A 2019 assessment of climate actions of the financial sector. Published in partnership with Finance for Tomorrow.

CLIMATE CHANCE 2019

OBSERVATOIRE MONDIAL
DE L'ACTION CLIMAT
NON-ÉTATIQUE

2019 Synthesis Report on Non-State Climate Action

Climate Chance Observatory

Press pack
December 2019

Presentations at COP25:

Press conference: December 11th, 2019, 2:30 P.M, Room Mocha, Hall 4

Side-event (in Partnership with Comité 21): December 12th, 2019 from 10:00 A.M. to 11:30 A.M. at the French Pavilion

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Table of contents

Foreword by the President of Climate Chance

The global Observatory's second synthesis report on non-state climate action meets the same objectives as the previous edition from 2018: ***showing the reality of actions put in place to reduce greenhouse gas emissions, understanding all actors' dynamics and national public policies that lead to these results.***

The 2019 Synthesis Report on non-state climate action aims to analyse, at global level, the evolution in emissions by sector, to closely follow the evolution of strategies developed by local authorities and their networks, and to detect the concrete impact of NGO and citizen-led mobilisations. The work offers a unique panorama of the reality of initiated actions, it is the only one of its kind available in English and French.
Our motivation is to ***bolster action****, and to* ***reveal the significant results that can be obtained****, mainly when synergies occur between non-state actors and national policies, that we are not condemned to resignation in the face of the constant rise in greenhouse gas emissions, a "climato-fatalism" that is ultimately even more frightening than "climato-skepticism".*

Nevertheless, we are clear-sighted, and ***this report does not stage a world that does not exist, which would be that of a general mobilisation to stabilise the climate.*** *This 2019 report is published while the latest available data indicate that global CO2 emissions are still rising sharply. The causes are well known: the willingness of the world's inhabitants to have a certain way of life, which some still call "Western", which brings together the same appetites for mobility, home comfort, meat-eating diets, digital screen reading..., all middle classes from urban areas across the globe whether they live in Paris, New York, Shanghai, Rio or Nairobi.*

In this world, facing this demand, we must shape new solutions: a change in electricity production towards renewable energies, collective and low-impact mobility in the framework of local development, local food, preservation of planet's forest cover... ***the solutions already exist. They are increasingly mastered and documented, but remain barely implemented, in the face of resistance from short-term economic interests, low levels of dedicated funding, and the contradiction of the population,*** *whose awareness regarding climate change is constantly growing but tendency to frantically purchase SUVs, which the International Energy Agency considers to be annihilating much of the progress made elsewhere.*

This synthesis report on climate action did not invent anything, it is based on recent data and analysis reports published across the globe and puts forward ***a synthesis, focusing on concrete achievements****. The commitment tradition, sometimes referred to as the "selfie effect", is very present in the climate world, and even generates its own aggregation reports and synthesis of pledges. Without forgetting these collective moments of engagement, necessary to spark mobilisation, the Climate Chance Observatory's*

synthesis report focuses on what has really been achieved, if possible, in quantified terms of impact. This is sometimes less exciting than inventing carbon neutrality scenarios by 2050, but it is also a way to guarantee their credibility. ***If we do not measure and demonstrate all achieved progress, even at scales that are insufficient to address the issues, we will not engage as many people as possible, citizens, businesses, local authorities that need to believe in it. We must continue to convince them that doing their share of the work and thus assuming their share of collective responsibility is part of a quantitatively credible scenario of stabilising greenhouse gas emissions.***

To achieve this, we need data and analysis. However, this data and analysis material still remains too partial. Concerning local authorities' action, for example, this year we were unable to use real quantitative GHG emission reports. "Climate success stories" that we hear from some large cities are precious but are not enough to show the significant role of local action in the achievement of the global objectives. Similarly, the "Finance" Book (published in collaboration with Finance for Tomorrow), that presented in 2018 for the first time, a very complete tour on new and necessary mobilisation for this key sector, was not sufficiently provided with data from new reports and data aggregation. Yet, it remains a unique synthesis of initiatives from 2019 in this sector, with some disappointing signals on the stagnation of the rise in financing.

Given the climate consequences and diverse catastrophes with a temperature increase of only 1.1 degrees pre-industrial times, our world will face daunting adaptation challenges, *especially in the least developed countries which are in fact, the most vulnerable. Adaptation actions are taking place worldwide and we have decided this year, to analyse them, a complex synthesis as they are even harder to quantify than reduction in greenhouse gas emissions. we completed this in collaboration with Comité 21, thank I dearly thank for its engagement, notably by seeking to analyse these actions in the light of the Sustainable Development Goals (SDGs), the other big international agenda, a gathering of requirements for human development that we can never lose sight of when discussing climate action.*

We are sending this 2019 Synthesis Report to all those who want to better understand climate issues and even more to all those who are committed or want to commit to action. While the report cannot nurture optimism from today, it can present enough examples of concrete actions - often outstanding in terms of the idea and its impact - to continue to bolster their determination.

Ronan Dantec, Senator, President of Climate Chance Association

The 2019 Synthesis Report on non-state climate action is...

A synthesis showcasing the diversity of climate action for a qualitative and quantitative interpretation of the evolution in emissions

Published at the time of COP25, this 2019 Synthesis Report is a **synthesis of over 1,000 sources** (scientific and grey literature, news articles, actors' communications etc.) and draws a panorama of the diversity of the **implemented Climate Actions** led by all kinds of non-State actors, a **unique source of case studies and examples** analysing actors' issues and strategies, at national level, and cities and regions level, and offering both a quantitative and qualitative reading of the evolution of global greenhouse gas emissions and adaptation actions.

A widely-shared toolbox for decision-makers and climate actors

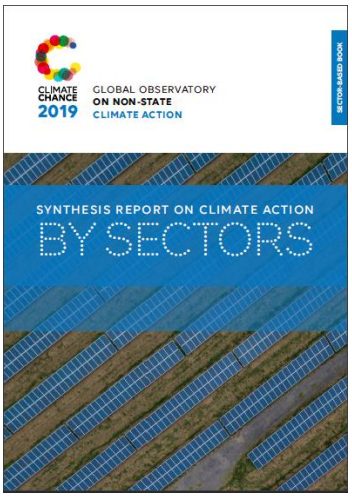
The Observatory's Synthesis Report is a dense document, which must be used as a source for examples and analysis of the efficiency of certain actions that took place over the year, in all sectors and on all different scales of governance.
Widely shared across all non-state actors' networks but also amongst governmental and international decision-makers, the report aims to inform on the abundance of ongoing actions worldwide. It intends to **help both States and non-state actors to go beyond the composition of commitments and objectives and to accelerate the implementation stage** by inspiring national and local decision-makers, both public and private and enhancing the creation of new projects.
This report aspires to highlight and share non-state climate action carried out by Climate Chance, through its information portal in English and French (Cartography of action, climate library, sector-based studies), to provide actors with relevant tools to strengthen their actions.

Large scale collaborative work

The multi-actor cooperation being the driver of Climate Chance's activities, over 20 French, European, international organisations and independent experts contributed to the report to provide, write or share information.
Two organisations closely collaborated with the 2019 Synthesis Report: Finance For Tomorrow on the "Finance" Book and the Comité 21 with the "Adaptation" Book.

A took-book approach for a better understanding on all non-state stakes and strategies for mitigation or adaptation

The report is made up of 4 Books (Greenhouse gas emission sectors - Local Action - Adaptation - Finance)



Sector-based Book – Synthesis Report of Climate Action in the 6 main GHG emission sectors

2019 global trends and context

Following the first 2018 Synthesis Report of non-state action, a synthesis on major action trends and initiatives led by non-state actors since the adoption of the Paris Agreement in December 2015, this second edition aims to evaluate (based on available data), the difficulties and progress achieved, by identifying the drivers of the greenhouse gas (GHG) emissions trajectories. This 2019 "Sector-based Book" focuses on evolutions that occurred in the main sectors of GHG emissions, from energy production to waste, building, transport, industry and land use.

Rising emissions

This analysis of non-state actors' action is carried out in a context of growing emissions, which increased by 1.7% in 2018 among G20 countries, compared to 2.2% in 2017 (Enerdata 2019 – fig. 1). This continued increase, after several years of stagnation, shows that the world is unable to decouple GDP growth from emissions. In 2018, as Enerdata reveals, it is indeed sustained economic growth within the G20 (+3.8 % on average) mainly driven by non-OECD countries, which explains the continuation of this trend.

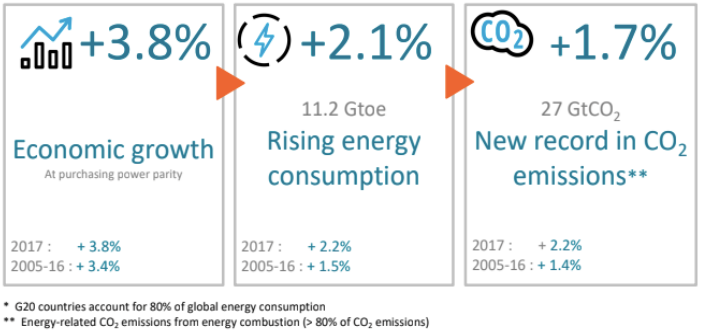


Figure 1. Key climate-energy figures of the G20 in 2018. Source: Enerdata, Global Energy Trends 2019

While progress is being made in most sectors, particularly in terms of efficiency in the use of energy in transport or construction, its effect is systematically offset or even cancelled out by population growth and the energy demand of the emerging middle classes accessing lifestyles with a high carbon footprint.

MtCO2	2015	2016	2017	2018	Variation 2015-2018
G20	30118,5183	29950,6533	30385,113	30893,5882	2,6%
Argentina	201,6008	202,0471	196,3659	193,4334	-4,1%
Australia	409,6533	423,971	423,5875	427,8005	4,4%
Belgium	110,9841	109,5163	108,8281	110,1653	-0,7%
Brazil	521,8266	481,3963	490,5235	463,4401	-11,2%
Canada	628,3793	616,4979	613,9583	622,3531	-1,0%
China	11029,1624	11032,5768	11228,048	11522,7633	4,5%
France	338,4186	337,1804	341,7709	328,978	-2,8%
Germany	795,1003	799,0262	n.a.	n.a.	
India	2268,8873	2291,1702	2411,3838	2511,7137	10,7%
Italy	356,8434	353,7822	349,1947	346,7473	-2,8%
Japan	1231,8102	1222,1986	1205,7341	1178,7374	-4,3%
Mexico	475,424	478,7246	478,1192	470,2729	-1,1%
Russia	1836,7345	1809,9151	1931,4605	2006,4048	9,2%
Saudi Arabia	577,7807	573,3661	578,8289	553,2072	-4,3%
South Africa	430,4121	436,1328	433,2059	440,7758	2,4%
South Korea	692,3866	709,3655	n.a.	n.a.	
Turkey	374,9792	398,5889	433,0105	442,4108	18,0%
United Kingdom	422,9749	398,3288	n.a.	n.a.	
United States	5242,3552	5138,5619	5072,6829	5212,5859	-0,6%
Indonesia	526,9565	524,0286	n.a.	n.a.	
European Union	3578,7179	3563,0488	3573,0972	3503,1762	-2,1%

Difficult trends to reverse in all sectors

Overall, global GHG emissions (+1.7% in the G20) grew at a slower pace than energy demand (+2.1 %), as a result of the decarbonation of the energy mix, which remains too slow. Fossil fuels still account for 80% of the total.

Electricity production is responsible for two-thirds of overall emissions of the energy production sector, coal is the first cause in China and in India. Fossil electricity production, particularly coal (two-fifths of production but three-quarters of its emissions from the electricity sector in 2018), represents about 80% of the growth in emissions of the electricity sector. In the United States, shale gas is increasingly replacing coal because of extreme weather conditions. Gas consumption jumped 10%, and despite Trump's promises on the "Beautiful Clean Coal", the share of coal, less and less competitive, fell from 28% in 2018 to 25% in 2019. According to the US Energy Information Administration, this share will continue to fall to 22% in 2020. Together, these three countries are responsible for 85% of the increase, while some others have experienced a decrease in their energy production emissions, notably Germany, Japan, Mexico, France of the United Kingdom (IEA, 2019). The Observatory wrote a case study dedicated to the UK's decarbonation model in the 2019 Synthesis Report. The impact of Chinese electricity emissions, was also the subject of a case study in the 2018 Synthesis Report and remains considerable. Their emissions cancel out the efforts of the rest of the world: in the first six months of 2019, the world (excluding China), saw its coal-fired electricity generation capacity decrease by 8.1 gigawatts (GW), but over the same period, China developed its own capacity by nearly 35 GW (Global Energy Monitor, 2019).

Although some countries (such as in Europe and European Union) have changed their taxes to reduce public support for fossil fuels, they received record subsidies in 2019, mainly in China, Iran, Russia and Mexico. As for the United Kingdom, which has committed itself to getting out of coal by 2025, with real results, it has at the same time increased its subsidies to export of fossil energy projects by a factor of 11 in one year. Nevertheless, the projections revealed by the IEA on 20th November 2019, based on investment projects already planned, show an appetite for gas, oil and even coal in the coming years. This is completely incompatible with compliance with the Paris Agreement. By 2030, the States expect coal and oil and gas production to be 17%, 10% and 5% higher than what is required to comply with the nationally determined contributions under the Paris Agreement.

The other major sectors are not showing any more signs of improvement. The analysis we develop in this 2019 Synthesis Report, particularly on sectors that were not explored in the 2018 edition - building and waste -

follow the same general trends. The global appetite for the same mode of development leads to an almost mechanical increase in emissions, with obviously an important role for the political authorities, which strongly influence the behaviour of various actors. Sometimes, decisions taken for any other reason may even have significant indirect, even structural, impacts on a sector's emissions. The decision of Asian countries, led by China, to close their borders to Western waste has forced European and American cities to adapt their own treatment capacities, and Asian countries to strengthen their sorting practices in order to supply their equipment. Eventually leading to an amendment to the "Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal", the international treaty designed to reduce the movement of hazardous waste between countries. As plastic waste is now classified as hazardous, it allows developing countries obtaining information on the waste entering their territory and, if needed, to refuse their entry. We study that in the "Waste" case study, a sector explored for the first time, even if it is one of the areas where it is often difficult to quantify the changes presented in CO_2 tonnes.

In the building sector (28% of emissions - IEA, 2018), the explosion in the number of square metres built but also the multiplication of uses, primarily for air conditioning, is ruining the progress made in terms of envelope efficiency. For example, the number of air conditioners in service, which has already increased by 40% since 2010, 15% of which in 2018 could rise from 1.6 billion today to 5.6 billion in 2050. In this context, European or Japanese energy efficiency requirements, which make their equipment 25% more energy efficient than that of the United States, are obviously not enough to reverse the trend.

In the transport sector (24 % of emissions - IEA, 2018), vehicle performance and the penetration of electrification and biofuels are being wiped out by the growth in international trade and maritime traffic, the explosion in air traffic (which is expected to double again by 2037) and the vogue for SUVs (sport utility vehicles). These hybrids between minivans and 4x4s are so fuel-greedy that they are causing a big concern, all the way up to the International Energy Agency. Indeed, they were the second largest source of increased CO_2 emissions in the world between 2010 and 2018, ahead of heavy industry, heavy lorries, aviation and even maritime transport, and their growth is offsetting progress in engine weight reduction and efficiency. We explore this in the "Transport" fact sheet 2019. In it, we highlight, in connection with the case studies of these two countries, the role of the German government, which under pressure from its automobile industry, succeeded in autumn 2018 in curbing European ambitions in terms of pollution standards applied to new vehicles, and conversely, the Norway's voluntarism where the development of a concerted policy between all actors enabled a record penetration of electric mobility.

The ravages of deforestation (10% of global GHG emissions) continued in 2018 with 12 million hectares lost. According to Global Forest Watch, the Democratic Republic of Congo, Brazil and Indonesia are among the countries that lost the most primary forest in 2018, although the latter significantly reduced its level of deforestations over the past two years, with some effectiveness of laws to protect humid forests. Ghanaian forests are under pressure from farmers, especially the cocoa industry. In Brazil, the deforestation rate increased by 60% between 2017 and 2018. President Bolsonaro's speeches and decisions on forest protection laws were undoubtedly perceived as an incentive by loggers and farmers, who practice burning. According to the National Institute of Space Research (INPE), deforestation in the Amazon increased by 278% between July 2018 and July 2019. On the other hand, some national decisions have a positive influence on the evolution of emissions.

Renewable production is growing without replacing fossil production

Driven by a steady decline in their production costs (by 75% since 2010 for photovoltaics, 20% for onshore wind power and 50% for battery electricity storage systems) **renewable energies** continue their sustained development. With 13% of extra capacity installed, they produced 27% of the world's electricity, behind coal but ahead of gas and nuclear power. According to the IEA, installed renewable capacity is expected to increase by 50% between 2019 and 2024 and solar energy, almost away more competitive than coal, will become the leading source of electricity by 2040. The future of the global climate continues to be largely determined by this race between fossil fuels and renewables; if the latter did not caught up in 2018, they strengthened their positions though. The role of the major public and private financial actors, which we explore in our 2019 "Finance Book", will be crucial for the outcome of this competition. In 2019, State Development and Investment Corp., the Chinese sovereign wealth fund, and the Swiss bank UBS notably announced the end of their investments in coal plants (IEEFA, 2019). Faced with this reality, actors are organising the decline in conventional production by separating growing activities (renewable, services, etc.) from fossil assets. This transition is coming to an end for

the German company RWE, which has divested itself of many fossil assets to become the 3rd largest renewable producer in Europe.

The action of the various non-state actors, from economic investments by companies to the daily choices of each one, is strongly influenced by national regulatory frameworks and this synthesis report therefore also focuses on the evolution of legislation. On this point, the synthesis report exposes many encouraging signals. The development of electric renewables production is based on, for instance, an increasing amount of auction systems from major distributors, which is a clear sign of the economic competitiveness of these productions: they were organised with the help of 48 countries in 2018 (compared to 29 in 2017), including, for the first time, Benin and Kenya. These two countries' commitments were already highlighted in our 2018 edition of the non-state climate action report.

Since recently, China has introduced solar and wind quotas in electricity consumption, and the United States reinstated, in 2018, a 30% tax credit for the installation of domestic wind energy systems. New economic models enhance the decentralisation of production, our report details a number of them, without of course claiming to be exhaustive, by stating in our "Local Action Book", the importance of the legislation carried by local governments, in particular the federal states. In India, the "roof rental" - used 10% of solar roof installations - makes it possible for owners to provide their roofs to developers who will sell them the electricity produced at a lower rate than public electricity. With net metering (adopted at national level by Indonesia in 2018, but also by 38 American states), a small producer who is also a consumer, can deduct from his electricity bill the excess production he feeds into the grid. The possibility for individuals, public bodies, small businesses or farmers to produce their own energy is growing. Germany is a pioneer in this field, but the Netherlands has nearly 500 citizen power cooperatives, 85 of which were created in 2018.

Multi-stakeholder sector-based initiatives

As well as the major sectors where government strategies and decisions and the dynamics of non-state actors constantly intersect, specific sectors are building new global roadmaps to reduce their emissions and organise this evolution over time, closely followed by states. This is true for instance for the maritime and air transport sectors, both out of the scope of the Paris Agreement, and whose emissions can hardly be put down to one country or another.

In 2016, the International Civil Aviation Organisation, dubbed OACI, therefore adopted an offsetting programme called CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation). This programme is supposed to enable the organisation to achieve carbon neutrality by 2020 through offsetting and to halve its emissions by 2050 compared to 2005. This target seems very ambitious in view of the evolution of traffic. Many airlines in 2019, have witnessed an improvement in carbon intensity of their operations (Turkish Airlines, Lufthansa, JetBlue etc.) which is far from offsetting the increase in demand. As a result, global aviation CO_2 emissions have risen by 32% over the past five years, reaching a total of 900 million tonnes of CO_2 in 2018 (ICCT, 2019).

In maritime transport, the 173 member states of the International Maritime Organisation (IMO) agreed in April 2018, to reduce their greenhouse gas emissions by 50 per cent by 2050, compared to 2008 levels. While the current trajectory shows that this target is not about to be met, some companies are making progress, such as Maersk, which has reduced its emissions by 41% since 2008. In Norway, civil society's contestation and the increasingly stringent legislation on GHG and air pollutant emissions from ships are prompting companies in the sector to quickly convert their ships to hydrogen and electricity (see 2019 case study).

Cement, that accounts for around 6% of GHG emissions, is interesting, and we mention it for the first time. Cement manufacturers have launched several initiatives. Created in 1999, under the auspices of the *World Business Council for Sustainable Development,* the *Cement Sustainability Initiative* was taken over in 2019 by the *Global Cement and Concrete Association*, that was initially created by 38 companies in early 2018 and represents about one-third of global production. The Association published recommendations for emissions accounting in October 2019 (GCCA, 2019). To date, the only progress recorded is a 1% decrease in the carbon intensity of global production between 2014 and 2018, a rate that must be doubled in order to meet the goals of the Paris Agreement.

Citizens: mobilisation, legalisation, and behavioural changes

In 2019, mobilisations around climate issues really took off. In response to the upsurge in extreme events, the publication of reports highlighting the impacts of climate change on topics as diverse as health, food security, migration flows, and the alarmist projections of many scientists in recent months, climate marches, school strikes and other challenges to specific projects have thrived. Citizens and especially young people are now in the forefront through movements such as Youth for Climate or Extinction Rebellion and are rebelling against the delay in the fight against climate change for which they hold states responsible. Greta Thunberg is undoubtedly the non-state actor of the year.

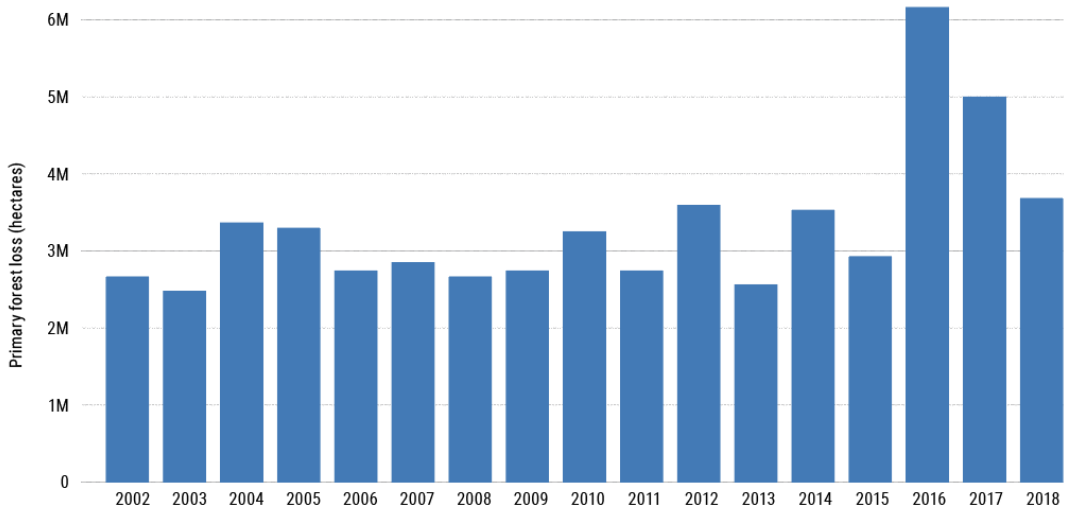
Mobilisation of citizens also resulted in climate-related legal affairs: a trend that we highlighted last year, notably buttressed by UNEP in 2017, and which has been strengthened this year. Disputes between citizens and States over their inability to respect their political and legal commitments to reduce emissions or adapt; there are also disputes between cities and States, and disputes led by cities against the European Commission or against companies in singled out sectors (such as oil companies).

By 2018, there were more than 1,000 litigation cases in 25 countries, including over 600 in the United States alone. German farmers opposed the Berlin Administrative Court on the grounds of non-compliance with the 2020 targets, the sharing of European efforts (Effort Sharing Decision) and the Paris Agreement. In November 2018, the Quebec collective *Enjeu* filed an application in the Superior Court seeking recognition of the federal government's infringement of several rights protected by the Canadian Charter of Rights and Freedoms (right to life, right to security of the person, right to live in a healthy environment that respects biodiversity, right to equality).

But the question is also to analyse the impact of these court decisions. In December 2018, the European Union Court ruled in favour of the cities of Paris, Brussels and Madrid, noting that the Commission could not relax the limits on nitrogen oxide emissions and derogate from the Euro 6 standard by raising the cap and allowing diesel cars to exceed the maximum level of nitrogen oxide emissions allowed. In our 2018 Synthesis Report, we highlighted the landmark court decision of the Colombian Supreme Court, which declared the Amazonian forest a "subject of law" and required the Colombian State to implement concrete measures for its protection, including the creation of an "Intergenerational Pact for Life in the Colombian Amazon" (Pacto Intergeneracional por la Vida del Amazonas Colombiano-PIVAC). One year later, as the deforestation of the Colombian Amazon remained out of control and the measures ordered by the court decision had not been implemented (El Espectador, 2019), Colombia signed last September, with six other Amazonian neighbouring States, the "Leticia Pact" by which they committed themselves to effective measures for its protection (Mongabay, 2019).

FIGURE 2

GLOBAL ANNUAL TROPICAL PRIMARY FOREST LOSS (HECTARES) - *Source: Global Forest Watch, 2019*



The decision taken in 2015 in the landmark case between the NGO Urgenda and the Netherlands, ordering the authorities to reduce their emissions by at least 25% by 2020 (despite the EU's 20% target), was confirmed in October 2018. The Dutch authorities have announced that they are appealing to the Court of Cassation, while specifying that this procedure has "no impact on the government's commitment to reduce CO_2 emissions by 25% by 2020".

Other mobilisations by NGOs and residents have also presented brilliant results. For instance, the several coal projects were abandoned, including the Mong Kok coal mine project in Burma (Myanmar Times, 2019), the Celukan Bawang power plant in Indonesia (Chinadialogue, 2019) and the Merrimack power plant in the United States (ABC, 2019).

But beyond these challenges, citizens are changing their own behaviour: the "Meatless Mondays" that first started in 2003 in the United States had a snowball effect, taking place in the canteens of schools, campuses, hospitals, etc. in 40 different countries. In terms of transport, it was in Sweden that the Flygskam (literally, "shame to fly") was born, accompanied by the "staycation" trend (staying in your city for the holidays). Closer to home, the 4.7% decline in private car transport in Ile-de-France since 2010 is a striking sign. Globally, the first ever drop in new car sales, as well as the strong growth of single-electric light vehicles (ELVs) in cities around the world, are also weak yet encouraging signals.

Carbon neutrality: the right compass?

The concept of carbon neutrality, barely mentioned in the Paris Agreement, has since then entered many legislations. It is now France’s target, since the Energy-Climate Law was voted in November 2019. At European scale, the 28 have not yet reached any agreement on this objective, but it is already largely shared by many non-state actors, in particular by local governments (Bristol, Paris, Copenhagen, etc.) and private sector actors. During the Climate Action Summit in New York in September 2019, more than 100 cities joined 77 countries and 93 companies to commit to carbon neutrality by 2050, i.e. a net-zero balance between GHG emissions and absorptions.

Ambitious is the intention and may be seen as a real willingness to respond to what is at stake with climate change. But this 2050 carbon neutrality target is also an open door to the temptation to postpone indefinitely effective choices on the gross cut of emissions, to the benefit of mere narrative on bright horizons… This is precisely the ambition of Climate Chance Observatory’s Synthesis Report, to analyse the reality of actions taking place right now, as in a race against time any delay can hardly be caught up.

Key takeaways from the Sector-based Book

Electricity production – Changes in the sector yet to deliver results

In 2018, the fall in carbon intensity in the world electricity mix was more than compensated by demand and entailed an increase in emissions by 2.5%. The electricity sector emitted 13 billion tonnes of CO2 equivalent, higher than the past record dating back to 2013.

Energy policies are still globally contradictory, with a significant increase marked on one side by subsidies for fossil fuels, and on the other, by support schemes for renewable energies that are attempting to adapt to the rapid fall in costs.

Many historical companies are facing major difficulties and are trying to restructure, often by moving away from fossil fuel activities. At the same time, the rapid evolution of technologies and business models is encouraging the emergence of new entrants.

Local authorities have significant means of action in their local areas and are often ahead of the top echelons in terms of renewable energy development and energy saving.

When a regulatory framework and favourable economic models exist, the diffusion of renewable energies helps citizens, alone or in cooperatives, to regain responsibility over electricity production.

Transport – Two Steps Forward, One Step Back

In 2018, global transport emissions raised by 1.2%, i.e. its lowest increase since 2011. Asia is the driving region of global transport demand and emission, recoring a 3.4% surge in emissions from 2017 to 2018.

For the first time in the last decade, global vehicle sales reduced by modest -0.6% when compared with 2017. There is growing momentum for banning diesel or high-emitting vehicles (Bristol, London), maintain bans despites political shifts (Madrid) or limit urban sprawl to reduce motorised transport demand (Onagawa).Passenger transport in cities is at a cusp of a new disruption – shared mobility.

Recent years' fuel economy improvements of new cars have slowed down due to the rapid decline of diesel car sales and growing consumer demand for bigger, high-emitting cars (SUV). Policy support for increasing the share of biofuels in road transport remained relatively static, but electricity is increasingly becoming the "fuel" of choice in the transport sector. Japan is also investing a lot in hydrogen-fueled vehicles.

Global railway network has known in 2018 its greatest expansion in the last 20 years with a 0.9% increase. Despite carrying about 8% of total transport demand in passenger-kilometre and tonne-kilometre travel respectively, railway emitted less than 3% of transport carbon emissions. Electrification of railways records heights in Asia and Russia, especially in passenger transport. However, railway network expansion and mode shift from roads and aviation for passenger and freight transport have remained limited.

While the aviation industry plans a carbon-neutral growth from 2020 (CORSIA), global aviation's flights, fuel consumption and CO_2 emissions have been quickly growing from 2017 to 2018. Aviation transport demand is steadily expanding in most regions of the world. GHG emission have risen by 32% over the last 5 years. Some "weak signals" appear though: more and more carbon efficient airlines; Sweden's demand for flights is on the slope; Norway has set biofuel use target in the industry. However, current trends keep far off track 2050 targets.

Although having peaked in 2008, international shipping carbon emissions are back on the rise in 2018, following a growth in merchandise trade volume and shipping capacity. However, stringent upcoming environmental regulations around air pollution and carbon emissions necessitate major technological shifts and new sets of policy instruments in the shipping industry. Some of the major ports of the world are now leading efforts applying environmentally differentiated port fees

Building – Orchestrating the building sector's actors to decrease emissions further

Buildings of all types contribute almost 39% of global greenhouse gas emissions and 36% of global final energy use in 2017 (GRS, 2018). If overall emissions of the building sector are decreasing since 2016 thanks to the power sector's decarbonisation, direct GHG emissions of residential and tertiary have increased respectively by 4% and 3% from 2017 to 2018. (Enerdata).

Energy use keeps growing, by 5% between 2010-2017, mainly due to rising electricity demand (space cooling and appliances). Improvements in building envelopes and system performances are not fast enough to offset strong population (9%) and floor area (17%) growth (Global Status Report, 2018).

There is a considerable potential to reduce those emissions and thus contribute to meeting long-term climate objectives through the improvement of the energy performance of both new and existing buildings. Building codes only exist in 69 countries (not always covering the entire buildings sector), and building certification programmes in 85 countries. Both are mostly voluntary but increasingly depend on regulatory policies.

Local governments, businesses, and research actors address the fragmentation of the building sector to enable the implementation of regulations: public-private consortiums, replicable solutions (ex. Renovation passports). They facilitate together several platforms: CLASP, Building Efficiency Accelerator (BEA), BuildUpon, GABC etc.

Cities play a major role in the coordination of local sectors, tending to ensure a public service for renovation/building, by informing, certifying private provisions, and co-financing citizen-led projects. This coordination is sometimes ensured by business associations like in New-Zealand or Denmark.

Initiatives such as EP100 or Clean Energy Ministerial (CEM) give an overview of companies' efforts towards reducing GHG emissions of the building sector. The Green Buildings Councils, independent organisations composed of the building sector's professionals, support companies in 70 countries and through more than 50 identified assessment tools.

Industry – Awaiting technological breakthroughs

There is often a lack of data to assess emissions from sub-sectors, with estimates diverging significantly depending on the assumptions and perimeters used. Cement remains the 3rd largest source of CO2 with fossil fuel combustion and land use (from 1.5 to 2.2 GtCO2 in 2017), and the chemical industry is the one with the highest consumption of petroleum products (1.25 GtCO2 in 2017).

Short-term emission gains can be achieved through the dissemination of good practices or more efficient technologies, but achieving long-term objectives generally involves technological breakthroughs that are still very uncertain and lack maturity. However, few actions seem to result from well-established diagnosis.

In cement plants, carbon intensity is improving. However, emissions can only be reduced by capturing carbon or reducing clinker consumption, and industry invests less in research and development than other sectors (6% per year).

The growing demand for chemicals, particularly plastics, is sparking an increase in the emissions from the sector. However, the priority for industries seems to be indirect emissions, at the use and end-of-life stage of their products, where actions are currently more implemented by end-user and authorities.

Waste – A sector led by local action under international tension

Solid urban waste (the only reliably measurable type of waste) represents 5% of global emissions, it is mainly generated by poor management techniques: decomposition in open landfills, open burning… Only 19% of the approximately 2 billion waste products produced worldwide each year are recycled.

Taken aback by South Asian governments' bans on the import of foreign waste, North American and European cities are adjusting their treatment capacities in a hurry. In China, the loss of imported waste is pushing the State and large cities to

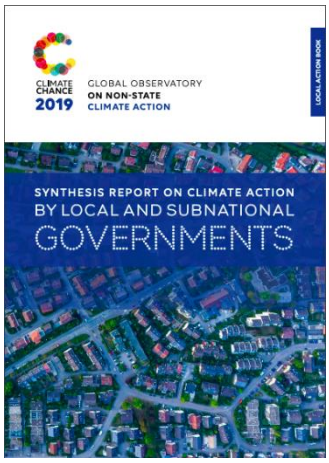
enhance and foster recycling practices to feed treatment plants (currently under-exploited) with local waste. Under pressure, the international community amended the 1989 Basel Convention, reclassifying plastics as “hazardous waste”.

By sanctioning Apple and Samsung for planned obsolescence in October 2018, the competing Italian authority provided legal support to calls for extended manufacturer responsibility in the digital sector. Although barely operational, the voluntary commitments that were later made by GAFA – as well as those from the e-cigarette sector – do not signal much progress towards a more circular electronic economy. In the food industry, the fight against food waste is morphing into a growing market for new, evolving platforms (TooGoodToGo, Phenix…).

In Europe, “zero-waste” movements are transforming domestic lifestyles and are in certain cases beginning to form activism groups (PlasticAttack). In Russia, unprecedented local mobilisations take place against reforms of deficient treatment circuits. In Latin America and in Africa, “informal collectors” formally gather in cooperatives.

Land use – Pressure on forests is not easing, but the mobilisation of stakeholders is intensifying

A total of 12 million hectares of tropical forests perished in 2018, a smaller number than record years 2017 and 2016 that were marked by unprecedented fires (Global Forest Watch). The signatories of the New York Declaration will not be able to achieve their 2020 target for reducing by half the rate of deforestation. Although Bonn aims to restore 150 million hectares of degraded land, it also generated many commitments from governments and companies, only less than one fifth of them are being implemented on the ground.
The IPCC’s special report on land use was a flagship report in the sector’s scientific news in 2019, and established some key facts: while ¾ of the land surface is exploited by humans, soils currently absorb 29% of anthropogenic CO2 emissions, notably via forests, peat bogs and mangroves, whose destruction generated 10 to 15% of CO2 emissions per year.
The upsurge of forest fires this year, in Brazil, Bolivia, the Democratic Republic of the Congo and in California has continued to alert public opinion. After having reduced logging to its lowest level since 2003, the effectiveness of Indonesia’s measures against deforestation is being undermined by the major fires in 2019.
More than one in four voluntary carbon offset projects focus on land use. However, monoculture plantations, afforestation and low attention to biodiversity raise questions about their effectiveness. None of the world’s 350 largest companies will be able to achieve the target of eliminating deforestation from production chains by 2020, to which 57% of them have committed themselves (Forest 500). The labelling and monitoring of projects is therefore essential to avoid the “malformations” against which NGOs and citizens are fighting, like in China and Ireland.



Local Action Book – Synthesis report on climate action by local and sub-national governments

2019 global trends and context

Local and subnational governments have shown in 2019 a political and concrete mounting contribution to the global efforts in the fight against climate change. Over 1,180 local governments representing 290 million inhabitants, have recognised, acknowledged or declared a "climate emergency" via a formal binding resolution that explicitly mentions the "climate emergency" (CEDEMIA, 2019), including 467 Quebecan cities, major cities such as Sydney, Dublin, Paris, Milan, Prague etc. German cities have sent an open letter to Chancellor Angela Merkel asking for state support to carry out the actions involved in the climate emergency (ICLEI 2019). In addition, 16% of the global GDP is covered by net zero emissions targets set by nations, regions and cities, according to a new analysis called "Countdown to Zero: Plotting progress towards delivering net zero emissions by 2050" published by the Energy and Climate Intelligence Unit (ECIU). In Europe, mayors from 2010 cities (representing 62 million EU citizens) issued in May 2019 an open letter calling for the European Council to commit to a new long-term climate strategy including the achievement of a net-zero emissions by 2050 (which EU leaders failed to adopt in June), a swift energy transition, and the end of fossil fuel subsidies (CitiesToday, 2019).

The growing amounts of research and studies related to urban and climate issues, as well as the multiplication of grassroots movements, greatly explain their willingness for climate action. By 2050, 77 per cent of cities are highly likely to experience the temperature and rainfall patterns now associated with equatorial regions and 22% projected to suffer conditions never before seen in any city on Earth (Bastin, F et al., 2019). The research predicts that Madrid's climate in 2050 will resemble Marrakech's climate today, Stockholm will resemble Budapest, London like Barcelona etc. The IPCC Special Report on Global Warming of 1.5°C remind us that despite the political leadership of Global North cities, the disruption of basic social and economic activities IPCC, 2018). Population are raising their concerned across the globe have thus pressurized national and local governments to take bold actions, from mere demonstrations until civil disobedience. Grassroot movement like Fridays for Future (schools strike movement) or wider movements such as Sunrise Movement or Extinction Rebellion counts now groups in every continent, and contribute to bring climate issues into communities, civic and political affairs, and a main thrust of election campaigns.

Subnational governments leadership is eventually motivated by the increasingly apparent interstice of climate (mitigation and adaptation) and development agenda within urban areas and the importance of a human-scale designed urban planning, illustrated by several data facts (World Bank, 2019) : 70% of the global population expected to live in urban areas by 2050, cities account for 70% of global carbon pollution (C40), 90% of people worldwide breathe polluted air (WHO, 2018), and 1 billion of people live in slum conditions (United Nations Human Settlements Program) etc. The trajectory of 3 major trends needs to change significantly in urban areas to reach the targets agreed in the Paris Agreement, Sustainable Development Goals and New Urban Agenda (fig. 1), mostly contain urban sprawl, secure decent housing for slum dwellers and reduce carbon emissions to net zero.

REACHING 3 GLOBAL MEANS MAJOR CHANGE FOR CITIES - *Sources: Angel Hsu et al., 2011; Oxford Economics, 2015; UN DESA, 2014; UN Habitat, 2016; World Bank, 2017. From: WRI, "Reaching 3 Global Goals Means Major Change for Cities")*

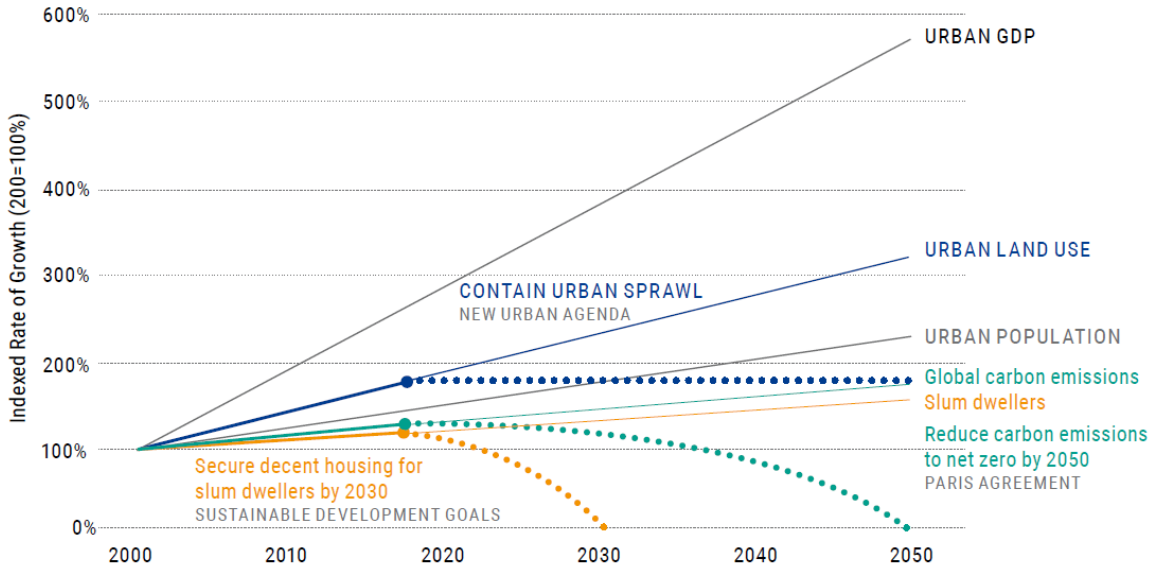


Table 1: Reaching 3 Global Goals Means Major Change for Cities (Sources: Angel et al., 2011; Oxford Economics, 2015; UN DESA, 2014; UN Habitat, 2016; World Bank, 2017). WRI, "*Reaching 3 Global Goals Means Major Change for Cities*"

Many studies thus place cities at the core of country's GHG emissions reduction strategies and Nationally Determined Contributions (NDCs). The conclusions of these studies, compiled in *"Climate Emergency, Urban Opportunity"* (Coalition for Urban Transitions, 2019), defend the idea that technological and organisational solutions already exist and could reduce GHG emissions by 90% while meeting populations' socio-economic needs (access to basic services, employment, etc.). While the report focuses more on convincing of the economic, social, and environmental policies of these solutions by 2050 (USD 34 billion), it points out that currently, only 2 countries out of 5 have a national strategy for cities, and only 7 countries have both National Urban Policies and NDCs that include mitigation actions in cities.

Rather than "bridging the gap", the ability of local governments to implement low-carbon and resilient development needs to be more deeply integrated into multi-level climate governance (H. Fuhr, T. Hickmann, K. Kern, , 2018). It means, concretely, integrating their climate planning process in higher level of government's ones, and for national and intermediary authorities to show concrete policy, technical and financial supports towards local and subnational governments.

Contradictory positions can hinder climate actions and weaken bold statements, both from local governments and actors. NGOs remind that "too often, we've seen cities declare an emergency and then back climate-wrecking policies like airport expansion" (SmartCities World, 2019), or can be opposed by actors such as the Canadian Plastic Bag Association that recently won a round in Victoria, B.C. after the provincial Court of Appeal ruled unanimously that a local bylaw was beyond municipal jurisdiction (Energy Mix, 2019). These example shows the importance of further dialogue between local governments, with private and civil society actors, but also shows the support required by federal or national policies to ease cities and regions action. Partnership" may mean simple goal alignment, doing your part to cooperate with explicit city initiatives. Or it may involve more proactive and complex collaboration such as the Business Council on Climate Change (BC3) in

the San Francisco Bay Area, formed 10 years ago to bring business into conversation with the city (Greenbiz, 2019).

Global figures of cities and regions commitments confirms the climate momentum over the world but do not capture the diversity of climates action occurring in in underrepresented regions, or are not formally institutionalised. As part of the CAMDA working groups on methodology, data, and analysis on non-state climate action, aggregated climate commitments by cities and regions. The 2019 "*Global Climate Action from Cities, Regions and Businesses*" report found +6,000 cities and regions making quantifiable commitments to reduce GHG emissions in 9 high-emitting countries plus the EU , with an average emissions reduction target of 27%, "reflecting the short-term (-2020) nature of most of the targets." (Yale Data Driven Centre, NCI, PBL Netherland, 2019). Beyond targets, encompassing their achievement remains a challenge, and the report preferred assessing international cooperative initiatives (ICIs) and their output performance : out of the 190 initiatives, 170 are considered "active" as of mid-2019, in which sub-national governments and businesses account for the lion's share of participation with almost 40% of ICIs' membership each, with state, international organizations, and research bodies making up the rest. Few ICIs are very large and the median number of participants actors in an initiative is 39.

The Climate Chance Observatory through its 2019 "Book on Territories" brings complementary and qualitative analysis of cities and regions that aligned their public policies to achieve climate (mitigation or adaptation) and energy goals, stimulated local economies, local food systems, and citizens tailored solutions.

Key takeaways from the "Local Action Book"

1° Few new aggregated results in terms of reduction of emissions are available at the scale of initiatives and networks of communities.

As part of the Covenant of Mayors in Europe, 300 new monitoring plans were issued in 2019 by European cities, reaching a total of 2,850. These plans allow the monitoring of the implementation of climate plans submitted by the signatories of the Covenant; however, the aggregation of these new data is not available yet.

The 124 regions that reported their data to the CDP between 2015 and 2019 under the Under2 Coalition initiative show an average reduction of 14.2% of GHG emissions, +3,500 initiatives implemented and represent 670 million inhabitants. Several regions around the world are performing better: the State of Mexico -22%; South Australia -20%; or Attica -25%.

For cities, the CDP data make it possible to assess the evolution of their emissions on a caseby-case basis. We have identified 10 cities encouraging trajectories thanks to the last 4 years of city reporting: Stockholm -30%; London -23%; Madrid -10%; Cape Town -7% etc.

Finally, 4 new cities in the C40 network were able to show that they had reached their peak emissions by providing the data needed to establish a continuous decline over 10 years. At the same time, the C40 has calculated that consumption of 79 cities in its network amounted to 3.5 GtCO2e, 60% more than city-wide emissions (2.2 GtCO2e), meaning that two-thirds of their emissions are due to imports

2° The pace of cities' adherence to global initiatives is slowing, but the commitment extends to all continents and through various tools and frameworks.

The launch of many Regional Covenants did not achieve a similar pace of accession as those observed at the launch of the European Covenant of Mayors. Nevertheless, the initiative is progressing on all continents, with 1,411 signatory cities (600 million inhabitants) outside the cities of the EU and Western Europe, including 172 cities in Sub-Saharan Africa (112 million inhabitants).

A similar finding on the part of the regions: the pace of new regions joining the Under2 Coalition and the RegionsAdapt initiative and

reporting their emissions slowed down (+4 in 2019, against 10 in 2018 and nearly 50 in 2017) but are progressing in Latin America and Africa. As for RegionsAdapt, the initiative has acquired a new member in 2018.

The dynamism of cities and regions in Latin America is particularly notable. 343 cities (298 million inhabitants) committed themselves to the Global Covenant of Mayors and handed over 60 additional inventories in 2018. The Latin American regions published 12 new inventories in 2018, the largest increase between continents.

3° In some countries, the lack of contributions to these initiatives hides intense activity.

Adherence to international initiatives does not necessarily reflect the activity of cities and regions in countries, subject to national obligations, or benefiting from national tools and mechanisms. For example, of the 1,700 communities in the Philippines that are required by national legislation to formulate a local action plan, more than 1,000 have fulfilled their obligation now, but few of them report on international platforms. Similarly, in Korea, in 2015, 210 out of 240 cities had already submitted their Local Agenda 21 for Sustainable Development, which had been required by law since 2008. In many of these countries, international initiatives of cities come to support existing actors and their tools, through workshops or the dissemination of good practices.

4° A growing importance is given to adaptation in climate policies and the reporting process of local governments.

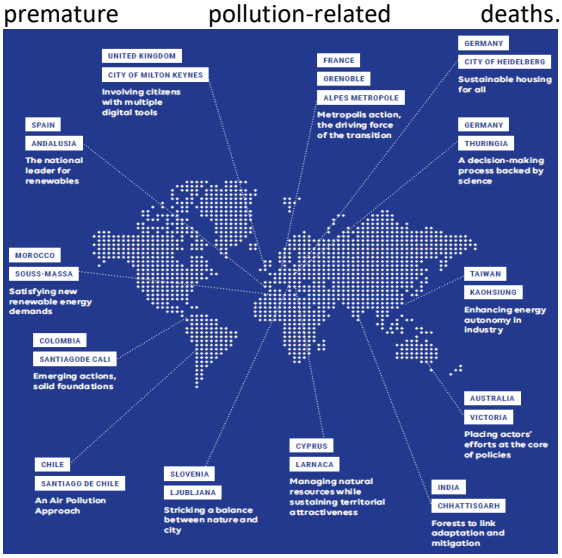
On the regions' side, the RegionsAdapt initiative now has 71 members. In 2018, 38 reported their data on risks and vulnerabilities to climate change, but also 165 adaptation actions, mostly on risk monitoring, awareness and planning. Half of them now have an adaptation plan.

On the city side, the signatories of the various Covenants of Mayors have reported a total of 238 adaptation plans since their launch, most of which come from North America (31). ICLEI's 2018 analysis of more than 1,000 cities on the carbonn Climate Registry provides insight into the state of play of cities in implementing adaptation strategies: only 21% of communities have started a process of strategy formulation, and 9% have reached the stage of implementation. 70% of the adaptation actions are financed by communities' own funds, illustrating the additional potential of action that could be implemented thanks to more external funds.

For an in-depth analysis of the adaptation actions implemented by the communities, go through the "Adaptation Book" which draws up a 2019 assessment of adaptation actions.

5° Many reports in 2019 seek to promote job creation and socio-economic impacts.

These studies stress the importance of socio-economic and health co-benefits, to show that these gains are well above the additional cost of low-carbon solutions. Some even try to quantify these gains: *Climate Opportunity: More Jobs; Better Health* estimates that building renovations, bus networks and district heating and cooling together can reduce carbon emissions significantly (1,242 MtCO2), create 13.7 million jobs, and avoid 300,000 premature pollution-related deaths.



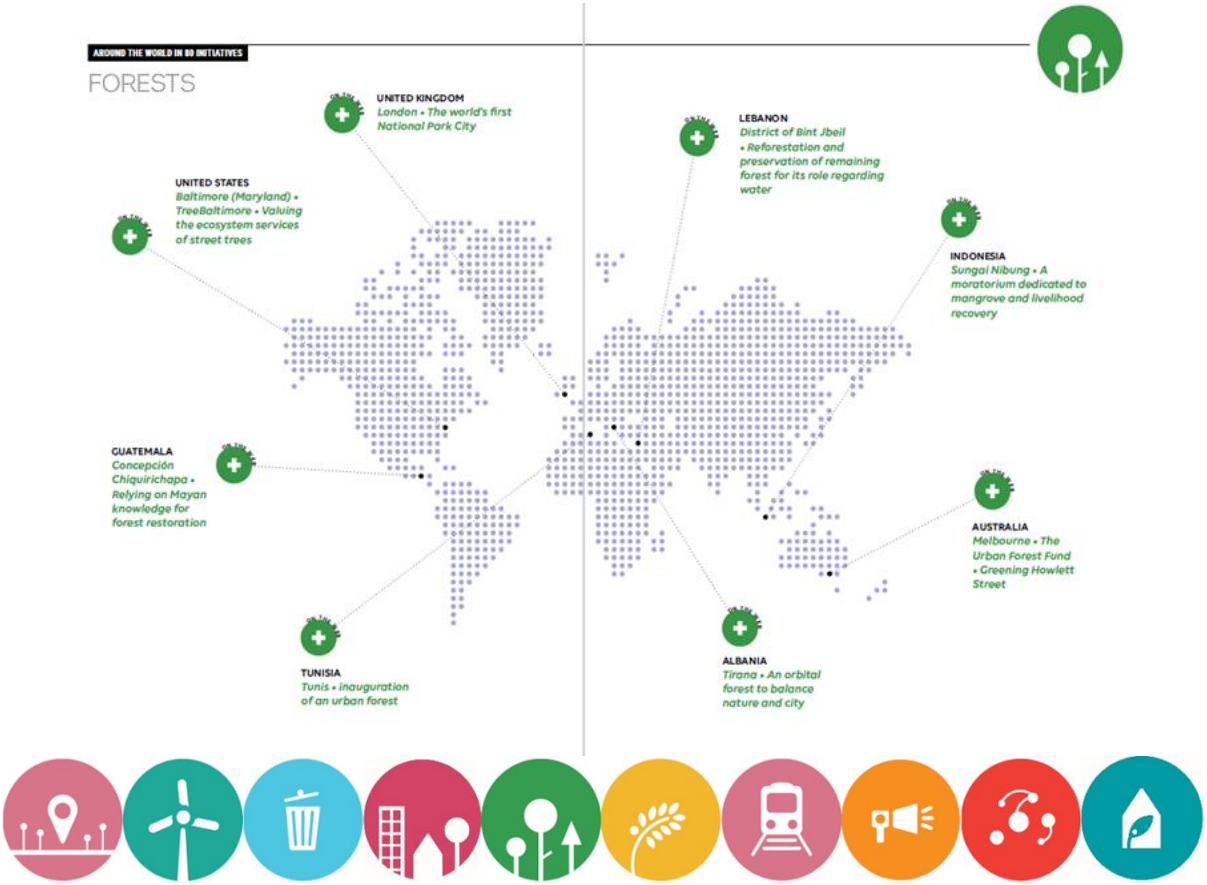
Other examples also show that climate and development are mutually supportive. "*Driving Climate Action: State Leadership in India*" concludes that the 10 best-performing Indian federal states in terms of climate action (emissions per person, renewable rate, forest cover) are also those with the best socio-economic indicators (revenues by residents, access to essential services).

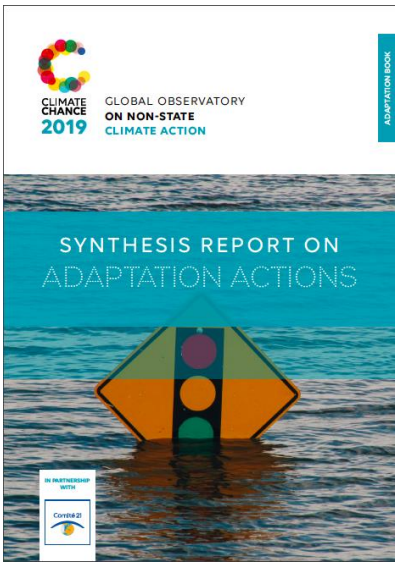
6° 13 new case studies of cities and regions (Section II) illustrate how the alignment of local public policies to implement adaptation and mitigation objectives allows significant results in terms of GHG emissions, energy consumption but also forest cover, modal shifts, or the ability to collaborate with local stakeholders and citizens.

7°Analyse climate actions in view of the Sustainable Development Goals (Section III)

The Report of the Secretary-General on SDG Progress 2019 already stated that "many local governments systematically took the initiative to implement SDGs, going further than national governments in some cases". This is why the Observatory is now linking its selection of 80 remarkable climate initiatives, led by local public authorities, to the corresponding Sustainable Development Goals (SDGs) they address, in order to bridge the gap between climate action and socio-economic issues. The objective is to illustrate concrete action led by local authorities and to identify international trends within policy instruments and implemented policies.

An "Around the World in 80 Initiatives" across 10 maps and 10 topics: **urban planning, energy production, waste and circular economy, building, forests, agriculture and food, mobility, education, decentralised cooperation, and adaptation.**





Adaptation Book – Synthesis of adaptation actions

2019 Global trends and context

2019 was landmark for climate change and leaves us with one thing to be certain: our societies are already facing a change in climate conditions that is deep enough to force us to adapt our socio-economic systems to it in the medium and long term. This July was the warmest month ever recorded in the world since weather records began. As we are writing this now, the European Copernicus programme reports that October was the warmest October on record, 1.2°C above pre-industrial temperatures (Copernicus, 2019). Published during the Climate Action Summit in New York, the latest report of the World Meteorological Organisation shows an increase of 1.1°C in the global average temperature between 2015 and 2019 compared to the averages between between 1850 and 1900 (OMM, 2019). Month after month, year after year, climate records follow one another and break records.

Current events confirm, if there were still a need, the physical reality of these changes. What strikes us first is the acceleration of the occurrence of extreme climate events. While their isolated existence cannot be attributed solely to climate change, their increasingly frequent occurrence confirms the predictions: such events are becoming the norm. In California, one year after the historic Camp Fire, the region has once again been affected by 14 simultaneous fires, forcing the evacuation of over 180,000 people in 48 hours, cutting off electricity to nearly 2 million people and destroying many hectares of land and buildings. Historically, located in southern California, these fires now threaten the entire state. In northern India, in the Kerala region, floods caused 140 deaths this summer, while the region had already experienced up to 164% above normal rainfall in August 2018 (ReliefWeb, 30/09/2018). In Mozambique, the city of Beira was completely destroyed by Cyclone Idai last spring, and more than 146,000 people were displaced (OCHA, Mai 2019). In total, during the first half of 2019, 7 million people were displaced due to extreme weather events, according to calculations by the International Displacement Monitoring Centre: a new record (IDMC, September 2019). 62 million people had been impacted by such events in 2018 (OMM, March 2019).

On top of the number of human and material losses caused by these spectacular events, **this year also saw the fundamental impact of climate change on socio-economic systems.** Agricultural yields and sustainability are particularly vulnerable. In Europe, wine production plummeted by 15 % between 2018 and 2019. This is due to "random meteorological conditions" according to the International Organisation of Vine and Wine, which complicate wine growers' expectations (Novethic, 01/11/2019). The same case occurs in Central America, where the instability of weather conditions over the past two years in the "dry corridor" covering El Salvador, Guatemala, Honduras and Nicaragua has caused nearly 2 million farmers to lose their harvests, forcing them to sell their land, livestock and move away (Relief Web, 2019 ; The Conversation, 2019). Unpredictable weather projects uncertainty on local activities that are directly dependent on seasonal variety.

This list, which is not exhaustive, is doubly instructive. First, it is a good reminder that climate change is universal: its effects are felt in all region across the globe, and despite a persistent lack of interest in adaptation, even developed countries that are less vulnerable will have to confront and respond to it. Secondly, the effects of climate change discriminate against the most vulnerable populations.

Lastly, the diversity of manifestations of climate change observed this year and their impacts on human societies all call for the localization of adaptation strategies. Bringing public policies into line with adaptation objectives is essential to prepare living environments and economic sectors for the changes already underway. A planning effort must therefore be put in place at national and sub-national levels, in consultation with economic actors, to organise the adaptation of socio-economic systems in the medium and long term. **Some countries have been noticed for their planning efforts: Portugal presented its first national adaptation plan, France renewed its plan, Kiribati published an update of theirs and Uruguay launched an adaptation plan specific to the agricultural sector (NAP-Agro)**.

Nevertheless, adaptation policies "*suffer from a persistent lack of recognition and legitimacy*", as pointed out in France by the report of the delegation for strategic foresight of the Senate (Sénat de la République française, 2019). However, there are many benefits stemming from joint implementation of mitigation and adaptation strategies. **The first report issued by the Global Commission on Adaptation attempted to assess the cost-benefit ratios of different types of adaptation**, in comparison with the costs of non-adaptation. Outcome: 1 USD invested in adaptation is likely to generate 2 to 10 USD of net economic benefits (GCA, 2019). The Commission therefore calls for a triple revolution in understanding, planning and financing to boost political investment in adaptation. During the presentation of the report at the Climate Action Summit, 75 national governments, multilateral banks, civil society and private sector actors committed to eight action tracks with specific objectives: finance and investment, agriculture and food security, nature-based solutions, water, city, location of action, infrastructure and disaster prevention.

In this context, this Adaptation Book co-authored by Climate Chance Observatory and the Comité 21, proposes to assess the extent to which a culture of adaptation is being disseminated among non-state actors. Since adaptation must be local, it is necessary to understand the broad underlying trends that drive one's community of practice, but also to observe the extent to which adaptation is able to integrate into the daily political, social or economic choices of the actors as a whole. Review of the key takeaways of this Book:

Key takeaways from the "Adaptation Book"

• **With little support in Katowice, adaptation still does not receive the equal attention to mitigation that it has been promised since Cancún.** The creation of the Global Commission on Adaptation, at the start of 2019, along with the release of its first report in September of the same year, signal a desire to boost political and financial investment in adaptation among international governance bodies.

• **Although the costs of adaptation for developing countries are constantly on the rise, the international community is still lagging behind with its financial commitments:** 463 billion USD for the climate in 2016, with only 22 billion USD for adaptation (= 4.75 %, Climate Policy Initiative, 2017), far from the initial commitment of 100 billion/year promised by developed countries. However, according to the Global Commission on Adaptation, the cost-benefit ratio of an adaptation investment can range from 2 :1 to 10 :1.

• **All studies on climate finance however, show a clear increase in bilateral and multilateral funding for adaptation since 2016.** South-East Asia was the first recipient country. In particular, North-South flows benefit from the global rise in climate funding for developing countries. However, these amounts remain limited to small absolute volume, and in proportion to what mitigation receives, they are far from marking a change in the scale of adaptation financing. Bilateral institutions such as UKAid, or multilateral ones like the Green Fund, are still aiming for 50% for adaptation funding.

• The development of markets and guarantees for green assets must make it possible to redirect private investment towards adaptation, notably for the least developed countries (LDCs) while reducing the financial sector's exposure to the physical risks to which their assets are exposed.

• **In a context where the number of funds dedicated to adaptation is constantly growing and private investors' reluctance to take on high country-risks, clarifying criteria and consolidating monitoring tools can facilitate the financing of adaptation in the LDCs.** Lacking common metrics and standard methodology for evaluating adaptation projects, it is difficult to assess the impact of measures and monitor investments. AFD, the World Bank and Citepa have recently tried to develop universal instruments that can be adapted to local contexts.

• Key actors in local resilience, **there are more and more cities declaring their commitment to adaptation with networks and international climate initiatives**. However, all the academic studies that were produced since 2018 on cities' commitment to adaptation, show that less attention is paid to adaptation in local political agendas than to mitigation actions. With no binding regulatory frameworks (requiring local adaptation plans for example), voluntary action is still very minimal.

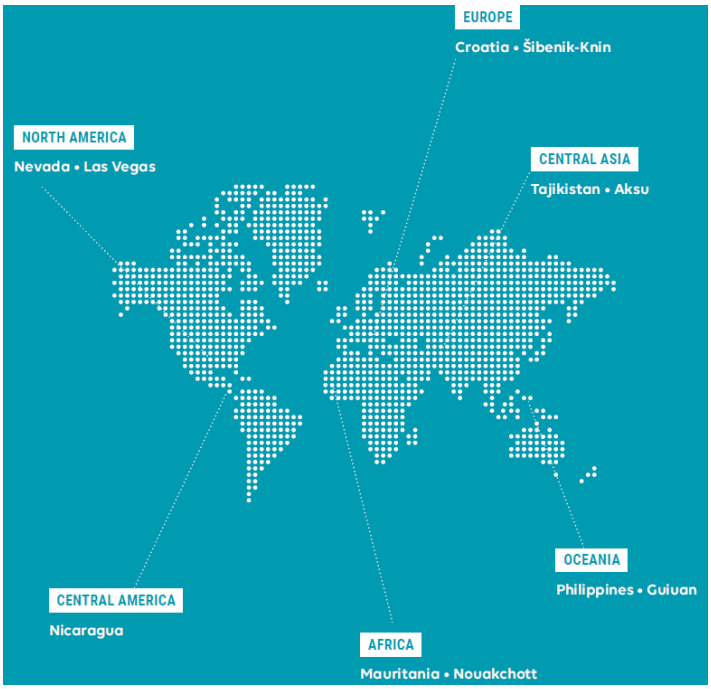
• **Action reports by local authorities present many continental asymmetries in a trompe-l'œil way.** While European and North American local authorities are the quickest to communicate their planning approaches and actions, many "silent adaptations" elsewhere in the world are not included in the aggregated data. Not listed as such, these actions are struggling to access funding. Latin American local authorities have been very active in their adaptation reporting in recent years.

• **In terms of action, cities are still struggling to get out of the diagnostic stage and enter the planning and implementation phases.** Policies implemented by local authorities tend to be polarised in regard to some visible risks (mainly when related to water) with a preference for well-identified "grey" adaptation measures, mainly located in urban areas.

• **The local adaptation of economic actors produces direct co-benefits for the overall mitigation of the sector**. This is the case in the agri-food, tourism or power generation sectors: reduction of demand and reorganisation of supply (less livestock, more proximity, decarbonation of electricity, etc.) are part of the same movement of holistic reorientation.

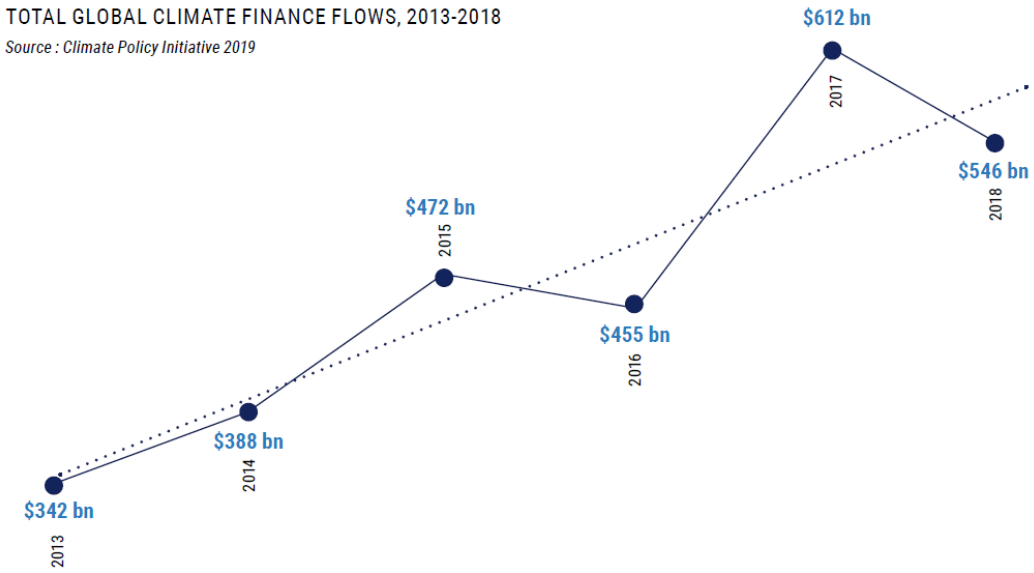
• **The range of adaptation strategies for certain sectors or services raises some ethical and political questions** : the use of GMOs in the agri-food sector, artificial substitutes for natural resources (synthetic grass, artificial snow, etc.) or even the construction of seawalls on fragile coasts… confirm that the adaptation of certain local areas is a matter of strategic choices and requires governance to open to all stakeholders.

Includes one case study per continent



Finance Book – Synthesis Report on Climate Action led by the financial actors

The 2018 Climate Chance report on the financial sector 1 made a complete, business-by-business, inventory of the levers for climate action available, and assessed the extent of mobilisation within the sector as compared to financing needs. The analysis and results therein remain broadly relevant in 2019. In quantitative terms, funding growth since the 2018 publication is weak or lacking. The purpose of this analysis note is therefore to describe the initiatives undertaken this year and to recall the most current orders of magnitude.



Key takeaways from the "Finance book"

Following in the footsteps of public development banks, several investors and private banks, generally banding together in coalitions, have committed since the end of 2018 to implementing strategies aimed at aligning their activities with the objectives of the Paris Agreement. Methodologies for giving concrete shape to these long-term projects are still in their primary phases.

Funding for the energy sector's transition remains woefully inadequate: investments in renewable energy must be doubled to comply with the Paris agreement. Bank financing for fossil fuels shows no sign of slowing, exception made for coal, where divestment is gaining ground. Investor pressure is, however, starting to drive high emissions sectors, particularly the oil & gas industry, to better take climate issues into account as part of their strategies.

Offerings of green financial products, such as bonds, investment funds and loans, continues to grow, but access by individual savers remains poor.

In the realm of financial policy, the European Union has made progress in carrying out an action plan for sustainable finance, which should include adoption of a taxonomy for classifying green assets. A growing number of financial sector supervisory authorities are conducting efforts to integrate climate risks into their work.

North/South climate financing reached $71.2 billion in 2017, compared to $58.6 billion in 2016. The first refinancing campaign for the Green Climate Fund, launched in 2019, secured $9.8 billion in new pledges from 27 countries to be filled over the next four years. Also in 2019, China began a process of greening its international 'Belt and Road' investment programme.

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