Climate Chance in partnership with Finance for Tomorrow
Contact contribution@climate-chance.org

CLIMATE CHANCE OBSERVATORY ANNUAL REPORT

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KEY FINDINGS

Global Observatory
of Non-State Climate Action
1st Edition 2018

In partnership with:

The past year has demonstrated the extreme gravity of the ongoing effects of climate change, and the Intergovernmental Panel on Climate Change (IPCC) has highlighted in its communication of October 2018 the considerable efforts to be made in the next 10 years to achieve the goal of stabilizing global warming below 1.5 degrees.

This first report from Climate Chance Observatory is part of this urgency to immediately strengthen action to limit impacts. Although the commitments are increasing, the evaluation of the work done is still weak and sector-focused. We are convinced that if we do not highlight the successes and difficulties of the actions taken, we will fail to multiply them and to remove the obstacles and inertia that prevent us to live up to the challenge.

Unique in its importance, this report highlights the impressive swarm of initiatives around the world, focuses specifically on territorial action and new financial tools, and crosses public policies and non-state actions. It is based on available data and studies in order to better understand recent trends in greenhouse gas emissions, which is a necessary step if we want to give credibility to scenarios of stabilization of global warming. This report hopes to contribute to the fight against climate-fatalism that would be mortifying for the future of our societies.

Ronan Dantec, president of Association Climate Chance

Contents

Full report available at the link below:

https://www.climate-chance.org/observatoire-de-laction/rapport2018/

✓ REPORT IN FIGURES

Close to **1 000** referenced sources
+ 500 initiatives and observed actions
+ 100 territories studied
24 sectorial analyses and country focuses
23 cities and regions case studies
A cover of the main sectors of emission

Book 1 – Sector-based Action
- 24 sectorial and country-focused papers of analysis
- 3 major sectors studied: Energy, Transport, LULUCF

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- Actors strategies, market innovations, public policies
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CLIMATE **CHANCE**

The Observatory's report: What is it?

1°) **An original work of synthesis, the most comprehensive analysis report on effective climate action**, based on the most recent studies. It is a "meta-report", so it does not produce any data or analysis, but seeks to synthesize existing data to analyse highlighted trends, readable beyond highly specialized circles. This is the only report of this importance to be published in both English and French.

2°) **A narrative allowing a quantitative and qualitative understanding of the evolution of greenhouse gas emissions, by crossing national policies and initiatives of non-state actors.** This report aims to determine where the most interesting dynamics are: impact of national legislation, territorial public policies, business innovations, mobilizations of civil society... By dividing this report into sectorial analysis sheets supported by country studies (Book 1), the Observatory offers learning supports for understanding emission trends. It gives a specific emphasis on the players in finance and to the evolution of their instruments, which benefit, like the territorial action, from a specific book.

3°) **A scalable toolbox to inspire national and local policy makers, both public and private**. In connection with "Climate Chance" Portal of Action, this report aspires to contribute to spread the multitude of experiments at work, as increasing climate action requires easy and educational access to information. It is a showcase for action: the increasing rise in greenhouse gas emissions conceals a multitude of initiatives at all levels. Without being exhaustive, this report illustrates the abundance of actions implemented over the recent period (2016 - 2018).

4°) **A steering committee**, made of representatives of the structures from the thematic coalitions that are supported by Climate Chance, as well as researchers and specialists, **identifies the countries and territories that are subject of specific yearly studies**, the results of which make it possible to illuminate particular dynamics. The writing of these fact sheets, sectorial or national, are **entrusted to structures or authors recognized for their expertise**, on the basis of specifications, emission data, notably those of Enerdata, and a bibliography provided by the Climate Chance Observatory. **Guaranteeing the independence and consistency of the report, the Climate Chance Association has reserved the revision and validation** of the final drafting. We encourage readers to respond to cards (reviews, additional data...) through a dedicated email address (contribution@climate-chance.org).

5°) A report widely disseminated to networks of non-state actors and government and international decision-makers. It will be **exclusively available online and it will be possible for the reader to download it piece by piece**, according to the themes and geographical areas that interest him.

KEY FINDINGS OF THE REPORT 2018

1°) A strong increase in greenhouse gas emissions in 2017, more than 2% for energy-related emissions, in contrast with a near stagnation of previous years. All major emitting sectors are affected by this increase (electricity generation, transport, industry). At the same time, the deforestation at a continuous rate is reducing storage capacity. 2017 is still far away from the climate stabilization trajectories proposed by the IPCC.

2°) Global growth, particularly in emerging countries, is a major factor in this evolution. For example, the Chinese recovery plan 2015/2016, with massive investments, particularly in infrastructure, has had an impact on the increase of emissions related to industries. The rapid electrification of India, with half a billion people connected over the past fifteen years, explains the massive use of coal-fired power plants. Conversely, the decline in Brazil's emissions is easily understood in regards of the deep depression in the country. Major European economies are experiencing a resumption of economic growth and an increase in their emissions (in Baden-Württemberg, for example, emissions from industrial production rose by 10.2%, pushing up those of freight).

3°) Despite this context, several national situations show that changes are underway. The reduction of emissions in the electricity sectors of different countries is thus to be underlined. In the United Kingdom, emissions are divided by 3 in a dozen years; in Germany, the renewable energies production shows that the country is beginning to phase out coal; in the United States, despite the president's pro-coal speeches, power plants continue to shut down. In the field of road transport, whose global emissions are steadily increasing, their regular reduction in some countries, as in Scandinavia (Norway, Sweden...) shows that this increase is not inevitable.

4°) This report is also a demonstration of the incredible multiplication of non-state initiatives on the vast field of climate and energy. These actions, at different levels, from strategies of international groups or large communities to experimentations of start-ups or rural territories, cannot be aggregated, but they give evidence of the importance of awareness and possible changes to come. This is the case, for instance, of the electric motorization, which benefits from many experiments on the road, railway or maritime sectors, but without having a real effect yet on the curve of emissions. The field of renewable energies, especially solar power, is also particularly active.

5°) Countries with best results are often those where carbon taxation has been established, the most spectacular case being undoubtedly Great Britain, where the share of coal in electricity production collapsed, following the introduction of a floor price of 18 pounds per ton of carbon. The reduction of road traffic emissions in Sweden must also be linked to a high level of carbon taxation (120 euros). On the other hand, the impact of the European auction system (ETS) on CO2 emissions is still subject to questioning. Subnational governments have also embarked on a carbon market. The

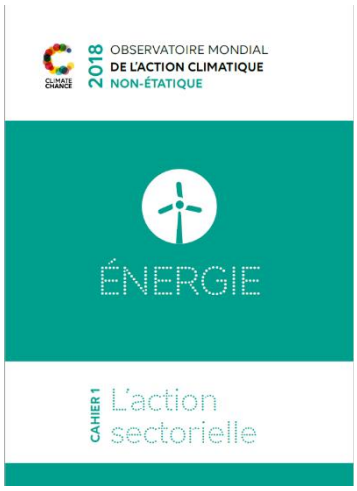
"Tokyo Cap-and-Trade Program" resulted in a 12.7% reduction in the emissions of covered entities in Phase 1. The Californian quota exchange system, coupled with the Quebec one, has become the second largest in the world in terms of generated revenue ($2 billion in 2017).

6° The issue of biofuels and especially palm oil needs to be thoroughly analysed. It crosses the evolutions of the land use sectors (LULUCF) and transport. Thus, while it is clear that palm oil remains a major factor of deforestation, particularly in Malaysia, it appears that a number of sectors are still seeking to increase its use. The biofuel used in Sweden for road or air transport, for example, uses palm oil residues, questioning the country's strategy to meet the climate challenge. While current oil production is already being absorbed by the agri-food industry, it is clear that the demand for biofuels would jeopardize efforts to preserve primary tropical forests, their biodiversity and carbon capture capacity. This example shows the challenge of a systemic approach to climate issues and not just silo and sector.

7° Territorial dynamics are asserting themselves: To date, few territories are producing and publishing a periodic monitoring of their emissions evolution. But measured and accessible progress is encouraging, demonstrating that political voluntarism and alignment of territorial public policy can result in large decreases in emissions in these territories. The very steady increase in the number of signatories of the European Covenant of Mayors in Europe is to be underlined, 32% of the inhabitants of the European Union are today concerned by an action plan of the convention.

8° A specific focus on Africa: The situation of the Kenyan electricity sector, backed by renewable energies, (hydro-electricity, geothermal, wind, solar, etc.), shows that low-carbon energy models are possible. The threats remain strong with the development of new projects for coal-fired power plants on the continent, which still get access to funding, but in opposition, generate strong mobilizations of civil society. The future of African forests is also a major concern, with challenges for certification and sustainable management: the Forest Stewardship Council (FSC) label has become mandatory in Gabon, while the Democratic Republic of Congo is suspended from CAFI (Central African Forest Initiative) leading to the departure of companies applying to this same certification. The increase in per capita emissions in a number of large African cities, which exceeds many European cities per capita emissions, also underlines the challenge of sustainable urban development. In this sense, the progress of the Covenant of Mayors for Climate and Energy in Sub-Saharan Africa (CoM-SSA) should be highlighted.

BOOK 1 « Sector-based Action »



ENERGY

Electricity and heat production accounts for nearly a quarter of global GHG emissions, with significant uncertainties, particularly on fugitive emissions. After a slight decrease in 2015, these emissions rose again: in 2017, they increased by almost 2%. This growth is linked to consumption, stimulated by economic growth in major emerging countries, and especially China and India, which account for 70% of the growth in demand. It is also related to the progress of electrification in Asia and Africa.

Against a backdrop of contradictory public policies, development of decarbonized energies speeds up but it is not yet enough to offset the increase in demand, as the fossil fuel park continues to grow. This is despite positive signals such as the drop in emissions related to power generation in the United States (-4%), thanks to the substitution of coal by gas and renewables; in the UK (-12%) with the establishment of a floor-price per ton of CO2 which accelerates the phase out of coal; and the exceptional performance of Kenya whose electrification rate quickly progresses while maintaining extremely low emission (1,13MtCO2eq) due to the high share of renewables in the energy mix.

KEY FINDINGS IN ENERGY SECTOR

1°) The energy sector and actors subject to a rapid mutation

- Major western energy companies and their suppliers (Eon, RWE, GE, ABB, Westinghouse…) face difficulties and try to adapt. Some companies seize the opportunity to reinvent themselves completely, like the Danish Orsted, an oil producer that turned into a champion of offshore wind energy.
- Technical and economic innovation favours the entry of new actors. This is the case for instance for phone operators or banks. "Pay as you go" electrification companies in Africa now gather 750 000 customers. In the United-States, new actors have entered the energy

market, including giants like Apple or Tesla. The means available to historical companies can help develop complex industries, such as Kenyan geothermal energy with KenGen.

- Development of decentralised renewable energies allows local and sometimes non-professional producers to reclaim their energy production: electricity cooperatives in Europe, domestic thermal solar energy in China, micro-grids in Africa.
- Effects of climate change are already perceptible in energy sector, especially regarding hydropower generation. It is decreasing in Spain, Tanzania and Portugal, which increases emissions despite the development of renewable energy.

2°) Civil society and local communities have the will and ability to weigh on energy choices

- Mobilisation of the population and academics in 2015 played an important part in the inflection of Chinese energy policy and the adoption of more efficient technologies by electricity producers.
- From Germany (Hambach surface mine) to Kenya (Lamu coal power plant project), people are hindering the development of coal-fired electricity production.
- The resistance of local stakeholder, as in Barendrecht's carbon sequestration project in the Netherlands, delay or even prevent the development of some controversial emission reduction systems.

3°) Local and subnational governments are drivers in climate transition and coordinate action at local scale

- In the United-States, 22 States and 550 cities have taken commitments in the fight against climate change, 29 States have adopted mandatory quotas of renewable electricity, and 9 voluntary quotas. 80 cities committed to achieve 100% renewable electricity.
- Local governments can also act beyond their territories: in South-Africa, for instance, dialogue initiated by Cap Town with the regulator and the national power company Eskom plays an important role in the structuring of small and medium solar companies.
- Signatories cities of the Covenant of Mayors have multiplied by 9 the renewable energies used in transport, by 8 the green electricity locally produced, and eventually by 5 their final energy consumption produced from renewable energies..

4°) Carbon pricing is an efficient tool even beyond State purview

- Carbon pricing is an efficient tool for the décarbonation of power generation, as in the British case: the creation of a floor-price of 18£/TCO2 in 2015 led to a 3-fold split in the use of coal.
- About 30 cities, regions or states have already set a carbon tax or an emission trade system., and others are planned: in the US, 9 states have committed to creating a carbon market under the Regional Greenhouse Gas Initiative in order to reduce their emissions by 65%. Local governments can thus outpace or inspire national level. In China for instance, the experience of cities like Shanghai and Beijing or Canton Province, which have implemented local carbon markets, is helping to create a national market.
- Big companies like Microsoft or Unilever have adopted an internal carbon price to reduce their emissions or finance their green investments.

Book 1 « Sector-based Action »

TRANSPORT

The sector contributes significantly to the increase in global emissions. Road transport emissions keep growing by 2% per year, and still account for three quarter of transport sector emission (23% of global CO2 emissions). Aviation emissions have doubled from 1990 and 2015 (+104,6%), and these of international shipping keep rising, despite the efficiency gains of commercial transport. As for rail, the cost of infrastructure and the ideal of individual motorisation hamper its dynamic in developing countries.

KEY FINDING IN TRANSPORT SECTOR

1°) Road transport is marked by an increase in individual demand and upgrading purchases towards more emissive vehicles

- At global scale, demand for individual mobility is rising, as shown by the increase in per capita mileage (km/capita). In some emerging countries like Brazil or South Africa, economic fluctuations slow down the growth of car fleets and limit emissions from commercial transport, but do not question the structural trend towards the acquisition of individual vehicles by households. In India, the number of motorised vehicles grew by a CAGR[1] by 9,9% per year between 2006 (~90 million units) and 2016 (230 million).
- In Europe, the decline in sales of diesel-powered vehicles (-7,9% in 2017) and the shift to gasoline has led to an overall increase in the car fleet emissions. Only Sweden, benefiting in particular from a high carbon price, managed to reduce its emissions despite an increase in individual mileage.
- Paradoxically, despite constant technological progress, the average emissions of new vehicles sold in Europe are rising (118,1 gCO2 / km) for the first time in 10 years, moving the sector a little further away from the targets set by the EU (95gCO2 / km in 2020). The increase in sales of SUV (+ 12,7% in 2017) in all the world markets, which now represent 34% of sales of new vehicles.

2°) Fuels and engines: electric does not take off while biofuels is questioned

- The use of electric mobility remains marginal, despite the multiplication of experiments. Delhi's highly popular electric rickshaws are one of the rare examples of fast and large-scale electric-drive development. Showcase projects have cut a swathe though: in Shenzhen (China), for instance, since December 2017, the whole bus fleet (16 359 vehicles) were turned electric. Since 11 January 2018, Quebec has been the first Canadian province to set a ZEV norm (Zero-Emission Vehicle), which imposes a mandatory quota of production of ZEV. As a

[1] CAGR = Compound Annual Growth Rate

top-of-the-range manufacturer, Volvo has also committed to sell only electric or hybrid vehicles from 2019.

- Biofuels represent an important potential for reducing emissions, but challenge food production and have consequent impact on land-use emissions. Sweden carbon-free transport strategy relies on biofuels and the use of palm fatty-acid distillate (PFAD), a residue considered as carbon-neutral by European legislation, allowing it to decrease significantly its accounting of transport-related emissions. In Brazil, leader of the sector, the biofuel industry started to grow again and is supported by the industry players and the government.

3º) Among public modes of transport and shared mobility, railway is in dire strait, but BRT meets success in emerging countries. Bike-sharing systems multiply across the world.

- The deployment of infrastructures fails to keep up the pace of urbanization and to make a real modal shift towards collective modes of transport: over all the biggest cities in Brazil, the passenger/ kilometre index has decreased since 1994. Same problem in India, where intercity highways are multiplying and urban sprawling impedes an efficient planning of public transports.

- In response, cities are banking on intermodality by combining new networks of public transports and shared bicycle fleets. Globally, since 2000, BRT systems, light rails and metropolitan railway infrastructures have respectively rose by 835%, 88% and 67%. As a pioneer in South-America, Buenos Aires continues to expand it BRT, the Metrobús, and Rio values the Transcarioca built for the Olympics. Abuja (Nigeria) opened its metro this year with 2 lines, whereas Gauteng in South Africa bets on Compressed Natural Gas (CNG) to make its public transport greener.

- There is now more than 1 700 bike-sharing systems in the world.

- The relative gap between road transport growth and that of railway does not allow any modal shift on the latter. As an already low-carbon sector, railway industry focuses its investments on improving engines and streamlining of trains. Hydrogen, as in maritime transport, is attracting the industry's interest: this year in Germany, Alstom inaugurated the first train 100% powered by hydrogen.

4º) International aviation and shipping actors organise their own GHG attenuation strategies

- Excluded from the scope of the international negotiations, management of emissions from maritime transport and aviation has been delegated to the industry federations themselves. It spawned a mitigation strategy in maritime sector (IMO, 2018), and an emissions offsetting scheme in aviation (CORSIA from the OACI, 2016).

- Besides, Airbus, Siemens and Rolls Royce signed in December 2017 an industrial partnership to develop hybrid-electric engineering in aerospace sector, while major ship-owners such as Brittany Ferries are investing in LNG.

- Since April 2018 Sweden has introduced the world's first tax on kerosene on all commercial flights, resulting in lower forecasts for future air traffic. In France, social resistance to ecological taxation has brought up the issue in public debates.

Book 1 « Sector-based Action»

Land Use, Land-Use Change, and Forestry (LULUCF)

Emissions related to land use, land-use change and forestry (LULUCF) account for 20 to 25% of global GHG emissions, estimated at 4,6 GtCO2eq in 2016 (Global Carbon Project). The sequestration potential of lands and forest makes LULUCF a strategic and necessary sector for achieving carbon neutrality in the 21st century. Since LULUCF emissions data are often difficult to collect and of unequal quality, we have chosen to analyse mainly deforestation/ reforestation policies, which represent the largest share of these emissions. Maintaining them is also an issue for biodiversity, rainfall management and the future of local communities.

KEY FINDINGS IN LULUCF SECTOR

1°) No sign that deforestation is slowing down

- Deforestation of the world's primary forest keeps rising at a high rate of 13 million ha per year in the Amazon basin, Africa or South-East Asia.
- Forest fires have a growing impact on this figure: Brazil has lost 3,7m ha, three times more than in 2015. Portugal has lost 4% of its wooded surfaces, while in Canada Fort McMurray's high-profile wildfire resulted in a loss of 600 000ha (assessments from global Forest Watch).
- Commercial agriculture is responsible of 40% of deforestation in tropical and subtropical countries (FAO). Deforestation in Africa, which is faster than in the Amazon, has the particularity of being mainly due to subsistence farming.
- The proliferation of attacks, including artisanal gold mining or illegal farming, has become an important cause of deforestation. In Peru, illegal miners began in 2016 to deforest the Tambopata National Reserve. Ivorian forests in protected areas suffer an annual rate of deforestation of about 4,2%, of which a significant part is attributed to the cocoa industry.
- The only positive signal is the Indonesian moratorium introduced in 2016 that reduced deforestation by 88% in primary forest zones with protected peatlands.

2°) Civil society actors and local communities get more and more recognition

- On the complaint of 25 young people and the NGO "Dejusticia", the Supreme Court of Colombia recognized the Colombian Amazon as a "subject of law" and condemned in 2018 the Colombian State for non-compliance with its international commitments, with order to present a new forest conservation action plan.
- United Cacao got removed from London and Lima Stock Exchanges, after indigenous communities in Peru denounced its illegal plantations.

- Enhancement of satellite monitoring tools, with cooperation between researchers and NGOs. For example, the website of MAAP (Monitoring Andean Amazon Project) develops interactive maps.
- REDD+ projects are developed, such as those in Peru supported by the private fund Althelia Climate fund with Peruvian NGOs like CIMA – Cordillera Azul.

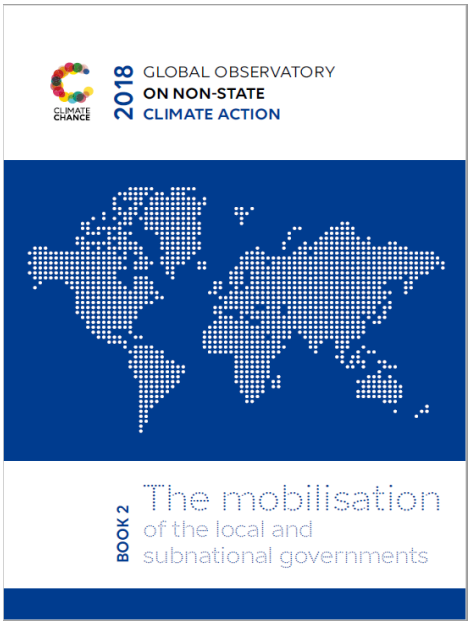
3º) The landscape of actors in wood sector is quickly evolving in Africa, not always in favour of transparency

- Decision of Gabon to issue forest permits from 2021 only to operators engaged in FSC (Forest Stewardship Council) certifications.
- Departure of "historic" European logging companies from the Congo Basin (including the bankruptcy of the African branch of Groupe Rougier), superseded by Asian companies (Olam, Vicwood, etc.). The result is a great deal of concern about the continuation of FSC forest certification policies, as their buyers are sometimes more prone to accept lower qualities than those demanded by European buyers.
- Suspension of Central African Forest Initiative[2] (CAFI) financing to the Democratic Republic of Congo for granting forestry concessions to Chinese companies SOMIFOR and FODECO in newly discovered peatlands that are very rich in methane.

4º) Valorisation and reforestation: the world shows encouraging signals

- In France, companies are increasingly investing in the market for voluntary carbon projects, which could give rise to carbon credits, under the authority of a reliable label to calculate the emissions saved. The lumber industry is benefiting from the growth of wooden constructions (unveiling in Strasbourg of the French highest tower (38m) 100% built in wood).
- Acceleration of reforestation policies in Asia, often at implemented at sub-national level: reforestation of 84 000 km² in China but without always integrating biodiversity issues; green wall in China; 66 million trees planted in the State of Madhya Pradesh in India, and a billion trees planted in Pakistan in Khyber Pakhtunkhaw province.
- Rwanda is halfway to achieving its 30% reforestation goal in 2020. The "*Rwanda's National Forest Planting Day and Season*" is mobilising regions and peoples to achieve this objective.

[2] CAFI is a collaborative partnership that brings together the countries of Central Africa: Cameroon, Gabon, Equatorial Guinea, Central African Republic, Republic of Congo and DRC, as well as a coalition of donors: Germany, South Korea, France, Norway, Netherlands, United Kingdom and European Union, and finally Brazil as South-South partner.



BOOK 2 « The mobilisation of local and sub-national governments »

In this Book 2 on "The Mobilisation of local and sub-national governments", we have summarized in **SECTION 1** the news and elements of assessment from the main (1) initiatives, (2) networks and (3) reporting platforms for local authorities engaged in fighting against climate change. This overview allows appreciating the recent trends of projects at work and the state of reporting from local authorities across the world. It also includes a review of main carbon accounting methodologies (p. 52). **SECTION 2** illustrates this first synthesis with 23 case studies of cities and regions, whose alignment of public policies have started to bear fruits. **SECTION 3** offers a global picture of local public policies recently implemented through 80 short illustrations gathered from continuous news watch or the contributions of projects leaders themselves to Climate Chance's Cartography for Action.

Progress of Global Initiatives - Section I Book 2

During 2015 "Climate and Territories" Summit in Lyon, networks estimated to 13% the share of world's population concerned by these global initiative for climate. Today, some figures are provided by different global reports aggregating commitments of local and subnational governments. The "*Global Climate Action from Cities, Regions, and Businesses*" finds 8237 cities and 182 regions covering respectively 16% and 15% of world's population, while the "*Emissions Gap Report 2018*" from the United National Environment Program (UNEP) identifies more than 7 000 cities and 245 regions from 42 countries, representing between 16,9 and 17,5% of world's population. **We offer here a synthesis of monitoring and evaluation elements at the level of these networks and initiatives to set out in detail their actions, and above all to understand the few hints of progress available today.**

1°) Similar dynamism of cities and regions, but with geographically disparities

- From 2015 to 2018, the number of cities and regions reporting their emissions to the CDP and the carbon*n*® registry (cCR) doubled.
- The Covenant of Mayors concentrates the largest number of signatories, and the number of action plans delivered between 2015 and 2017 rose by 20% (+1000 plans) to reach nearly 6100 plans in October 2018.
  This chart outlines the progress in number of signatories, the production of action plans, and above all monitoring plans, of the Covenant of Mayors in Europe, Eastern Europe and Mediterranean region.

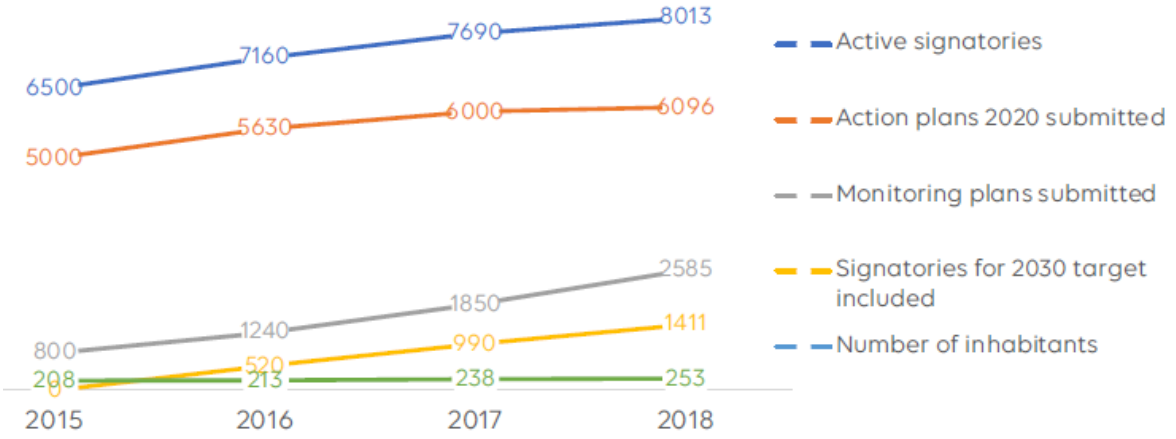


Figure 1. Evolutions of the Covenant of Mayors in Europe 2015-2018
Source: construction of the author from the data of the Covenant.

- The weak representation of Asian cities, and in first place the Chinese territory, implies that a significant share of territorial emissions is not covered.
- The regionalization of global initiative from local and sub-national governments should increase territorial action in Africa, Asia and South America, through the reinforcement of training, exchange of good practices, access to financing… and ensure that regional and local issues are taken in account to better spread action (E.g. The success of the Covenant of Mayors in Europe and cCR in Japan).
    - 6 new Covenant of Mayors offices since 2015: North America, South America, Japan, India, China–Southeast Asia and Sub-Saharan Africa. This latter already brings together over 130 African cities.
    - 4 new ICLEI offices in Quebec, British Columbia (Canada), China and Aburra Valley (Colombia).

2°) Results: although only few authorities are able to provide a periodic monitoring of their territories' emissions, the measured progress is encouraging. It proves that beyond exogenous factors and especially economic fluctuations, climate planning and monitoring capacities are progressing concretely:

- **Covenant of Mayors (Europe):** On the basis of 315 monitoring inventories received in September 2016 (18% of the 1 779 expected at that date), European Union's Joint Research Centre (JRC) has calculated a global reduction in emissions of 23% for these local authorities compared to their baseline inventories (usually 2005). These 315 local authorities represent 25,5m inhabitants. This decrease already equates to 58% of the expected efforts to achieve the objective set by the Covenant for 2030 (40% less emissions). If this rhythm is maintained until 2020, the reduction could reach 254 MtCO2eq per year, i.e. 31% of the reduction efforts expected from member-States by 2020.

  Finally, on the basis of 533 monitoring inventories received in October 2017, the JRC assesses their emissions in 2050 at 0,15 tCO2eq/capita if their efforts keep the same rhythm. It makes a consistent level with an overall temperature increase of 1,5°C.

- **Global Covenant of Mayors for Climate and Energy:** 1 818 signatory cities have already reduced their emissions by 20 % compared with their peak emissions, a reduction of 0.43 GtCO2eq, with the vast majority of these cities being members of the European based Covenant.
- **CDP-Cities:** In 2017, 101 of the 229 cities having reported their emissions on the CDP-Cities recorded a decrease, hint of an implementation effort or a change in methodology.
- **C40:** 27 cities of the network, large capitals of the North for most of them, reached their emissions peak since 1990.
- **Regions in action:** in 2017, 110 regions had reported their emissions to the CDP, displaying an average reduction of 8,5% compared to their chosen baseline. There is significant gaps between very encouraging relative performances in Scotland (-41%), Blekinge in Sweden (–43%) or Basque Country in Spain (-24%), and other States returning to former levels like California or Vermont, or even important risings like in Sao Paulo (+25%) and South-Hollande (+16%).
- **Carbonn® Climate Registry – cCR, the reporting platform** hosted by ICLEI, the largest in terms of members (> 1000) and with the geographical balance, yet contrast with these good examples since it estimates that on the basis of the observed emission trends, only 10% of reduction objectives formulated on its platform have chances to be achieved.

3°) Progress in the standardization of methodologies: Most of the time, each territory uses its own methodology derived from the IPCC guidelines, making the comparison and aggregation of their results irrelevant, but nonetheless making it a major monitoring instrument for local action. Half of the 229 cities that reported their 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.

4°) Multiplication of the initiatives carried out by networks, supporting territorial action in a growing number of public policies:

- Research: Innovate4Cities provides a collaborative framework for actors to identify specific needs of cities and stimulate the research and innovation, calling to increase budgets allocated to urban issues. In a series of thematic and quantitative case studies, the platform *The Future We Don't Want* sheds light on the number of cities and their inhabitants who exposed to the impacts of 6 major climate risks.
- Several thematic platforms and programs led by the networks have been created since 2015. Those already delivering elements for evaluation are detailed in the report.
- Adaptation:
    - *RegionsAdapt* administered by nrg4SD network shows progress in the reporting of adaptation actions, especially in Latin America and Africa. 22 members out of 27 have adopted an adaptation plan, and all of them have taken at least one measure in one of the priority areas since 2015.
    - Several programs of ICLEI, created between 2016 and 2018: *Frontline Cities and Islands, CITYFOOD, Cities with* Nature.
    - The C40 offers 3 platforms of exchange dedicated to strengthening adaptive capacities.

5°) The access of local and subnational governments to climate funding is slowly progressing:

- Invest4Cities calls investors to deliver on their commitments of the One Planet Summit: $800 million of assistance and credit facilities that will leverage 6 billion of public /private investments.
- European Bank for Reconstruction and Development's Green Cities Framework initiative has funded $50 million for infrastructure projects and has planned an additional $360 million.
- City Resilience Program (CRP) (World Bank and Global Covenant of Mayors) comprises in 2015 a $400 million worth portfolio of ongoing projects in 55 cities of Africa, Asia, Latin America and Mediterranean region, and allowed to raise $12 million of seed funding. It will allow in the end to unlock $4,5 million for 150 cities worldwide.
- Among the main difficulties faced by local and subnational governments to achieve their objectives, the carbon*n*® climate Registry (cCR) first points out the lack of financial and technical support, specifying that 70% of actions are self-funded. ICLEI's "TAP" preparedness program revealed in 2015 an urgent need for 9 billion euros of investments, and the irrelevance of funders' current supporting tools, now under consideration.

THE MOBILISATION OF LOCAL AND SUBNATIONAL GOVERNMENTS – Section II Book 2

The report introduces 23 case studies of cities and regions whose alignment of public policies has borne fruits or underlines difficulties of implementation. For each of those cases, we have chosen thematic axes to put forward.

1°) The formidable potential of heating networks: the conversion of heating networks have led to decisive results. Copenhagen's co-generation system fuelled by biomass is a major factor in the 38% drop in emissions since 2005. In Nantes, the extension of heating networks supplied to nearly 70% of fuel wood and the incineration of waste avoided 44 309 tCO2eq and 5 to 15% of financial savings for households. Helsinki is currently evaluating its geothermal potential (drilling 3 000 wells).

2°) Renewable electricity generation and energy efficiency are first-choice measures to rapidly reduce emissions

- **Renewable electricity:** States of California (US) and Baden-Wurttemberg (Germany) show good results with 32% of renewable electricity in 2018. It represents a 29% drop in emission of electric sector for the former, and an augmentation of 45% of renewables since 2006 for the latter. In Seixal (Portugal), 60% of renewable electricity production, coupled to a drop in consumption, has led to a 63% decrease in residential sector emissions since 2007.
- **Energy Efficiency**: Some territories give priority to their public exemplarity, as in Jalisco (Mexico), where a large plan for energy savings in 2014 should allow a 20% decrease in emissions from public buildings in 2018. In Lombardy (Italy) 120 municipalities took benefit from 63 million euros to refurbish their public buildings. Others provide support to privates, such as Paris (France), which made possible to refurbish 36 000 social buildings in 2017 and an annual saving of 360€ per household. In Hong-Kong, a certification system extended in

2018 to all household appliances, and air conditioning systems should generate 300 GWh of savings.

3°) The results of transport policies remain fragile

- **The few success stories emerged out of policies combining a cut in demand, modal shift and energy efficiency,** as in Tokyo where mass transport, eco-driving and low-carbon vehicles allowed 36% drop in annual emissions of transport since 2000. In Paris, GHG emissions fell by 39% thanks to the extension of metro lines, tramway, periodic closure of areas to traffic and the prohibition of the most polluting vehicles.
- **Modal shift as the major challenge in emerging cities:** In 2017 Cap Town (South Africa) records a 44% increase in troops on the public bus network, which is good news in the city with the highest levels of pollution and traffic in the country. In Recife (Brazil), rapid bus transits may not be enough to offset the booming of the car fleet (+382 since 1990). Finally, Quito wants to forestall the increase of the demand currently satisfied to 69% by bus, thanks to a new 22km–long metro line at work, and the spread of electric trolleys (+4% of usage from 2014 to 2018).
- **No significant result in electric mobility:** In Baden-Wurttemberg, 1 800 charging terminals are available but electricity alone represent only 1,5% of the energy used by transports, and emissions of freight transport have increased. California banks on decarbonation of individual mobility, imposes sales quota of electric vehicles to manufacturers and plan a $768 million worth public investment to develop the industry.
- **Important extension of cycle lanes, but few data on their usage:** In Murcia (Spain) 550km of cycle lanes and a share of 5% in modal since 2007. In Copenhagen, 41% of irreducible trips are made by bicycle in 2018.

4°) Integrated actions of adaptation/ mitigation: The territorial management system of protected areas of Quito, which dedicates 10 and 12% of its global annual budget to adaptation and mitigation, integrates the management of the surrounding ecosystems to its urban development thus aiming at a reduction of its emissions of 5 %/year. Recife is re-vegetating its territory to face issues related to its development. Jalisco is developing, in collaboration with 36 municipalities, the silvopastoral breeding to restore the lands and ensure the sustainability of the activities of the breeders.

5°) Innovative tools to support the transition of local economy

- **Investment funds and innovation centres:** "Paris fonds verts", a territorial investment fund of 200 million euros dedicated to small and medium companies of the sectors related to transition. Hong-Kong: a dedicated fund to pilot project to improve the energy efficiency of transport (33 million euros).
- **Emission-trading schemes:** Tokyo: the municipal trading scheme to reduce emissions from the buildings of 1 300 large companies (20% of total emissions) led to a 12,7% decrease of their emissions from 2010 and 2014, but only 1% between 2015 and 2016. California: since the Emission Trading Scheme is recent it is difficult to estimate its impact, but it covers 450 companies accounting for 85% of Californian emissions.
- **Innovation centres:** Cap Town, in collaboration with the province has opened a green technology manufacturing and training centre, "Atlantis", which has already created 312 jobs and 40 million euros of investments. Izmir (Turkey) has opened a research centre on renewable energies to attract investments.

6° Consultation of actors and citizens: Dakar (Senegal) could lean on a first attempt of climate plan to launch with success in 2018 its multi-actor platform of governance "DakClim". In Nouvelle Aquitaine, the Permanent Council for Energy Transition and Climate (COPTEC) was created, to include climate objectives in all regional policies and to consult 530 actor of the territory, thus facilitating the structuration of sustainable economic sectors. Seixal organizes a series of awareness campaign since 2012 for residents and shopkeepers and punctuated by an annual exhibition on renewable energies and energy efficiency.

AROUND THE WORLD IN 80 INITIATIVES – Section III Book 2

A global picture of local public policies recently carried out, through 80 short illustrations gathered from an ongoing news watch or the contributions of projects leaders themselves to Climate Chance's Cartography for Action. This section is designed to illustrate the diversity of the often-replicable solutions carried out by local and subnational governments. The section illustrates global trends and serves as a toolbox for local decision-makers, highlighting outstanding projects by their ambition or simplicity, and at work in 10 sectors territorial public policies: urban planning, energy generation, transport, building, circular economy, food, awareness, adaptation and decentralized cooperation.

BOOK 3 « Bringing Finance on Board»

STATE OF THE ART OF CLIMATE ACTION IN THE FINANCE SECTOR

Finance actors have significant power to drive the economy towards a low-carbon model.

The climate action from finance actors: a recent takeoff

Three dynamics are at work to expand climate action from finance sector and mutually reinforcing: strategies of actors, market opportunities and advances in financial policies.

Three recent events have strengthen this impetus:

- The Paris climate agreement explicitly set the objective to make financial flows consistent with the target to limit global warming below 2°C, and even 1,5°C;
- The G20 Financial Stability Board recognized the risks linked to climate change as full financial risks to financial actors and potentially to financial systems;
- To mitigate those risks, the Financial Stability Board called economic actors to more transparency. The "Taskforce on Climate related Finance Disclosure" (TCFD), working group commissioned on this issue, delivered its recommendations in 2017.

As of September 2018, 287 financial actors over 513 companies had confirmed their support to the TCFD.

Progress of climate-related strategies

The establishment of climate change strategies has progressed among the major global financial actors, including in 2017:

- 42% of investors, compared to 20% in 2016,
- 90 % of asset manager
- 58 % of banks.

Tools to mainstream

The major financial actors use implementation instruments for these strategies in different ways:

- 15 % of investors practice shareholder engagement policies (12 % en 2016),
- 53 % of banks dialogue with their clients on climate issues,
- 71 % of banks practice exclusion policies in relation to climate.

Engagement, i.e. the dialogue or pressure that companies exert on climate issues, is no longer considered as an alternative to the exclusion of sectors or companies with harmful

activity, especially fossil fuel sector. These levers are often used, according to sector and companies, jointly or gradually.

Carbon footprint, the tool for measuring financed carbon emissions, remains marginally used (13% of investors, i.e. 27% more than in 2016), and is even less with a reduction target (6% of investors).

Green finance: a small share of activities

Financing and investments positively contributing to the transition to a low-carbon economy still represent a small part of financial actors' activity:

- 0,5 % of investors' portfolios,
- 0,5 % of bonds market,
- 15% of syndicated loans from banks.

The measurement of these financing could improve thanks to a clear definition of green assets and a more systematic tracking of what financings are used for.

But green financial products and services, bonds, investment funds, green loans are growing rapidly.

Public banks ahead of other financial actors

The amount of financing that public banks are spending on the low carbon transition has been growing steadily for several years. In 2017 they account for:

- 25 % of the financing from multilateral development banks
- 27 % of the financing from national and bilateral development banks in the IDFC

The challenge for public banks is to increase their leverage effect on private financing. Multiplier effect of multilateral development bank financing reaches 1.4 in 2017

In parallel, brown financing stay high

Some NGOs have shown that bank financing for extreme fossil fuels, which is particularly damaging for climate and with questionable economic rationality, rose by 11% in 2017 after falling by 8% in 2016.
But there is still no comprehensive and widely accepted classification of assets that are inconsistent with the 2°C target, representing high risks of loss of value for financial actors, that would ease decision-making in the finance sector.

Climate-related risks management: an increasing pressure from supervisors

Recognized as financial risks, the risks related to climate change are therefore meant to be managed by all financial actors whether they feel committed or not to the climate. But climate risk management remains low.
In 2017, measures to manage risk related to climate change were reported by:

- 6 % of investors,
- 12 % of asset managers,
- 49 % of banks.

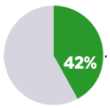
Risks related to climate change remain quite unknown and probably underestimated. Since 2017, this issue has been the subject of multiple methodological works, especially on the analysis of climate change scenarios. This work may be sustained through the increasing pressure of financial supervisors.

Green Finance dashboard 2018

TCFD SUPPORTERS
(Taskforce on Climate related Financial Disclosure)
287
FINANCIAL INSTITUTIONS

1 INVESTORS

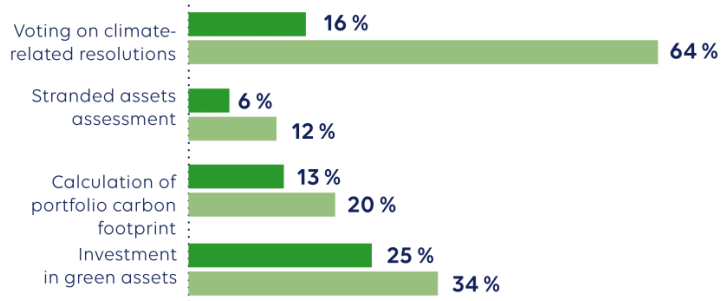
Climate strategy



ASSET OWNERS

ASSET MANAGERS

Implementation policies



Share of low carbon investments in portfolios

0,5 % ASSET OWNERS

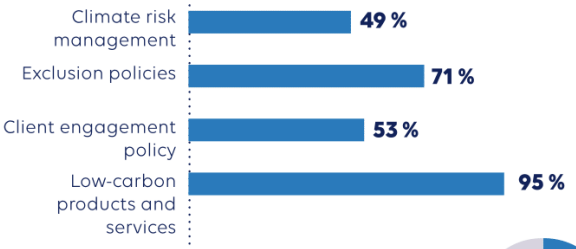
0,2 % ASSET MANAGERS

2 BANKING

Climate strategy

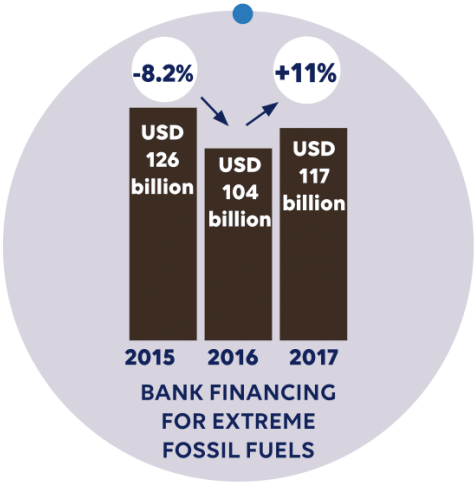
58 %

Implementation policies



Green financing

15 % OF ALL SYNDICATED LOANS



3 DEVELOPMENT BANKS

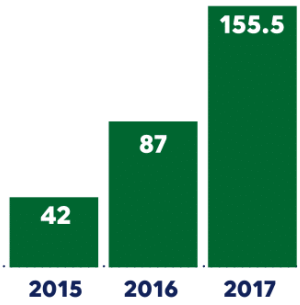
	Climate finance commitments	YoY growth 2017/2016	Share of annual financing 2017
Multilateral development banks	USD 35.2 BILLION	+28 %	25 %
Other development banks (IDFC)	USD 194 BILLION	+27 %	27 %

4 THE GREEN CLIMAT FUND

- USD **4.6** billion in direct investment (Oct 2018)
- USD **158** million of disbursements (Feb 2018)
- **93** projects approved (Oct 2018)

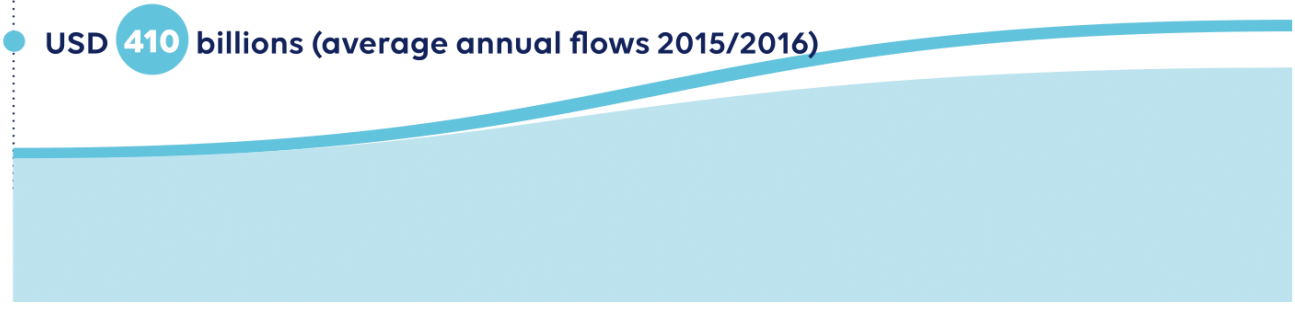
5 GREEN BONDS

Total issuance in USD billion



6 CLIMATE FINANCING FLOWS

- USD **410** billions (average annual flows 2015/2016)



ANNEX I

INTRODUCTION OF CLIMATE CHANCE ASSOCIATION

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).

Objectives

The 4 major objectives of the Association are:

- Reassessing global climate action in the light of non-state action
- Linking non-state actors and contributing to the emergence of joint projects
- Highlighting practices enhancing synergies between development and climate
- Spreading the common positions of non-state actors in the international climate scene

Activities

To attain these objectives the Association is deploying the following activities:

- The organisation of uniting events
- Advocacy within international bodies and at the important meetings of the climate and development agendas.
- A global non-state climate action Observatory
- A website portal for climate action to enable best practice exchange and access to information about climate change.
- Structuring and supporting the work of international thematic coalitions.

The 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.

ANNEX II

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The global covenants

Initiatives led by local authority networks

Emissions Reporting Platforms

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15 villes à travers le monde

8 régions à travers le monde

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A global picture of recent climate actions to capture trends at work in 10 sectors of territorial public policies.

- **I.** Urban planning
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- **III.** Energy Production
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BOOK 3 – BRINGING FINANCE ON BOARD

Une publication en collaboration avec Finance 4 Tomorrow, sur l'évolution des flux de financements des acteurs publics et privés de la finance.