



Climate-ADAPT - Sharing adaptation information across Europe

# European Climate Adaptation Platform



CaseStudy | Climate-ADAPT

# Climate bond financing adaptation actions in Paris

European Environment Agency





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Climate-ADAPT - Sharing adaptation information across Europe

## European Climate Adaptation Platform

### Case studies



## Climate bond financing adaptation actions in Paris (2016)

Sustainable development has been a major concern for the City of Paris for more than 10 years. When, in 2015, the City of Paris hosted the COP21, the City Hall wanted to send out a strong signal to the international community and to other local and regional authorities and show the diversity of municipal ecological actions and commitments. To emphasize this, the City of Paris erected the climate bond to finance climate and energy projects. The total size of the bond is € 300 million, with a running time until May 2031. The bond aims at private investors who consider it as a secondary advantage to invest in the sustainability of the city of Paris. They will receive a profit rate of 1.75% per year. 20% of the climate bond funds have been assigned to adaptation projects. Currently, two projects with a climate adaptation objective have been included in the bond and are being implemented: planting 20,000 trees in the city and creating 30 hectares of new parks by 2020.

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## Case Study Description

→ *Challenges*

Due to climate change Paris expects an increase in average daily temperatures as well as in the number of hot, very hot and extremely hot days and in the occurrence of heatwaves. The heatwave of 2003 had a devastating impact on the country, leading to almost 15,000 heat related deaths in France. Projections are that the summer of 2003 could become a normal summer in 2050 and the Paris Heatwave Plan was drawn up in response to this. Heat stress is, therefore, an important focal point for the city of Paris and measures to prevent it, like green gardens, parks and roofs and use of water for cooling, are being implemented. A trend for more frequent droughts has also been documented by Météo-France, with less summer rainfall, a decreased flow rate of the river Seine and an increased risk of agricultural drought in Île-de-France. This may impact the supply of drinking water from surface waters. The climate projections for Paris also indicate an increase of the frequency of heavy rains in the coming century.

Floods, however, are not expected to be more or less frequent due to climate change. But since the consequences of a flood by the Seine overflowing its banks or by rainfall runoff after heavy rains can be in any case significant, there is a need for flood protection.

### → Objectives

The aim of Paris climate bond is to finance energy-climate projects, covering the 4 main goals of the Paris Climate & Energy Action Plan: reduction of GHG emissions, improvement of energy efficiency, production of renewable and/or recovered energy, and adaptation to climate change. The purpose of the Adaptation Strategy, one of the operational documents of the Paris Climate & Energy Action Plan, is to prepare the city for both future climate changes as well as for future scarcity of certain resources such as water, energy, food and biodiversity. This is translated into four main objectives:

- protect Parisians from extreme climate events;
- ensure the supply of water, food and energy;
- live with climate change: more sustainable city planning;
- foster new lifestyles and boost solidarity.

The objective of both adaptation projects under implementation within the climate bond is to reduce the urban heat island effect and increase thermal comfort within the city, which mainly relates to objectives 1 and 3 of the Adaptation Strategy.

### → Adaptation Options Implemented In This Case Green spaces and corridors in urban areas

### → Solutions

#### **Climate bond**

A climate bond is perceived as an interesting and profitable mechanism by the city to finance public projects, because it consists of a wide variety of investor profiles (few investors are interested in bonds which are only

climate-related) and requires transparency. Transparency is ensured by annual reporting, where the issuer has to justify the allocation of money to projects complying with the set criteria. The process and report is reviewed by the non-financial rating agency Vigeo, thereby providing investors reassurance on the use of their funds. In addition, the transparency is an opportunity for the city to question internal practices and improve them if needed. Also, the climate bond highlights political priorities by ranking investments.

The selection of projects to be included in the bond is managed by the Finance Management Support Service (SGF) of the city in full collaboration with the Urban Ecology Agency of Paris (AEU) and overseen by Vigeo. The list of projects to choose from is defined at the start of each election term. After each election, the new Mayor presents his/her political direction to the Council of Paris for approval. This direction is financially translated in an investment programme (defining political priorities and pushes) and corresponding projects. The selection process among these projects was based on several criteria that are a combination of criteria brought forward by SGF and criteria which are usually used for Socially Responsible Investments (SRI).

### *1. Municipal internal criteria*

The first criterion is that a project should contribute to (one of) the four goals of the Climate and Energy Action Plan. Secondly, only projects of the investment programme that have not already been initiated are financed ('new' projects), as they are more attractive to investors, easier for annual reporting and show the prospective approach of the City of Paris.

### *2. 'Green Bond Principles' and operational criteria*

The climate bond is a kind of green bond and is subject to the 'Green Bond Principles'. In addition, after the pre-selection according to criteria described above, the SGF and the AEU make a further selection of projects and organize meetings with project managers, representatives of the AEU and Vigeo to refine this selection. The aims of this step in the process are:

- Get precise information on each project (e.g. what will be done

exactly, refined budgetary allocation, planning of the project, monitoring methods) and check that each aspect (environmental, social, governance) of the project matches with the ‘use of proceeds’ defining eligible categories of projects (according to the ‘Green Bond Principles (GBP))’ and are compatible with rules of liquidity and project management.

- Check that each selected project contains real and mainly measurable environmental benefits and that measuring procedures and instruments are or can be implemented by various departments and/or the AEU (accredited for Carbon Evaluation). For the adaptation projects the results are simply expressed in surface area of green spaces created (target: +30ha by 2020) and/or number of trees planted (target: +20,000 by 2020);
- Build the framework reflecting indicators and climate benefits to which City of Paris is committed.

Note that a project under the climate bond should not necessarily be implemented within Paris, as long as City of Paris is a direct paying agent and the prime contractor.

### **Adaptation projects**

Two adaptation projects are currently included in the climate bond and respectively involve planting 20,000 trees and creating 30 hectares of new parks. The time limit for finalizing the adaptation projects is 2020.

The new trees will be planted in the inner city of Paris (as opposed to the already existing two woods outside of Paris), in the streets and at public facilities such as school playgrounds, gymnasiums, etc. Since the beginning of 2016 until the summer of the same year, around 2,000 trees have already been planted.

The new parks will be created both in the urban renewal zones of Paris, where there is the biggest potential for large areas of parks, as well as in some already existing neighbourhoods of Paris where local places can be transformed into little local parks for the residents. The Martin Luther King Park in the Clichy Batignolles urban renewal zone (North West of Paris,



17th arrondissement) for example, first opened in 2008, was extended in 2014 and is still under works to be extended again by 2018, bringing its total area to 10 ha. Only the extensions of 2014 (2.2 ha) and 2018 (3.5 ha) will be counted into the 30 ha target of 2020. Maintenance of the parks and trees will be covered by the City itself and not by the climate bond investments, as this is not allowed.

→ Relevance

Case developed and implemented as a CCA (Climate Change Adaptation) Measure.

### **Additional Details**

→ Stakeholder Participation

#### **Climate bond**

The Paris climate bond was initiated by the City of Paris, created both by the Finance and Procurement Department (DFA) and the Parks and Environment Department of Paris. Due to the fact that the 2015 Paris climate bond was the first socially responsible public offering made by the City of Paris, the DFA has asked, in the context of public procurement, a non-financial rating agency (Vigeo) to assist the City at the preparatory stage of this public offering. This way, the Finance Management Support Service (SGF) could benefit from the sectoral expertise of this agency, its guidance and its methodology.

Credit Agricole CIB, HSBC and Societ  Generale CIB acted as joint lead managers on the issue. These banks have been selected through competitive tendering to accompany the City of Paris in the process and to be partners. This way, the City of Paris can benefit from their expertise on investor expectations (e.g. to validate the use of proceeds, the framework and the selection of the projects of this bond), their network and marketing services (media relations, help in the organisation of the roadshow, etc.).

The Paris climate bond is a real success: it was funded by a lot of investors, more than expected, and at the beginning there were

applications of investors worth €475 million to fund the bond. At the moment, more than 30 investors are involved. The bond is mainly supported by domestic investors (83%), but the City of Paris managed to diversify its investor base to international institutional accounts, in particular to Benelux (9%), Switzerland (3%) and Nordics (3%). Insurers and pension funds bought the lion's share of the trade (51%), followed by asset managers (49%).

Teams have been formed within the city administration to execute the projects under the bond, with the greenery department of the City being responsible for the realization of the adaptation measures. This department is divided in four working units for different parts of Paris, ensuring a more or less equal spreading of the trees and parks over the Paris area. Some projects will be newly designed.

### **Adaptation Strategy**

Paris's strategy for adaptation is based on extensive research on the risks of climate change (conducted with Météo-France) in relation to the strengths and weaknesses of Paris in dealing with these changes and the scarcity of resources and is developed in collaboration with over one hundred Parisian stakeholders. In addition, proposals for action were received from all of the City of Paris departments and a public consultation was held in 2015 on adaptation to climate change, which all contributed to the development of the strategy.

Greening the city is a very well-known desire of Parisians that appears at the top-most projects suggested in the city's participatory budgets (i.e. a share of the overall annual budget that is dedicated to implementing actions suggested by Parisians). For instance, the campaign "Du vert près de chez moi" ("green next to where I live"), where Parisians could suggest places to green (e.g. plant a tree, create a green wall) was very popular. More than 4,000 suggestions for places were received and 209 sites were chosen to green by 2020. It is, therefore, not necessary to further directly involve Parisians in the selection of the projects in the bond or to consult them about places for the new trees and plants as part of the two projects currently under execution.

### → Success and Limiting Factors

Part of the plans for the new parks and trees were existing for a long time already, waiting for the financing to become available for their implementation. The idea for a climate bond also existed already in the Environment Department of the city of Paris for many years. The timing was right when the COP21 was held in Paris allowing the climate bond to become reality. A few important elements have to be taken into account when considering a green or climate bond:

- Firstly, a green or climate bond is a long process. Selecting projects which match with numerous criteria requires many human resources and time. This might be more difficult to organize within smaller authorities. The advantage is that it creates a real internal synergy (financial matter and operational projects need each other).
- Secondly, transparency and accountability are key words of the process. The process may imply a different working organization or may require new procedures or tools (for instance, for budget monitoring). It also costs money; to acquire extra-financial rating, to hire support for the creation and structure of this kind of bond, to mobilize a team, etc. In addition, the issuer of the green or climate bond has to report on the climate benefits. Paris has internal expertise within the Urban Ecology Agency (AEU) which is accredited for carbon evaluation, but if this competence is not present, it will have to be purchased externally.
- Thirdly, independent advisors, sectoral experts in green or climate bonds and bankers seem necessary to erect an attractive green bond. In the opinion of investors, independence (or second opinion) guarantees security and an honest process. Furthermore, it is essential that the local authority has expertise on the green market and has knowledge of what is expected or valued by investors.

For Paris this worked out well with regard to the applied methodology (clear financial framework, expert project managers attached to the various investment lines, well-structured use of proceeds, frequent reporting), collaboration (including each participant, even external ones, in the

process with clear responsibilities) and coordination by the financial office. The city did not have all the required knowledge and resources in-house, but they knew where to get it and this input proved very valuable. Paris has, for example, an efficient network with bankers as they regularly trade with them. It is then crucial to connect all these different expertise and the city was successful at this due to internal competences. If the connection is not being made, which is especially difficult if all expertise are external to the local authority, this could become a serious impediment to launch a green bond. However, this connection is also what makes the process interesting as it creates synergy.

Finally, another important factor of success was the rating by Vigeo, which rated Paris as the leader of the sector in climate bonds (1st among local authorities) and made Paris attractive for investors.

#### → Costs and Benefits

A climate bond is a bond issued by a government or corporate entity in order to raise finance for climate change mitigation or adaptation-related projects or programmes. A bond is a form of loan: the holder of the bond is the lender (creditor), the issuer of the bond is the borrower (debtor), in this case the City of Paris. Bonds provide the borrower with external funds to finance long term investments. The issuer owes the holders a debt and, depending on the terms of the bond, is obliged to pay them interest (the coupon) and/or to repay the principal at a later date. Bonds are risk-weighted and credit rated in the usual way based on the creditworthiness of the issuer, and tradable, marked conditions permitting, in international secondary bond markets.

The total size of the climate bond of Paris is €300 million and promises an annual interest rate of 1.75%. The bond is broken down as follows: €120 million for reduction of greenhouse gas emissions, €115 million for energy efficiency, €5 million for production of renewable and/or recovered energy and €60 million for adaptation to climate change. The climate bond can be renewed every year, allowing new money to come in for more projects.

The 20,000 trees that are being planted will cost €18 million in total. These costs will be financed for €15 million from the proceeds of the climate bond

with the remaining €3 million directly financed from the greening budget of the City of Paris (Green spaces and Environment Department). The new parks will cost €67 million, of which €45 million will be financed by the climate bond and the rest again directly from the city's greening budget. This greening budget is set independently from the adaptation strategy. There is at the moment no specific budget on adaptation at the city, other than a research budget. Maintenance of the parks and trees will be paid by the city as well.

The adaptation projects will not lead to direct financial benefits that will help reimbursing the investors, but through the mitigation projects in the bond and under the Paris Climate and Energy Action Plan, the City of Paris expects to reduce its energy consumption and thus generate extra revenue for the City. As it is not allowed to earmark revenues for specific expenditures (rule of non-assignment), this revenue will not be used directly to pay interest to the investors of the bond and repay them the full amount borrowed at the end of the bond term, but this will be paid out of the general City budget.

#### → Legal Aspects

The climate bond is in line with the Paris 'Climate & Energy Action Plan' and the 'Paris Adaptation Strategy' which form the policy and legal basis for the bond. The Climate Action Plan, adopted in 2007, was updated in 2012 with the adoption of the Main Guidelines of the Paris Climate and Energy Action Plan, unanimously approved by the Council of Paris. The development of such a plan is imposed by Article 75 of the Law of 12 July 2009 on France's Commitment to the Environment, which states that by 31 December 2012, all authorities of more than 50,000 inhabitants must adopt a Local Climate and Energy Plan (PCET) compatible with the Regional Climate-Air-Energy Strategy (SRCAE) adopted at regional level. The Paris Climate & Energy Action Plan sets the general guidelines for climate and energy for Paris and it is broken down into different operational documents, including the Paris Adaptation Strategy. The Adaptation Strategy is a roadmap for adaptation and consists of 30 objectives applied in 35 actions, among others the objective to facilitate access to refreshing areas in summer, to cool off the city during peaks in temperature and to facilitate

that by 2020, no Parisian should be more than a 7-minute walk from a place to relax with water and greenery.

The climate bond is compliant with the Green Bond Principles, stating that: 'Green projects are defined as projects and activities that will promote progress on environmentally sustainable activities as defined by the issuer and in line with the issuer's project process for evaluation and selection. The management of green bond proceeds should be traceable within the issuing organization and issuers should report at least annually on use of proceeds. The Mayor of Paris has instructed the responsible deputy mayors by letter to implement the actions connected to the climate bond.

The City of Paris is responsible for the interest payments and full repayment at the end of the bond term. The climate bond is integrated in Paris' Euro Medium Term Note and is considered as a classic bond issue. In case interest or full reimbursement cannot be paid or is delayed, rules of the Base Prospectus will apply. In addition, the bondholders' group has chosen a representative who has authority to act on behalf of all bondholders to put their rights into effect.

According to article L. 1612-4 of the General Code for Local Authorities (CGCT), borrowing should not under any circumstances be used to plug a financial hole in operating and investment finances or for debt amortization. Like any other loan, interests are paid with the operating resources (which in this case mean resources collected by the local authority, such as local taxation and financial transfers from the State to local authorities).

As mentioned before, maintenance of the climate bond projects cannot be paid from the bond, as it stated by law that a local community has to clearly separate finances for operational purposes from investment. According to article L. 2331-8 of the CGCT, the proceeds from a loan (bond) are a form of non-tax revenues from an investment, which means that it cannot be used to pay for operational expenditures like maintenance or operating costs.

#### → Implementation Time

The running time of the Paris climate bond is from 18 November 2015 to 25

May 2031. Both adaptation projects that have currently been included in the bond have to be realised by 2020.

→ Life Time

Lifetime for trees in Paris is generally around 70 years. Regarding the parks, the intention is that they will last forever.

## Reference Information

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→ Websites

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Case Study Illustrations (2)



**Keywords**

Bond, credit rating, financial benefits, green areas, parks, private investors, public consultation, tree planting

**Sectors**

Energy, Financial, Urban



**Climate impacts**

Extreme Temperatures, Flooding

**Governance level**

Local (e.g. city or municipal level)

**Geographic characterization**

Europe

**Macro-Transnational region:**

North West Europe

**Biographical regions:**

Atlantic

**Countries:**

France

**Sub Nationals:**

Île de France (FR)

**City:**

Paris