

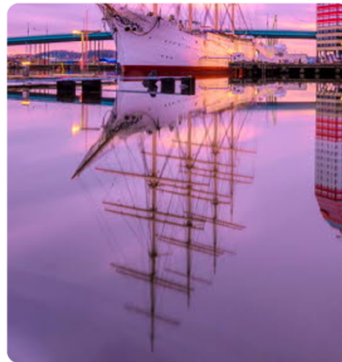
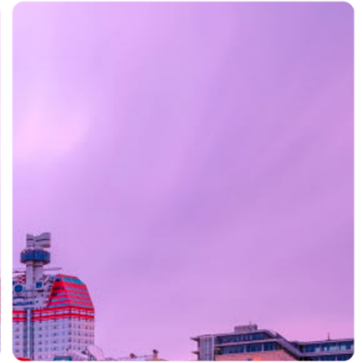
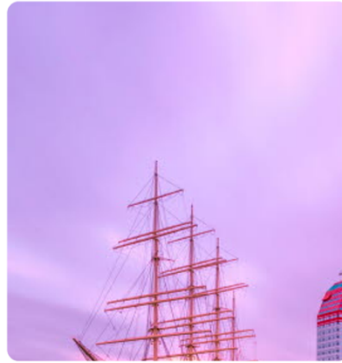


# Gothenburg green bonds

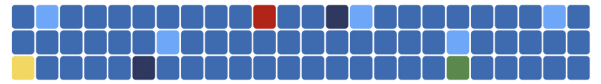
The world's first municipal green bond

CLIMATEFIT International best practice factsheet

Case ID: 18



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## Summary

The city of Gothenburg has been a pioneer in green finance by issuing the world's first municipal green bond in 2013, aiming to transition to an environmentally sustainable city by 2030. This initiative is grounded in the city's comprehensive Environment and Climate Programme. The green bond has been renewed annually, ensuring a continuous flow of capital towards green projects. The governance of these bonds is managed by the City's Green Bond Committee, which evaluates eligible green projects for allocating proceeds. As of December 2023, the City of Gothenburg's total volume of outstanding green bonds was €2.15 billion.

The Gothenburg green bond framework is based on the 'Green Bond Principles'. The green bond has successfully attracted investors' interests each year, which is a consequence of the Swedish business and financial culture that has a strong focus on sustainability, and the expertise and resources present within the City that allows Gothenburg to manage the green bonds nearly on its own. A current limitation is that none of the proceeds have been allocated to climate adaptation projects as of 2024, which could be explained by the city's priority for investing in energy efficient buildings (76% of bond proceeds) against the backdrop of a growing city.

Any city could issue a green bond, but some conditions are important: the ability to have a large enough green bond volume; a government with a commitment to sustainability; leading financial institutions that prioritise sustainability will encourage the issuance of a green bond; and an institutional structure that requires sustainability and impact disclosure from companies makes issuing green bonds easier.

**Keywords:** Gothenburg, municipal green bond

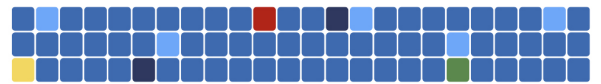
**Actor(s) interviewed:** /

**Disclaimer:** more details about this case are absent because we did not manage to conduct an interview with one of the main stakeholders. We still consider the case a best practice because it was the first municipal green bond in the world.

**Cover photos:** Barcelona Laboratory for Urban Environmental Justice and Sustainability (top photo); SEB Group (middle photo); © Maria Eklind (bottom photo)

**Further reading:** [Green Bonds. City of Gothenburg website](#) (English)

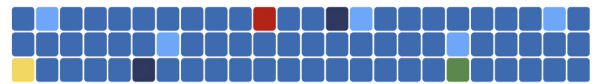
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## Best practice information card

**Table 1.** Gothenburg Green Bonds. Information card

Location	Gothenburg, Sweden
Population size	596,841 (2022)
Project area size	447.8 km <sup>2</sup> (city size)
Area type	Urban area
Climate challenge	Main climate risk in the Nordics: Flooding due to increase sea level rise and heavy rainfall is one of the biggest climate change risks in the Nordic countries and Gothenburg. Stricter climate policies that require reducing greenhouse gas emissions and upgrading the energy efficiency of buildings.
Key Community System(s)	Health and Human Wellbeing, critical infrastructure, water management.
Objectives	Transition Gothenburg to an environmentally sustainable city by 2030, with specific goals for nature, climate, and people, as described in the City's Environment and Climate Programme.
Climate challenge solution	There are eight green project categories: include renewable energy; green buildings; energy efficiency; clean transport; waste management; water and wastewater management; sustainable land use and environmental management; and climate adaptation
Key benefits	Improved sustainability and resilience on a city-wide level
Implementation status & timeframe	2013 (first green bond issuance, annual issuance since 2013)
Investment volume (€)	€2.15 billion total volume of outstanding green bonds as of 31 Dec 2023.
Key financing barriers addressed	<i>None reported</i>
Financial model	In 2013, Gothenburg issued the first municipal green bond in the world to attract investments aimed to reduce the effects of climate change. The green bond has been issued annually since 2013.
Financial sources	Private institutional investors (banks, pension funds...)
Financial instruments	Debt: municipal green bond



## Overview and timeline

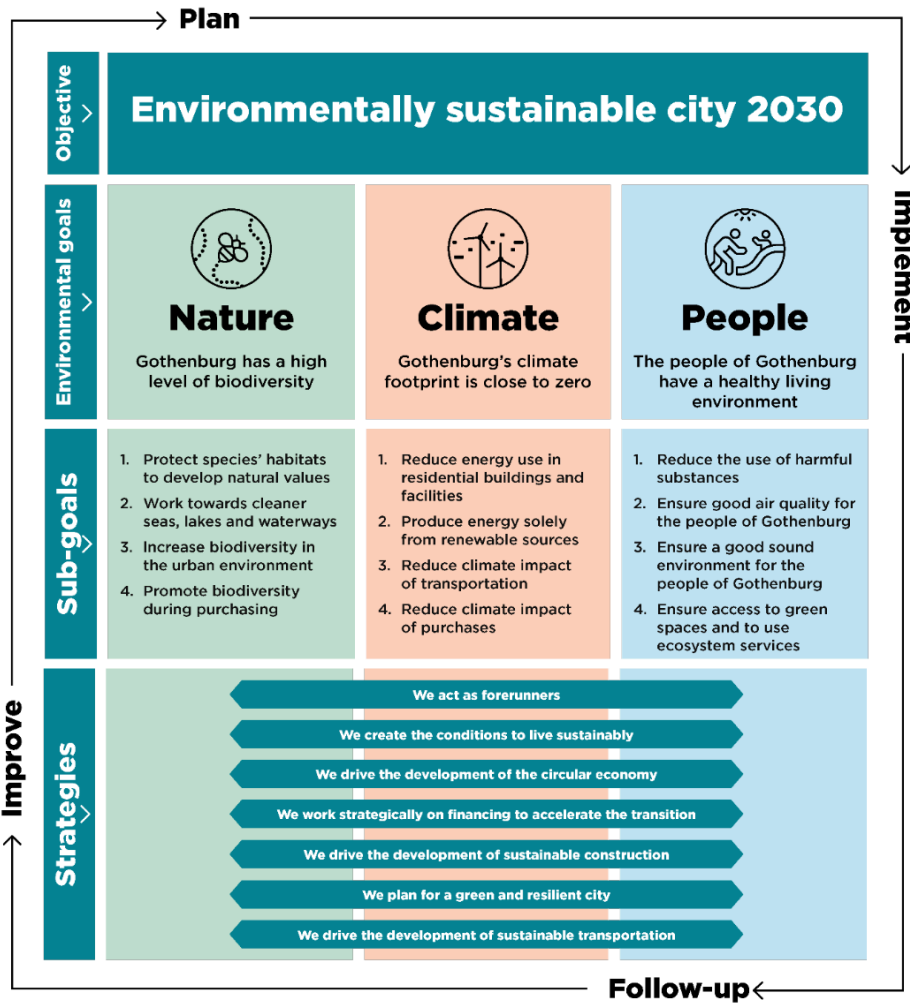
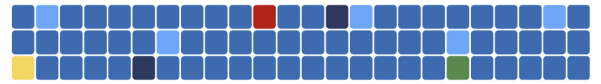
The **City of Gothenburg** is a municipality on the west coast of Sweden, strategically located between Oslo and Copenhagen. With a population of almost 600,000, Gothenburg is Sweden's second-largest city and home to Scandinavia's largest port and a wide range of industries. The city needs to grow rapidly to accommodate almost 700,000 residents by 2035 – 120,000 more than today. Over the next 15 years, there are plans to build 80,000 new homes and workplaces. **The city must develop sustainably while tackling increased climate risks, most notably increased flooding due to heavier rains and rising sea levels.** Flooding is one of the biggest climate change risks in the Nordic countries (Denmark, Sweden, Finland). Development plans in Gothenburg now focus on mapping areas exposed to sea level rise, higher flows in larger watercourses, and heavy rain. The Swedish capital assesses the climate risks of municipal activities every four years through a risk and vulnerability analysis that covers a broad range of risks. For climate mitigation, the city must comply with stricter climate policies that require reducing greenhouse gas emissions and upgrading the energy efficiency of its industries, buildings, transport, etc. GHG emissions in Gothenburg are mainly produced by heavy-emitting sectors, including industry, real estate (construction), and transportation.

Until well into the 20th century, Gothenburg was a city with heavy industries. In 1987, the Swedish Minister for the Environment called some parts of Gothenburg "hell's waiting room." In response, a special delegation known as 'Gothenburg's Environmental Project' was set up to tackle the problem. It became the starting point of a **successful transition from an industrial heartland to a global sustainability and climate leader.** Today, the city offers world-class solutions in the fields of energy, sustainable urban development, chemistry, waste, and transportation. The City of Gothenburg has long been committed to sustainable development with a clear aim to create an inclusive, green, and dynamic city. The City's environmental efforts have been recognized several times over the years. The City was awarded by environmental company Ragn-Sells as the "Circular Forerunner of 2022" thanks to its purchasing and procurement policy that contributes to lower emissions through requirements on recycled materials and/or circular solutions. In April 2022, the City was selected by the EU Commission as one of the 100 EU cities that will participate in the EU Mission for 100 climate-neutral and smart cities by 2030, the so-called Cities Mission. Other accolades include a number one ranking in the Global Destination Sustainability Index in 2016, 2017, 2018, 2019, and 2021.

The current plan is **Gothenburg's 2021-2030 Environment and Climate Programme**, which sets high environmental and climate goals for the city. The objective of the programme is to transition Gothenburg to an environmentally sustainable city by 2030 and provide guidance and a shared platform for the City's strategic long-term climate and environmental work. The starting points of the Programme are the UN's Sustainable Development Goals Agenda 2030, Sweden's national environmental goals system, the Paris Agreement, and its 1.5°C target. The programme was also initiated because of the challenges that Gothenburg as a community and the City of Gothenburg as an organization face in making the transition to an environmentally sustainable society. The goals are described in three categories, each with four sub-goals:

- Nature: "Gothenburg has a high level of biodiversity".
- Climate: "Gothenburg's climate footprint is close to zero".
- People: "The people of Gothenburg have a healthy living environment".

The high-level environmental and climate goals led the city to decide to also let its finances be part of the solution by further integrating its climate planning and financial planning. **In 2013, Gothenburg issued the first municipal green bond in the world to attract investments aimed at reducing the effects of climate change.** The green bond has been issued annually since 2013, and the green bond framework has been updated in 2015, 2019, and 2022. As of December 2023, the City of Gothenburg's total volume of outstanding green bonds was €2.15 billion. The City of Gothenburg uses its green bonds to fund projects that target: (a) **mitigation of climate change**, including investments in low-carbon and clean technologies, such as energy efficiency and renewable energy programmes and projects; (b) **adaptation to climate change**, including investments in climate-resilient growth; or, (c) to a smaller extent (up to a maximum of 20%) projects which are related more broadly to sustainability rather than directly related to climate change. **Green project categories** include renewable energy, green buildings, energy efficiency, clean transport, waste management, water and wastewater management, sustainable land use and environmental management, and climate adaptation. As described in the 2022 green bond framework, most of the proceeds are expected to go to the green building category. Green bond net proceeds will not be allocated to projects for which the main purpose is fossil energy production or nuclear energy. The only project among the green bonds issued so far that can be considered a true nature-based solution is the planting of trees in the city. The green bond framework describes **adaptation solutions in buildings, infrastructure, and the city** as solutions that substantially reduce the most important physical risks that infrastructure and the city are exposed to, such as flood defences, management of rising water levels, and extreme weather research and monitoring systems.

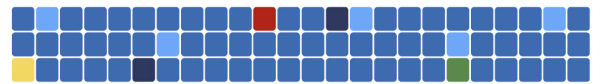


**Figure 1.** A summary image of the objective, the environmental goals, sub-goals and strategies of the Environment and Climate Programme.<sup>1</sup>

**Table 2.** Gothenburg Green Bonds. Timeline with key moments

Date	Key moment
1987	A special delegation known as 'Gothenburg's Environmental Project' was set up to tackle climate and environment related problem. It became the starting point of a successful transition from an industrial heartland to a global sustainability and climate leader.
2008	The Swedish SEB bank (Skandinaviska Enskilda Banken) played an important role in the issuance of the first green bond in the world, together with the World Bank
2013	The SEB bank and the World Bank approached the City of Gothenburg to discuss the municipality's investment in a green bond project.  The City of Gothenburg issues the first municipal green bond in the world. Since that year, the green bond is issued annually.
2015, 2019, and 2022	Update of the green bond framework
2021-2030	Gothenburg's Environment and Climate Programme, which sets high environmental and climate goals for the city. The objective of the programme is to transition Gothenburg to an environmentally sustainable city by 2030

<sup>1</sup> City of Gothenburg. (2021). *Environment and Climate Programme for the City of Gothenburg 2021–2030*. City of Gothenburg. [PDF](#)



## Governance and key stakeholders

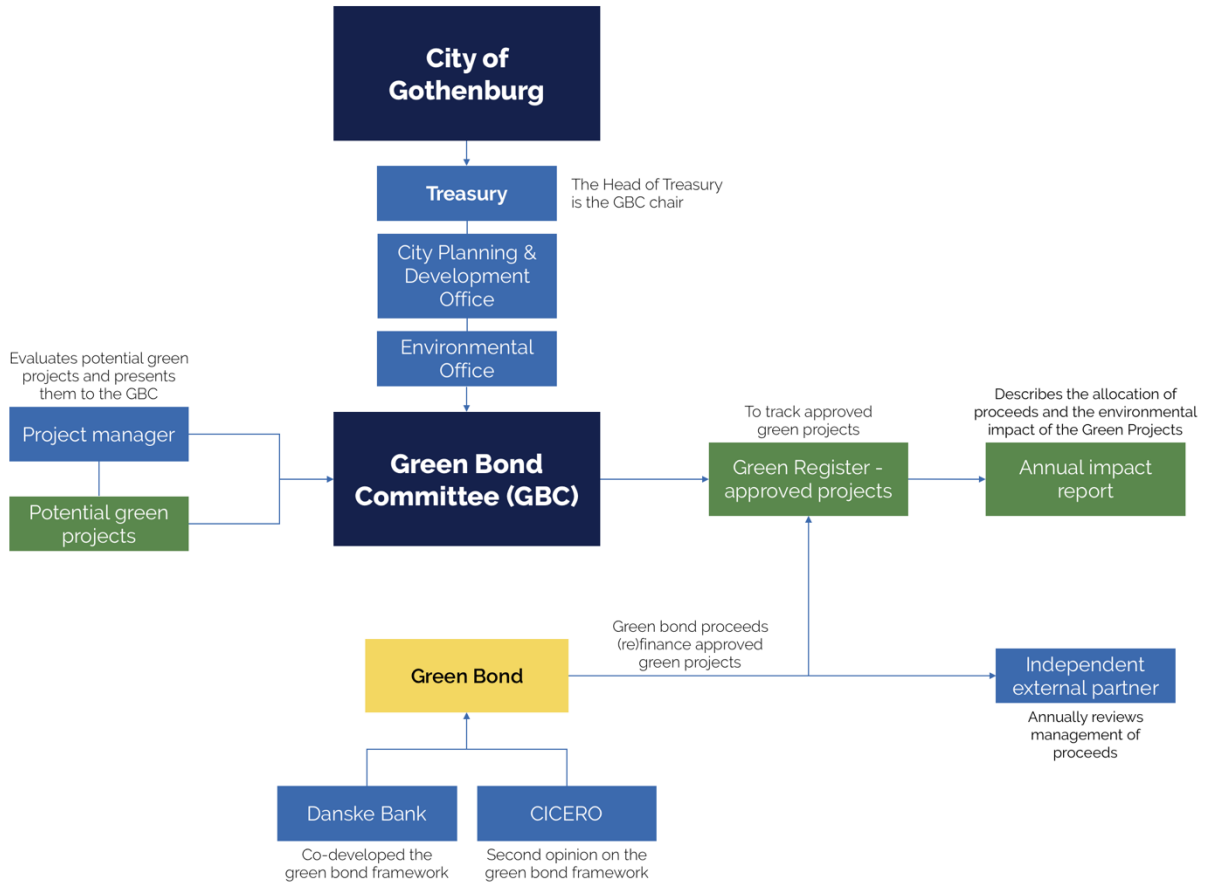
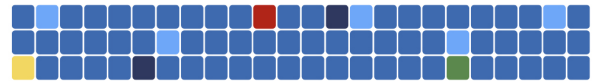
**Figure 2 shows an overview of the organisational structure of the Gothenburg green bonds.** More details about the green bond framework are provided in the 'Business Model & Financial Model' section. The main actor is the **City of Gothenburg**, which manages the allocation and use of green bond proceeds through a **Green Bond Committee (GBC)**. The GBC is chaired by the Head of Treasury and includes members from the City Planning & Development Office and the Environmental Office. The Head of Treasury is responsible for the monitoring and reporting of the green bond framework. The GBC may call upon other divisions within the City organisation if relevant. The GBC will convene every six months or whenever otherwise considered necessary. The GBC's core task is to review potential green projects presented to the committee by **project managers**. The GBC approves or declines potential green projects based on the eligibility criteria written in the green bond framework. Approved projects are listed and tracked in the Green Register. The GBC is also responsible for preparing and verifying the annual reporting on the allocation and impact of the net proceeds raised through the bonds. An **independent external party**, appointed by the City of Gothenburg, will on an annual basis provide a review to confirm whether the amount equal to the Green Bond net proceeds has been allocated to Green Projects. The review is performed until full allocation of the net proceeds and, in the event of any material changes, until the relevant maturity date.

**Danske Bank** (Denmark) co-developed the green bond framework in collaboration with the City of Gothenburg. In 2022, CICERO provided a second party opinion to this framework, verifying its credibility, impact, and alignment with ICMA's Green Bond Principles, including an assessment against the EU Taxonomy's technical screening criteria for substantial contribution to climate change mitigation. Although not involved in the structuring and preparation of the green bonds, **SEB** (Swedish Bank) and the **World Bank** played a brief role in 2013 by approaching the City of Gothenburg to discuss the possibility of a green bond project. SEB and the World Bank were involved in the inception of the world's first green bond issuance in 2008, when the City of Gothenburg proposed linking green bonds to the city's sustainability work. The idea received positive feedback from SEB and the World Bank, who shared their way of working with green bonds.

It is no surprise that the City of Gothenburg relied on the help of few partners to develop and manage the green bonds. The City of Gothenburg is the largest employer in Gothenburg and employs more than 50,000 people across a large variety of job roles in the districts, departmental administrations, and municipal companies. It has sufficient resources to manage the green bonds.

**Table 3.** Gothenburg Green Bonds. Key stakeholders and their responsibilities or roles

Stakeholder	Type	Role and responsibilities
City of Gothenburg	Public (municipality)	Manages the green bonds through the Green Bond Committee, chaired by the head of Treasury and with members from the City Planning & Development Office and the Environmental Office.
Danske Bank	Private (bank)	Co-developed the green bond framework together with the City of Gothenburg
Green project manager	Private/public	Responsible for evaluating potential green projects and presenting them to the Green Bond Committee.
CICERO	Private	Wrote the 'Second Opinion' on City of Gothenburg's Green Bond Framework (2022).
SEB	Private (bank)	Had a meeting with the City of Gothenburg to discuss the launch of a green bond project. SEB already had green bond experience, being involved in the world's first green bond in 2008.
World Bank	International	Had a meeting with the City of Gothenburg to discuss the launch of a green bond project. The World Bank already had green bond experience, being involved in the world's first green bond in 2008.



**Figure 2.** Organisational and financial structure of the Gothenburg Green Bonds (no information was found about the repayment of green bonds) (source: author).

## Business model & financial model

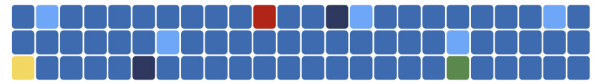
### Business model

The Gothenburg green bonds have been issued annually since 2013 to increase available financing through debt capital for green projects so the city can reach its ambitious climate and environmental goals and become an environmentally sustainable city by 2030. By setting up this Green Bond Framework, the City of Gothenburg **offers investors the opportunity to further support the transition towards a low-carbon, climate change-resilient and ecologically sustainable society.** The eligible green projects described in the green bond framework contribute to at least one of the six environmental goals of the EU Taxonomy through the eight project categories mentioned in the first section. Green projects are city-wide and thus potentially offer value to all Gothenburg citizens.

### Financial model

The International Capital Market Association (ICMA), author of the globally acknowledged Green Bond Principles (GBP), defines **green bonds "as any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Green Projects** (see Use of Proceeds section below) and which are aligned with the four core components of the GBP. It is understood that certain eligible Green Projects may have social co-benefits, and that the classification of a use of proceeds bond as a Green Bond should be determined by the issuer based on its primary objectives for the underlying projects."<sup>2</sup> The difference between green bonds and traditional bonds is that they are used to fund green projects with environmental benefits. The issuer produces a green bond framework, where they describe the use of proceeds, process for project evaluation and selection,

<sup>2</sup> bonds that intentionally mix eligible Green and Social Projects are referred to as Sustainability Bonds; bonds that are predominantly used for social projects and may contain some minority share of green project elements are referred to as social bonds.



management of proceeds and reporting. The City of Gothenburg complies with the GBP's four key components as described in the Gothenburg green bond framework:

1. **Use of proceeds:** The green bond framework describes eligible green projects that could be financed (new projects) or refinanced (existing projects) with green bond proceeds. Refinancing is defined as financing for green projects completed more than 12 months prior to the Green Bond Committee's approval. Eligible projects can be fully or partially funded by the city. The green bond framework describes eight eligible green project categories: renewable energy; green buildings; energy efficiency; clean transport; waste management; water and wastewater management; sustainable land use and environmental management; and climate adaptation.
2. **Process for project evaluation and selection:** The evaluation and selection process for eligible Green Projects is a key component in ensuring that an amount equivalent to the net proceeds from Green Bonds is allocated to Green Projects eligible under this Framework. Green Projects shall comply with the eligibility criteria defined under the Use of Proceeds section. The process of evaluating and selecting eligible Green Projects as well as the allocation of Green Bond proceeds to eligible Green Projects comprises the following steps: first, the relevant Project Manager evaluates potential Green Projects, their compliance with the Green Project categories, and their environmental benefits. Second, a list of the potential Green Projects is presented to the City of Gothenburg's Green Bond Committee (GBC). The GBC is solely responsible for the decision to acknowledge the project as green, in line with the Eligibility Criteria in this Framework. Approved Green Projects will be tracked using a dedicated "Green Register". A decision to allocate net proceeds will require a consensus decision from the GBC. The decisions made by the GBC will be documented and filed.
3. **Management of the proceeds:** The City of Gothenburg will use a Green Register to track that an amount equivalent to the net proceeds from Green Bonds is allocated to Green Projects. The purpose of the Green Register is to ensure that an amount equivalent to the net proceeds only supports the financing of eligible Green Projects or is used to repay any Green Bonds outstanding. The Green Register will form the basis for the impact and allocation reporting. The balance of proceeds should be adjusted on an annual basis to match allocations to eligible Green Projects (re)financed during this period. In the event a project has been sold by the city or is no longer eligible, the City of Gothenburg commits to substitute the project as soon as practical, on a best-effort basis. The balance of unallocated Green Bond net proceeds will be held in the liquidity reserve and be managed in line with the City of Gothenburg's treasury management policies. The maximum period that net proceeds may be unallocated is 12 months.
4. **Reporting:** To enable the monitoring of performance and provide insights into prioritised areas, the City of Gothenburg will annually and until the maturity of the Green Bonds issued, provide investors with a report ("Green Bond Impact Report") that describes the allocation of proceeds and the environmental impact of the Green Projects. The report will be made available on the City's website together with this Framework. Allocation reporting will include the following information:
  - i. A summary of Green Bond developments.
  - ii. Nominal amount of outstanding Green Bonds.
  - iii. Amounts allocated to each project category.
  - iv. Relative share of new financing versus refinancing.
  - v. The amount of unallocated proceeds.
  - vi. Descriptions of selected Green Projects financed.

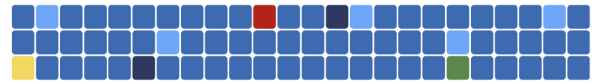
No information could be obtained about the profile of the investors, and how the bonds are repaid by the municipality.

## Enabling conditions

A green bond is a straightforward instrument that can be used by municipalities to raise financing for climate adaptation and mitigation. **Green bonds and traditional bonds are similar financially and technically.** This means that the low credit risk is the same for both, and the repayment ability of the issuer must be assessed for green bonds in a similar way. A green bond does not entail an extra risk for investors compared to traditional bonds. The main difference between a green bond and a traditional bond is the green bond framework. Municipalities that have experience with municipal bonds would only need some additional resources to establish and manage a green bond framework. The Green Bond Principles (GBP) have become the global standards for issuing green bonds, offering guidance for the key components of a green bond framework. Although the standards are not legally binding, the **GBP are widely used and reduce the risk of greenwashing.**

The green bond framework based on the GBP describes procedures for reporting and disclosure of green finance investments, which are vital to building confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society. **Transparency, reporting, and verification of impacts** are important for investors. The additional requirement of a green bond to monitor and report key impacts did not require a major change in Gothenburg, at least not for companies owned by the city. According to the EU directive on sustainable reporting, these companies were already obligated to





include sustainability factors as part of their annual financial reporting, including measuring, following up, describing, and communicating the company's influence on sustainable development. Reporting on the allocation of proceeds and the environmental impact of green projects is done until the maturity of the green bonds issued.

Since the first municipal green bond of 2013, many Swedish municipalities have taken the opportunity to use green bonds funding for investments in green infrastructure and buildings. **Due to the transactional costs involved, a green bond issuance requires a certain volume.** For Gothenburg, an important condition that led the municipality to agree quickly on the use of green bonds was its **strong environmental and climate goals** that forced the city to look for additional financing sources.

## Outcomes

Since the first issuance in 2013, the city issued a green bond every year. **As of December 2023, the City of Gothenburg's total volume of outstanding green bonds was €2.15 billion.** Detailed data about the green bond volumes and the allocation of proceeds is available in the 2022 impact report. The key takeaways until 2022 are:

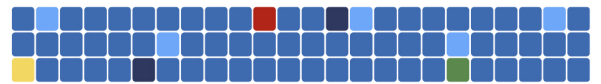
- The volume of each green bond issuance has grown consistently since 2013.
- As of 2022, the green investment portfolio had a value of €1.59 billion with investments in 29 projects. 76% of that volume has been invested in the project category 'green and energy efficient buildings', followed by 11.9% for water and wastewater management, 5% for clean transportation, 3.9% for renewable energy, 2% for energy efficiency, 0.6% for waste management and circular economy, 0.6% for environmentally sustainable management, and 0% for climate adaptation. The report does not disclose if proceeds were used to cover all or part of the project costs.
- As of 2022, green bonds comprised 57% of the city's outstanding bonds.

Here are some of the **main projects** that have been (re)financed with green bond proceeds<sup>3</sup>:

- Lackarebäck water treatment and purification filter (2013): The largest ultrafilter built in Scandinavia for water purification.
- Various projects in sustainable housing (2014), including the use of durable materials, green roofs, energy-efficient appliances, district heating.
- Tree planting (2014). The project improves biodiversity, promotes a green cityscape and has a positive effect on urban air quality.
- Kodammarna sewage pump station (2017) to reduce the overflow to the river Göta älv by draining sewage from 160,000 people.
- Selma Town Hall (sustainable building, 2018). The building is silver-certified by Sweden Green building Council.
- Nya Solevi-Sweden's largest solar park (investment in renewable energy, 2018).
- Electric buses (clean transportation, 2019).
- Wetland for wildfowl at Torsviken (2021). The wetland is a way of reinstating an area that has been used as a deposition site for dredging spoils for almost 40 years.
- Hoppet (preschool) - Sweden's first fossil-free construction project (2021).
- 500 new public charging stations for electric cars (2021).
- Gothenburg's largest thermos to store heat – thermal storage unit (2022).
- Göteborg Energi's district cooling facilities (2022). Recycled energy and the city's abundant surplus heat is repurposed to generate cooling.

**Green proceeds have not been used for climate adaptation projects.** The tree planting and the Torsviken wetland may contain adaptation benefits but have been categorised as 'environmentally sustainable management of living natural resources and land use'. Considering the small share (0.6%) of these categories, these investments remain small compared to other categories. We could not obtain information that explains the lack of investment in climate adaptation. We also did not find information about climate adaptation projects financed through other instruments. The high share of investments in the category 'green and energy-efficient buildings' could be explained by the combination of urban growth with targets to reduce GHG emissions. This high share may reflect a policy priority at this time for Gothenburg. The **direct impacts** to date have only been measured in **avoided/reduced GHG emissions, annual energy savings (reduced/avoided), and annual renewable energy generation.** Additionally, the impact report mentions for each project some additional information, sometimes describing impacts but without quantified outcomes, as is the case with the tree planting project mentioned earlier in this section.

<sup>3</sup> A complete overview and description of all projects until 2022, including allocated amounts, can be found in the 2022 impact report ([PDF](#)).



The annual issuance reflects the interest from investors in the Gothenburg green bonds. The first green bond had a value of €43 million but was oversubscribed almost three times in less than 30 minutes. The City of Gothenburg disclosed to CICERO as part of the “second opinion” that the selection process works well. Projects have been rejected by the GBC because of environmental concerns. In other cases, the GBC demanded additional information before approving projects as green projects.

## Lessons learned

### Successes and limitations

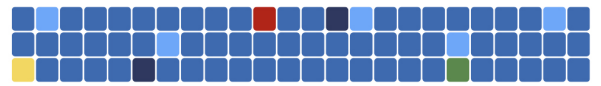
CICERO gave the City of Gothenburg's green bond framework and its governance structure an excellent rating, attributed to the city's progressive and ambitious climate and environmental targets, the wide set of eligible green projects to help achieve these targets, and the sound estimations of impact indicators and projections of impacts. The green bond proposal in 2013 quickly found consensus among City employees and policymakers. There was little political debate, and everyone believed it was a good idea, also because private investors quickly jumped at the opportunity. The issuance of the first green bond was also facilitated by SEB's leadership role in enabling the green bond market. SEB shared its green bond knowledge and experiences with the City of Gothenburg.

From an investor's point of view, **the green bond has successfully attracted investors' interests each year**, which is partly a consequence of the **Swedish business and financial culture that has a strong focus on sustainability in combination with Sweden's strong green bond tradition** (García-Lamarca and Ullström, 2022; Torvanger et al., 2021). The Swedish SEB bank was involved in the issuance of the first ever green bond, and Gothenburg issued the first municipal bond. Since 2020, Sweden also has a sovereign green bond framework. Over the years, the Swedish financial markets have evolved into a competition on sustainability performance among institutions. Companies and institutions aim for high visibility on sustainability in media and society, leading to a strong focus on transparency, disclosure, and communication of their sustainable activities. The now strong tradition of sustainability disclosure is partly due to politically determined mandates that force companies, including financing and investment entities, to do so. The culture is also a consequence of the benefits perceived by the private sector. Investors that purchase green bonds experience a positive effect because they know that they are contributing to a sustainable society. Investing in green bonds also has a pragmatic effect, because doing so is positive for an investor's branding and helps to attract clients. In Sweden, companies have difficulties selling their products if they do not care about sustainability. Green financial products are popular with their clients, and it is a growth sector. The feeling of doing something good while at the same time attracting clients creates a win-win situation for investors that purchase green bonds.

The **lack of green bond proceed allocations to climate adaptation** so far can be considered a limitation from the perspective of the need for more climate adaptation investments, but it is not a limitation of the Gothenburg green bonds per se, which have successfully channelled high investment volumes to green projects. The bonds have received some criticism because **green buildings in public housing projects paid for with green bond proceeds have increased local rents**, making them unaffordable for single-parent and/or low-income households (García-Lamarca and Ullström, 2022). This side effect highlights the importance of considering the social dimensions of municipal green bond spending in designing the instrument and selecting projects, especially in green public housing. Also, a study by García-Lamarca and Ullström (2022, p. 214) conducted interviews with municipal employees about green public housing projects and found that **“Gothenburg would have carried out the same projects with or without green bonds**. This stands in stark contrast to the green bond reporting framework which states that the instrument has become an important tool to reach the City's climate and environmental goals and statements in an international green finance forum by Gothenburg's mayor in 2015 saying that green bonds play a major role in Gothenburg's sustainability transition.” Again, this rather reflects policy choices and political decisions and is not a direct limitation of the use of green bonds to finance green projects.

### Transferability conditions and potential

According to the UN Climate Change secretariat, **“any city, institution, country or company in the world with loans and investments in climate projects could issue a green bond.”** The city of Gothenburg's green bond program has served as a model for other cities, including cities in the EU as well as in developing and emerging economies that wish to learn from and emulate the type of green bond program that Gothenburg has put in place. Gothenburg has shared information and knowledge in different ways, for example, as a speaker at international conferences, including COP20 and COP21. However, some conditions must be met by other municipalities that would like to exploit the potential of green bonds. The conditions mentioned below are drawn from studies about Sweden in general (Ferlin et al., 2020; Torvanger et al., 2021), because the country has proven to be a world leader when it comes to green bond activity.



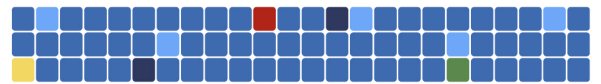
- Gothenburg is a large city to European standards and the largest employer of the city. Due to their sustainability and climate engagements, they possessed **staff and expertise** that allows them to solely manage the green bond once the green bond framework was completed. Also, the transactional cost involved means that a **green bond issuance requires a certain volume**. Taken together, the green bond volume and the expertise needed means that smaller municipalities may be ill-equipped to issue a green bond on their own, but they could do so on a regional level in collaboration with other municipalities and higher-level governments.
- "Issuance of green bonds is stimulated if the **government shows a commitment to sustainability** in public policy generally and especially with respect to financial markets. A government sending clear signals on strengthened sustainability requirements over time reduces uncertainty for business and therefore instigate sustainability-aligned investments." (Torvinger, 2021). 'Government' refers to the government eventually adopting and issuing green bonds, which can be a local, regional, or national government.
- "If one or more leading financial institutions in a country take leadership on sustainability, issuance of green bonds will be encouraged. The financial institutions may be underwriters or issuers, or **investors championing green bonds**" (Torvinger, 2021). In Sweden, the SEB is considered a green bond champion.
- "It is important for financial institutions active in the green bond markets to **showcase their activities in media and society**" (Torvinger, 2021).
- "For financial institutions it may also be important to show that green bonds have the potential to **grow to a sizable share of the total bond market**" (Torvinger, 2021).
- "The green bond market will be facilitated if issuers and investors find **common interest** and ground on promoting green bonds" (Torvinger, 2021).
- "**Disclosure of green bond activities and impacts** is essential for building attention to and broad confidence in green bonds in society. Thus, more requirements from government on disclosure of activities relevant for sustainability for corporates and financial actors will likely stimulate the green bond market. This is in part because an existing institutional structure for sustainability disclosures makes issuing green bonds easier and in part because higher quality disclosures contribute to the credibility of green financial instruments" (Torvinger, 2021).
- "**Better access to climate-related information and clear and common definitions of green and brown activities** are a necessary condition for investors to be able to allocate capital more effectively from brown to green activities and thereby support a transition to a less fossil-based economy. In a broader perspective, it is also a necessary condition for all participants in the financial sector to be able to effectively measure, price and manage their exposures to climate-related risks" (Ferlin and Sternback Fryxell, 2020).

## Related factsheets

Other cases that include a bond, are Hampton Environmental Impact Bond (ID 08), Paris Climate Bond (ID 09), Viveracqua Hydrobond (ID 16). The most similar case of these three is the Paris Climate Bond.

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<sup>4</sup> A group of Nordic public sector green bond issuers. Participants (DK=Denmark, FI=Finland, NO=Norway, SE=Sweden): City of Gothenburg (SE), Kommunalbanken, KBN (NO), Kommuninvest (SE), Kommunekredit (DK), Municipality Finance (FI), Municipality of Linköping (SE), Municipality of Lund (SE), Municipality of Norrköping (SE), Municipality of Örebro (SE), Region Skåne (SE), Region Stockholm (SE), Swedish Export Credit Corporation, SEK (SE). Municipality of Västerås (SE) participates in the group as an observer. In addition, Municipality of Borås and Swedish Association of Local Authorities and Regions (SALAR) have participated in the development work, as representatives of the Kommuninvest Green Bonds Environmental Committee