

ASSESSMENT

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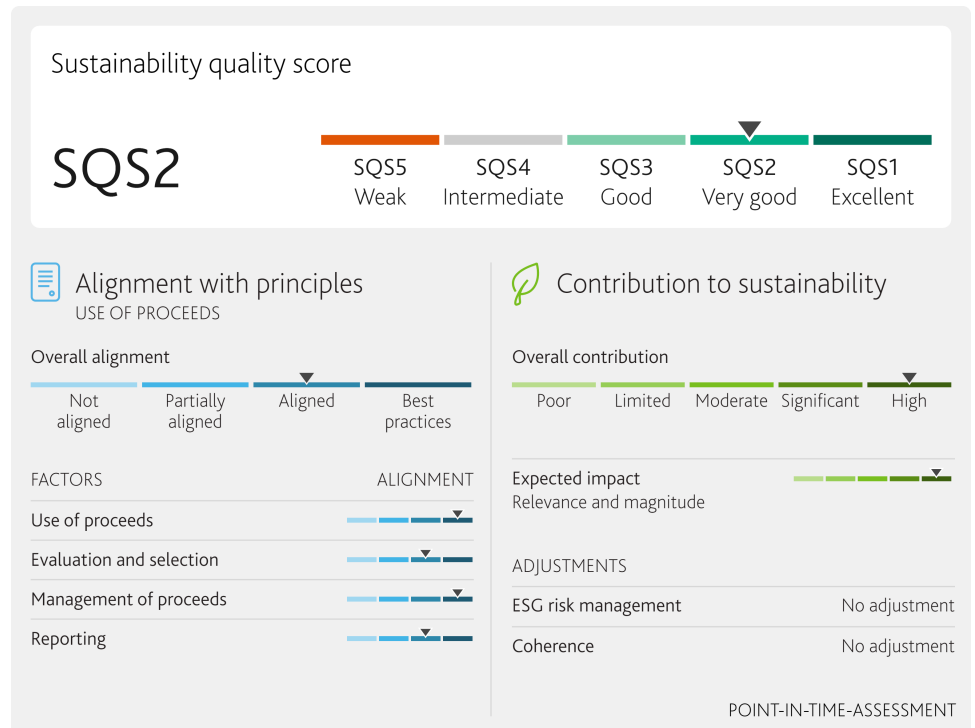
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City of Paris

Second Party Opinion – Sustainability Bond Assigned SQS2 Sustainability Quality Score

Summary

We have assigned an SQS2 Sustainability Quality Score (very good) to the City of Paris' sustainability bond issued in November 2021. The issuer has financed projects across three green categories (clean transportation, energy efficiency and climate change adaptation) and two eligible social categories (access to essential services, and social and affordable housing). In accordance with the main characteristics described within the City of Paris' formalized framework dated October 2017 and the exhaustive list of projects detailed in the annual report of the November 2021 bond, the issuance is aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP) 2021 (including the June 2022 Appendix 1), Social Bond Principles (SBP) 2021 (including the June 2022 Appendix 1) and Sustainability Bond Guidelines (SBG) 2021. The bond also demonstrates a high contribution to sustainability.



Scope

We have provided a second party opinion (SPO) on the sustainability credentials of the City of Paris' sustainability bond issued in November 2021, including its alignment with the ICMA's GBP 2021 (including the June 2022 Appendix 1), SBP 2023 and SBG 2021. Proceeds from the bond financed projects in three green categories (clean transportation, energy efficiency and climate change adaptation) and two social categories (access to essential services and social and affordable housing), as outlined in Appendix 2 of this report.

Our assessment is based on the last updated version of the sustainability bond reporting of the November 2021 issuance, received on April 2024, and the City of Paris' Sustainability Bond Framework dated October 2017, and our opinion reflects our point-in-time assessment¹ of the details contained in these versions of the reporting and framework, as well as other public and non-public information provided by the issuer.

We produced this SPO based on our [Framework to Provide Second Party Opinions on Sustainable Debt](#), published in October 2022.

Issuer profile

The City of Paris is the administrative and economic capital of France. The city had an estimated population of 2,142,366 and a population density of 20,403 inhabitants per square kilometer as of January 2021. It covers a total area of about 105 square kilometers, divided into 20 municipal boroughs (arrondissements). In June 2020, the first, second, third and fourth boroughs were grouped into a single borough — each of the 17 has its own directly elected council and administrative offices.

Regional and local governments (RLGs) in developed economies are very diverse in terms of geography and ecosystems, responsibilities assumed, tax base concentration, and policies and regulations designed to reduce carbon emissions or mitigate air pollution and other environmental risk factors. RLGs are generally resilient to climate shocks and negative climate trends. However, they are exposed to demographic risks as their populations age. Such risks can slow economic growth and increase demand for services, resulting in less dynamic fiscal revenue, increased social expenditure and unfunded pension liabilities. Poor employment growth prospects and labor participation may also strain advanced economies' RLGs' finances, particularly where the working-age population is contracting, along with high levels of income inequality and pressure on housing affordability (especially in big cities).

Strengths

- » The issuer has provided a detailed list of the projects financed with the bond proceeds, including the respective allocation by category and project.
- » The environmental benefits are relevant and measurable.
- » The bond proceeds are allocated within 12 months without temporary investments.

Challenges

- » There is no external verification of the environmental and social indicators.
- » The project related to the construction of the sports arena lacks additional eligibility criteria to justify its claims of contributing to good health and well-being.

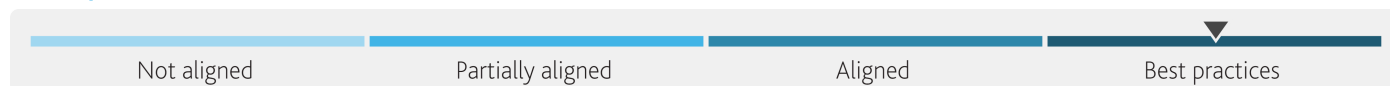
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Alignment with principles

The City of Paris' sustainability bond issued in November 2021 is aligned with the four core components of the ICMA's GBP, SBP (including the June 2022 Appendix 1) and SBG 2021:

- Green Bond Principles (GBP)
- Social Bond Principles (SBP)
- Green Loan Principles (GLP)
- Social Loan Principles (SLP)
- Sustainability-Linked Bond Principles (SLBP)
- Sustainability Linked Loan Principles (SLLP)

Use of proceeds



Clarity of the eligible categories – BEST PRACTICES

The City of Paris has shared the list of projects financed by the 2021 bond issuance, including their locations and detailed descriptions, as well as the target populations for social projects. All the projects are located in Paris. The bond proceeds were exclusively used to finance capital spending in accordance with the applicable budget regulation.

Clarity of the environmental or social objectives – BEST PRACTICES

The issuer has clearly outlined the environmental and social objectives associated with all environmental and social projects, which are coherent with international standards. These objectives include climate change mitigation, climate change adaptation and access to essential services. All financed projects are relevant to the respective environmental and social objectives.

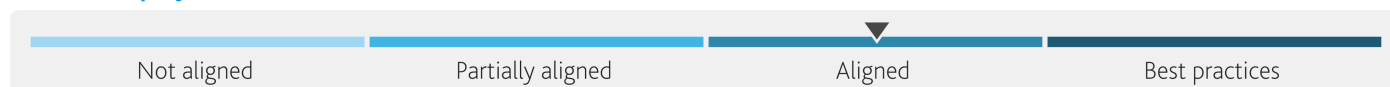
Clarity of the expected benefits – BEST PRACTICES

The environmental and social benefits are clearly identified and measured at project level. Relevant indicators include, for example, avoided carbon emissions (in tonnes of CO₂ per year), the number of trees planted and hectares of green spaces created, and the number of social housing units created. For environmental projects, the issuer also reports social co-benefits, and for social projects, the issuer also reports environmental co-benefits. This provides a holistic view of the sustainability benefits of the financed projects. The issuer has reported that there has been no refinancing.

Best practices identified - use of proceeds

- » Eligibility criteria are clearly defined for all project categories
- » Objectives set are defined, relevant and coherent for all project categories
- » Relevant benefits are identified for all project categories
- » Benefits are measurable and quantified for most projects, either ex-ante with clear baselines or with a commitment to do so in future reporting
- » Commitment to transparently disclose the share of proceeds used for refinancing where feasible
- » Commitment to transparently communicate the associated lookback period(s) where feasible

Process for project evaluation and selection



Transparency and quality of process for defining eligible projects – ALIGNED

The process for evaluating and selecting the projects financed is structured and clearly defined in both the framework and reporting. A dedicated procurement department ensures the integration of environmental, social and governance (ESG) criteria in contracts, which applies to most of the projects. The Directorate of Finance and Purchases collects data on the eligible projects and carries out an initial analysis of asset eligibility, in concert with operational teams managing the projects and elected council members. The sustainability bond committee — comprised of members with relevant expertise — selects, reviews and approves the eligible projects on an annual basis. The compliance of projects with the eligibility criteria is only monitored until the full allocation of the proceeds and not throughout the lifetime of the bond.

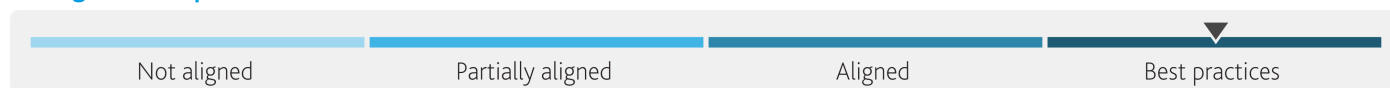
Environmental and social risk mitigation process – ALIGNED

The City of Paris is transparent regarding its management of environmental and social risks. The sustainable governance indicators in their framework clearly show their institutional commitment. In addition, they provide comprehensive descriptions at the project level, explaining the steps taken to address specific ESG risks. Where possible, these reports include quantified indicators. The issuer does not actively monitor controversies associated with projects. If controversies related to financed projects were to arise, a response would be provided to the media. However, visibility into whether remediation actions would be taken is limited.

Best practices identified - process for project evaluation and selection

- » The roles and responsibilities for project evaluation and selection are clearly defined and include relevant expertise
- » The process for project evaluation and selection is traceable
- » Material environmental and social risks for most project categories are identified
- » Presence of corrective measures to address environmental and social risks across projects

Management of proceeds



Allocation and tracking of proceeds – BEST PRACTICES

The issuer has defined a clear process for the management and allocation of bond proceeds in its publicly available framework and reporting. Net proceeds from the bonds are placed in the city's general treasury account, but separately tracked to ensure their use only for eligible projects. The City of Paris confirmed it has taken specific measures as part of the annual financial audit process to monitor the amounts invested in the selected eligible projects. The allocation period for the bond proceeds was shorter than 12 months, constituting a best practice.

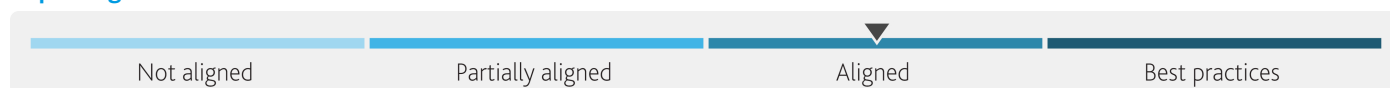
Management of unallocated proceeds – BEST PRACTICES

Unallocated proceeds are kept in cash in the standard liquidity fund of the City of Paris' treasury, following the French regulatory framework for local authorities. There are no temporary placements for unallocated proceeds. In the event of project divestment, the issuer has specified that it will reallocate the proceeds to projects that are compliant with the bond framework.

Best practices identified - management of proceeds

- » Broad disclosure of a clearly articulated and comprehensive management of proceeds policy to external stakeholders; bondholders or lenders at a minimum
- » Short allocation period, for example typically less than 24 months
- » Disclosure on temporary placement and presence of exclusion criteria toward environmentally or socially harmful activities
- » Commitment to reallocate proceeds to projects that are compliant with the framework

Reporting



Transparency of reporting – ALIGNED

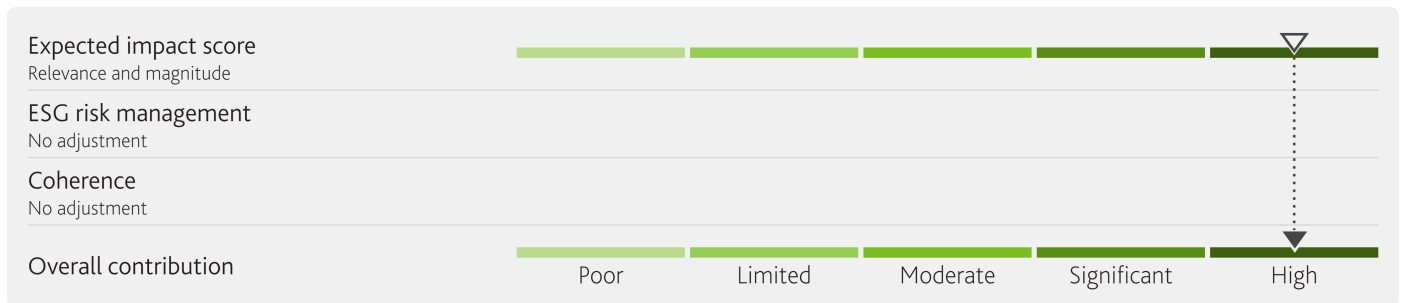
The City of Paris has committed to reporting on an annual basis, at least until the full allocation and in case of significant developments. The reporting is disclosed publicly and includes details on financed projects, proceeds allocation, progress on the projects financed, environmental and social results and impact indicators, and ESG risk management measures and indicators. Reporting on the allocation of proceeds is exhaustive because there is no temporary investment of unallocated funds and no refinancing. However, the issuer has not committed to report on significant developments, issues or controversies related to the financed projects. The environmental and social indicators are clear and relevant, and cover all the expected environmental and social benefits, as well as co-benefits (for example, social co-benefits for projects with an environmental objective). In addition, the issuer has included calculation methodologies and assumptions in its reporting, in line with previous commitments. However, there is no independent verification of the allocation of proceeds, nor of the environmental and social indicators.

Best practices identified - reporting

- » Reporting on allocation of proceeds and benefits done at least at eligible category level
- » Exhaustive allocation reporting – balance or % of unallocated funds, types of temporary investments (e.g. cash or cash equivalent) and share of financing vs re-financing
- » Clear and relevant indicators to report on the expected environmental/social impact of all the projects, where feasible, or eligible categories
- » Disclosure of reporting methodology and calculation assumptions to bondholders or lenders at a minimum

Contribution to sustainability

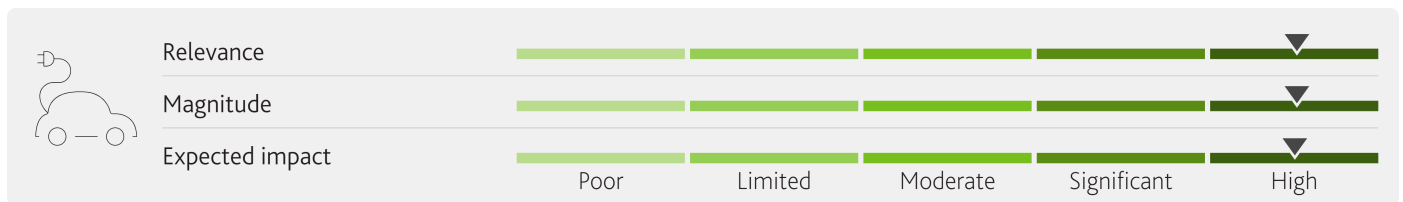
The framework demonstrates a high overall contribution to sustainability.



Expected impact

The expected impact of the eligible project categories on the environmental and social objectives is high. Based on information provided by the issuer, we have used the actual proceeds allocation information to inform the weightings of categories, with clean transportation, and social and affordable housing accounting for two-thirds of the weightings. A detailed assessment by eligible category is provided below.

Clean transportation

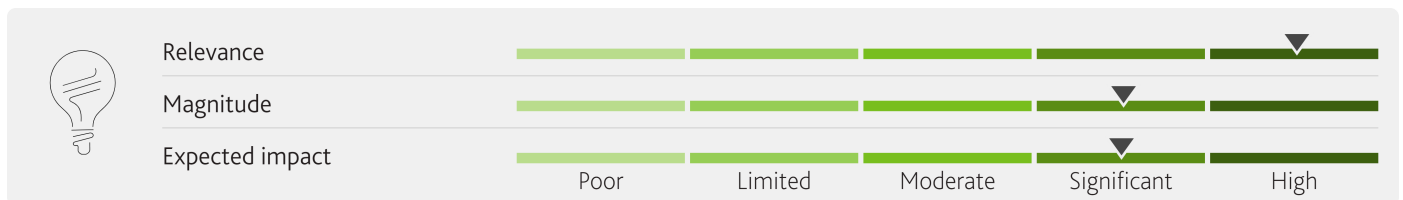


The clean transportation category includes the financing of low-carbon assets, such as cycle lanes, public passenger transport infrastructure and the redesign of the Porte Maillot, to include train stations, cycle lanes and bus lanes.

Investments to promote clean transportation in Paris address a highly relevant challenge for the city. Expanding the city's access to low-carbon transportation is critical for the reduction of the city's dependence on the use of individual cars and the reduction of the sector's greenhouse gas (GHG) emissions. According to the Ministry of Ecological Transition, the sector accounts for 31% of the country's GHG emissions in France². Moreover, although Paris is one of the top 10 cities in the world in terms of urban mobility readiness³, challenges remain in terms of system efficiency and social impact, where the city lags the European average⁴.

The eligible projects to expand cycle lanes and extend tramway, subway and bus lines highly contribute to GHG emission reduction. Assets are dedicated to or support public zero tailpipe emission vehicles, and hence follow the strictest market standards. The extension of public transportation not only favors the extension of transportation within Paris but also helps further connect the city to suburbs. However, the Porte Maillot project includes three lanes dedicated to individual passenger cars.

Energy efficiency



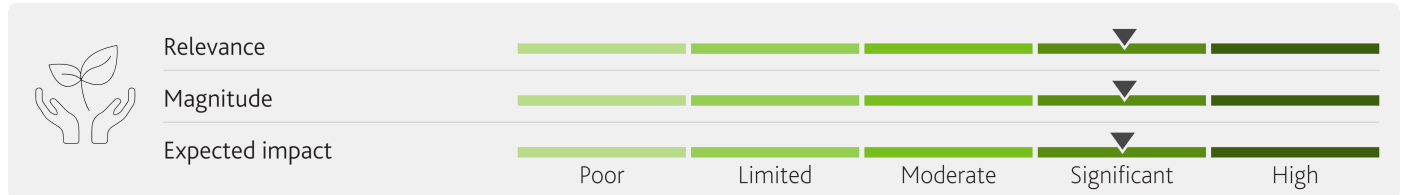
The category aims at financing different types of projects: the construction of a nursery, the renovation of social housing and the installation of more efficient public lighting.

Improving the energy efficiency of buildings is a critical step toward decreasing the overall energy use in the building sector and it also represents a highly relevant topic in the context of the French regulation evolution regarding EPC certification⁵. In 2021, the real

estate sector is estimated to account for 44% of France's energy consumption (mainly because of the heating needs of the residential sector), and roughly 25%-30% of the country's total GHG emissions⁶. Moreover, to follow the National Low-Carbon Strategy, 370,000 buildings must be completely renovated each year between 2015 and 2030, with an additional 700,000 buildings per year between 2030 and 2050⁷. This compares with less than 300,000 buildings each year currently. The average energy consumption of residential buildings in Paris is 242 kWh/m² per year⁸. In 2022, more than 50% of the Parisian agglomeration buildings had an energy performance certificate of E, F or G, with only 19% attaining a C level or above.

The projects identified in the category contribute significantly to the reduction of energy consumption and GHG emissions of the Parisian building sector. The renovation of social housing buildings led to a 54% of energy consumption reduction in 2021, in line with the best standard from the Climate Bond Initiative (CBI). However, despite a significant reduction, the financed buildings hold a EPC-D level because of the relatively high average energy consumption, reaching 184 kWh/m²/year. The new nursery, Crèche Lefebvre, complies with the RT2012 thermal regulation. Although it is a relevant standard, more stringent standards exist in the market. Finally, the efficient public lighting and signage project aims at reducing energy consumption by 2,700 MWh per year, with a 30% reduction in energy consumption in 2021 compared with 2004 levels.

Adapting to climate change

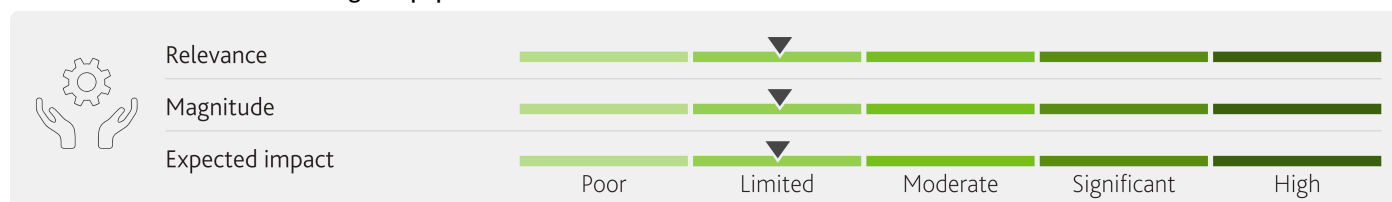


The category aims at financing the expansion of green areas and the increase urban tree coverage in the city. The goal is to mitigate the risk associated with the urban heat island effect, and to protect and restore biodiversity.

The eligible projects are designed to respond to physical climate risks within the City of Paris. Although Paris is less susceptible to climate change impacts compared with other French regions and cities, the challenge remains significant. With its very dense urban area, the City of Paris influences its meteorological environment by generating an urban microclimate known as an urban heat island. During the August 2003 heat wave, a difference of 4°C-8°C was observed between the center of Paris and the surrounding less urbanized areas, highlighting the relevance of projects that aim to reduce the effects of extreme heat. In terms of green areas, Paris is the city of France with the least green areas per inhabitant⁹, with a canopy index below the international target of 40%. Compared with EEA-38 cities¹⁰, Paris ranks 33rd in terms of total green infrastructure.

Investments in the expansion of green areas in the City of Paris contribute significantly to address climate change adaptation at a local level. Expanding green spaces and enhancing urban forestry contribute to mitigating the urban heat island effect and facilitate improved rainfall management. In that regard, the city developed 1.57 hectares of green areas (part of a 30-hectare planification) and planted more than 15,000 trees (or 1.5% of the total, when excluding Bois de Vincennes and Bois de Boulogne) in 2021. Moreover, the projects are in line with the EU Adaptation Strategy, which calls for promoting nature-based solutions for adaptation. According to the European Commission, large-scale nature-based solutions will increase climate resilience and contribute to multiple objectives of the European Green Deal, with additional benefits related to biodiversity, water management and health. However, these efforts are only part of the possible range of relevant solutions to address climate change adaptation and resilience in cities, resulting in our assessment of a significant magnitude score for this category.

Access to essential services for targeted population

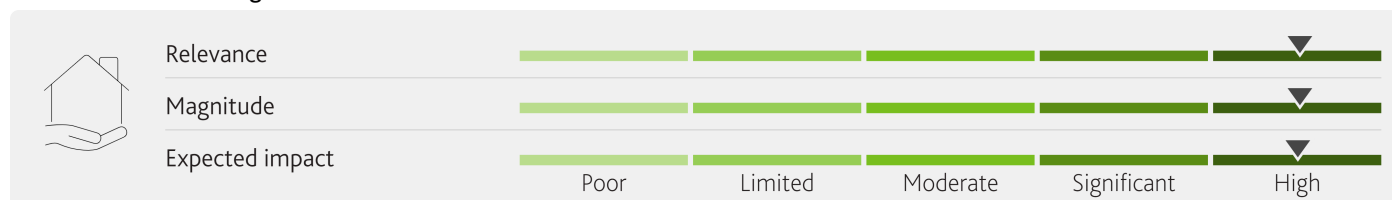


The category includes the financing of three projects: the renovation of a public bath and shower, construction of a media library and construction of a sports arena. These projects address the missions of public services related to public health, the fight against poverty, access to information and culture, and access to sports. Most of the funds are allocated to the construction of the sports arena in the north of Paris.

Although the investments address key essential services for the city, the category is mainly financing the construction of a sports arena (84% of the funds of the category are allocated to Arena 2), which is considered to be of limited relevance to address the targeted objective, namely Sustainable Development Goal 3.4 related to health and well-being. The sports arena is primarily dedicated to hosting national and international sports and cultural events. Only a small part of the venue is dedicated to increasing the access and development of sports for the local neighborhood populations. The category also finances the renovation of a public bath and shower facility. The project is considered relevant because it provides access to water for all and ensures a decent level of hygiene for all types of population. Moreover, it aligns with the broader missions of a local authority, which are to fight against poverty and ensure access basic services. Finally, the category includes the construction of a media library, which meets the objective of access to information and culture for all. A media library provides access to digital technologies, such as the internet and computers, ensuring access to a wide range of public services such as unemployment services (France Travail) or families demand (Caisse d'Allocations Familiales). Those services require more and more an access to digital technologies, which not all populations have access to.

In terms of magnitude, we assess an overall limited score for the category in view of the sports facility. The venue has a total surface of 26,405 sqm (including basement and parking), composed by three main gymnasiums, it will only host 60 people per hour to practice sports. Therefore, the potential impact of the facility, supposedly designed to promote sports for the vulnerable population, is likely to be limited. Regarding affordability, we lack visibility into the venue pricing policy when dedicated to amateurs clubs. The entry price appears to only be 20% lower for vulnerable populations (only including minor and unemployed population), creating uncertainty on the facilitation of access for other vulnerable populations. Regarding the renovation of public bath and shower facilities, the project aims to offer a free service for populations in particularly precarious situations. Recent years have seen a new population using these facilities, driven by the dual crises of inflation particularly linked with energy prices. These crises have made the expense of hot water unaffordable for many. However, we do not view the provision of public baths and showers as a sustainable solution to the ongoing issues of inflation and energy scarcity. Finally, regarding the media library, it is located in a "Quartier Prioritaire de la Ville" (a priority district of the city) and is a free service, making it a valuable resource for Paris' most disadvantaged communities. However, for such a facility to be truly effective, it should be accompanied by initiatives that facilitate access to culture and digital technologies for these communities, which seem to be absent in this instance.

Affordable social housing



The category includes both the renovation of substandard housing and the construction of new social housing units.

Investments dedicated to social housing in the City of Paris are considered a highly relevant social challenge as Paris faces a high demand for social housing. In 2020, 230,000 families applied for social housing. The number of social housing units within Paris' territory was 255,355 as of 31 December 2020. In 2021, the share of social housing reached 25.2% of all housing offering¹¹. According to a study by the National Institute of Statistics and Economic Studies¹², rent indexes in France have risen faster than consumer prices

and gross disposable household incomes since the 1980s, leading to a sharp increase in the share of income allocated to housing expenses in recent years.

The eligible projects aim to eradicate substandard housing and build new social housing, and therefore make a high contribution to the quality of life of vulnerable populations in the long-term. The renovation of substandard housing has a highly positive long-term impact, both in terms of health and quality living conditions, as well as in terms of the environmental footprint of the renovated buildings (leading, for example, to increased energy efficiency). Building new social housing units increases their availability, and the issuer targets areas that currently have a social housing deficit, thus enhancing social cohesion. The definition of the target population is clear, with 60% of the social housing units earmarked for people under low or very low income thresholds.

ESG risk management

We have not applied a negative adjustment for ESG risk management to the expected impact score. The City of Paris has described its general management of ESG externalities in the reporting. At the local level, the city introduced its first Climate Action Plan in 2007, which was last updated in 2023 for 2024-30. It includes more than 500 measures in favor of the fight against climate change. Moreover, the City of Paris conducted a vulnerability and robustness climate change-related study in 2021. This study enables the city to anticipate the climate-related risks it will face in the future and to act upon them. Multiple issues have been revealed by the study. These issues include the increased risks of heat waves which have consequences on human life and civil infrastructure, biodiversity loss and flooding.

Coherence

We have not applied a negative adjustment for coherence to the expected impact score. The projects financed by the 2021 sustainability bond are in line with the broader objectives set at the City of Paris level. The objectives include the 2018 updated Plan Climat Énergie that aims to reduce the city's energy consumption by 50% between 2004 and 2030, and to increase the quality of life with the following goal: zero Parisians to be exposed to pollution levels exceeding the permissible limits by 2024.

Appendix 1 - Mapping eligible categories to the United Nations' Sustainable Development Goals

The five eligible categories included in the City of Paris' framework are likely to contribute to six of the United Nations' Sustainable Development Goals (SDGs), namely:

UN SDG 17 Goals	Eligible Category	SDG Targets
GOAL 1: No Poverty	Affordable social housing	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land
GOAL 3: Good Health and Well-being	Access to essential services	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
GOAL 4: Quality Education	Access to essential services	4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all
GOAL 7: Affordable and Clean Energy	Energy efficiency	7.3 By 2030, double the global rate of improvement in energy efficiency
GOAL 11: Sustainable Cities and Communities	Affordable social housing	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
	Clean transportation	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all
	Adapting to climate change	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
GOAL 13: Climate Action	Energy efficiency	13.2 Integrate climate change measures into national policies, strategies and planning
	Clean transportation	

The mapping of the UN's SDGs in this SPO considers the eligible project categories (or key performance indicators) and associated sustainability objectives/benefits documented in the issuer/borrower/lender's financing framework, as well as resources and guidelines from public institutions, such as the ICMA's SDG mapping guidance and the UN's SDG targets and indicators.

Appendix 2 - Summary of eligible categories in the City of Paris' sustainability bond

Eligible Category	Eligible Project	Amount allocated (in million euros)	Impact Reporting Metrics
Clean transportation	Alternative modes of transport: Cycle facilities	15,45	km of bike lanes tons of GHG emissions avoided
	Public transport: Extension of metro line 14	11,53	km of line created tons of GHG emissions avoided number of beneficiaries
	Public transport: Extension of tramway line 3	38,22	km of line created tons of GHG emissions avoided number of beneficiaries
	Public transport: Redevelopment of the Porte Maillot	3,14	tons of GHG emissions avoided number of beneficiaries
	Public transport: Adaptation of Line 11 metro stations	8,22	km of line created tons of GHG emissions avoided number of beneficiaries
	Public transport: Extension of the RER EOLE line	26,55	km of line created tons of GHG emissions avoided number of beneficiaries
Energy efficiency	Buildings: Crèche Lefebvre	2,54	energy consumption of the asset in kWh/m ²
	Buildings: Renovation of housing units	39,0	annual energy savings in MWh/year tons of GHG emissions avoided
	Public lighting and signage: Energy Performance contract (MPE)	8,0	annual energy savings in MWh/year tons of GHG emissions avoided
Adapting to climate change	Greening the public space: creation and transformation of hectares of	8,5	number of hectares tons of GHG emissions avoided
	Tree planting programme: 170,000 trees	4,0	number of trees tons of GHG emissions avoided
Access to essential services for targeted populations	Renovation of Butte aux Cailles bath and shower facilities	1,6	number of beneficiaries
	Creation of the James Baldwin media library	2,9	number of beneficiaries
	Creation of the Areana 2 sports facility	23,96	number of beneficiaries
Affordable and social housing	Eradication of substandard housing	7,03	number of units
	Social Housing Production Programme	99,04	number of units

Endnotes

- 1 The point-in-time assessment is applicable only on the date of assignment or update.
- 2 [Les émissions de gaz à effet de serre du secteur des transport](#), Commissariat Général au Développement Durable, 2021
- 3 [Urban Mobility readiness index](#), Oliver Wyman, 2023
- 4 Ibid
- 5 [Diagnostic de performance énergétique](#), Ministry of Ecological Transition and Geographical Cohesion, 2023
- 6 [Energie dans les bâtiments](#), Ministry of Ecological Transition and Geographical Cohesion, 2021
- 7 [National Low-Carbon Strategy](#), Ministry of Ecological Transition and Solidarity, 2020
- 8 [À Paris, des enjeux de rénovation énergétique très forts pour plus de la moitié des logements](#), INSEE, 2022
- 9 [Etat des lieux des grandes villes de France métropolitaine](#), Construction 21, 2022
- 10 Coverage of 38 European cities under the European Environment Agency
- 11 [Social Housing numbers in Paris](#), Atelier Parisiens d'Urbanisme, 2022
- 12 [Housing conditions in France](#), INSEE, 2017

Moody's assigns SPOs in alignment with the main tenets of the ICMA Guidelines for Green, Social, Sustainability and Sustainability-Linked Bonds External Reviews and the LSTA/LMA/APLMA Guidance for Green, Social and Sustainability-Linked Loans External Reviews, as applicable; Moody's practices may however diverge in some respects from the practices recommended in those documents. Moody's approach to assigning SPOs is described in its Assessment Framework, and is subject to the ethical and professional principles set forth in the Moody's Investors Service Code of Professional Conduct.

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