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## Commission des Finances et du Budget

### Procès-verbal de la réunion du 13 septembre 2021

#### Ordre du jour :

1. **Approbation des projets de procès-verbal des réunions des 21 (réunion jointe) et 28 juin et des 9 (à 9h30), 16 (réunion jointe) et 19 juillet 2021**
2. **Présentation par Monsieur le Ministre des Finances du rapport d'allocation et d'impact relatif à l'emprunt durable**

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Présents : M. Guy Arendt, M. André Bauler, M. François Benoy, M. Dan Biancalana, M. Sven Clement, M. Georges Engel, M. Paul Galles (remplaçant Mme Martine Hansen), M. Claude Haagen, M. Claude Lamberty (remplaçant M. Gilles Baum), Mme Josée Lorsché, M. Laurent Mosar, M. Roy Reding, M. Gilles Roth, M. Claude Wiseler

Mme Nathalie Oberweis, observateur délégué  
M. Charles Margue, observateur

M. Pierre Gramegna, Ministre des Finances  
M. Bob Kieffer, Directeur du Trésor  
M. Raymond Bausch, de l'Inspection générale des Finances  
M. Lennart Duschinger, du Ministère des Finances  
M. Jacques Schmit, de la Trésorerie de l'État

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Présidence : M. André Bauler, Président de la Commission

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## **1. Approbation des projets de procès-verbal des réunions des 21 (réunion jointe) et 28 juin et des 9 (à 9h30), 16 (réunion jointe) et 19 juillet 2021**

La Commission des Finances et du Budget approuve les projets de procès-verbal des réunions reprises ci-avant.

## **2. Présentation par Monsieur le Ministre des Finances du rapport d'allocation et d'impact relatif à l'emprunt durable**

Avant d'aborder le sujet à l'ordre du jour, le Président de la Commission des Finances et du Budget, André Bauler (DP), mentionne les travaux de préparation en cours, relatifs au débat d'orientation (avec rapport) sur la modernisation et les défis de notre système fiscal à la Chambre des Députés<sup>1</sup>. Etant donné que les membres ont déjà eu une entrevue avec l'Administration des contributions directes (ACD) et avec l'Administration de l'enregistrement, des domaines et de la TVA (AED), le Président suggère également d'inviter les représentants de l'Administration des douanes et accises (ADA) en vue d'échanger sur l'évolution des droits d'accise et l'impact de la taxe CO2. Les membres de la Commission des Finances et du Budget marquent leur accord pour inviter les représentants de l'ADA<sup>2</sup>.

Après les remarques introducives du Président, le Ministre des Finances, Pierre Gramegna, prend la parole pour présenter aux membres de la commission le rapport d'allocation et d'impact relatif à l'emprunt durable émis par le Luxembourg en date du 14 septembre 2020. Le rapport a été envoyé aux membres de la commission au préalable de la réunion<sup>3</sup>.

Le Ministre explique que l'obligation émise par le Grand-Duché est de type « durable », c'est-à-dire que les fonds sont investis aussi bien dans des projets verts que dans des projets sociaux. Le Luxembourg a innové dans la mesure où il a été le premier souverain européen ainsi que le premier souverain bénéficiant d'une note AAA à émettre une obligation qui regroupe l'aspect environnemental et social. Les obligations dites « vertes » (« *green bonds* »), qui sont des produits consacrés uniquement pour des projets à fort impact écologique existent depuis 2007. La Banque européenne d'investissement ainsi que la Banque mondiale ont été pionnières dans ce domaine. Les obligations dites « sociales » n'existent quant à elles que depuis récemment. La Commission européenne est aujourd'hui en passe de devenir un des émetteurs les plus notoires dans le domaine environnemental et social, avec par exemple le lancement d'obligations ayant permis de financer le paquet « *NextGenerationEU* ».

Le Ministre souligne qu'un emprunt durable, conforme aux modalités et conditions qui ont été fixées via le cadre de référence pour les obligations durables (« *Sustainability Bond Framework* ») du Luxembourg, permet de garantir une transparence accrue sur l'allocation des fonds, ce qui est dans l'intérêt de la démocratie. A ses yeux, cet instrument peut donc à long terme œuvrer en faveur de la dynamique et de la crédibilité de tout contrôle parlementaire.

L'autorisation pour émettre l'emprunt durable a été donnée par la Chambre des Députés dans le cadre de la loi budgétaire pour l'exercice 2020<sup>4</sup>. Les modalités applicables à l'allocation

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<sup>1</sup> Document parlementaire n°7712

<sup>2</sup> Note secrétaire : Une invitation par courriel a été envoyée à l'attention de Monsieur le Directeur de l'Administration des douanes et des accises en date du 14 septembre 2021.

<sup>3</sup> Voir en annexe du présent procès-verbal.

<sup>4</sup> Article 39 de la loi du 20 décembre 2019 concernant le budget des recettes et des dépenses de l'État pour l'exercice 2020 :

« Le ministre ayant le Trésor dans ses attributions est autorisé à émettre des emprunts de type durable pour un montant global maximum de 1 000 000 000 euros au cours de l'année 2020 ainsi qu'au cours des années ultérieures. » (Document parlementaire n°7500)

des fonds levés par l'emprunt ont été auparavant fixées dans le cadre de référence qui a été présenté en septembre 2020 à la Commission des Finances et du Budget<sup>5</sup>. Ledit cadre de référence est conforme aux critères les plus récents et innovateurs en matière de durabilité, à savoir les standards publiés par l'*« International Capital Markets Association »* (ICMA), la taxonomie européenne, les objectifs de développement durable des Nations Unies (*« UN sustainable development goals »*) ainsi que le plan national pour un développement durable du Luxembourg, entre autres. L'impact des différents projets est mesuré sur base de modèles tels que IRIS+ et IMP<sup>6</sup>. Le Ministre précise que les critères en matière de durabilité évoluent de façon permanente. En ce qui concerne plus particulièrement la taxonomie européenne, la Commission européenne publiera encore un certain nombre d'actes délégués qui viseront à régler le détail des principes retenus dans la réglementation européenne. Les critères utilisés pour choisir les projets à financer par l'emprunt en question sont donc basés sur des standards en vigueur à ce jour.

Le Ministre souligne que le Luxembourg est le premier pays bénéficiant d'une note AAA ayant émis une obligation de type « durable ». Le montant de l'émission s'est élevé à 1,5 milliards d'euros, avec un taux de rendement négatif de -0,123%. Les montants collectés dans le cadre de l'émission sont utilisés pour financer et refinancer des projets sociaux et verts, tout en respectant les principes de l'unicité et de l'universalité du budget, ancrés dans la Constitution luxembourgeoise.

Le Ministre poursuit sa présentation en expliquant que le rapport est composé de deux parties, à savoir un rapport d'allocation et un rapport d'impact.

Le rapport d'allocation énumère les projets financés ou refinancés par l'emprunt. Ces projets ont été sélectionnés par la Trésorerie de l'État, le Ministère des Finances et l'Inspection générale des finances conformément aux critères fixés par le cadre de référence. Sur la période 2018 à 2020, faisant l'objet du présent rapport, un montant de 770 millions d'euros a d'ores et déjà été alloué.

Le rapport d'impact expose l'impact environnemental et social des projets qui ont été financés ou refinancés par l'emprunt durable. À titre d'exemple, le Ministre indique que les investissements permettront en principe d'éviter près de 290 000 tonnes d'émissions de CO<sub>2</sub>, de produire 6,4 millions de mètres cubes de biogaz par an, de construire 1 478 unités de logement à prix abordable et de soutenir 13 projets d'inclusion sociale. Le rapport énumère donc les impacts des différents projets regroupés en 7 catégories (3 catégories « vertes », 4 catégories « sociales »)<sup>7</sup>. Le Ministre tient toutefois à préciser que ces chiffres ne représentent à l'heure actuelle que des estimations et ne constituent pas encore des impacts réellement observés. Le ministère des Finances a travaillé ensemble avec une entreprise externe, qui a confirmé que l'approche basée sur des impacts « attendus » est le standard actuellement utilisé et accepté par le marché. La Commission européenne a par ailleurs publié le 7 septembre 2021 son cadre de référence pour des obligations vertes ; l'approche retenue étant très similaire à celle optée par le Luxembourg.

Comparé à l'étranger, le rapport d'allocation et d'impact de l'emprunt luxembourgeois est très détaillé et axé sur la présentation des données par projets plutôt que par lignes budgétaires, comme c'est le cas dans la plupart des autres pays ayant émis des emprunts durables ou verts. Le rapport comprend également trois études de cas (*« case studies »*) de projets ayant une envergure plus importante<sup>8</sup>. Le Ministre cite notamment le projet de la construction du

<sup>5</sup> Voir procès-verbal de la réunion de la Commission des Finances et du Budget du 4 septembre 2020

<sup>6</sup> Il s'agit de systèmes généralement acceptés pour mesurer, gérer et optimiser des impacts. Pour plus d'informations: <https://iris.thegiin.org/> et <https://impactmanagementproject.com/>

<sup>7</sup> Voir page 13 du rapport d'allocation (3.1. Introduction).

<sup>8</sup> Voir pages 42-44, projets « The new tram in Luxembourg City », « Südspidol », « Elmen - Affordable housing in Kehlen/Olm ».

tram, qui, pour la période 2018-2020, a été financé à hauteur de 24% par l'emprunt durable. Le degré de précision du rapport assure, aux yeux du Ministre, une transparence non seulement vis-à-vis du Parlement, mais également envers les investisseurs qui, de leur côté, doivent rendre compte à leurs mandants. L'ensemble de la documentation relative à l'emprunt durable (annexes inclus) a été publié sur le site internet de la Trésorerie de l'État<sup>9</sup>.

Des projets pour un montant total de 1,6 milliards d'euros ont été identifiés par la Trésorerie de l'État et sont donc éligibles pour un financement par l'emprunt durable. Actuellement, 65 projets (dont 16 dans le domaine environnemental et 49 dans le domaine social) ont effectivement été retenus dans le portefeuille final de l'emprunt durable. Alors qu'en termes de dépenses, aujourd'hui, 58% des fonds ont été alloués à des projets environnementaux et 42% à des projets sociaux, le but sera à terme, dans la mesure du possible, d'allouer les fonds à parts égales entre ces deux catégories. L'établissement de la liste des projets a été effectué, depuis le début de l'année 2020, par un comité créé à cet effet (« *Sustainability Bond Committee* »), en collaboration avec les ministères (environnement, transport, santé, logement, éducation, famille, affaires étrangères (immigration)) en charge de la réalisation des projets retenus.

Le rapport du Luxembourg relatif à l'allocation et l'impact de l'obligation durable a été certifié par un organisme indépendant dénommé *Sustainalytics*<sup>10</sup>. L'entreprise a confirmé que le Luxembourg a appliqué les standards fixés dans son cadre de référence<sup>11</sup>. Le Ministre se réjouit de ce constat et clôture son exposé en soulignant que cet emprunt constitue un pas essentiel en faveur de la finance soutenable et de l'attractivité du Luxembourg dans ce domaine.

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Le Député Gilles Roth (CSV) prend la parole pour exprimer son étonnement sur la stratégie poursuivie par le ministère des Finances en matière de financement d'investissements durables. L'orateur conteste l'approche consistant à s'endetter à des fins d'affichage, sachant que ces investissements sont aujourd'hui des dépenses standard et usuelles. Il indique qu'un certain nombre de dépenses communales sont réalisées en faveur de projets environnementaux et sociaux, mais que celles-ci sont financés par des moyens propres à la commune, sans endettement et marketing quelconque.

Le Ministre des Finances répond que rien n'empêche les autres États ou communes d'opter pour une telle approche. Selon lui, un État qui s'endette pour des causes favorables à l'environnement et œuvrant pour l'inclusion sociale n'est pas un fait reprochable. Cet emprunt a permis de démontrer que le Grand-Duché est fortement engagé dans le domaine de la finance durable.

Le Député François Benoy (déi gréng) accueille favorablement le fait que le Gouvernement s'est donné une méthodologie pour l'allocation des fonds levés par l'emprunt durable. À son avis, une telle approche permet de mieux retracer les fonds et de maintenir un degré élevé de standards pour des projets environnementaux et sociaux, voir même les renforcer à l'avenir. Ceci dit, l'orateur pose la question de savoir dans quelle mesure le Gouvernement envisage de transmettre cette expérience aux acteurs issus du secteur privé afin de les inciter à s'engager dans la finance durable en utilisant le même niveau de standard.

<sup>9</sup> <https://te.public.lu/fr/finance-durable.html>

<sup>10</sup> Voir page 47 : Appendix I – Compliance Review by Sustainalytics

<sup>11</sup> Voir page 51 : « *Conclusion : Based on the limited assurance procedures conducted, nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, the reviewed bond projects, funded through proceeds of Luxembourg's Sustainability Bond, are not in conformance with the Use of Proceeds and Reporting Criteria outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework.* »

À la question du Député François Benoy, le Ministre des Finances signale que le Luxembourg a reçu beaucoup d'attention lors de la publication de son cadre de référence pour les obligations durables. Le fait que la Commission européenne ait utilisé une approche similaire pour l'émission de ses obligations démontre le bienfondé de la façon de faire choisie par le Luxembourg. En tant que premier souverain AAA au monde à avoir lancé une telle obligation durable, le Luxembourg a assumé un certain risque, car il existait des inconnues, notamment en ce qui concerne l'appétit du marché pour ce type de produits. Aujourd'hui, force est de constater que l'émission fut un succès et a procuré au Luxembourg une grande reconnaissance à l'international. Le ministère des Finances a été régulièrement sollicité par des acteurs privés pour expliquer son modèle utilisé pour l'émission et reste à disposition de tout acteur pour partager ses expériences. Des informations complémentaires ont également été publiés sur le site internet de la Trésorerie de l'État.

Le Ministre ajoute encore qu'il existe un lien étroit entre les considérations écologiques et sociales dans la mesure où les standards écologiques peuvent (notamment en matière d'énergie) engendrer des coûts supplémentaires qui ne sont que difficilement supportables pour les individus aux revenus modestes. Le Ministre relève qu'au niveau européen, le Conseil « Affaires économiques et financières » (Conseil Ecofin) a insisté sur le fait que la transition écologique doit aller de pair avec l'innovation et une tarification du CO2. Dans ce contexte, il est important que les coûts supplémentaires engendrés par une telle tarification soient contrecarrés avec des mesures sociales pour faire en sorte à ce que tout le monde puisse s'engager dans la transition écologique. L'emprunt durable luxembourgeois permet donc de concilier ces deux aspects.

En référence au cas d'étude relatif au « Südspidol » exposé dans le rapport, le Député Dan Biancalana (LSAP) aimerait savoir, compte tenu des évolutions de ce projet intervenues récemment, si des adaptations seront envisagées relatives à l'allocation des fonds qui étaient prévus pour le financer.

Le Ministre des Finances explique que les fonds de l'emprunt sont utilisés pour financer et refinancer des projets. Alors que dans le cas du projet « Südspidol », des dépenses effectuées au cours de l'année 2020 ont été affectées à l'emprunt, rien n'empêche de réallouer à d'autres projets les fonds initialement prévus pour le projet « Südspidol ». Comme déjà indiqué auparavant, le ministère des Finances a identifié des projets pour un montant qui va bien au-delà des fonds qui ont été collectés par l'émission de l'emprunt. Ainsi, le ministère dispose d'une certaine marge de manœuvre pour ce qui concerne la réallocation des fonds en cas de mise à l'arrêt, voire même d'abandon d'un projet.

Luxembourg, le 23 septembre 2021

La Secrétaire-administrateur,  
Cristel Sousa

Le Président de la Commission des Finances  
et du Budget,  
André Bauler

# LUXEMBOURG SUSTAINABILITY BOND REPORT

September 2021



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Trésorerie de l'État

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# INAUGURAL LUXEMBOURG SUSTAINABILITY BOND - HIGHLIGHTS



The investments financed or refinanced through this inaugural Sustainability Bond are expected to:

## 1. Low carbon transport

- ▶ provide investments in **7 low carbon transport projects**
- ▶ deploy **30 low carbon vehicles** by 2030 (tram)
- ▶ serve a maximum of **31 million users on tram lines** per year by 2030
- ▶ build **36 km** of new tram lines / rail lines by 2030
- ▶ enable passenger-kilometres on additional low carbon transport infrastructure of **469 million passenger-kilometres (pkm)** per year by 2025
- ▶ enable **2.7 billion tonne-kilometres** per year of rail transport due to modal freight shift from road to rail transport
- ▶ transfer a maximum capacity of **600 000 ITUs** (Intermodal Transport Units; freight containers and semi-trailers) per year from road to rail transport
- ▶ transfer **3.4 million tons of freight** per year from road to rail transport
- ▶ avoid **nearly 290 000 t CO<sub>2</sub>e** due to modal shift in passenger transport (absolute until 2050), about 70% of these avoided emissions will occur until 2035

## 2. Water and wastewater management

- ▶ provide investments in **8 water and wastewater treatment installations**
- ▶ treat a maximum water capacity of **112 million m<sup>3</sup>** per year
- ▶ treat drinking water for a maximum capacity of nearly **580 000 users** per year

- ▶ treat a maximum capacity of **887000 population equivalents (p.e.) of wastewater** per year
- ▶ serve around **470 000 additional users** at enlarged existing and new plants (absolute figure)
- ▶ equip **5 water and wastewater treatment plants** with micro-pollutant treatment and other advanced treatment, above EU requirements (absolute figure)
- ▶ treat **14.25 tons of dry solids of sewage sludge** per year in anaerobic digestion
- ▶ produce **6.4 million m<sup>3</sup> of biogas** per year for energy generation

### 3. Protection of the environment

- ▶ provide an investment in **1 major environmental protection project**
- ▶ restore and protect **8.6 hectares of habitat** (absolute figure)
- ▶ increase protected habitats by **8 000 m<sup>2</sup>** (national standard) (absolute figure)
- ▶ increase protected habitats by **4 600 m<sup>2</sup>** (EU Natura 2000) (absolute figure)
- ▶ plant **673 m<sup>2</sup> of hedges** (absolute figure)
- ▶ construct **1 fish passage** (absolute figure)
- ▶ increase capacity for water retention of the river Pétrusse after rehabilitation by **859 m<sup>3</sup>** (absolute figure)

### 4. Education

- ▶ provide investments in **10 educational institutions**
- ▶ increase the total student capacity to a maximum of around **6 900 students** (absolute figure)

### 5. Healthcare

- ▶ provide investments in **15 healthcare projects**
- ▶ increase the total bed capacity by around **550 beds** (absolute figure)
- ▶ increase the total patient capacity by more than **45 000 patients** (absolute figure)
- ▶ increase the **maternity ward capacity by around 870 births** (absolute figure)

## 6. Affordable housing

- ▶ provide investments in 17 affordable housing projects
- ▶ build **1478 affordable housing units** (absolute figure)
- ▶ serve **around 3 400 eligible affordable housing beneficiaries** (absolute figure)
- ▶ build affordable housing units with energy performance certifications of **BBB - AAA (Nearly Zero-Energy Buildings)**

## 7. Social inclusion

- ▶ provide investments in **13 social inclusion projects**
- ▶ increase **by 489** (absolute figure) the housing capacity for **people having applied for or benefiting from international protection**
- ▶ increase the housing capacity for **troubled adolescents by 65** (absolute figure)
- ▶ increase the housing capacity for **homeless people and people in need by 106** per night (absolute figure)
- ▶ provide additional care home capacity for **315 elderly people** (absolute figure)
- ▶ provide a residential care home for **100 persons with disabilities** (absolute figure)

The impact share of the Luxembourg Sustainability Bond will be a share of the above statements, corresponding to the Luxembourg Sustainability Bond financing contribution to the total project financing covering the total costs of each project. This share is listed for each project in the Impact Table published on the website of the Luxembourg State Treasury (<https://te.public.lu/fr/finance-durable.html>).



**Pierre Gramegna**  
Luxembourg Minister of Finance

# 1. FOREWORD

The Grand Duchy of Luxembourg has a well-established track record in sustainable finance. From pioneering inclusive finance over 15 years ago to listing the world's first green bond in 2007, the country continues to grow and evolve as an international hub connecting investors with sustainable projects. More than half the world's green bonds are listed in Luxembourg, while the country accounts for more than 20% of ESG fund assets globally.

As one of Europe's leading financial centres, Luxembourg thus plays an important role in mobilizing public and private capital to help finance the green transition and achieve the Sustainable Development Goals. The global pandemic has acted as a catalyst for sustainable finance, with governments focusing on qualitative investments in the dual transition – green and digital – in their efforts to "build forward better". 61% of investments under Luxembourg's recovery and resilience plan are earmarked for climate-related projects.

In September 2020, Luxembourg published Europe's first sovereign sustainability bond framework. Living up to its reputation as a first mover, Luxembourg is not only following the International Capital Markets Association (ICMA)'s Principles and Guidelines, but has also incorporated eligibility criteria that are in line with the recommendations of the EU Taxonomy on a best effort basis. In the same spirit, the framework has been designed to comply with the 2020 draft European Green Bonds Standard (EU GBS) where relevant and feasible.

Luxembourg issued its EUR 1.5 billion sustainability bond in September 2020, becoming the first European as well as the first AAA-rated country worldwide to do so. Importantly, by issuing a bond to finance both environmental and social projects, Luxembourg set a signal that both causes are intertwined and encourages the growth of the emerging sustainability bond market. The bond was heavily over-subscribed, illustrating a high and growing demand for sustainability bonds.

To provide the greatest possible level of transparency, this first report on the sustainability bond combines the allocation and impact reports, and features extensive appendices that provide detailed insights in the methodology and data used. While the full allocation of proceeds is planned by the end of the budget year 2022, over half of the total amount is accounted for in this report. Hence, it covers the budget years 2018-2020 and provides information on the allocation of over 770 million EUR worth of environmental and social eligible expenditures by the Luxembourg State.

I would like to thank the members of the Sustainability Bond Committee and the numerous contributors in all of the involved ministries and bodies for their work and dedication in putting together this first report on Luxembourg's sustainability bond.

I hope you find it both interesting and inspiring.

**Pierre Gramegna**  
Minister of Finance

# 2. ALIGNMENT WITH STANDARDS

The Grand Duchy of Luxembourg has prepared its **Sustainability Bond Framework** (the “Framework”) in accordance with the:

- ▶ **ICMA Green Bond Principles 2018,**
- ▶ **ICMA Social Bond Principles 2020, and**
- ▶ **ICMA Sustainability Bond Guidelines 2018.**

In line with the ICMA Sustainability Bond Guidelines, the Framework is presented along the following key pillars:

- ▶ use of proceeds,
- ▶ process for project evaluation and selection,
- ▶ management of proceeds, and
- ▶ reporting and external review.

In addition, the Framework has been designed to comply with the **2020 draft EU Green Bond Standard** (the “EU GBS”), when relevant and feasible.

Furthermore, the eligibility criteria of green categories comply, when applicable, with the **recommendation of the Technical Expert Group (TEG) final report on the EU Taxonomy** (the “EU Taxonomy”) published in **March 2020** or any updated version, on a best effort basis.

## Independent review

In 2020, Sustainalytics, a leading independent ESG research, ratings and analytics firm, performed a review of the Framework to assess if it is in line with the 2018 ICMA Sustainability Bond Guidelines as well as with the recommendation of the 2020 Technical Expert Group (TEG) final report on the EU Taxonomy when applicable and on a best effort basis.

In addition, in July 2021, Sustainalytics performed a review of the Allocation Report (Appendix I).

These reviews concluded that the Framework as well as the allocation report are in line with the above mentioned guidelines and standards.

## 2.1 EU Green Bond Standard

Luxembourg designed its Framework so as to comply with the 2020 draft EU Green Bond Standard<sup>1</sup> (the “EU GBS”), when relevant and feasible.

The TEG proposed that the EU GBS should be a voluntary standard to issuers that wish to align with best practices in the market. It is designed to be relevant and accessible to issuers located in the EU as well as to issuers located outside the EU. It builds on market best practices such as the ICMA Green Bond Principles (GBP). The proposed model sets out four core components:

<sup>1</sup> EU GBS: [https://ec.europa.eu/info/sites/default/files/business\\_economy\\_euro/banking\\_and\\_finance/documents/200309-sustainable-finance-teg-green-bond-standard-usability-guide\\_en.pdf](https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-green-bond-standard-usability-guide_en.pdf)

- (i) The alignment of the use-of-proceeds with the EU Taxonomy,
- (ii) The content of a Green Bond Framework to be produced by the issuer,
- (iii) The required Allocation and Impact Reporting, and
- (iv) The requirements for external verification by an approved verifier.

## 2.2 EU Sustainable Finance Taxonomy

The eligibility criteria of green categories comply, when applicable, with the recommendation of the Technical Expert Group (TEG) final report on the EU Taxonomy (the “EU Taxonomy”) published in March 2020<sup>2</sup>, on a best effort basis.

As the elaboration of Luxembourg’s Framework started before the TEG final report was published in March 2020, the recommendations from the TEG final report were thus integrated as much as possible into the elaboration of the Framework.

Over the course of the last year, the draft delegated acts for climate mitigation and adaptation from the European Commission were published and adapted on three occasions, each time with multiple changes. As a consequence and due to the resulting uncertainty, aligning with the fast-changing criteria was a complex endeavor.

Prior to the potential issuance of a future sovereign green, social or sustainability bond, an update of the Framework shall be considered in order to align with the final EU GBS as well as with the final delegated acts (“Delegated Acts” or “DA’s) on the environmental and future social objectives. The Framework shall then be verified again by an independent third party.

There are three green categories that are being financed by the inaugural sustainability bond issued by Luxembourg: “Low carbon transport”, “Water and wastewater management” and “Protection of the environment”.

### Alignment with the EU Taxonomy’s Minimum Social Safeguards

Alignment with the EU Taxonomy’s Minimum Safeguards requires that the Issuer has put in place a set of policies or regulations, as well as supporting management systems and processes, which provide assurance that the activities financed by a bond are carried out in a manner that meets OECD and other international guidelines for responsible business conduct. Sustainalytics concluded that the Grand Duchy of Luxembourg’s regulations and enforcement regimes (including its adherence to EU regulations and directives) are sufficient to demonstrate that the activities and projects to be financed under the Framework are carried out in alignment with the EU Taxonomy’s Minimum Social Safeguards.

### Concerning “Protection of the environment”

The “Protection of the environment” project falls within the “The protection and restoration of biodiversity and ecosystems” category of the EU Taxonomy’s six environmental objectives, where the final Technical Screening Criteria (or “TSC”) and the Do No Significant Harm (or “DNSH”) criteria have not been published yet. However, different impact indicators have been anticipated in order to measure the impact of these projects on a best effort basis.

<sup>2</sup> Technical Expert Group (TEG) final report on the EU Taxonomy – March 2020  
[https://ec.europa.eu/info/sites/default/files/business\\_economy\\_euro/banking\\_and\\_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes\\_en.pdf](https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf)

## Concerning “Water and wastewater management”

The “Water and wastewater management” projects fall within the category “*The sustainable use and protection of water and marine resources*” of the EU Taxonomy’s six environmental objectives, and while the final TSC and DNSH criteria have not been published yet, different impact indicators have been anticipated in order to measure the impact of these projects on a best effort basis.

In general, it is worth clarifying that this environmental objective focuses on the protection of the environment from the negative impacts of industrial and urban waste water discharges, as well as on the protection of human health with regards to potential effects of contaminated water consumption.

The “Water and wastewater management” projects are financed by the National Water Fund, which focuses entirely on water quality. In the Framework, these projects fall under the sub-category of “*Support the development of water and wastewater management systems (to improve water quality)*”.

The investments respect the DNSH criteria that Sustainalytics proposed in their Second Party Opinion. These criteria draw upon regulatory best practice, the criteria proposed by the TEG for other activities, and are informed by best practice in the green bond market as illustrated by Sustainalytics’ internal taxonomy.

## Concerning “Low carbon transport”

### 1. Public transport

#### a. Technical Screening Criteria (“TSC”)

The new Luxembourg tramway <sup>3</sup> is a land transport system with zero direct emissions and thus fulfills the criteria of the TEG final report for low carbon transport.

#### b. Do No Significant Harm (“DNSH”)

Environmental Impact Assessments (“EIA”) were undertaken in order to identify negative impacts on the environment to the extent possible and on a best effort basis. In addition, an analysis was performed by VIBRATEC (2016): *Projet Luxtram – « Prédiction des nuisances vibratoire et acoustique »* in order to minimise noise and vibrations of rolling stock by applying thresholds on pass-by noise in dB in line with “Regulation 1304/2014 Noise TSI352”.

### 2. Infrastructure for low carbon transport

#### a. Technical Screening Criteria (“TSC”)

The projects include the construction of railways as well as other infrastructure supporting low carbon transport activities and thus fulfill the criteria of the TEG final report for infrastructure for low carbon transport.

#### b. Do No Significant Harm (“DNSH”)

Environmental Impact Assessments (“EIA”) were undertaken in order to identify negative impacts on the environment to the extent possible and on a best effort basis.

Concerning circular economy and as indicated by Sustainalytics in their second party review

<sup>3</sup> <http://www.luxtram.lu/>

(“Second Party Review” or “SPO”) of the Framework, Luxembourg’s Framework was partially aligned with the DNSH criteria: *“At least 80% (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the EU waste list) generated on the construction site must be prepared for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials”*. Luxembourg law foresees 70%. However, in the final Delegated Acts, the threshold was adjusted from 80% to 70%, meaning that Luxembourg laws are in compliance with the criteria.

Environmental Impact Assessments (EIA) have been completed in accordance with the relevant EU Directives and equivalent national provisions, such as on noise, water and habitats and birds.

## 2.3 Additional efforts to align with standards and best practices

### 2.3.1 ICMA Harmonised Framework for impact reporting (June 2021)

The impact report has been prepared to respect the ICMA Harmonised Framework for impact reporting (June 2021)<sup>4</sup> as much as possible to align with the core principles and recommendations for reporting in order to provide investors with standardized references as they develop their own reporting.

### 2.3.2 Sustainable Development Goals (SDGs)

The impact report has been prepared while mapping the investments to the SDGs<sup>5</sup> as much as possible in order to show the contribution to the achievement of the SDGs and to provide investors with relevant references as they develop their own reporting.

The Luxembourg Sustainability Bond Committee (the “SBC”) recognizes that the SDGs are all interlinked and that this selection is not exhaustive. However, these are the main SDGs that the investments are addressing in the SBC’s view. The SDGs are by definition designed to guide investments in the developing world. Mapping them against investments in a developed country like Luxembourg sometimes proves to be challenging. In particular, the chosen impact indicators have been adjusted to reflect Luxembourg realities.

### 2.3.3 Impact Reporting and Investment Standards (IRIS+)

The impact report has been prepared using IRIS+<sup>6</sup> as much as possible in order to use comparable data and align with streamlined and practical standards.

For each investment category the most appropriate IRIS+ theme was selected.

<sup>4</sup> <https://www.icmاغroup.org/assets/documents/Sustainable-finance/2021-updates/Handbook-Harmonised-Framework-for-Impact-Reporting-June-2021-100621.pdf>

<sup>5</sup> <https://sdgs.un.org/goals>

<sup>6</sup> <https://iris.thegiin.org/>

### 2.3.4 Impact Management Project (IMP)

The impact report has been prepared using the IMP<sup>7</sup> model as much as possible in order to measure, assess and report impacts on people and the environment in a harmonized and coherent way.

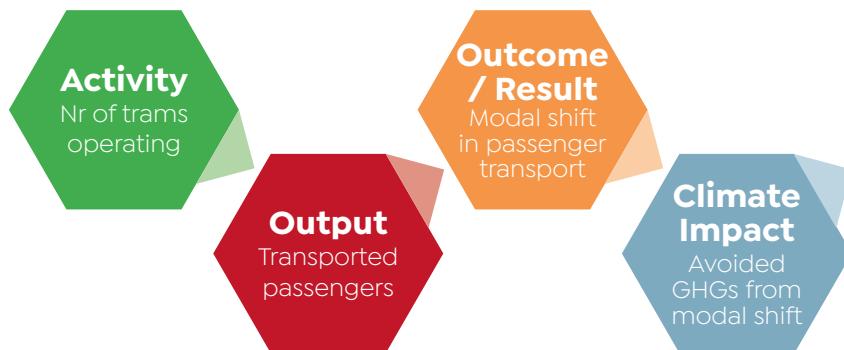
In addition, in order to ensure comparability of the indicators and foster standardization, the selection of the indicators was guided by the leading impact guidance documents, including the:

- ▶ ICMA Green Bond Principles (2020),
- ▶ Nordic Public Sector Issuers (2020),
- ▶ Position Paper on Green Bonds Impact Reporting, and
- ▶ Climate Bonds Initiative Sectoral Guidelines, where applicable.

The determination and the choice of metrics and indicators was also guided by the work of the EU Technical expert group on sustainable finance's Taxonomy Report Technical Annex (March 2020), the draft and final delegated acts on the EU Sustainable Taxonomy, Annexes I and II on climate mitigation and adaptation (November 2020, June 2021) and directions given by the EU Green Bond Standard Usability Guidance.

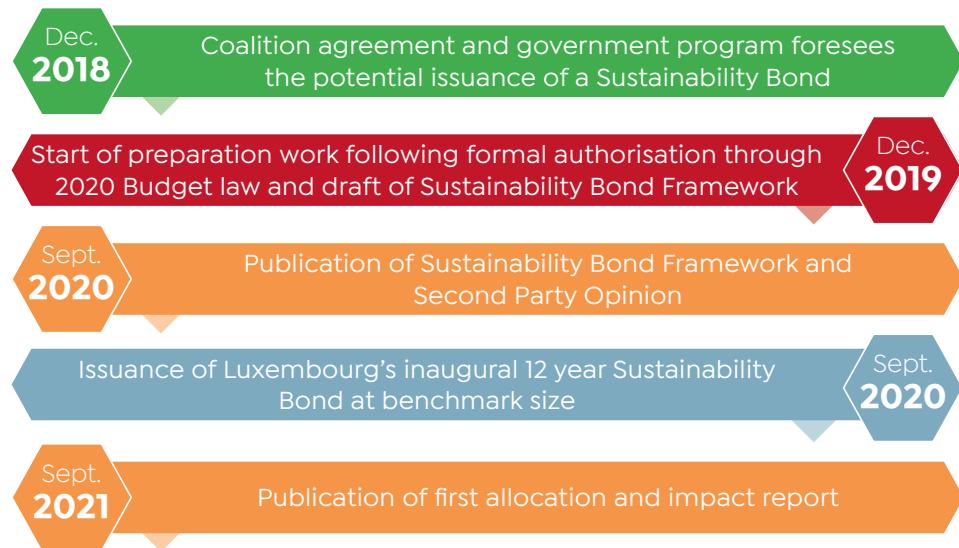
Indicators used by other European sovereign and relevant public sector green bond issuers have been reviewed, including the European Investment Bank's climate and sustainability awareness bond impact frameworks. The most commonly used indicators by the green, social and sustainability bonds listed on the Luxembourg Green Exchange have been used for guidance in indicator selection. The indicator determination and selection process also considered the main indicators employed by leading green impact investors as stated publicly in their green bond impact frameworks.

The selected indicators are on different levels of the impact value chain, which rates the extent of the positive contribution to the environmental objective that is ultimately intended. For reasons of practicability, output- and outcome-based metrics can serve as proxies for the ultimate, - but often difficult to measure - impact. This is especially the case for some activities that are compatible with the EU taxonomy for sustainable activities. Below an example of different types of indicators along the impact value chain using the example of a zero-carbon city tramway.



<sup>7</sup> <https://impactmanagementproject.com/>

# 3. ALLOCATION REPORT 2018-2020



## 3.1 Introduction

Luxembourg's Sustainability Bond Framework (the "Framework") distinguishes between 6 green and 5 social categories.

The 6 green categories are:

- ▶ Green buildings
- ▶ Energy Transition
- ▶ Low Carbon Transport
- ▶ Protection of the environment
- ▶ Water and wastewater management
- ▶ Climate Finance and R&D

The 5 social categories are:

- ▶ Access to essential services – Education
- ▶ Access to essential services – Healthcare
- ▶ Access to essential services – Social Inclusion
- ▶ Affordable housing
- ▶ Employment generation and socioeconomic advancement and empowerment

The inaugural EUR 1.5 billion Luxembourg Sustainability Bond focusses on (re)financing expenditures in the following 3 green and 4 social categories:

The 3 green categories are:

- ▶ Low Carbon Transport
- ▶ Protection of the environment
- ▶ Water and wastewater management

The 4 social categories are:

- ▶ Access to essential services – Education
- ▶ Access to essential services – Healthcare
- ▶ Access to essential services – Social Inclusion
- ▶ Affordable housing

### 3.2 Identification and selection of eligible expenditures

The Luxembourg State Treasury, supported by an inter-ministerial working group composed of the ministries in charge of eligible expenditures, coordinated the evaluation and selection process and prepared an initial list of potential eligible expenditures by identifying relevant expenditures in the Budget. The initial list was subsequently evaluated by the Luxembourg Sustainability Bond Committee (the “SBC”), composed of representatives of the Luxembourg State Treasury (chair), the Luxembourg Ministry of Finance and the Inspectorate of Finance (“*Inspection Générale des Finances*”). The SBC verified that the expenditures meet the criteria and objectives of the use of proceeds set out in the Framework and approved the selected expenditures to be included in the Sustainability Bond.

#### **Eligible expenditures exclude:**

- ▶ Expenditures from budgets older than three calendar years from the year of issuance of the Bond,
- ▶ Expenditures already financed via a dedicated funding source, in order to avoid any “double counting”,
- ▶ Expenditures that would contravene the law of June 8, 1999 on the Budget, Accounting and Treasury,
- ▶ Expenditures falling within the sectorial exclusions detailed in Annex 2 of the Framework.

#### **According to the Sustainability Bond Framework, the Allocation Report shall include:**

- ▶ An overview of the allocated proceeds,
- ▶ The breakdown of allocated proceeds by eligible categories,
- ▶ The amount of unallocated proceeds at the reporting end-period (if any).

For the sake of clarity and transparency, the Sustainability Bond Committee has decided to allocate the proceeds from the issued bond to specific projects instead of full state budget lines. On the one hand this implies more workload for the impact definition and reporting process as well as for the allocation reporting, but on the other hand it allows a clearer identification of the allocation of the proceeds and underlines Luxembourg’s aim for a maximum of transparency on the funded projects.

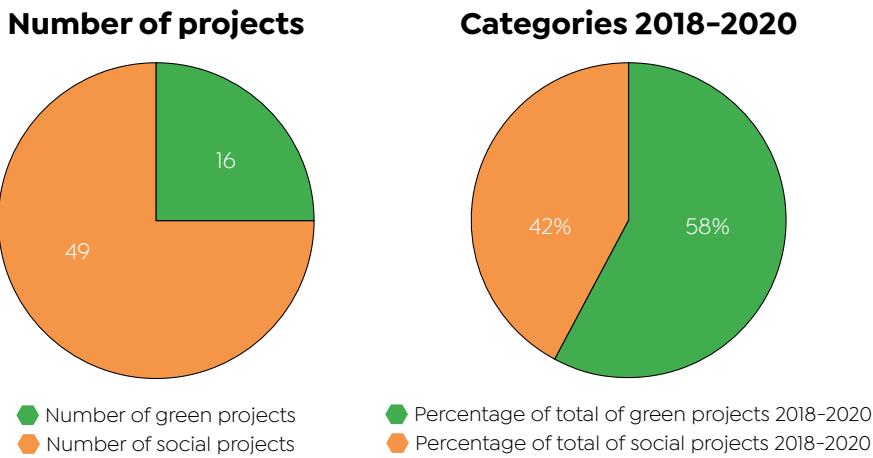
### 3.3 Control of the allocated eligible expenses

All allocated amounts for the years 2018 to 2020 have been submitted to the SBC by the respective ministries. In addition to their control, the SBC verified these amounts using the State’s budgetary accounting system “SAP-SIFIN” (*Integrated System of FINance*) which contains all the realized expenditures validated annually and which is also the basis for the elaboration of the general account of the State (the “*Compte général de l’Etat*”)<sup>8</sup>.

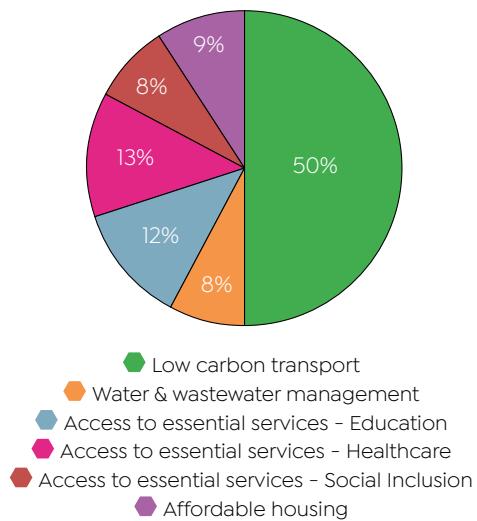
<sup>8</sup> At the time of publication of the present report, the draft bill of the 2020 general account has been submitted to Parliament and is expected to be adopted by mid-October. Any changes in the figures for 2020 reported under 3.4 will be identified in the next allocation report. The 2018 and 2019 general accounts are published on [legilux.lu](http://legilux.lu).

### 3.4 Project categories

The SBC's aim was to establish a diversified and well-balanced portfolio:



### Expenditures 2018-2020 by category



The allocation table below sets out how the Sustainability Bond Committee allocated the funds to the relevant government expenditures.

### 3.5 Allocation table

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Low carbon transport	Public transport	Luxembourg Tram (LuxTram) - in Luxembourg City	36262909€	35502137€	63104052€	134869098€
	Infrastructure for low carbon transport	Construction of a new train line - Luxembourg City - Bettembourg	23939225€	31673194€	24386121€	79998540€
		Adaptation of north side of the Luxembourg city train station - Luxembourg City	17821718€	15524605€	5352400€	38698723€
		Construction of two new platforms at the Luxembourg city train station - Luxembourg City	3732512€	7215713€	11351553€	22299778€
		Laying of second train tracks - Hamm-Sandweiler	19415334€	19940859€	5540480€	44896673€
		Construction of a multimodal platform - in Bettembourg	16249817€	8450377€	6887377€	31587571€
		Modernisation of the train station - in Rodange	1276340€	9023571€	18885684€	29185595€
		Low carbon transport	118697855€	127330456€	135507667€	381535978€

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Water & wastewater management	Support the development of water and wastewater management systems allowing to significantly improve water quality	Extension and modernization of the national drinking water treatment station (SEBES) - National Water Syndicate in Esch-sur-Sûre	3500000€	7000000€	7000000€	17500000€
		Extension and modernization of the wastewater treatment plant - SIDEN in Bleesbruck	10895498€	6152871€	- €	17048369€
		Sanitation work in the Attert Valley - SIDEST in the Attert Valley	- €	4851427€	- €	4851427€
		Evacuation and purification of wastewater generated by the municipalities of the Upper Moselle - AC Schengen in the Upper Moselle	864094€	1371306€	701433€	2936833€
		Sanitation of the Lower Moselle with the construction of a new wastewater treatment plant - SIDEST at the Port of Mertert	5601954€	6012925€	95550€	11710429€
		Extension and modernization of the wastewater treatment plant - SIDEST in Uebersyren	755457€	- €	127764€	883221€
		Extension of the wastewater treatment plant* - VdL in Beggen	- €	- €	- €	- €
		Extension of the wastewater treatment plant - SIACH in Pétange	- €	5192601€	4448915€	9641516€
		Water & wastewater management	21617003€	30581130€	12373662€	64571795€

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Protection of the environment	"Protection and restoration of healthy ecosystems and their services"	Ecological renaturation of the pétrusse valley* - in Luxembourg City	- €	- €	- €	- €
		Protection of the environment	- €	- €	- €	- €

\*Expenses from these projects start in year 2021 or 2022

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Access to essential services - Education	Providing access to essential educational infrastructure and services for all	Construction of a new school restaurant - Ecole privée Fieldgen	- €	190 004€	500171€	690175€
		Construction of a new child care facility* - Project Wobrecken in Esch-sur-Alzette	- €	- €	- €	- €
		Construction of new child care facility - in Bertrange	2476750€	- €	- €	2476750€
		Construction of a new child care facility - Campus Berchem-Bivange	2251750€	- €	- €	2251750€
		Construction of a new child care facility and elementary school - in Belval-Sud	3059 000€	- €	- €	3059 000€
		Construction of a new child care facility and elementary school - Project Helperknapp in Brouck	- €	3066750€	- €	3066750€
		Construction of a new highschool - International School in Differdange (public)	5 931 320€	10 099 072€	20 003 874€	36 034 266€
		Renovation of a highschool - Lycée Michel Rodange	3032280€	10 653 265€	13 076 187€	26 761 732€
		Renovation of a highschool - Lycée Classique Diekirch, annexe Mersch	861786€	5 253 875€	5 072 476€	11 188 137€
		Construction of a new school and sports hall - Lycée Technique pour Professions de Santé	1874 866€	2316577€	6 858 943€	11 050 386€
Access to essential services - Education			19 487 752€	31 579 543€	45 511 651€	96 578 946€

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Access to essential services - Healthcare	Provide access to essential healthcare infrastructure and services for all	Obstetrics Maternity and Gynecology Center - Centre Hospitalier de Luxembourg (CHL)	767 383€	498 663€	103 192€	1369 238€
		Construction of a modular building with specialized pediatric beds* - Centre Hospitalier de Luxembourg (CHL)	- €	- €	- €	- €
		Extension of the National Institute of Cardiac Surgery and Interventional Cardiology (INCCI)	398 001€	398 882€	498 327€	1295 210€
		New construction for the CHL Hospital and the National Institute of Cardiac Surgery and Interventional Cardiology (INCCI) - Centre Hospitalier de Luxembourg & INCCI	- €	8 420 435€	21 078 28€	10 528 263€
		Construction of a floor tower for geriatric rehabilitation beds, an integrated dialysis center, the National Center for Specialized Ophthalmology and an elective orthopedic service* - Hôpitaux Robert Schuman, Kirchberg*	- €	- €	- €	- €
		Extension of the national service of juvenile psychiatry - Hopitaux Robert Schuman - Kirchberg	2263 331€	3 498 997€	3 770 332€	9 532 660€
		Construction of a medical center with 10 single maternity rooms, 1 endoscopy room and 1 outpatient medical-technical unit - Hopitaux Robert Schuman - Kirchberg & Clinique Bohler	4 064 091€	323 300€	51 045€	4 438 436€
		New construction with 4 care units, a day hospital and radiology - Hopitaux Robert Schuman - Zithaklinik	12 605 664€	8 420 005€	9 151 774€	30 177 443€
		Construction of a therapeutic center for adolescents in Putscheid - Centre Hospitalier Neuro-Psychiatrique	793 012€	1353 085€	2 340 871€	4 486 968€
		Construction of a new extension for geriatric reeducation and care - Hôpital Steinfort	- €	- €	75 856€	75 856€
		Construction of the new hospital "Südspidol" - Centre Hospitalier Emile Mayrisch (CHEM) - Südspidol	- €	- €	20 458 049€	20 458 049€
		Extension of the CHEM "Altbau 2" * - Centre Hospitalier Emile Mayrisch (CHEM)	- €	- €	- €	- €
		Extension of the hemodialysis service - Centre Hospitalier du Nord (CHdN)	4 563 094€	896 757€	221 145€	5 680 997€
		Architectural measures to accommodate & installation of additional IRMs - all 4 hospital centers of the country	- €	2 734 900€	4 618 880€	7 353 780€
		Increase in emergency rooms and daycare centers in the hospitals - all 4 hospital centers of the country	- €	795 567€	2 057 116€	2 852 683€
Access to essential services - Healthcare			25 454 576€	27 340 591€	45 454 415€	98 249 583€

\*Expenses from these projects start in year 2021 or 2022

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Access to essential services - Social inclusion	Provide access to essential services for population groups at risk of social exclusion	Reception centers for people having applied for or benefiting from international protection - in Sanem / Mühlenbach / Bettembourg / Bridel / Capellen / Rodange and Luxembourg city	157 095€	3357988€	63903€	3578986€
		Reception center for homeless people & multifunctional emergency structures for people in need - in Sandweiler, Building A + B	6642997€	4538 043€	864 037€	12 045 077€
		Construction, renovation and transformation of different properties to create a new residential home and day center for people with special needs - in Ettelbrück	9 247 479€	6 933 983€	3 238 886€	19 420 348€
		Construction of a care home for the elderly - in Differdange	- €	3 934 371€	8 984 276€	12 918 647€
		Construction of a care home for the elderly - in Bascharage	696 751€	1 324 841€	4 143 928€	6 165 520€
		Construction of a reception center - Project "Jongenheem" Maison Porte Ouverte	1139 664€	1 432 875€	1 088 950€	3 661 489€
		Construction of a reception center - Project Tandel-Fouhren (Municipality & Arcus ASBL)	334 304€	1 113 208€	2 149 424€	3 596 936€
Access to essential services - Social inclusion			18 218 290€	22 635 308€	20 533 404€	61 387 003€

Project category		Name	Year			
Category	Sub-category	Project name	2018	2019	2020	Total 2018-2020
Affordable housing	Provide access to affordable housing to vulnerable population	Construction of an innovative and sustainable village "Elmen": 292 rental units and 96 properties in Kehlen/Olm - Société Nationale des Habitations à Bon Marché - 030	- €	- €	3 758 377€	3 758 377€
		Construction of a building with 28 rental units (subsidized) in Differdange - Luxembourg Housing Fund - 011	10 364 429€	7 981 13€	16 531 03€	34 876 45€
		Construction of a building with 23 rental units (subsidized) in Kopstal, Bridel - Luxembourg Housing Fund - 045	- €	5 155 534€	13 599 42€	18 754 76€
		Construction of a building with 28 units in Junglinster* - Luxembourg Housing Fund - 039	- €	- €	- €	- €
		Construction of new properties with 117 rental units and 32 units dedicated for beneficiaries of individual housing allowances in Mamer* - Luxembourg Housing Fund - 067	- €	- €	- €	- €
		Construction of a neighbourhood of 281 rental units and 120 properties for beneficiaries of individual housing allowances in Wiltz - Luxembourg Housing Fund - 099	- €	16 050 87€	- €	16 050 87€
		Construction of a residence with 29 rental units and 3 properties in Grevenmacher - Société Nationale des Habitations à Bon Marché - 099	- €	5 618 184€	1 234 059€	6 852 243€
		Construction of 31 rental units and 65 properties in Conttern - Société Nationale des Habitations à Bon Marché - 014	- €	- €	2 561 202€	2 561 202€
		Construction of 34 rental units in Luxembourg-City, Réimerwee I - Société Nationale des Habitations à Bon Marché - 021	4 196 556€	2 786 486€	2 433 53€	7 226 395€
		Construction of 60 properties in Luxembourg-City, Réimerwee II - Société Nationale des Habitations à Bon Marché - 021	15 902 227€	- €	- €	15 902 227€
		Construction of 39 rental units in Dudelange - Kierchfong - 003	- €	4 707 740€	3 010 606€	7 718 346€
		Construction of 52 rental units in Vianden - Croix Rouge - 001	- €	- €	2 566 694€	2 566 694€
		Construction of 28 units in Oberkorn* - Oeuvres Paroissiales Oberkorn - 001	- €	- €	- €	- €
		Construction of 37 rental units in Differdange - AC Differdange	- €	4 217 999€	- €	4 217 999€
		Construction of 35 rental units in Luxembourg-City - Ville de Luxembourg - 007	8 344 763€	- €	- €	8 344 763€
		Construction of 48 rental units in Differdange* - AC Differdange	- €	- €	- €	- €
		Governmental acquisition of land for the construction of affordable housing targeting low income persons - Luxembourg Housing Fund & Société Nationale des Habitations à Bon Marché	- €	6 455 250€	9 000 045€	15 455 295€
Affordable housing			15 167 975€	26 704 393€	25 387 381€	67 259 749€

	2018	2019	2020	Total 2018-2020
Total of all projects	218 643 451€	266 171 421€	284 768 181€	769 583 053€

	Total 2021-2022
Amount of unallocated proceeds (to be invested in 2021 and 2022)	730 416 947€

\*Expenses from these projects start in year 2021 or 2022

# 4. IMPACT REPORT 2018-2020

## 4.1 Introduction

Under the Sustainability Bond Framework, the SBC committed to publishing annual bond reports, including the Allocation and the Impact Report until full allocation of the Sustainability Bond proceeds. This report is based as far as possible on existing public reports on the different projects as well as direct interactions with the different ministries and project owners as well as with the project managers.

In addition to the ICMA guidelines and, when relevant and feasible, with the EU Green Bond Standard (EU GBS) and the Final report of the EU Technical expert group on sustainable finance (TEG final report), it is aligned with the following standards as much as possible: ICMA Harmonized Framework on Impact Reporting, the Sustainable Development Goals (SDGs), Impact Reporting and Invesment Standards (IRIS+) and Impact Management Project (IMP).

The environmental impact metrics are aligned with the ICMA Green Bond Principles (2020), the Nordic Public Sector Issuers (2020), Position Paper on Green Bonds Impact Reporting and the Climate Bonds Initiative Sectoral Guidelines where applicable.

The purpose of the impact report is to provide investors with a better understanding of the possible environmental and social impacts of the eligible projects. The analysis in our report uses a number of key impact indicators for the purpose of impact measurement.

However, there are inherent limitations in the data presented. The underlying assumptions are based on the information available at the beginning of the projects while the actual impact of the projects may diverge from the quantified expected result. Where quantitative indicators were unavailable, a qualitative description has been included to show meaningful impacts.

The SBC has worked with a team of experts (see “Acknowledgments”) in order to identify the different impact indicators as well as to draft an impact methodology.

Please find below an investment description and impact overview for each category. The detailed Impact Table and Impact Methodology are available on the Luxembourg State Treasury Website.

## 4.2 Project descriptions and impacts

### 4.2.1 Low carbon transport

**1. The challenge** (IMP category: “what” ; IRIS+ theme: “Mitigating climate change through clean mobility”)

According to the World Resources Institute, the transportation sector accounts for 15.9% of global annual greenhouse gas (“GHG”) (including CO<sub>2</sub> and non- CO<sub>2</sub> gases) and roughly 25% of CO<sub>2</sub> emissions from burning fossil fuels. On-road vehicles are responsible for 72% of these emissions, underlining the urgency to decarbonize the global vehicle fleet in order to keep the rise in global temperature well under two degrees Celsius<sup>9</sup>.

Mobility has been an important topic in Luxembourg for decades. However, despite a significant increase of efforts and investments over the last few years, around **66% of GHG** emissions in Luxembourg come **from the transport sector<sup>10 11</sup>**, and around **69% of journeys are still undertaken in cars**, causing congestion and pollution<sup>12</sup>.

Hence, the government is strongly committed to reducing emissions linked to transport by promoting public transportation and electro-mobility.

Investments in this category aim to reduce GHG emissions by offering affordable and equitable climate-friendly modes of transportation for both passengers and goods, thereby mitigating climate change, maximizing economic opportunities, and improving overall quality of life.

### 2. The Luxembourg government’s approach

All transport projects included in the sustainability bond portfolio are part of a new mobility concept for Luxembourg, detailed in the **Modu 2.0 Mobility Strategy for 2025** and approved by the government in 2018<sup>13</sup>. Objectives of the new mobility concept relevant to the sustainability bond project portfolio include:

- ▶ a 50% increase in passenger numbers in public transport due to new infrastructure of the CFL (Société nationale des chemins de fer luxembourgeois – National Rail Network) and a reorganization of the regional train network,
- ▶ a reduction by 25% in delays of six minutes or more for trains (compared to 2017),
- ▶ an increase from 19% to 22% of the use of public transportation for work related journeys,
- ▶ an increase from 38% to 45% of the use of public transportation for school related journeys (compared to 2017), and
- ▶ the optimization of the time needed to change from one mode of transport to another to encourage the increased use of public transport.

The Transport Master Plan (Plan directeur sectoriel “Transport” PST)<sup>14</sup> prepared in 2018 provides the legal framework to implement the projects and measures laid out in the Modu 2.0 strategy. This plan lists 40 high priority transport projects, with the seven transport projects covered by the Luxembourg Sustainability Bond being among the highest-ranking priority projects.

<sup>9</sup> Shiyi Wang and Mangpin Ge, “Everything You Need to Know about the Fastest-Growing Source of Global Emissions: Transport,” World Resources Institute (blog), October 16, 2019. <https://www.wri.org/blog/2019/10/everything-you-need-know-about-fastest-growing-source-global-emissions-transport>

<sup>10</sup> [https://iea.blob.core.windows.net/assets/8875d562-756c-414c-bc7e-5fc115b1a38c/Luxembourg\\_2020\\_Energy\\_Policy\\_Review.pdf](https://iea.blob.core.windows.net/assets/8875d562-756c-414c-bc7e-5fc115b1a38c/Luxembourg_2020_Energy_Policy_Review.pdf)

<sup>11</sup> <https://unfccc.int/documents/228020>

<sup>12</sup> <https://environnement.public.lu/content/dam/environnement/documents/developpement-durable/PNDD.pdf>

<sup>13</sup> <https://transports.public.lu/fr/contexte/strategie/modu2.html/>

<sup>14</sup> [https://amenagement-territoire.public.lu/content/dam/amenagement\\_territoire/fr/plans\\_caractere\\_reglementaire/plans\\_sectoriels/PST-RGD.pdf](https://amenagement-territoire.public.lu/content/dam/amenagement_territoire/fr/plans_caractere_reglementaire/plans_sectoriels/PST-RGD.pdf)

### **3. The investments in low carbon transport via this bond**

The proceeds of the Sustainability Bond are being allocated to 7 investments in low carbon transport projects, including 1 public transport investment in Luxtram, and 6 infrastructure projects for low carbon transport investments in rail related infrastructure including a park and ride facility and a platform for shifting freight from road to rail.

### **4. Who is impacted by these investments? (IMP category: “who”)**

The main beneficiaries of these investments are the current users of the public transport, mainly Luxembourg residents and commuters<sup>15</sup>, with the aim to gain additional users by creating an efficient alternative to individual transportation. Better connectivity, backed by resilient and sustainable infrastructure, can improve access to health, education, employment, and productive opportunities. Improved health from reduced noise pollution and better air quality are other positive impacts of clean mobility.

In addition, these investments are beneficial beyond Luxembourg, as the reduction in GHG emissions in Luxembourg will contribute to a positive impact on the world's climate.

### **5. The impact risks of these investments (IMP category: “risk”)**

The main identified impact risks for this category are execution risk, external risk, stakeholder participation risk and endurance risk. All four of these risks are mitigated and managed as the Luxembourg State is the main stakeholder, providing investor confidence, patient capital as well as a policy landscape that is advantageous to clean mobility.

### **6. Sustainable Development Goals (SDGs):**

The investments under “Low carbon transport” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



#### **6.1 Primary SDG**



##### **Sustainable Development Goal 11:**

“Make cities and human settlements inclusive, safe, resilient and sustainable”

##### **Target 11.2:**

“By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons”

##### **Target 11.3:**

“By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries”

##### **Target 11.6:**

“By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management”

<sup>15</sup> Currently around 210.000 jobs in Luxembourg are held by commuters. [https://statistiques.public.lu/stat/TableViewer/tableView.aspx?ReportId=12916&IF\\_Language=fra&MainTheme=2&FltrName=3&RFPPath=92](https://statistiques.public.lu/stat/TableViewer/tableView.aspx?ReportId=12916&IF_Language=fra&MainTheme=2&FltrName=3&RFPPath=92)

## 6.2 Secondary SDGs



### Sustainable Development Goal 13:

“Take urgent action to combat climate change and its impacts”

#### Target 13.2:

“Integrate climate change measures into national policies, strategies and planning”



### Sustainable Development Goal 9:

“Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”

#### Target 9.1:

“Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all”

#### Target 9.4

“By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities”



### Sustainable Development Goal 3:

“Ensure healthy lives and promote well-being for all at all ages”

#### Target 3.6:

“By 2030, halve the number of global deaths and injuries from road traffic accidents”

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project. For the new rail track project between Luxembourg and Bettembourg, the listed total project costs do not yet include the vehicle stock costs required to operate the rail line in order to generate a transport mode shift and related avoided GHG emissions.

In addition, please refer to the **Impact Methodology** published on the Luxembourg State Treasury website (<https://te.public.lu/fr/finance-durable.html>) for an overview of the methodologies and assumptions used for the determination and the calculation of key impact metrics as described in the Luxembourg Sustainability Bond Framework and additional indicators for the investments of the Luxembourg Sustainability Bond. The attribution of impacts to different financiers of the project and the inclusion of different project cost elements in the total project costs of transport projects and its relevance for the bond financing related impacts can be found in the Impact Methodology as well.

#### 4.2.2 Water and wastewater management

## **1. The challenge** (IMP category: “what”; IRIS+ theme: “Sustainable water management”)

Global water use has increased by about 1% per year since the 1980s, driven by a combination of population growth, socioeconomic development, and changing consumption patterns<sup>16</sup>. The United Nations World Water Assessment Programme expects worldwide water demand to continue increasing near this rate until 2050, an increase of 20–30% above current levels of use primarily caused by rising demand in the industrial and domestic sectors<sup>17</sup>.

Excessive water abstraction, pollution, and diversion—driven by growing agricultural, industrial, and domestic water use—have diminished the quality and quantity of water available for people and ecosystems. Reducing the amount of water consumed by industrial and municipal uses and improving the quality of water discharged can reduce pressures on these resources.

## **2. The Luxembourg government's approach**

The SEBES (Syndicat des eaux du barrage d'Esch-sur-Sûre) drinking water treatment plant responds to the needs of a rapidly increasing population as well as Luxembourg's economic growth and is being constructed to new and advanced levels of treatment technologies<sup>18</sup>. The treatment levels of the new installation allow a drinking water quality that goes beyond what is required in the Grand-Ducal Regulation of 7 October 2002<sup>19</sup>, in compliance with the law on water protection and management of 19 December 2008<sup>20</sup> and in compliance with the new EU Drinking Water Directive<sup>21</sup> approved by the European Parliament at the end of 2020, which will enter into force in 2021 and will be implemented in national legislation within the next two years.

The majority of the wastewater pollution load in Luxembourg, namely 98%, is connected to one of the 117 biological wastewater treatment plants having a collected capacity of 1.092.735 population equivalents (p.e). For the Grand Duchy of Luxembourg, the EU Directive of 21 May 1991 on urban wastewater treatment (91/271/CEE) and its amendment (98/15/EC) of 27 February 1998 is currently applicable for wastewater treatment stations above 2,000 p.e. This EU Directive has been transposed into national law through the Grand-Ducal Regulation of the 13th of May 1994<sup>22</sup>, which is still in force today.

### **3. The investments in water and wastewater management via this bond**

The sustainability bond portfolio contains one extension and modernisation of a drinking water treatment plant, which will serve 90% of the population of Luxembourg and 7 wastewater treatment plants, representing a mix of new plants and upgrades and renovations of existing plants.

#### 4. Who is impacted by these investments? (IMP category: "who")

The drinking water treatment plant as well as the wastewater treatment plants are serving most of the population of Luxembourg. In addition, the investments are made together with

<sup>16</sup> Bathurst, James C., Andrés Iroumé, Felipe Cisneros, Jorge Fallas, Rodolfo Iturraspe, Marcelo Gaujño-Nouillo, Adriana Urciuolo, et al. "Forest Impact on Floods Due to Extreme Rainfall and Snowmelt in Four Latin American Environments 1: Field Data Analysis." *Journal of Hydrology* 400, no. 3 (April 2011): 281–91. <http://dx.doi.org/10.1016/j.jhydrol.2010.11.044>.

17 EPA. "Climate Change Indicators in the United States: River Flooding." August 2016. [https://www.epa.gov/sites/production/files/2016-08/documents/print\\_river-flooding-2016.pdf](https://www.epa.gov/sites/production/files/2016-08/documents/print_river-flooding-2016.pdf)

18 <https://sebes.lu/fr/actualite/nouvelle-station/>

<sup>19</sup> Règlement grand-ducal du 7 octobre 2002 relatif à la qualité des eaux destinées à la consommation humaine. - Legilux (public.lu)

20 <https://sebes.lu/wp-content/uploads/2017/01/Loi-du-19.12.2008-Protection-et-gestion-des-eaux.pdf>

21 [https://ec.europa.eu/environment/water/water-drink/legislation\\_en.html](https://ec.europa.eu/environment/water/water-drink/legislation_en.html)

22 Règlement grand-ducal du 13 mai 1994 relatif au traitement des eaux urbaines résiduaires. - Legilux (public.lu)

local municipal water utilities, which are also benefitting from the investments. Moreover, and in the long-term, the Luxembourg freshwater ecosystems are being positively impacted through these investments, including animals and plants in and nearby streams and rivers, thus contributing to achieving the objectives set by the European Water Framework Directive.

### **5. The impact risks of these investments (IMP category: “risk”)**

The main identified impact risks for this category are evidence risk, alignment risk, external risk and unexpected impact risk. These risks are mainly mitigated and managed as the Luxembourg State is the main stakeholder, providing investor confidence, long-term patient capital as well as a policy landscape that is advantageous to sustainable water and wastewater management. In addition, the State conducts regular studies in order to provide the best available information on the resources needed for good water and wastewater management as well as on using the best available techniques.

### **6. Sustainable Development Goals (SDGs):**

The investments under “Water and wastewater management” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



#### **6.1 Primary SDG**



##### **Sustainable Development Goal 6:**

“Ensure availability and sustainable management of water and sanitation for all”

##### **Target 6.3:**

“By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally”

#### **6.2 Secondary SDGs**



##### **Sustainable Development Goal 9:**

“Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”

##### **Target 9.1:**

“Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all”



##### **Sustainable Development Goal 15:**

“Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”

##### **Target 15.1:**

“By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements”

Please refer to the **Impact Table** published on the website of the Luxembourg State Treasury (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

In addition, please refer to the **Impact Methodology** published on the Luxembourg State Treasury website (<https://te.public.lu/fr/finance-durable.html>) for an overview of the methodologies and assumptions used for the determination and the calculation of key impact metrics as described in the Luxembourg Sustainability Bond Framework and additional indicators for the investments of the Luxembourg Sustainability Bond.

### 4.2.3 Protection of the environment

#### 1. The challenge (IMP category: “what”; IRIS+ category: “Conserving River Flows for Nature and People”)

Nature is under increasing stress. Human activities have changed almost 75% of our planet’s surface. Consequently, wildlife is being squeezed into an increasingly small corner of the world<sup>23</sup>. Around 1 million animal and plant species are threatened with extinction – many within decades<sup>24</sup>.

Besides leading to the direct loss of aquatic species, water depletion degrades entire ecosystems that provide critically important services on which human societies and economies depend. The removal of water from freshwater or estuarine ecosystems can degrade their functional capabilities, greatly diminishing or even destroying the ecosystem services they support<sup>25</sup>.

In Luxembourg, as elsewhere in Europe, the state of health of forests is continuously degrading as a result of air pollution and climate change. Only one third of trees in Luxembourg are healthy. Of the 102 natural water bodies of the country, 3 are in a good ecological state, two-thirds of the groundwater are in a bad chemical state (with the presence of nitrates and phytosanitary products in particular) and adequate drinking water resources could, in the medium term, no longer be assured at times of high consumption. Overconsumption of land (around 174 ha per year, i.e. 0.5 ha per day) and increasingly intense agriculture fragment the landscape and further threaten biodiversity. 82% of the species in the Luxembourg “Birds Directive” are not in a favorable state of conservation and 68% of the natural habitats of the Luxembourg “Habitats Directive” are in an unfavorable state<sup>26</sup>.

#### 2. The Luxembourg government’s approach

A key objective of the National Plan concerning the protection of nature<sup>27</sup> is thus the restoration of at least 15% of degraded habitats and biotopes and their services. This plan also targets the creation of around 1,900 ha of habitats and biotopes and the improvement of an additional 2,400 ha still in 2021. In the long term, the target is to create more than 10,200 ha and to improve more than 600 ha of habitats and biotopes. The government also wants to protect groundwater, restore rivers, maintain the national extent of forests and ensure sustainable management<sup>28</sup>.

This project consists of the creation of new protected habitats, the renaturalization of a river as well as the improvement of park infrastructure. The renaturalization of the river encompasses an improvement of the morphology of the river and close river areas, flood protection, fish migration and structures to reduce pollution and improve water quality.

These investments have a particular focus on ensuring that rivers and aquifers have enough water to maintain environmental health while also maintaining essential human needs.

#### 3. The investments in protection of the environment via this bond

The sustainability bond portfolio includes one EUR 10 million project related to the ecological renaturalization of the Pétrusse valley in the heart of Luxembourg City.

23 <https://www.un.org/sustainabledevelopment/biodiversity/>

24 [https://ipbes.net/sites/default/files/2020-02/ipbes\\_global\\_assessment\\_report\\_summary\\_for\\_policymakers\\_en.pdf](https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf)

25 Richter, Brian. *Water Share: Using Water Markets and Impact Investment to Drive Sustainability*. Washington, DC: The Nature Conservancy, 2016.

26 <https://environnement.public.lu/content/dam/environnement/documents/developpement-durable/PNDD.pdf>

27 <https://environnement.public.lu/dam-assets/documents/natur/general/pnppn2.pdf>

28 <https://environnement.public.lu/content/dam/environnement/documents/developpement-durable/PNDD.pdf>

#### **4. Who is impacted by these investments? (IMP category: “who”)**

The investments impact freshwater and terrestrial ecosystems including indigenous trees and hedges as well as animals such as fish, macroinvertebrates and protected bird species.

Terrestrial plants rely on water not only from precipitation but also from soil moisture; good land use practices can support the natural rates of water infiltration to be used by plants or to replenish groundwater systems. Animals in forests, woodlands, and grasslands rely year-round on the water in rivers, lakes, wetlands, and springs, especially during dry seasons and drought. Keeping more water in freshwater systems can help these species survive periods with reduced precipitation, which will become more frequent in the future due to climate change.

#### **5. The impact risks of these investments (IMP category: “risk”)**

The main identified impact risks for this category are evidence risk, unexpected impact risk and execution risk. These risks are mainly mitigated and managed as the Luxembourg State is the main stakeholder, providing patient capital as well as a continuous policy landscape that is advantageous to the protection of the environment. In addition, the State conducts regular studies in order to provide the best available information on the resources needed for a healthy ecosystem.

#### **6. Sustainable Development Goals (SDGs):**

The investments under “Protection of the environment” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



##### **6.1 Primary SDG**



##### **Sustainable Development Goal 15:**

“Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”

##### **Target 15.1:**

“By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements”

##### **Target 15.5:**

“Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species”.

##### **Target 15.8:**

“By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species”.

## 6.2 Secondary SDGs



### **Sustainable Development Goal 6:**

“Ensure availability and sustainable management of water and sanitation for all”

#### **Target 6.3:**

“By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally”



### **Sustainable Development Goal 11:**

“Make cities and human settlements inclusive, safe, resilient and sustainable”

#### **Target 11.4:**

“Strengthen efforts to protect and safeguard the world’s cultural and natural heritage”

#### **Target 11.7:**

“By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities”

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

In addition, please refer to the **Impact Methodology** published on the Luxembourg State Treasury website (<https://te.public.lu/fr/finance-durable.html>) for an overview of the methodologies and assumptions used for the determination and the calculation of key impact metrics as described in the Luxembourg Sustainability Bond Framework and additional indicators for the investments of the Luxembourg Sustainability Bond..

#### 4.2.4 Access to essential services - Education

##### **1. The challenge** (IMP category: “what” ; IRIS+ category: “Access to quality education”)

In Luxembourg, schooling is compulsory, which means that every child not only has the opportunity to go to school, but the obligation to do so. However, Luxembourg still faces challenges in relation to education, mainly due to the heterogeneity of its population.

Overall, 48% of Luxembourg's population is made up of foreigners. People of 170 different nationalities live in the country. In terms of the proportion of foreigners in the population, the city of Luxembourg has the highest number of foreigners with around 71%<sup>29</sup>.

Luxembourg's society is characterized by its openness to languages: Luxembourgish, German and French - the country's three administrative languages -, coexist on a daily basis with a wide range of other languages, such as English, Portuguese or Italian. These languages and many more are spoken by residents, commuters and expatriate communities. It makes sense that Luxembourg schools allow students to experience the richness of a multilingual environment from a very young age. Given Luxembourg's multilingual population, it has increasingly become commonplace to see children arriving in the educational system without speaking any of the country's three administrative languages. As a result, Luxembourg schools have the task to help pupils integrate and acquire the necessary competencies to pursue their education<sup>30</sup>.

##### **2. The Luxembourg government's approach**

Schooling is mandatory in Luxembourg between the ages of 4 and 16. It covers a total of at least 12 years in primary and secondary education.

Primary education is subdivided into four cycles:

- ▶ cycle 1 for children aged between 4 and 5. A first year of early education as of the age of 3 is available but not mandatory,
- ▶ cycle 2 for children aged between 6 and 7,
- ▶ cycle 3 for children aged between 8 and 9,
- ▶ cycle 4 for children aged between 10 and 11.

Secondary education is subdivided into two levels:

- ▶ classical secondary education, covering seven years and leading to the secondary school leaving diploma, preparing mostly for university studies,
- ▶ general secondary education, covering various training options extending over six to eight years based on the orientation chosen by the student, including vocational training.

The investments aim to ensure that all children and young people have equitable access to a quality education as well as to give every child ages 0-6 the best possible start in life. Creating protective, supportive and nurturing environments and relationships increases the likelihood of improving children's developmental, health, educational, and economic outcomes later in life.

<sup>29</sup> <https://luxembourg.public.lu/en/society-and-culture/population/demographics.html>

<sup>30</sup> <https://luxembourg.public.lu/en/living/education/languages-at-school.html#:~:text=Luxembourg%20s%20education%20system%20focuses,as%20part%20of%20secondary%20education.>

### **3. The investments in education via this bond**

The extension and construction of daycare centres as well as the construction and extension of middle and high schools play a central role in the Sustainability Bond with a total of 10 projects. Various investments targeting different age categories have been made to ensure that all children and young people have access to equitable and quality education – with the aim to serve a heterogeneous community residing in Luxembourg.

The biggest project is the construction of a new international school, serving the international community residing in Luxembourg. The International School of Differdange and Esch-sur-Alzette (EIDE) is aimed at children and young people with an expatriate or migrant background, as well as any other student wishing to develop in an international context. It primarily targets young people from Differdange and Esch-sur-Alzette as well as from the Southern region of the country more broadly.

### **4. Who is impacted by these investments? (IMP category: “who”)**

The investments under the Sustainability Bond will impact all children in Luxembourg, including children aged 0-6 and children with a migrant background. Establishing infrastructure and service-delivery standards for centres providing early childhood development services, such as adequate space for all students, and ensuring the overall safety of the learning environment, help to ensure that all children are guaranteed a minimum level of quality and safety. In addition, small class sizes and high caregiver-to-child ratios are structural inputs associated with positive child outcomes.

### **5. The impact risks of these investments (IMP category: “risk”)**

The main identified impact risks for this category are execution risk, external risk, stakeholder participation risk and endurance risk. All four of these risks are mainly mitigated and managed as the Luxembourg State is the main stakeholder, adapting services to the local context and social norms, collecting data to verify the demographic served and the achieved impact as well as providing a local regulatory framework that is advantageous to high quality education for all.

### **6. Sustainable Development Goals (SDGs):**

The investments under “Education” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



Apart from IRIS+ and the IMP model, the UNESCO website on the SDGs and resources for educators<sup>31</sup> have been used as a reference.

#### **6.1 Primary SDG**



##### **Sustainable Development Goal 4:**

“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”

<sup>31</sup> <https://en.unesco.org/themes/education/sdgs/material>

**Target 4.1:**

“By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes”

**Target 4.2:**

“By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education”

**Target 4.4:**

“By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship”

**6.2 Secondary SDGs****Sustainable Development Goal 1:**

“End poverty in all its forms everywhere”

**Target 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 and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance”

**Sustainable Development Goal 5:**

“Achieve gender equality and empower all women and girls”

**Target 5.1:**

“End all forms of discrimination against all women and girls everywhere”

**Target 5.5:**

“Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life”

**Sustainable Development Goal 10:**

“Reduce inequality within and among countries”

**Target 10.2:**

“By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status”

**Target 10.3:**

“Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard”

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

## 4.2.5 Access to essential services - Healthcare

### 1. The challenge (IMP category: “what” ; IRIS+ category: “Access to quality healthcare”)

Health is the most precious capital a human being has and is an essential condition for sustainable development. It is also an essential prerequisite for a dynamic economy and maintaining a high quality of life. In Luxembourg, life expectancy is one year above the average for developed countries (84.4 years for women and 79.9 years for men<sup>32</sup>). However, too many people are still victims of health problems, pathologies, accidents and other risks that could be avoided: obesity, drug and alcohol misuse, HIV are some examples<sup>33</sup>.

Through its different national health plans<sup>34</sup> the government is addressing these issues. Prevention is a priority objective, whether in terms of the level of risk behavior (diet, physical activity, alcohol, tobacco, etc.), of systematic screening of early warnings for a number of diseases but also for the impact of environmental conditions on health. To ensure access to quality care for all, it is appropriate to reaffirm and strengthen the fundamental values at the base of Luxembourg’s health and social security system: universality, access to quality care, equity and solidarity.

The Covid-19 pandemic has highlighted the extent to which universal access to healthcare helps to guarantee a stable and well-functioning society.

### 2. The Luxembourg government’s approach

Luxembourg’s health strategy is divided into different categories and encompasses a broad range of services to guarantee access to healthcare and promote a healthier lifestyle:

- ▶ Protect and promote health as part of general well-being on a physical, psychological and social level,
- ▶ Study, monitor and assess the state of health of the population and carry out public health measures (including emergency measures necessary for the protection of health),
- ▶ Ensure compliance with legal and regulatory provisions on public health,
- ▶ Implement prevention and health promotion programs,
- ▶ Evaluate and promote quality in health-related matters,
- ▶ Contribute nationally and internationally to the implementation of health policy,
- ▶ Advise public authorities and communities on health issues,
- ▶ Promote and carry out scientific research in the field of health,
- ▶ Coordinate and promote vocational training for doctors, dentists and pharmacists.

### 3. The investments in healthcare via this bond

The sustainability bond portfolio includes 15 healthcare projects. The investments include amongst others a new obstetrical and gynecological center, pediatric clinic, cardiology center, geriatric care facility, juvenile psychiatric facility, the construction of the second largest hospital in the country and a therapeutic center for adolescents.

### 4. Who is impacted by these investments? (IMP category: “who”)

The investments impact healthcare providers as well as all patients in Luxembourg with a particular focus on vulnerable populations, such as children, youth, pregnant women and elderly people.

32 Source : *State of Health in the EU, Luxembourg, Profils de santé par pays 2019 (chiffres datant de 2017)*

33 <https://environnement.public.lu/content/dam/environnement/documents/developpement-durable/PNDD.pdf>

34 [Loi du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière ; https://sante.public.lu/fr/politique-sante/plans-action/index.html](https://sante.public.lu/fr/politique-sante/plans-action/index.html)

## 5. The impact risks of these investments (IMP category: “risk”)

The main identified impact risks for this category are execution risk, stakeholder participation risk and drop-off risk. These risks are mainly mitigated and managed as the Luxembourg State is the main stakeholder, providing patient capital as well as a policy framework that is conducive to continuous high-quality healthcare.

## 6. Sustainable Development Goals (SDGs):

The investments under “Healthcare” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



### 6.1 Primary SDG



#### Sustainable Development Goal 3:

“Ensure healthy lives and promote well-being for all at all ages”

##### Target 3.1:

“By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births

##### Target 3.2:

“By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births”

##### Target 3.5:

Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

## 4.2.6 Access to essential services - Social inclusion

### 1. The challenge (IMP category: “what”)

The concept of social inclusion generally refers to a vision for “a society for all” that leaves no one behind, and in which every individual has an active role to play<sup>35</sup>. All over the world, certain groups of people face barriers that keep them from fully participating in social, economic and political life. The exclusion might stem from the legal system or labor markets for example, but can also originate from discriminatory or stigmatizing beliefs and attitudes. Resulting disadvantages are often based on social identity, defined on the basis of age, gender, location, occupation, race, ethnicity, religion, citizenship status, disability, and sexual orientation and gender identity, among other factors<sup>36</sup>.

### 2. The Luxembourg government’s approach

The investments in social inclusion focus on the elderly, youth, the disabled, people having applied for or benefiting from international protection and homeless people. In particular, the following aspects can be highlighted:

Being homeless might lead to lacking basic human rights such as the right to work, access to healthcare, social security, privacy and education. In order to combat homelessness, homeless shelters provide safe places to sleep at night<sup>37</sup>.

On 18 January 2013, the government adopted the National Strategy on Homelessness and Housing Exclusion for the period 2013-2020<sup>38</sup>. The strategy provides a framework for action for governmental institutions to combat all forms of homelessness and housing exclusion. It advocates a comprehensive approach that takes the social, psychological and medical needs of homeless persons into account, and which is based on the “Housing First” principle, a model that Luxembourg continues to develop.

In general, the range of accommodation facilities for adults has evolved significantly in recent years. The number of people who can be accommodated within structures (financially) supported by the Ministry of Family Affairs, Integration and the Greater Region has more than quadrupled between 2012 and 2020. This increase is due to the implementation of new projects and the increase in capacity in existing facilities.

In 2019, the new building for the Winter Action, a humanitarian action set up by the government in 2001 to prevent homeless people from suffering from hypothermia during periods of extreme cold, opened its doors with an increased accommodation capacity. In 2021, the range of low-threshold facilities has been supplemented by a night shelter specifically for women. In addition, a concept for a care home for ageing homeless people is under development.

The number of people seeking international protection in Europe has soared over recent years. This is due in large part to the situation in Syria and Iraq, as well as conflict and instability in countries such as Afghanistan, Eritrea and elsewhere. Children and young people make up the vast majority of refugees across the world<sup>39</sup>. The number of people having applied for international protection in Luxembourg was 2036 in 2016, 2318 in 2017, 2204 in 2018 and 2052 in 2019<sup>40</sup>. The current reception facilities have limited spaces that need to be extended.

<sup>35</sup> <https://socialprotection-humanrights.org/resource/social-inclusion-poverty-eradication-and-the-2030-agenda-for-sustainable-development/>

<sup>36</sup> <https://www.worldbank.org/en/topic/social-inclusion>

<sup>37</sup> <https://www.oecd.org/els/family/HC3-1-Homeless-population.pdf>

<sup>38</sup> <https://mfamigr.gouvernement.lu/fr/le-ministere/attributions/solidarite/sans-abrisme-logement.html> ; Stratégie nationale contre le sans-abrisme et l’exclusion liée au logement - Ministère de la Famille, de l’Intégration et à la Grande Région // Le gouvernement luxembourgeois ; <https://mfamigr.gouvernement.lu/fr/publications/plan-strategie/sdf.html>

<sup>39</sup> <https://www.coe.int/en/web/youth-peace-dialogue/refugees>

<sup>40</sup> [https://maee.gouvernement.lu/content/dam/gou\\_maee/directions/d8/publications/statistiques-en-mati%C3%A8re-d-asile/2021/Mai-2021-Statistiques-protection-internationale.pdf](https://maee.gouvernement.lu/content/dam/gou_maee/directions/d8/publications/statistiques-en-mati%C3%A8re-d-asile/2021/Mai-2021-Statistiques-protection-internationale.pdf)

Assisted living offers various educational workshops and provides studios that enable young jobseekers (16-29 years of age) to develop skills or acquire new ones in a clearly defined trade.

The senior care centers provide a safe environment for senior citizens as well as top-of-the-range assistance and care services.

### **3. The investments in social inclusion via this bond**

The Sustainability Bond covers 7 different projects that contribute to the societal integration of people in need. Reception or drop-in centers for vulnerable youth, homeless people and refugees, an emergency center for vulnerable people, as well as care homes for the elderly and for disabled people are being constructed throughout Luxembourg to ensure an adequate offer and availability of shelter and care homes.

### **4. Who is impacted by these investments?** (IMP category: "who")

Homeless individuals, people having applied for international protection, persons with disabilities, the young and the elderly are particularly vulnerable and often need specific assistance. Retaining employment, mobility, healthcare, education and general care can prove particularly challenging for these individuals, who will acutely benefit from additional resources.

### **5. The impact risks of these investments** (IMP category: "risk")

The main identified impact risks for this category are external risk, efficiency/alignment risk, drop-off risk, external risk and stakeholder participation risk. These risks are mainly mitigated and managed as the Luxembourg State is the main stakeholder, providing investor confidence, long-term patient capital as well as a policy framework that is advantageous to social inclusion.

### **6. Sustainable Development Goals (SDGs):**

The investments under "Social inclusion" of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



#### **6.1 Primary SDG**



##### **Sustainable Development Goal 10:**

"Reduce inequality within and among countries"

##### **Target 10.2:**

"By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

**Target 10.3:**

“Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard”

**Target 10.4:**

“Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality”

**6.2 Secondary SDGs****Sustainable Development Goal 1:**

“End poverty in all its forms everywhere”

**Target 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 and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance”

**Target 1.5:**

“By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters”

**Sustainable Development Goal 3:**

“Ensure healthy lives and promote well-being for all at all ages”

**Sustainable Development Goal 8:**

“Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”

**Target 8.5:**

“By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value”

**Sustainable Development Goal 11:**

“Make cities and human settlements inclusive, safe, resilient and sustainable”

**Target 11.1:**

“By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

## 4.2.7 Affordable housing

### 1. The challenge (IMP category: “what” ; IRIS+ category: “Affordable quality housing”)

In recent years, Luxembourg has experienced significant demographic growth, which, combined with low interest rates, exerts pressure on rental and real estate prices. Consequently, Luxembourg is experiencing a lack of housing supply, especially with regard to housing at an affordable cost<sup>41</sup>.

According to the latest Eurobarometer survey, housing prices are a major concern for Luxembourgers.<sup>42</sup> On average, households spend 21% of their gross adjusted disposable income on housing, which is slightly more than the OECD average of 20%.<sup>43</sup> However, those in the lowest income quartile spend over half of disposable income on housing.<sup>44</sup> The most disadvantaged households have seen the cost of housing rise most rapidly, by 20% between 2012 and 2017.<sup>45</sup>

In addition, Luxembourg is among the EU Member States with the lowest share of social housing, estimated at 1% of total housing stock in 2018.<sup>46</sup> The supply is therefore insufficient and needs significant investments, which is why the current coalition government has committed to develop a larger supply of affordable housing.<sup>47</sup>

### 2. The Luxembourg government’s approach

In 2020, the new Housing Pact (“Pacte logement 2.0”) was introduced in Luxembourg.

Under previous schemes, a significant number of new affordable housing units were sooner or later sold at market prices. These lessons learnt have been taken into account in the new version.

The new Housing Pact is a partnership between the State and the municipalities, which aims to support the latter in the development of affordable housing.

At the national level, the Housing Pact pursues three operational objectives:

- ▶ Increasing the supply of affordable and sustainable housing at the municipal level,
- ▶ Mobilising existing land and residential potential at municipal level,
- ▶ Improving the quality of residential housing.

### 3. The investments in affordable housing via this bond

The Luxembourg sustainability bond includes a portfolio of:

- ▶ 17 affordable housing projects, with,
- ▶ 1478 housing units for social rental and for sale as properties,
- ▶ built according to high energy efficiency standards.

41 <https://www.oecd-ilibrary.org/docserver/666babcl-en.pdf?expires=1625647564&id=id&accname=guest&checksum=0C244CD62372F6833DBBE0F80607F988>

42 At the national level, housing is a major concern for 60% of the population. European Commission, “Public opinion in the European Union”, (2019), at: <https://eropa.eu/eurobarometer/api/deliverable/download/file?deliverableId=73648>

43 OECD ‘Better Life Index’, “Luxembourg”, at: <http://www.oecdbetterlifeindex.org/countries/luxembourg/>

44 Regards, « Le logement, amplificateur des inégalités au Luxembourg », (2019), <https://statistiques.public.lu/catalogue-publications/regards/2019/PDF-18-2019.pdf>

45 Regards, « Le logement, amplificateur des inégalités au Luxembourg », (2019), <https://statistiques.public.lu/catalogue-publications/regards/2019/PDF-18-2019.pdf>

46 Approximately 2,000 publicly owned social housing units. Housing Europe, “The State of Housing in the EU 2019”, (2019), at: <http://www.housingeurope.eu/resource-1323/the-state-of-housing-in-the-eu-2019>

47 Housing Europe, “The State of Housing in the EU 2019”, (2019), at: <http://www.housingeurope.eu/resource-1323/the-state-of-housing-in-the-eu-2019>

#### **4. Who is impacted by these investments? (IMP category: “who”)**

The affordable housing units are only rented and sold to low-income individuals. In any country where housing costs are high, lower income groups are most significantly impacted and, therefore, will benefit in particular through an increase of the affordable housing supply.

Persons eligible to rent subsidized housing must meet the following conditions:

- ▶ Occupy the dwelling for personal living purposes only,
- ▶ Not be the owner, usufructuary or emphyteutic lessee of another dwelling, either in Luxembourg or abroad,
- ▶ Not enjoy a right of habitation in another dwelling.

Persons eligible to purchase subsidized housing must meet the following conditions:

- ▶ Occupy the dwelling for personal habitation only,
- ▶ Be in receipt of an acquisition or construction subsidy from the Housing Aid Department,
- ▶ Not be an owner in Luxembourg or abroad or commit to selling their current home,
- ▶ Respect the type of housing set according to the family composition.

#### **5. The impact risks of these investments (IMP category: “risk”)**

The main identified impact risks for this category are external risk (leading to fluctuations in property values), efficiency/alignment risk (because of the costliness of land acquisition), drop-off risk (with regards to the follow-on capital at exit), and stakeholder participation risk. These risks are mostly mitigated and managed as the Luxembourg State is the main stakeholder and long-term owner of the affordable housing units, providing investor confidence, patient capital as well as a policy framework that is continuously advantageous to affordable housing.

#### **6. Sustainable Development Goals (SDGs):**

The investments under “Affordable housing” of the Luxembourg Sustainability Bond contribute to the following primary and secondary SDGs and their specific targets.



##### **6.1 Primary SDG**



##### **Sustainable Development Goal 11:**

“Make cities and human settlements inclusive, safe, resilient and sustainable”

##### **Target 11.1:**

“By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”

##### **Target 11.3**

“By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries”

## 6.2 Secondary SDGs



**Sustainable Development Goal 1:**  
“End poverty in all its forms everywhere”

**Target 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 and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance”



**Sustainable Development Goal 3:**  
“Ensure healthy lives and promote well-being for all at all ages”



**Sustainable Development Goal 10:**  
“Reduce inequality within and among countries”

**Target 10.4:**

“Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality”

Please refer to the **Impact Table published on the website of the Luxembourg State Treasury** (<https://te.public.lu/fr/finance-durable.html>) for the detailed view of the different projects and their impacts. The listed impacts correspond to the impacts of the entire project and should be adjusted by the stated share of the proceeds allocated amounts to the total project costs in order to obtain the bond financing related impacts. The share of the Luxembourg Sustainability Bond allocated amounts of the total project costs is listed in the impact table for each project.

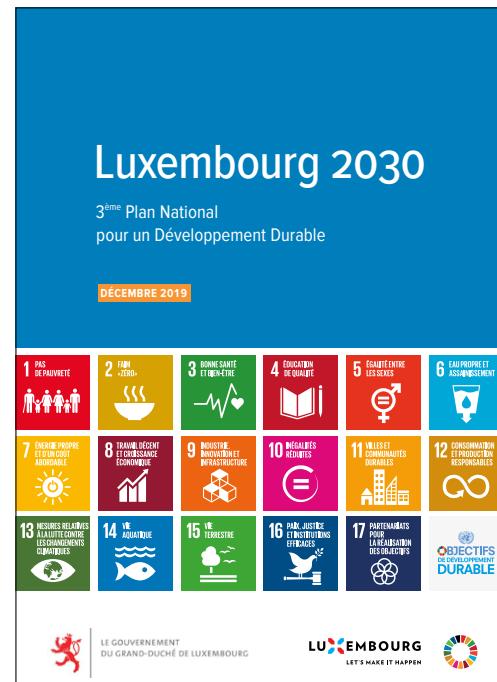
In addition, please refer to the **Impact Methodology** published on the Luxembourg State Treasury website (<https://te.public.lu/fr/finance-durable.html>) for an overview of the methodologies and assumptions used for the determination and the calculation of key impact metrics as described in the Luxembourg Sustainability Bond Framework and additional indicators for the investments of the Luxembourg Sustainability Bond.

# 5. CONTRIBUTION OF THE INVESTMENTS TO LUXEMBOURG'S NATIONAL PLAN FOR SUSTAINABLE DEVELOPMENT

In December 2019, the Luxembourg government adopted the “Plan national pour un développement durable” (“National Plan for Sustainable Development”, or “NPSD”)<sup>48</sup>.

Translating the United Nation's Agenda 2030 into the Luxembourg context, the NPSD is targeting ten priority fields of action, namely:

- I. ensure social inclusion and education for all,
- II. ensure conditions for a healthy population,
- III. promote sustainable consumption and production,
- IV. diversify and ensure an inclusive and future-oriented economy,
- V. plan and coordinate land use,
- VI. ensure sustainable mobility,
- VII. stop the degradation of the environment and respect the capacities of natural resources,
- VIII. protect the climate, adapt to climate change and ensure sustainable energy,
- IX. contribute, on a global level, to the eradication of poverty and to the coherence of policies for sustainable development, and
- X. ensure sustainable finances.



<sup>48</sup> <https://environnement.public.lu/content/dam/environnement/documents/developpement-durable/PNDD.pdf>

The investments through the Sustainability Bond contribute to the targets of the NPSD, especially via the following alignments:

► **Low Carbon Transport**

- The low carbon transport investments mainly align with the NPSD target VI where the overlapping SDGs are 3, 11, 12 and 13.

► **Protection of the environment**

- The protection of the environment investments mainly align with the NPSD targets V and VII where the overlapping SDGs are 6, 11 and 15.

► **Water and wastewater management**

- The water and wastewater management investments mainly align with the NPSD target VII where the overlapping SDGs are 6 and 15.

► **Access to essential services – Education**

- The education investments mainly align with the NPSD target I where the overlapping SDGs are 1, 4, and 5.

► **Access to essential services – Healthcare**

- The healthcare investments mainly align with the NPSD target II where the overlapping SDG is 3.

► **Access to essential services – Social Inclusion**

- The social inclusion investments mainly align with the NPSD target I where the overlapping SDGs are 1 and 11.

► **Affordable housing**

- The affordable housing investments mainly align with the NPSD target I where the overlapping SDGs are 1 and 11.

# 6. CASE STUDY 1: THE NEW TRAM IN LUXEMBOURG CITY



Construction works for the new tram, which is built in stages, began in 2015. The first section of the tramline was inaugurated in December 2017. Since December 2020, it serves 15 stations of which 5 multimodal hubs.

When fully operational, the 16 km tramline will have 24 stations, with 10 multimodal hubs and a capacity of 10,000 passengers per hour in each direction. This tramline will link

Luxembourg Airport to the new business district in Cloche d'Or, by passing through the Kirchberg district with its many European institutions, the historical Ville Haute quarter and the Luxembourg railway station for interchanges between national and international rail services.



**Since the end of February 2020 all public transport in Luxembourg is free of charge.** This measure is above all social, but it is also meant to have a positive impact on the environment by attracting new users to public transport while minimizing carbon emissions by reducing the number of cars on the road.



The tram takes passengers to a greener city: it runs exclusively on electricity and therefore does not emit any pollutants or fine particles into the atmosphere - over the entire length of the route. This benefits the environment - and the quality of life in all the city districts along the tram route. It helps to reduce noise pollution, as its noise emissions are lower than those of normal road traffic.

**For more information please visit [www.luxtram.lu](http://www.luxtram.lu)**

## 7. CASE STUDY 2: “SÜDSPIDOL”



In addition to core hospital activities with outpatient clinics and nursing stations, the Südspidol (“south hospital”) will add departments for psychiatry, geriatrics as well as a cancer center.

It is a merger of three hospitals in the south of Luxembourg, which will result in annual savings of around 15% compared to current operating costs.

As a consequence, it will be the second largest hospital in the country and is meant to supply the whole south of Luxembourg.

The Südspidol project received the Design & Health International Academy Award in the category “Future Healthy Built Environment Project” in Vienna.



It will be governed by an innovative concept with, in particular, the following characteristics:

- ▶ Personalized care and cutting-edge medicine
- ▶ Maximum safety for the patient
- ▶ Friendly, healing environment
- ▶ Green Hospital

81% of the new rooms will be single patient rooms, compared to a current 20%. This increase aims at improving hospital conditions and reducing the risk of infection and allows for a higher rate of bed occupancy.

The energy concept of the project aims to achieve low energy consumption for all entities, through the use of renewable energies (solar panels, wood chip heating, geothermal energy, etc.).

The work began in 2020 and the construction work will finish in 2025/2026.



**For more information please visit [www.sudspidol.lu](http://www.sudspidol.lu)**

# 8. CASE STUDY 3: “ELMEN” – AFFORDABLE HOUSING IN KEHLEN/OLM



"Elmen" creates an environment where sustainability and respect for nature come together.



The project consists of developing a new village which aims to meet certain criteria in terms of sustainability and give the opportunity for the citizens to reappropriate public spaces.

Taking these criteria into account made it possible to integrate mitigation measures into the project to compensate for other factors and thus create a balance between a new modern construction and respect for the environment.



Green spaces, plantations, soil management and water management are thus key points which emphasize the sustainability of this large-scale project.

For example:

- ▶ Construction of sustainable individual wooden houses,
- ▶ No individual garages, but the construction of collective parking lots,
- ▶ In the central village, more than 500 trees will be planted,
- ▶ Only 4% of the buildings on the site have a basement (school, home for all and a building with mixed functions),
- ▶ Rainwater is drained through gutters to multiple open-air retention basins.

**For more information please visit <https://elmen.snhbm.lu/>**

# 9. ACKNOWLEDGMENTS

This Report was produced by the Sustainability Bond Committee under the responsibility of the Luxembourg State Treasury, with the valuable collaboration of the different ministries and bodies that are responsible for allocated expenditures under the Sustainability Bond, as well as with input from the different benefiting institutions themselves.

The Sustainability Bond Committee is grateful for the many contributions, valuable input and assistance, in particular considering the difficult backdrop of the Covid-19 crisis, in the development of the Framework, the identification of the impact indicators, the elaboration of the impact methodology, the collection of the actual impact data and the review of this Report.

The involved Government departments and State bodies are as follows:

- ▶ Luxembourg Ministry for the Environment, Climate and Sustainable Development,
- ▶ Luxembourg Ministry of Transport and Public Works,
- ▶ Luxembourg Ministry of Health,
- ▶ Luxembourg Ministry of Housing,
- ▶ Luxembourg Ministry of Education, Children and Youth,
- ▶ Luxembourg Ministry of Family Affairs, Integration and the Greater Region,
- ▶ Luxembourg Ministry of Foreign Affairs' National Reception Office,
- ▶ Luxembourg Water Management Administration.

The benefiting entities/institutions:

- ▶ Luxtram S.A.,
- ▶ Société nationale des chemins de fer luxembourgeois (CFL) – National Rail Network,
- ▶ Syndicat des eaux du barrage d'Esch-sur-Sûre (SEBES) – Water treatment plant,
- ▶ Syndicat Intercommunal de Dépollution des Eaux résiduaires du Nord (SIDEN),
- ▶ Syndicat intercommunal de dépollution des eaux résiduaires de l'Est (SIDEST),
- ▶ Syndicat intercommunal pour l'assainissement du bassin de la Chiers (SIACH),
- ▶ Administration Communale de Schengen,
- ▶ Ville de Luxembourg, Service Canalisation.

The Sustainability Bond Committee would also like to thank **4Climate**, who, together with **INFRAS**, **Beissel & Ruppert** and **Efor-Ersa** helped identify the green impact indicators, estimated the environmental benefits including the calculation of avoided greenhouse gas emissions as well as elaborated the green impact methodology.



**4Climate** is an independent advisory company established in 2005 offering environmental consulting and environmental finance consulting services, specialized on advising on international GHG transactions for the past 14 years, creating value for low carbon investments through different environmental markets globally. Additionally, 4Climate offers advisory services on international blended finance mechanisms for climate change mitigation, adaptation and sustainable development impacts. From 2006-2015, 4Climate has assisted the Luxembourg Ministry of the Environment, Climate and Sustainable development in managing its carbon credit purchase programme and has been active in different aspects of international climate finance and sustainable impact finance in the past years.



THINKING  
FOR  
TOMORROW

**INFRAS** is a Swiss based consulting firm with a track record of 40 years of advising business and public sector decision makers in areas such as transport, energy, environment, climate change, economy and society. Among

its major clients are prominent international organizations such as The World Bank, UNFCCC, as well as Dutch, Austrian, German and Swiss ministries, governmental bodies and agencies.



**BEISSEL & RUPPERT**  
ENGINEERING AND CONSULTING

specialized in areas of activity ranging from large-scale roads to more diverse areas such as the design and conception of roads, public transport, energy networks, industrial and residential development areas and sports ground. Projects that Beissel & Ruppert developed are for example the Headquarters of Cargolux, CSSF, Villa Pétrusse, and the Luxembourg airport.



**efor-ersa**  
ingénieurs-conseils

**EFOR-ERSA** is an engineering and consulting company in Luxembourg, specializing on themes related to land use and ecology, sustainable development in relation to land

use planning and the conservation of natural environments, biodiversity and protection of threatened species.

# **10. APPENDIX I – COMPLIANCE REVIEW BY SUSTAINALYTICS**



## The Grand Duchy of Luxembourg

**Type of Engagement:** Annual Review

**Date:** August 10, 2021

**Engagement Team:**

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### Introduction

In 2020, The Grand Duchy of Luxembourg (“Luxembourg”) issued a sustainability bond aimed at financing green and social expenditures to provide positive environmental and social outcomes. Sustainalytics provided a Second Party Opinion<sup>1</sup> on the Luxembourg Sustainability Bond Framework (the “Framework”). In July 2021, Luxembourg engaged Sustainalytics to review the projects funded through the issued sustainability bond and provide an assessment as to whether the projects met the Use of Proceeds criteria and the Reporting commitments outlined in the Framework.<sup>2</sup>

### Evaluation Criteria

Sustainalytics evaluated the projects and assets funded between 2018 and 2020 based on whether the projects and programmes:

1. Met the Use of Proceeds and Eligibility Criteria outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework; and
2. Reported on at least one of the Key Performance Indicators (KPIs) for each Use of Proceeds criteria outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework.

Table 1 lists the Use of Proceeds and Eligibility Criteria while Table 2 lists the associated KPIs.

**Table 1: Use of Proceeds, Eligibility Criteria,**

Use of Proceeds	Eligibility Criteria
<b>Green Buildings</b>	<ul style="list-style-type: none"> <li>• Construction and acquisition of energy efficient buildings</li> <li>• Renovation of existing buildings</li> </ul>
<b>Energy Transition</b>	<ul style="list-style-type: none"> <li>• Renewable energy: Construction and operation of electricity generation facilities supporting a transition to a net-zero emissions economy</li> <li>• Energy efficient appliance and lighting</li> </ul>
<b>Low Carbon Transport</b>	<ul style="list-style-type: none"> <li>• Low carbon transportation including: <ul style="list-style-type: none"> <li>- Public transport</li> <li>- Infrastructure for low carbon transport</li> </ul> </li> </ul>
<b>Protection of the Environment</b>	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Protection and restoration of healthy ecosystems and their services</li> </ul>
<b>Water and Waste Water Management</b>	<ul style="list-style-type: none"> <li>• Support the development of water and wastewater management systems allowing to significantly improve energy efficiency and/or water quality</li> </ul>
<b>Climate Finance and R&amp;D</b>	<ul style="list-style-type: none"> <li>• Mobilise and support investment in international climate finance</li> <li>• Support research, development and innovation focusing on climate change mitigation and adaptation</li> </ul>
<b>Access to Essential</b>	<ul style="list-style-type: none"> <li>• Provide access to essential healthcare infrastructure and services for all by:</li> </ul>

<sup>1</sup> Grand Duchy of Luxembourg Sustainability Bond Framework Second-Party Opinion, available at: <https://www.sustainalytics.com/corporate-solutions/sustainable-finance-and-lending/published-projects/project/the-grand-duchy-of-luxembourg/grand-duchy-of-luxembourg-sustainability-bond-framework-second-party-opinion/grand-duchy-of-luxembourg-sustainability-bond-framework-second-party-opinion-pdf>

<sup>2</sup> The Grand Duchy of Luxembourg Sustainability Bond Framework is available on the website of the Luxembourg State Treasury at: [https://te.public.lu/fr/dette\\_publique/moyen\\_long\\_terme/Emprunt\\_sustainable.html](https://te.public.lu/fr/dette_publique/moyen_long_terme/Emprunt_sustainable.html).

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**The Grand Duchy of Luxembourg**

<b>Services - Healthcare</b>	<ul style="list-style-type: none"> <li>- Extending healthcare capacities</li> <li>- Improving the quality of the existing healthcare facilities</li> </ul>
<b>Access to Essential Services - Education</b>	<ul style="list-style-type: none"> <li>• Providing access to essential educational infrastructure and services for all by: <ul style="list-style-type: none"> <li>- Extending educational capacities</li> <li>- Improving the quality of the existing educational infrastructure and equipment</li> </ul> </li> </ul>
<b>Access to Essential Services- Social Inclusion</b>	<ul style="list-style-type: none"> <li>• Provide access to essential services for population groups at risk of social exclusion by: <ul style="list-style-type: none"> <li>- Providing access to essential infrastructure and services to vulnerable population</li> <li>- Providing financial assistance to vulnerable population</li> </ul> </li> </ul>
<b>Affordable Housing</b>	<ul style="list-style-type: none"> <li>• Provide access to affordable housing to vulnerable population by: <ul style="list-style-type: none"> <li>- Extending the social and affordable housing supply</li> <li>- Improving the quality of the existing social and affordable housing facilities</li> <li>- Providing financial assistance to facilitate access to housing and ownership</li> </ul> </li> </ul>
<b>Employment Generation and Socioeconomic Advancement and Empowerment</b>	<ul style="list-style-type: none"> <li>• Support employment generation and socio-economic advancement and empowerment, including but not limited to: <ul style="list-style-type: none"> <li>- Employment generation and retention initiatives</li> <li>- Support to Social and Solidarity Economy</li> <li>- Support to the SMEs<sup>3</sup> in the event of extreme events (e.g. natural disaster, extreme weather events, public health disaster...)</li> </ul> </li> </ul>

**Table 2: Key Performance Indicators**

Use of Proceeds	Key Performance Indicators
<b>Green Buildings</b>	<ul style="list-style-type: none"> <li>• Estimated ex-ante annual energy savings (in MWh)</li> <li>• Annual GHG emissions in tons of CO2 equivalent saved</li> </ul>
<b>Energy Transition</b>	<ul style="list-style-type: none"> <li>• Renewable Energy Capacity (in MW)</li> <li>• Number of efficient street lighting appliances and systems installed</li> <li>• Estimated ex-ante annual energy savings (in MWh)</li> <li>• Estimated annual GHG emissions reduced/avoided (in tons of CO2 equivalent)</li> </ul>
<b>Low Carbon Transport</b>	<ul style="list-style-type: none"> <li>• Number of low carbon vehicles deployed by type of transport (e.g number of trains/trams)</li> <li>• Number of users served</li> <li>• Other relevant indicators depending on the considered projects</li> </ul>
<b>Protection of the Environment</b>	<ul style="list-style-type: none"> <li>• Volume of waste collected and disposed or treated (tons)</li> <li>• Surface of protected or restored areas</li> <li>• Other relevant indicators depending on the considered projects</li> </ul>
<b>Water and Waste Water Management</b>	<ul style="list-style-type: none"> <li>• Volume of water collected and disposed or treated (m3)</li> <li>• Number of users served</li> <li>• Other relevant indicators depending on the considered projects</li> </ul>
<b>Climate Finance and R&amp;D</b>	<ul style="list-style-type: none"> <li>• Number of investment funds that have been launched with the support of Climate Finance expenditures</li> <li>• Total Net Asset Value of the investments funds</li> </ul>

<sup>3</sup> Small, medium, and micro-sized enterprises, as defined under EU recommendation 2003/361 : [https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition\\_en](https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en)

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	<ul style="list-style-type: none"> <li>Estimated annual CO<sub>2</sub> emissions avoided (in tons of CO<sub>2</sub>equivalent)</li> <li>Details of eligible R&amp;D projects will be disclosed, where possible and taking into consideration intellectual property protection measures and know-how aspects</li> </ul>
<b>Access to Essential Services - Healthcare</b>	<ul style="list-style-type: none"> <li>Number of healthcare infrastructures benefiting from the eligible expenditures, including a breakdown by location</li> <li>Capacity/additional capacity (in number of beds and/or patients)</li> </ul>
<b>Access to Essential Services - Education</b>	<ul style="list-style-type: none"> <li>Number of education infrastructures benefiting from the eligible expenditures, including a breakdown by type of infrastructures (schools, universities...)</li> <li>Capacity/additional capacity (in number of students)</li> </ul>
<b>Access to Essential Services- Social Inclusion</b>	<ul style="list-style-type: none"> <li>Number of social inclusion infrastructures benefiting from the eligible expenditures, including a breakdown by type of infrastructures</li> <li>Capacity/additional capacity (in number of beneficiaries)</li> </ul>
<b>Affordable Housing</b>	<ul style="list-style-type: none"> <li>Number of dwellings</li> <li>When available, additional information may be provided regarding the energy performance of eligible buildings</li> </ul>
<b>Employment Generation and Socioeconomic Advancement and Empowerment</b>	<ul style="list-style-type: none"> <li>Number of people benefitting from the eligible employment generation and retention initiatives, including a breakdown per type of initiatives/schemes considered</li> <li>When available, additional information may be provided regarding the employment generation and retention initiatives beneficiaries (e.g. age, level of education)</li> <li>When available, information may be provided regarding the Social and Solidarity Economy beneficiaries (e.g. number, type)</li> <li>Number of SMEs impacted by the consequences of extreme events benefiting from the eligible expenditures</li> </ul>

**Issuing Entity's Responsibility**

Luxembourg is responsible for providing accurate information and documentation relating to the details of the projects that have been funded, including description of projects, amounts allocated, and project impact.

**Independence and Quality Control**

Sustainalytics, a leading provider of ESG and corporate governance research and ratings to investors, conducted the verification of Luxembourg's Sustainability Bond Use of Proceeds. The work undertaken as part of this engagement included the collection of documentation from the Luxembourg Sustainability Bond Committee and the review of documentation to confirm the conformance with the Grand Duchy of Luxembourg Sustainability Bond Framework.

Sustainalytics has relied on the information and the facts presented by Luxembourg with respect to the Nominated Projects. Sustainalytics is not responsible nor shall it be held liable if any of the opinions, findings, or conclusions it has set forth herein are not correct due to incorrect or incomplete data provided by Luxembourg.

Sustainalytics made all efforts to ensure the highest quality and rigor during its assessment process and enlisted its Sustainability Bonds Review Committee to provide oversight over the assessment of the review.

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Based on the limited assurance procedures conducted,<sup>4</sup> nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, the reviewed bond projects, funded through proceeds of Luxembourg's Sustainability Bond, are not in conformance with the Use of Proceeds and Reporting Criteria outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework.

**Detailed Findings****Table 3: Detailed Findings**

Eligibility Criteria	Procedure Performed	Factual Findings	Error or Exceptions Identified
<b>Use of Proceeds Criteria</b>	Verification of the projects funded by the sustainability bond between 2018 and 2020 to determine if projects aligned with the Use of Proceeds Criteria outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework and above in Table 1.	All projects reviewed complied with the Use of Proceeds criteria.	None
<b>Reporting Criteria</b>	Verification of the projects funded by the sustainability bond between 2018 and 2020 to determine if impact of projects was reported in line with the KPIs outlined in the Grand Duchy of Luxembourg Sustainability Bond Framework and above in Table 1. For a list of KPIs reported please refer to Appendix 2.	At least one KPI per Use of Proceeds criteria was reported.	None

<sup>4</sup> Sustainalytics limited assurance process includes reviewing the documentation relating to the details of the projects that have been funded, including description of projects, estimated and realized costs of projects, and project impact, which were provided by the Issuer. The Issuer is responsible for providing accurate information. Sustainalytics has not conducted on-site visits to projects.

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## Appendices

### Appendix 1: Allocation Reporting by Eligibility Criteria

Between 2018 and 2020, Luxembourg raised €1.5 billion and invested €769 million in 65 projects across 3 green and 4 social categories. See below a summary of the reported allocated amount at category level.

Use of Proceeds Category	Sub-category	Allocated amount		
		2018	2019	2020
<b>Low Carbon Transport</b>	Public transport	€ 36,262,909	€ 35,502,137	€ 63,104,052
	Infrastructure for low carbon transport	€ 82,434,946	€ 91,828,319	€ 72,403,615
<b>Water and Waste Water Management</b>	Support the development of water and wastewater management systems allowing to significantly improve water quality	€ 21,617,003	€ 30,581,130	€ 12,373,662
<b>Protection of the Environment</b>	Protection and restoration of healthy ecosystems and their services	-	-	-
<b>Access to Essential Services - Healthcare</b>	Provide access to essential healthcare infrastructure and services for all	€ 25,454,576	€ 27,340,591	€ 45,454,415
<b>Access to Essential Services - Education</b>	Providing access to essential educational infrastructure and services for all	€ 19,487,752	€ 31,579,543	€ 45,511,651
<b>Access to Essential Services- Social Inclusion</b>	Provide access to essential services for population groups at risk of social exclusion	€ 18,218,290	€ 22,635,308	€ 20,533,404
<b>Affordable Housing</b>	Provide access to affordable housing to vulnerable population	€ 15,167,975	€ 26,704,393	€ 25,387,381
<b>Total Allocated</b>		<b>€ 218,643,451</b>	<b>€ 266,171,421</b>	<b>€ 284,768,181</b>
<b>Unallocated Proceeds</b>		<b>€ 769,583,053</b>		
<b>Total Proceeds Raised</b>		<b>€ 730,416,947</b>		

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## Appendix 2: Impact Reporting by Eligibility Criteria

Use of Proceeds Category	Indicators	Impact Reported		
		2018	2019	2020
<b>Low Carbon Transport</b>	Number of low carbon vehicles deployed by type of transport	8 trams	9 trams	11 trams
	Number of users served on new tram and train lines	5,752,704 users	7,230,837 users	5,180,667 users
	Length of new tram lines / new rail lines built	15.8 km	15.8 km	18.56 km
	Passenger-kilometers (pkm) on additional low carbon transport infrastructure	25,680,312 pkm	38,567,788 pkm	22,639,071 pkm
	Number of freight containers and semi-trailers (ITU) and tonnes transferred from road to rail transport	600,000 containers 127,448 ITU 3,186,200 tonnes transferred	600,000 containers, 133,863 ITU 3,346,575 tonnes transferred	600,000 containers 135,207 ITU 3,380,175 tonnes transferred
<b>Water and Waste Water Management</b>	Volume of water treated	-	-	15,584,926 m <sup>3</sup> /year
	Total number of users served	15,346 population equivalent	16,551 population equivalent	169,951 population equivalent
	Sewage sludge anaerobic digestion and use of biogas for energy generation			3,850 tonnes of sewage sludge per year
<b>Access to Essential Services - Healthcare</b>	Number of institutions benefiting from these investments	18 institutions	18 institutions	18 institutions
<b>Access to Essential Services - Education</b>	Number of institutions benefiting from these investments	9 institutions	9 institutions	9 institutions
<b>Access to Essential Services- Social Inclusion</b>	Number of beneficiaries	237 people	1,012 people	2,786 people

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Sustainalytics, a Morningstar Company, is a leading ESG research, ratings and data firm that supports investors around the world with the development and implementation of responsible investment strategies. The firm works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. The world's foremost issuers, from multinational corporations to financial institutions to governments, also rely on Sustainalytics for credible second-party opinions on green, social and sustainable bond frameworks. In 2020, Climate Bonds Initiative named Sustainalytics the "Largest Approved Verifier for Certified Climate Bonds" for the third consecutive year. The firm was also recognized by Environmental Finance as the "Largest External Reviewer" in 2020 for the second consecutive year. For more information, visit [www.sustainalytics.com](http://www.sustainalytics.com).



**Largest Verifier for Certified Climate Bonds in Deal volume in 2020 & Largest External Review Provider in 2020**





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