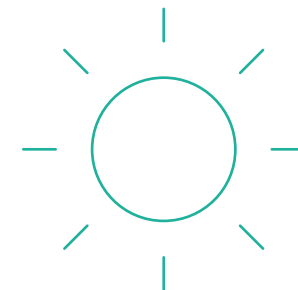
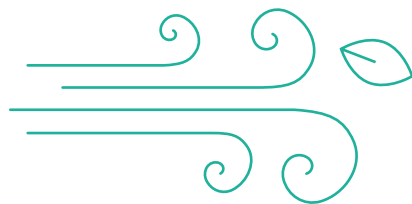


Integrated Report on the Allocation and Environmental Impact of Hungary's Green Bond Proceeds, 2023



December 2024

Foreword



Dear Readers,

We are delighted to present the third Integrated Green Bond Report of Hungary ('Report') which covers the green bond issuances between 1 June 2023 - 31 December 2023. These reports are essential tools in our communication with investors, providing high quality information and promoting transparency to track projects and their environmental impacts.

This year's Report was prepared in line with Hungary's Green Bond Framework (2023) ('Framework') to ensure that issuances or re-openings of Green Bond series are in line with best market practices.

As a response to the developments in the sustainable finance market, Hungary took into account the provisions of the EU Taxonomy for the allocation of the green bond proceeds. In the Report, proceeds of the green bonds refinance projects that fall within three green categories under the Framework, including Clean transportation, Pollution prevention & control and Land use & living natural resources. These projects were classified as partially or fully aligned with the EU Taxonomy. Moreover, all refinanced projects meet at least the substantial contribution and minimum safeguards criteria of the EU Taxonomy.

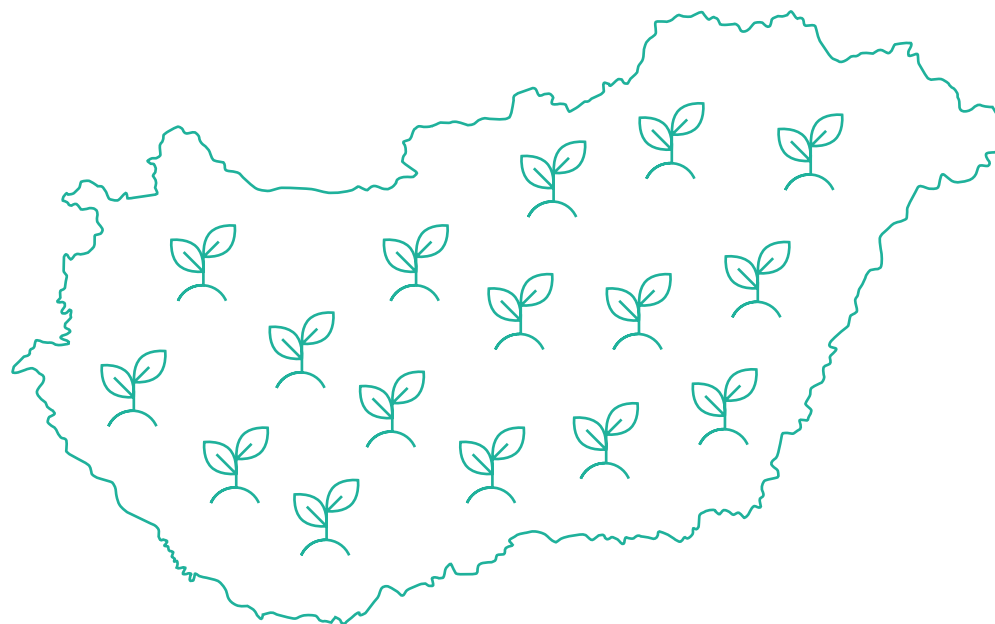
Hungary is strongly committed to fight climate change and biodiversity loss. Through issuing green bonds, Hungary is actively contributing to reducing climate change risks and addressing environmental issues. Green bond proceeds play a main role in funding projects that support Hungary's climate targets. They also ensure the diversification of Hungary's international investor base through international and domestic capital markets transactions. To this end, we continue to increase our contributions to sustainable initiatives and projects.

We would like to express our gratitude to all stakeholders involved in the preparation of the Report. We hope this report provides valuable insights to our Readers.

Tibor Tóth

President of Green Bond Steering Committee
State Secretary for Macroeconomic and International Affairs

Ministry of Finance

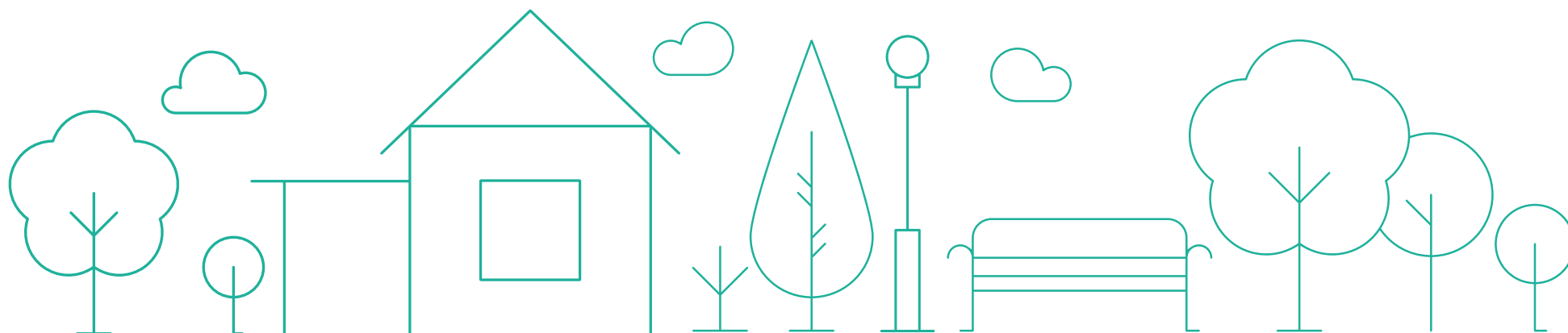


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Executive Summary



Time period The Report provides an overview of the key environmental impacts for 2022 (and where feasible for 2023), covering the allocation of budget year 2022 (<i>Table 1</i>).	Issuance The green bond issuances between 1 June 2023 – 31 December 2023 were taken into account.	Eligible green expenditures The selection of eligible green expenditures and the allocation of green bond proceeds were prepared by the Ministry of Finance (MoF) and the Government Debt Management Agency Pte. Ltd. (ÁKK), following the Framework's criteria.
EU Taxonomy Projects included in the Report were assessed according to the EU Taxonomy. The projects were mapped against five economic activities under two EU Taxonomy objectives: climate change mitigation (CCM), and protection and restoration of biodiversity and ecosystems (BIO). According to the results, 6.5% of the green bond proceeds were aligned with the EU Taxonomy, while 93.5% were partially aligned (<i>Table 2</i> and <i>section EU Taxonomy assessment</i>).	Impact of investments The assessment follows the recommendations of the ICMA Handbook - Harmonised Framework for Impact Reporting (June 2024 edition). The results are showcased on a project-by-project basis. Overall, the Report covers 15 indicators (11 core or other sector specific ICMA indicators) and 4 own indicators for the budget year 2022, and where it was feasible also for 2023). The majority of the impacts are linked to Clean transportation (<i>Figure 1</i> and <i>Table 2</i>).	UN Sustainable Development Goals The Report maps the eligible green projects and their environmental impacts with the United Nation's Sustainable Development Goals (SDGs) (<i>Table 2</i>).
Emission avoided The results are also grouped as per the green categories (see <i>Table 2</i>) under the Framework. As a key result of the issuances covered by the Report, a total of 67 kilotons of CO₂eq GHG emission was avoided (<i>Table 3</i>).	Green Bond Framework The Report follows Hungary's Green Bond Framework (2023), ensuring alignment with international best market practices for the green bond issuance. The <i>Framework</i> has been established in line with ICMA Green Bond Principles version '2021 (with Jun 2022 Appendix 1)' and intends to consider the most recent market practices, in particular the EU Taxonomy and the upcoming EU Green Bond Standard to the extent possible.	External Review The Report received a Second-Party Opinion (SPO) that is publicly available on ÁKK's website.

Eligible green expenditures in 2022 amounted to:



**HUF
410.4
billion**

Eligible green expenditures in 2022 for the selected subset of projects amounted to:



**HUF
380.5
billion**

Green bond proceeds between 1 June 2023 – 31 December 2023, amounted to:



**HUF
46.3
billion**

Table 1: Eligible green expenditures and allocation - main figures. Source: MoF, ÁKK

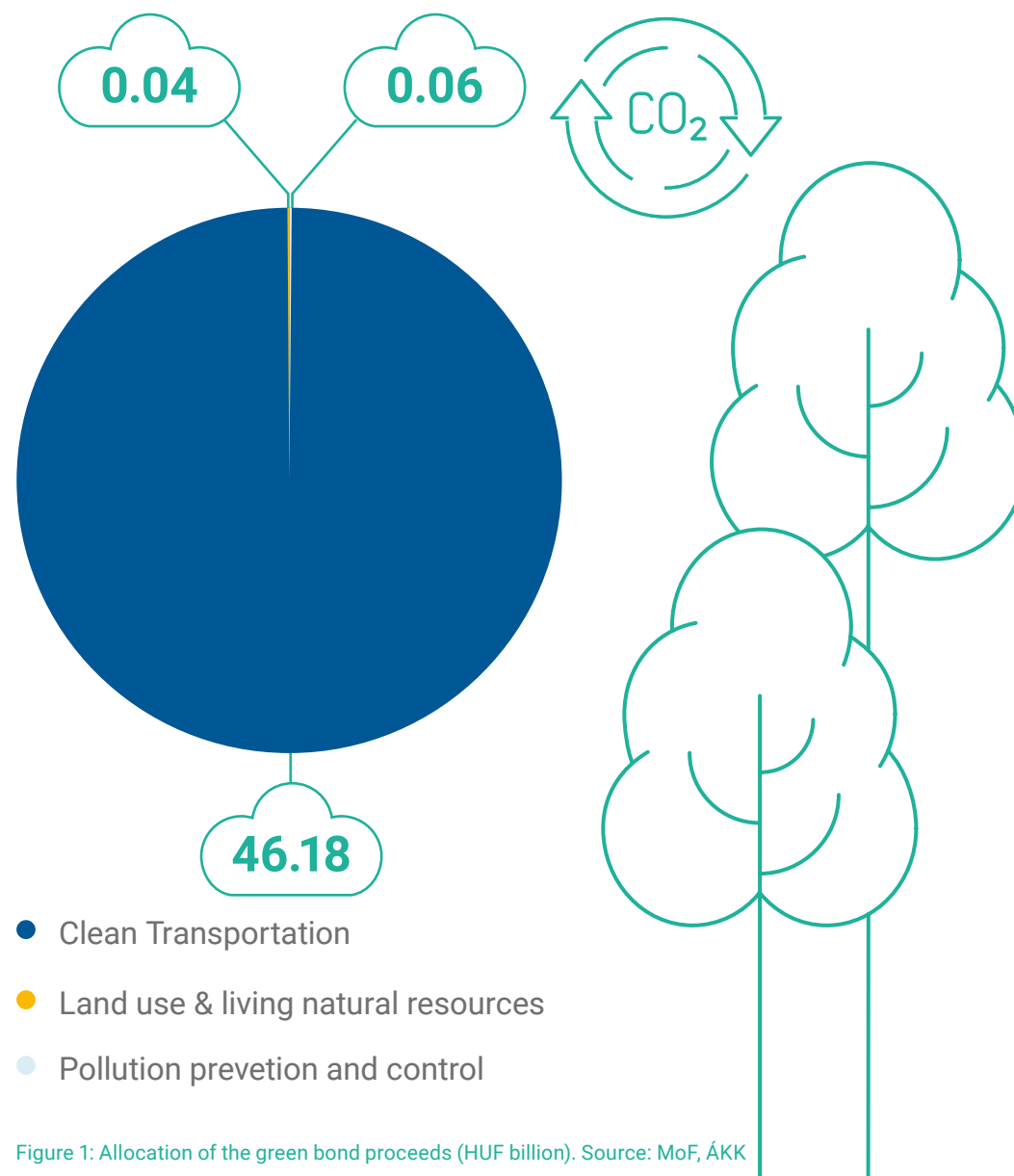
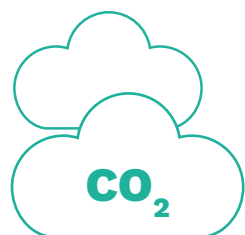


Figure 1: Allocation of the green bond proceeds (HUF billion). Source: MoF, ÁKK

Green categories	UN SDGs	EU Taxonomy activities	EU Taxonomy alignment (% of the allocated amount)	Environmental impacts
Clean Transportation	 	CCM 6.14. Infrastructure for rail transport	9.3% of the supported projects were aligned and 90.7% were partially aligned with the EU Taxonomy	GHG emissions avoided: 67,139 tCO ₂ eq (2022)
		CCM 6.5. Transport by motorbikes, passenger cars and light commercial vehicles	100% of the supported projects were partially aligned with the EU Taxonomy	Length of renovated or new railway lines: 49.3 km (2022-2023)
		CCM 6.1. Passenger interurban rail transport	5.5% of the supported projects were aligned and 94.5% were partially aligned with the EU Taxonomy	Length of renovated metro line: 17.3 km (2022-2023)
Land use & living natural resources		BIO 1.1 Conservation, including restoration, of habitats, ecosystems and species	100% of the supported projects were partially aligned with the EU Taxonomy	Number of projects supported: 243 (2022)
Pollution prevention & control		CCM 5.9. Material recovery from non-hazardous waste	100% of the supported projects were partially aligned with the EU Taxonomy	Number of projects supported: 7 (2022)

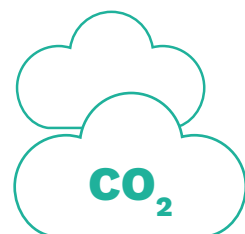
Table 2: Key impact results by eligible green categories between 2022-2023. Source: ÁKK and relevant Ministries



Total GHG emissions avoided by green bonds issued between

1 June 2023 - 31 December 2023

67,139 tCO₂eq



Total GHG emissions avoided per HUF billion green bond investment

1,450 tCO₂eq/HUF bn

Table 3: GHG emission avoidance due to the allocation of green bonds issued between 1 June 2023 - 31 December 2023.



Hungarian flag on the Hungarian Parliament Building



I. Overview of the reporting practice

The Report summarises the allocation of green bond proceeds to eligible green expenditures and their associated environmental impact and present the potential social outcomes and impacts according to Hungary's Green Bond Framework (2023).

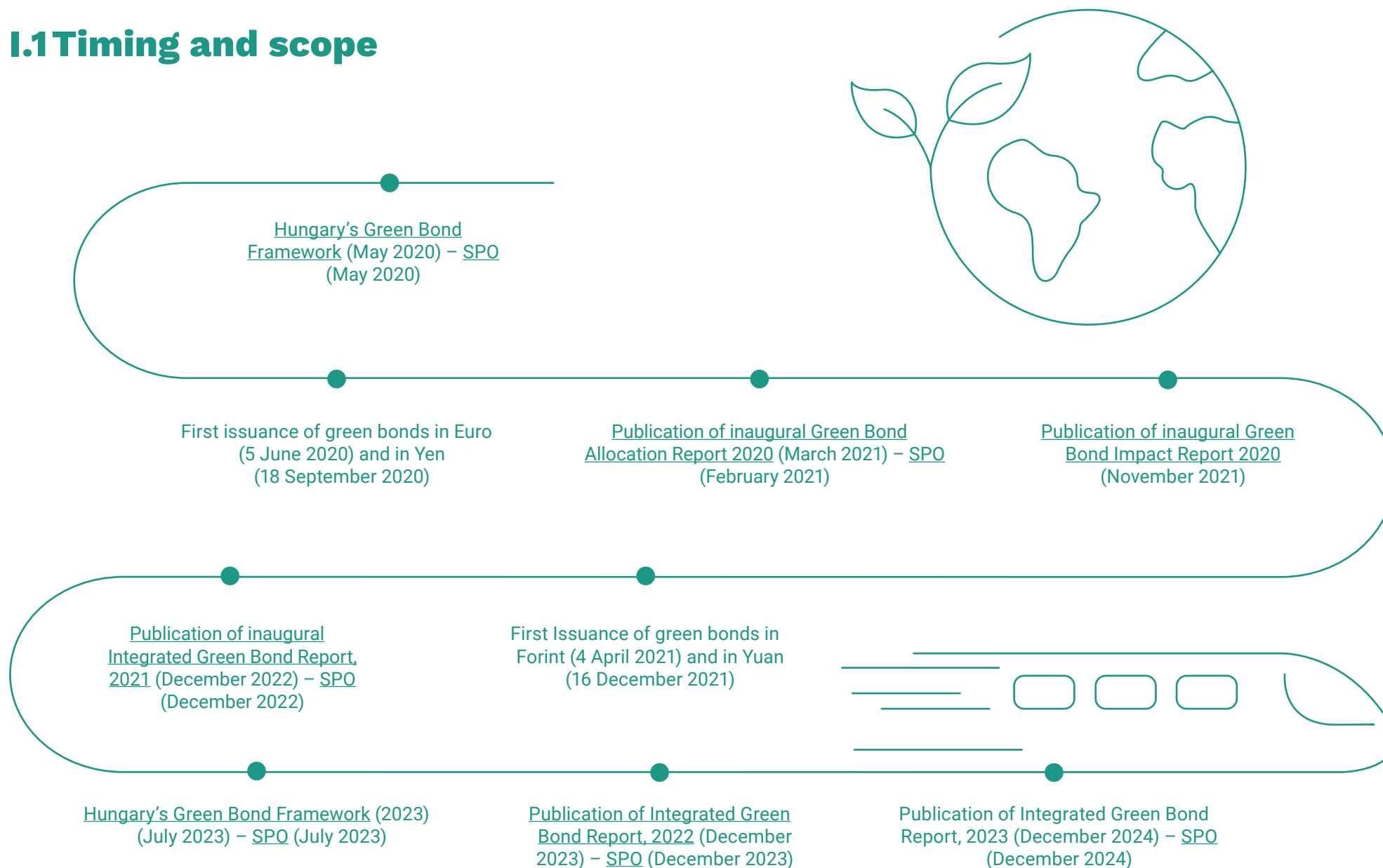


Clean Transportation

Land use & living
natural resources

Pollution prevention
& control

I.1 Timing and scope



I.2 Changes and amendments

This is the first report based on Hungary's Green Bond Framework (2023), and thus the eligible green expenditures have been revised accordingly. The EU Taxonomy has emerged as a key transparency tool, aiming to support the promotion of sustainable investments. As a response to these developments, green bond

proceeds from issuances between 1 June 2023 – 31 December 2023 are primarily allocated to expenditures that are fully or partially aligned with the EU Taxonomy. In the Report, green bond proceeds refinance projects that are aligned at least with the EU Taxonomy's substantial contribution and minimum safeguards criteria.



Sunny landscape

II. Allocation of the Green Bond Proceeds

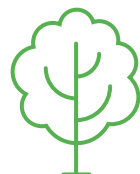


II.1 Main items of the green bond allocation



Market	ISIN	Issue date	Maturity date	Maturity (years)	Face amount (million HUF)	Total Green Bond Proceeds (million HUF) ¹	FX rate to EUR ²	Total Green Bond Proceeds (million EUR) ³
HUF	HU0000404991	28/04/2021 ⁴	28/04/2051	30	11,721	6,920	383.6	30.6
HUF	HU0000405535	26/01/2022 ⁵	27/05/2032	10	46,089	39,363	379.9	121.3

Table 4: Details of the allocated green bond proceeds. Source: ÁKK



ISIN code	Amount issued (million EUR)	Land use & living natural resources	Pollution prevention & control	Clean transportation
HU0000404991	30.6	0.1%	0.1%	99.8%
HU0000405535	121.3	0.1%	0.1%	99.8%

Table 5: Breakdown of allocation of green bond proceeds per issuances. Source: ÁKK, MoF

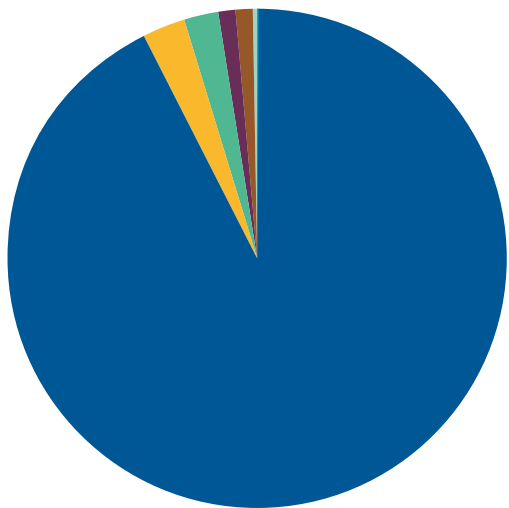
¹Actual proceeds received at issuance, at market price. In case of HUF bonds, additional sales from ÁKK's own portfolio, redemptions of outstanding bonds prior to maturity are also included.

²The MNB exchange rate vs EUR on the same date of FX rate to HUF. Due to the multiple auctions, the exchange rate is calculated with respect to each transaction by the exchange rate on the date of issuance of the Green Bonds

³Actual proceeds received at issuance, at market price. Additional sales from ÁKK's own portfolio, redemptions of outstanding bonds prior to maturity are also included.

⁴Date of first issuance. There was one auction between 2023 June-December: on 26/10/2023.

⁵Date of first issuance. There were two auctions between 2023 June-December: on 31/08/2023 and 23/11/2023.



- Clean transportation (380.33)
- Energy efficiency (incl. Green buildings) (11.17)
- Land use & living natural resources (9.64)
- Climate adaptation (4.20)
- Pollution prevention & control (4.17)
- Renewable energy (0.46)
- Research, innovation & awareness raising (0.28)
- Sustainable water & wastewater management (0.14)

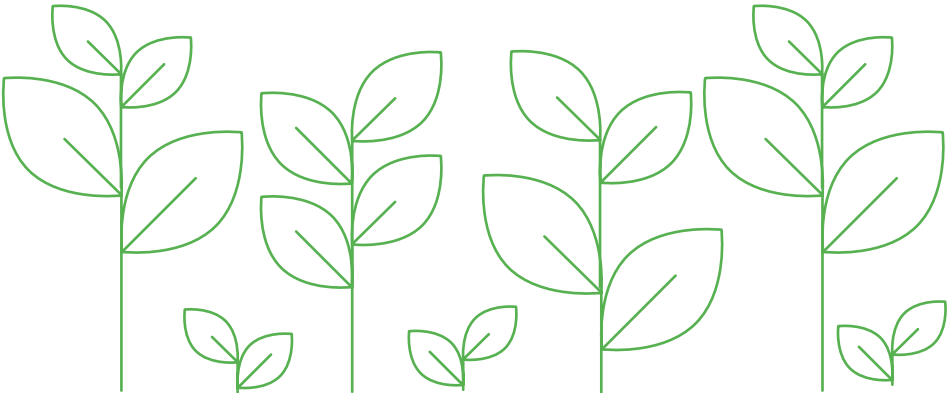
Figure 2: Total eligible green expenditures in 2022 (HUF bn). Source: ÁKK, MoF

Green category	HUF bn
Clean transportation	379.67
Pollution prevention & control	0.51
Land use & living natural resources	0.30

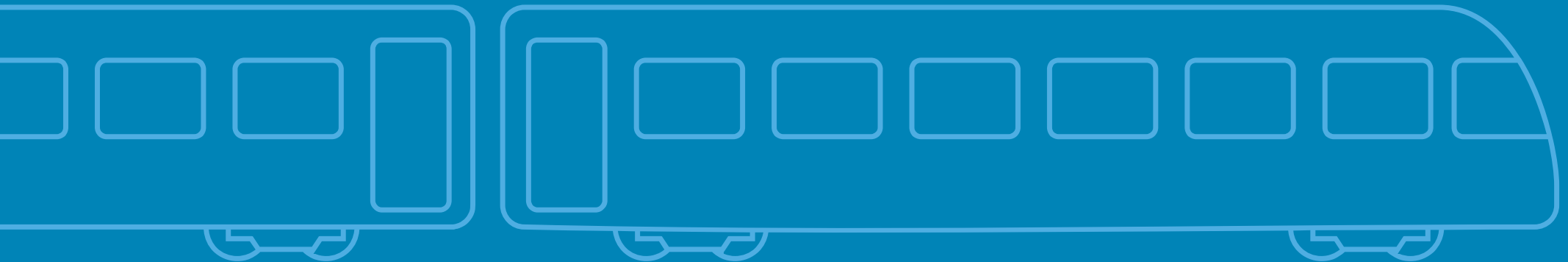
Table 6: Selected eligible green expenditures from 2022 (HUF bn), Source: ÁKK, MoF

Green category	HUF bn
Clean transportation	46.18
Pollution prevention & control	0.06
Land use & living natural resources	0.04

Table 7: Allocation of green bond proceeds for the selected eligible green expenditures from 2022 (HUF bn). Source: ÁKK, MoF



III. Impact of the Financed Projects



III.1 Clean transportation

Clean transportation is the largest expense category within the Eligible green expenditures. In the Report, 99.8% of the green bond proceeds were allocated to Clean transportation in full or partial alignment with the EU Taxonomy. The main goal of clean transportation expenditures is to attract more people to public transportation via modernisation or efficiency improvements. Passengers choosing environmentally friendly alternatives over vehicles with significant GHG emissions like passenger cars leads to GHG emission avoidance.

In the Report, proceeds from green bond issuances were allocated to projects that support the railway passenger transport and railway infrastructure, as well as to other expenditure groups related to road and urban transport.

The eligible green expenditures include only those expenditures related to electrified railway infrastructure and railway passenger transport with electrically powered trains. For the impact assessment of GHG emission avoidance, the electrification of railway infrastructure and passenger transport were assessed separately to only include fully electrified passenger transportation. More information about the electrification ratio methodology is available in the *Appendix - Methodologies*.

Total allocated
amount (HUF bn)
46.18

% of total green
bond proceeds
99.79%



11 SUSTAINABLE CITIES
AND COMMUNITIES



13 CLIMATE
ACTION



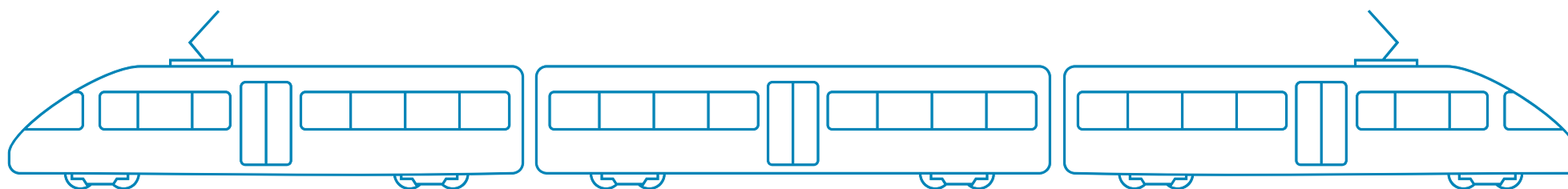
Project details

Main programme schemes	Description	Expenditure type	Financing	Allocated proceeds (HUF bn)	Impact indicators
Reimbursement of uncovered costs of railway passenger traffic	Refinances the costs of railway passenger transport that are not covered by revenues in line with the EU directive. ⁶	Intervention expenditure	Financed nationally. The green bond proceeds contribute to the funding.	31.746	GHG emissions avoided by railway transport (Results are presented in <i>Figure 7</i>)
Reimbursement of the operation of the railway network	Includes costs related to the reimbursement of the operation and maintenance of the railway network, such as expenditures to enhance the comfort level of wagons, or operating expenses such as procurement of special services.	Operating expenditure, Investment expenditure (to maintain the quality of railway network)	Financed nationally. The green bond proceeds contribute to the funding.	11.842	GHG emissions avoided by railway transport (Results are presented in <i>Figure 7</i>)
Modernisation of urban public transport	The project financed the upgrade of M3 metro line in Budapest to increase the service and comfort level of public transport and encourage the modal shift to environmentally friendly transport modes.	Investment expenditure	Co-financed by the EU. The green bond proceeds exclusively contribute to the national share of funding	1.619	Number of passengers (daily) for 2023: 230,000. Length of renovated metro line: 2022-2023: 17.3 km
Modernisation of rail transport	The objective of the rail modernization projects is to promote safe and efficient operation of the railway transport system (e.g. ETCS2 installation, bridge reconstruction, traffic safety programs) and to upgrade the quality of services to improve customer experience (modernisation of railway stations).	Investment expenditure	Co-financed by the EU. The green bond proceeds exclusively contribute to the national share of funding.	0.150	Length of renovated or new railway line: 2022-2023: 49.3 km Length of railway lines affected by railway safety improvements: 2022-2023: 119.4 km GHG emissions avoided by railway transport (Results are presented in <i>Figure 7</i>)

⁶Rail Passenger Rights Regulation (EU) 2021/782, which provides a minimum level of service to passengers.

Project details

Main programme schemes	Description	Expenditure type	Financing	Allocated proceeds (HUF bn)	Impact indicators
Electrification of railway lines	This main programme scheme provides financing for the electrification of railway lines and traction supply development.	Investment expenditure	Co-financed by the EU. The green bond proceeds exclusively contribute to the national share of funding.	0.010	GHG emissions avoided by railway transport (Results – the cumulative GHG impact of railway transportation - are presented in <i>Figure 7</i>)
Rolling stock development	The financing enables the procurement of modern and environmentally friendly railway rolling stock, reducing energy consumption and associated GHG emissions, improving the comfort of passengers.	Investment expenditure	Co-financed by the EU. The green bond proceeds exclusively contribute to the national share of funding	0.002	GHG emissions avoided by railway transport (Results – including the cumulative impact of railway transportation - are presented in <i>Figure 7</i>)
Tax exemptions of environmentally friendly vehicles	Tax exemptions for registration tax, motor vehicles tax, company car tax and motor vehicle duty introduced in the Jedlik Ányos Plan lower the cost of environmentally friendly vehicles. Vehicles only with zero tailpipe emissions were refinanced by the green bond proceeds (hybrid vehicles were subtracted).	Tax expenditure	Financed nationally. The green bond proceeds contribute to the funding.	0.815	GHG emissions avoided by environmentally friendly vehicles (CO ₂ eq, CO, NO _x) Number of vehicles with tax exemptions (Results are presented in <i>Table 8</i>)



Main impact results

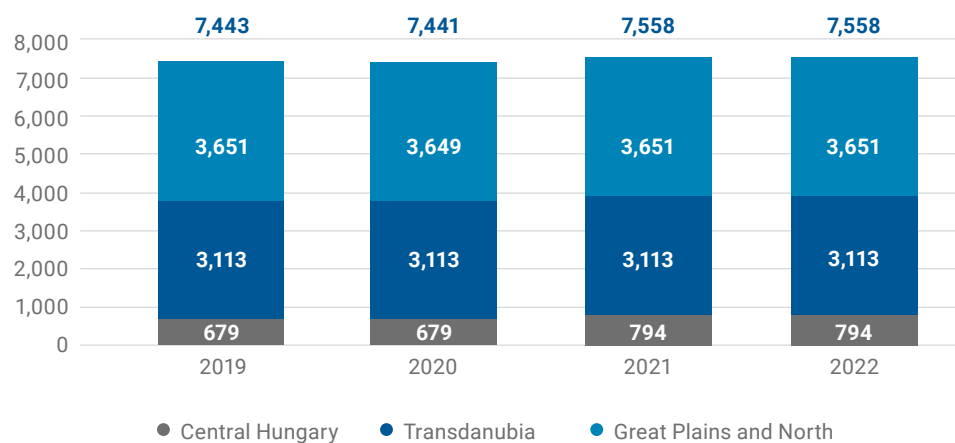


Figure 3: Length of railway lines by greater region. Source: Hungarian Central Statistical Office (KSH)⁷

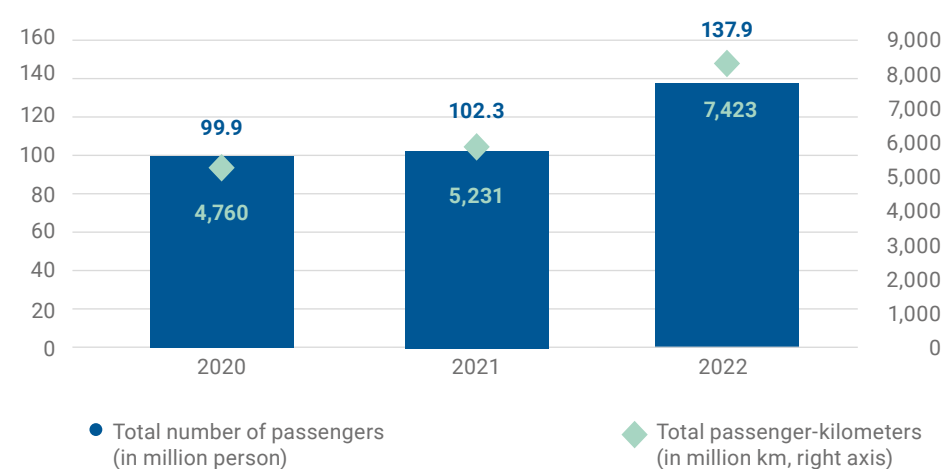


Figure 4: National interurban passenger transport. Source: Hungarian Central Statistical Office (KSH)⁸



Electrified railway



Electric locomotive

⁷Source: https://www.ksh.hu/stadat_files/sza/en/sza0041.html

⁸Source: https://www.ksh.hu/stadat_files/sza/en/sza0017.html

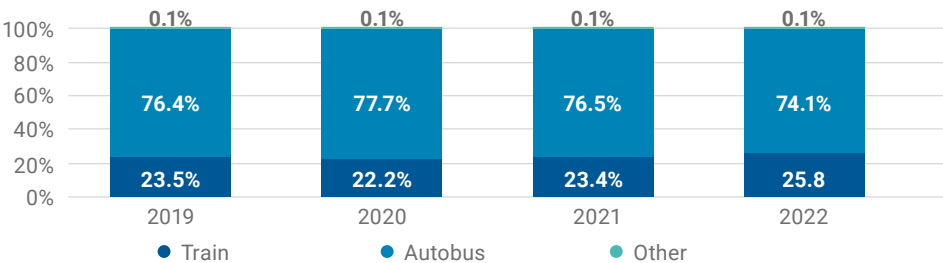


Figure 5: National interurban passenger transport by mode (passengers carried). Source: Hungarian Central Statistical Office (KSH)⁹

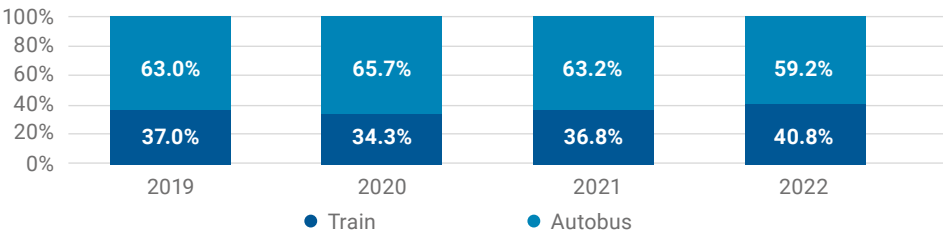
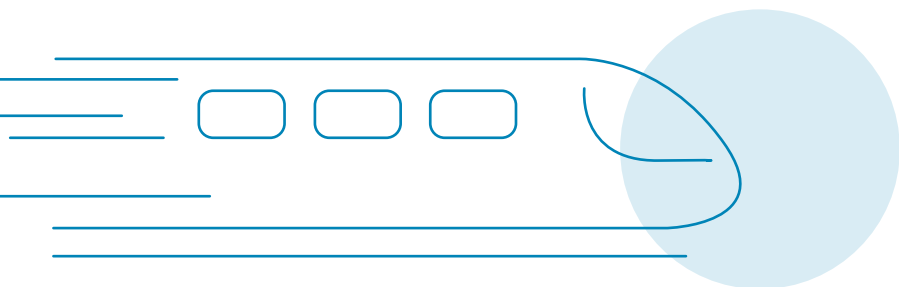
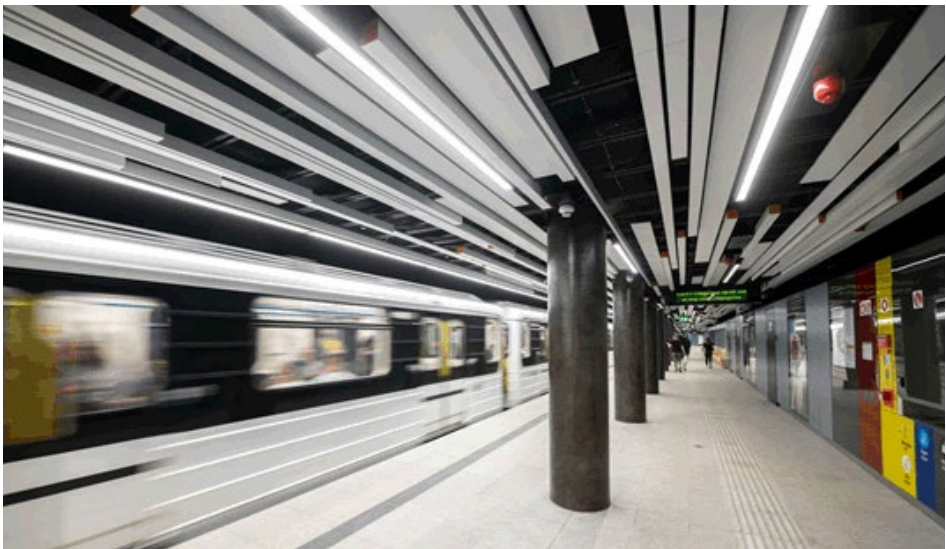


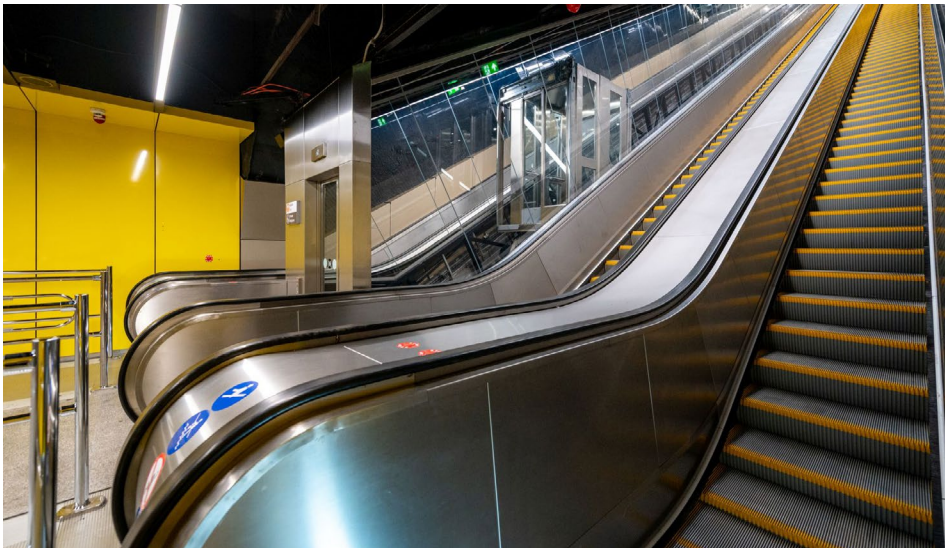
Figure 6: National interurban passenger transport by mode (passenger-kilometres). Source: Hungarian Central Statistical Office (KSH)¹⁰



⁹Source: https://www.ksh.hu/stadat_files/sza/en/sza0017.html
¹⁰Source: https://www.ksh.hu/stadat_files/sza/en/sza0017.html



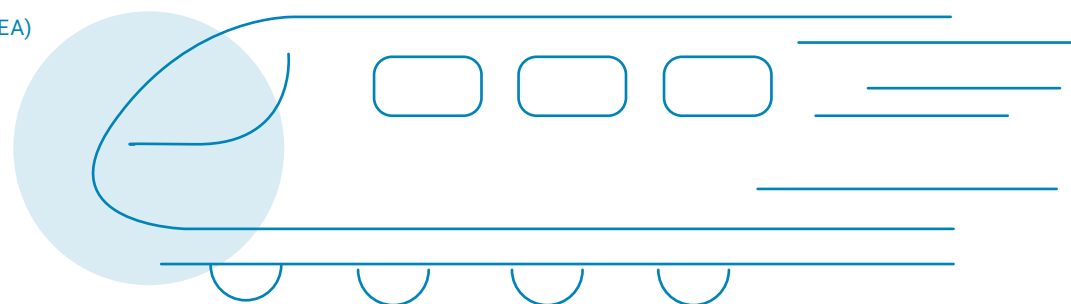
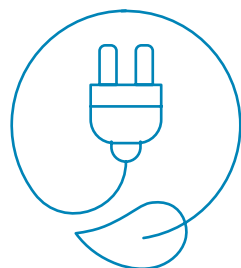
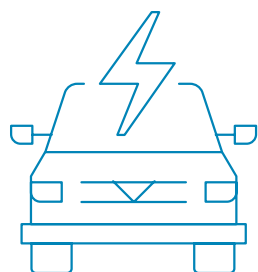
Subway station after renovation



Accessible subway station

	2022
Impact of electric vehicle transportation	
Number of electric vehicles	26,975
GHG avoided (in tCO ₂ eq)	50,046
CO avoided (in tons)	322.6
NO _x avoided (in tons)	19.4
Impact due to the allocation of green bond proceeds	
Number of electric vehicles	3,281
GHG avoided (in tCO ₂ eq)	6,088
CO avoided (in tons)	39.2
NO _x avoided (in tons)	2.4

Table 8: GHG and other emissions avoided due to environmentally friendly vehicles. Source: MoF, International Council of Clean Transportation (ICCT), European Environmental Agency (EEA)



Cumulated impacts of the railway transportation projects

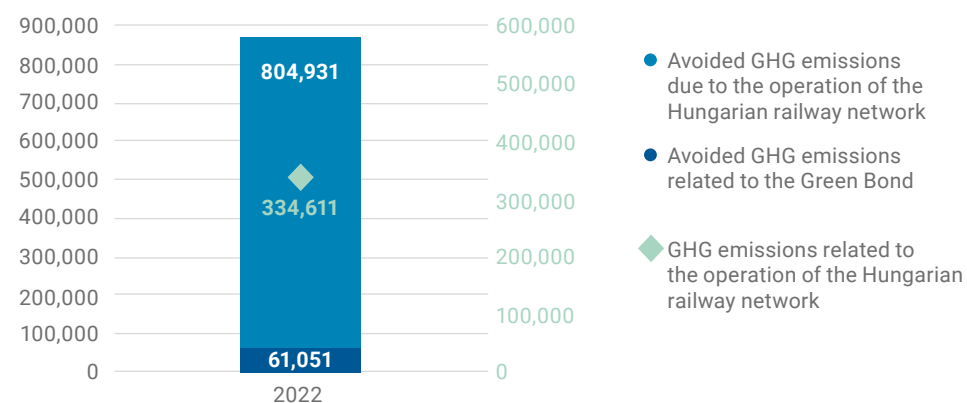


Figure 7: GHG emission avoidance (in tCO₂eq) due to the operation of the railway network, impact estimation for green bond issuances between 1 June 2023 – 31 December 2023 including only electrified railway transportation Source: Hungarian Central Statistical Office (KSH), OPTEN and MÁV-START

Case study – ETCS2 system development for railway line Sopron – Szombathely – Szentgotthárd

Improving the communication systems for railway operation is an essential part of making railway passenger transport attractive for the public, and thus lowering emissions that otherwise would have been emitted from higher-emission alternative modes of transport.

With the instalment of the European Train Control System 2 (ETCS2) on the electrified railway line between Sopron-Szombathely-Szentgotthárd, it will be possible to monitor and guarantee the safety of trains. As a result of the project, the line was equipped with balises that can be controlled from the main stations and at the line crossing zones, with the additional instalment of a so-called Radio Block Centre (RBC), which will be able to directly control the speed of trains and the tracking distance between them.

The primary task of ETCS is to control train movements and guarantee the safety of rail traffic. Upon crossing, the train receives a signal to change its speed to the sufficient level. If the conductor does not reduce the speed sufficiently after being warned by the system so that the speed is too high or when the train is approaching a 'stop' or speed reduction signal, the service brake is automatically engaged and, if necessary, the emergency brake is also activated.

The project is fully aligned with the EU Taxonomy Climate Delegated Act 6.14 Passenger railway infrastructure activity, fulfilling the Technical Screening Criteria. For further details see the *EU Taxonomy assessment*.

The installation of the ETCS was completed in 2022 and affects 117.4km of railway lines.



ETCS balise

III.2 Land use & living natural resources

The Land use & living natural green category focuses on nature conservation and the preservation of the ecosystems and biodiversity. This category can include projects seeking to have a positive effect on protected areas such as Natura 2000 sites, forests, national parks, natural habitats, and agricultural areas.

In the Report, the eligible green bond proceeds were allocated exclusively to the sustainable agriculture and forestry programme scheme, which includes forest environmental and climate services, and forest conservation projects.

Total allocated
amount (HUF bn)
0.04

% of total green
bond proceeds
0.08%

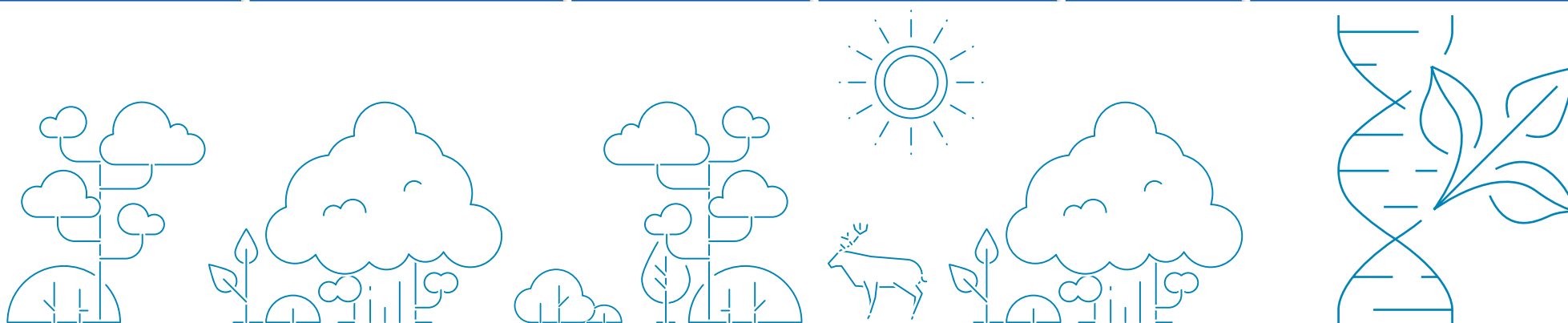


15 LIFE
ON LAND



Project details

Main programme schemes	Description	Expenditure type	Financing	Allocated proceeds (HUF bn)	Impact indicators
Sustainable agriculture and forestry	The Hungarian Rural Development Programme aims to assist the sustainable development of rural areas and promote the sustainable utilisation of the environment, its natural resources, and landscape, as well as the promotion of preserving genetic resources and ecological farming. The allocation supports measure M15 ¹¹ , which targets focus areas like forestry gene preservation and compensation. The allocation supports activities like permanent forestry, maintenance of forests by manual labour, sustainable material handling and in-situ maintenance and preservation of forest genetic reserves.	Intervention expenditure	Co-financed by the EU by 75%. The green bond proceeds contribute to the national share of funding with 100%.	0.04	Number of projects: 2022: 243 Number of beneficiaries: 2022: 243



¹¹Rural Development Programme measure M15: Forest-environmental and climate services and forest conservation.

Forest environmental and climate services and forest conservation (art 34) in Rural Development Programme

Forest environmental protection payments

The goal of this initiative is to support and promote conscious forest-environment protection management methods, to increase the adaptability of tree species, and to change the forest type, tree species composition, and management method in individual areas.

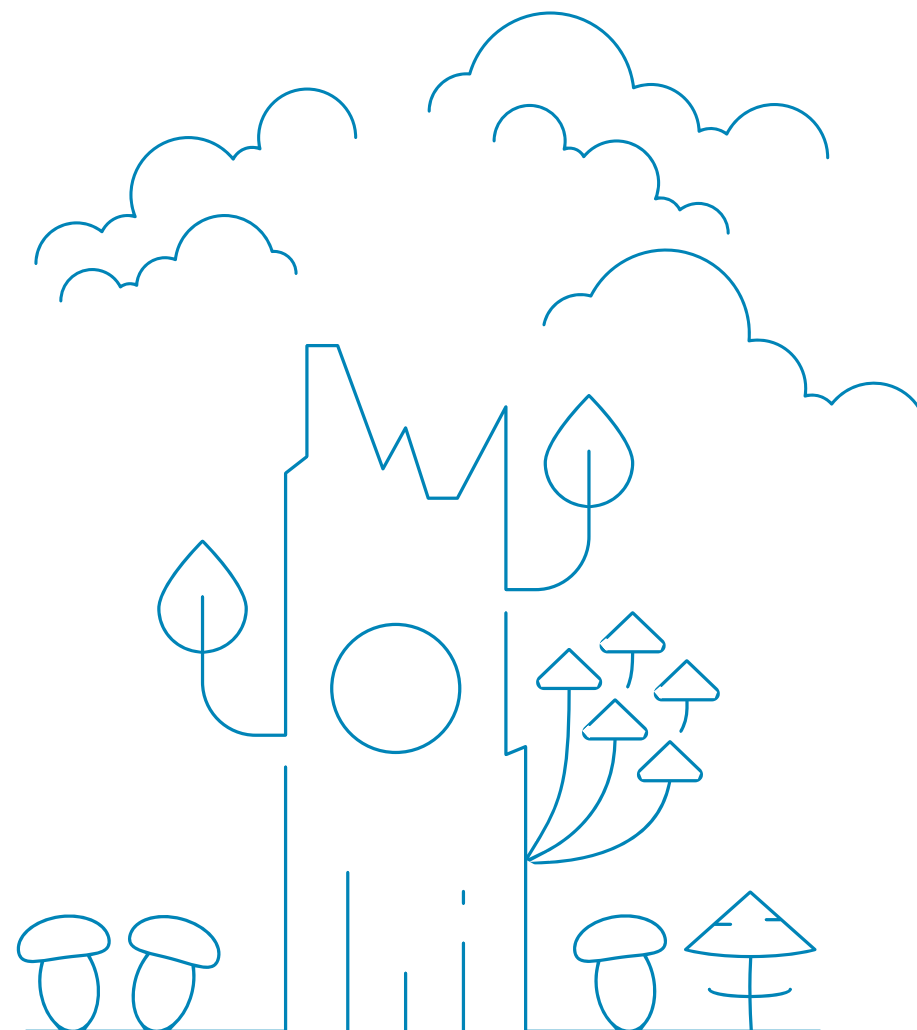
This implies permanent forestry, maintenance of forests by manual labour, sustainable material handling and in-situ maintenance and preservation of forest genetic reserves.

Conservation of forest genetic resources

The purpose of the funding is to protect and maintain the existing genetic diversity as the basis of adaptability and the evolutionary potential of tree species in the long term by preserving the genetic resources of Hungarian forest tree species.

The green bond proceeds support the following activities within the programme:

- In situ gene conservation, such as maintenance of forest gene reserves and maintenance of tree species designated for seed production.
- Tree plantations of forest wood-producing plants, including maintenance of vegetatively propagated species, varieties, super-elite and elite grade mother colonies and maintenance of seed-producing plantations of generatively propagated species and varieties



III.3 Pollution prevention & control

This category includes projects related to waste management and investments that contribute to the growth of the circular economy. In the Report, the eligible green bond proceeds were allocated to projects that finance the purchase of assets and equipment, the development of waste management processes and the expansion of waste recycling and processing capacity of companies. Economic activities related to the treatment of hazardous waste were excluded from the allocation.

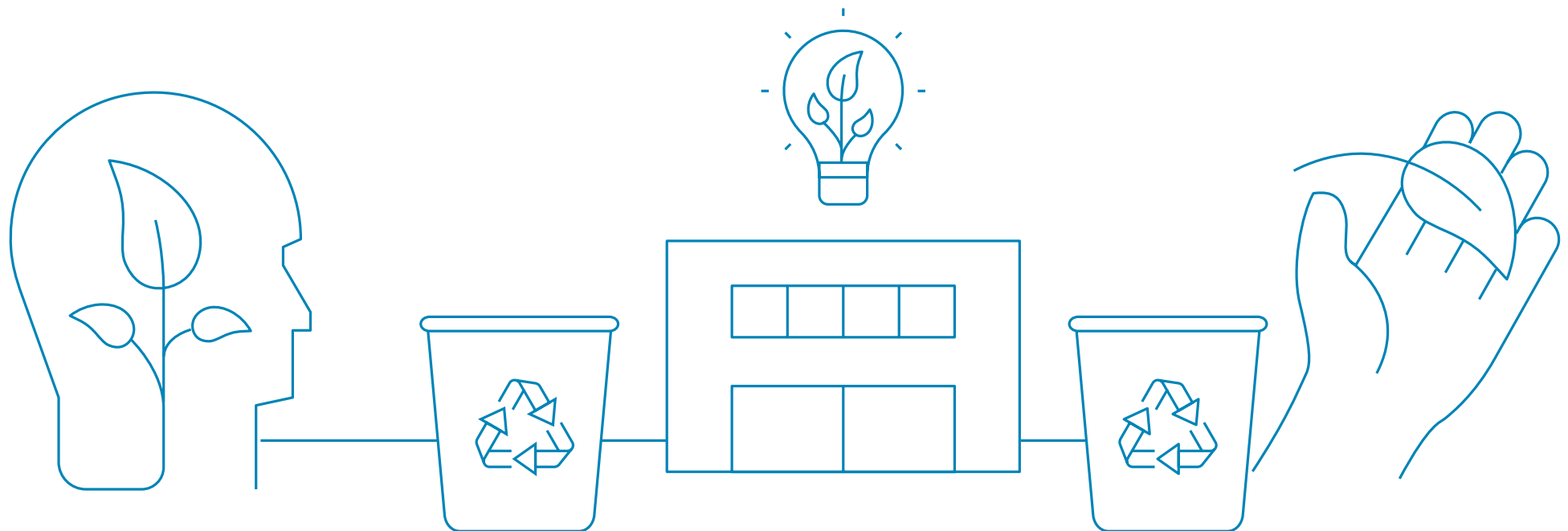
Total allocated
amount (HUF bn)
0.06

% of total green
bond proceeds
0.13%



Project details

Main programme schemes	Description	Expenditure type	Financing	Allocated proceeds (HUF bn)	Impact indicators
Supporting the waste management tasks	The green bond proceeds in this category support projects that are related to the development of the circular economy, such as purchase of equipment (e.g. optical waste separator, quality testing tools), process development and capacity increase.	Intervention expenditure	Financed nationally. The green bond proceeds contribute to the national share of funding.	0.06	Number of projects: 2022: 7 Impact indicators of the supported projects will be available once the closing reports are finalised.



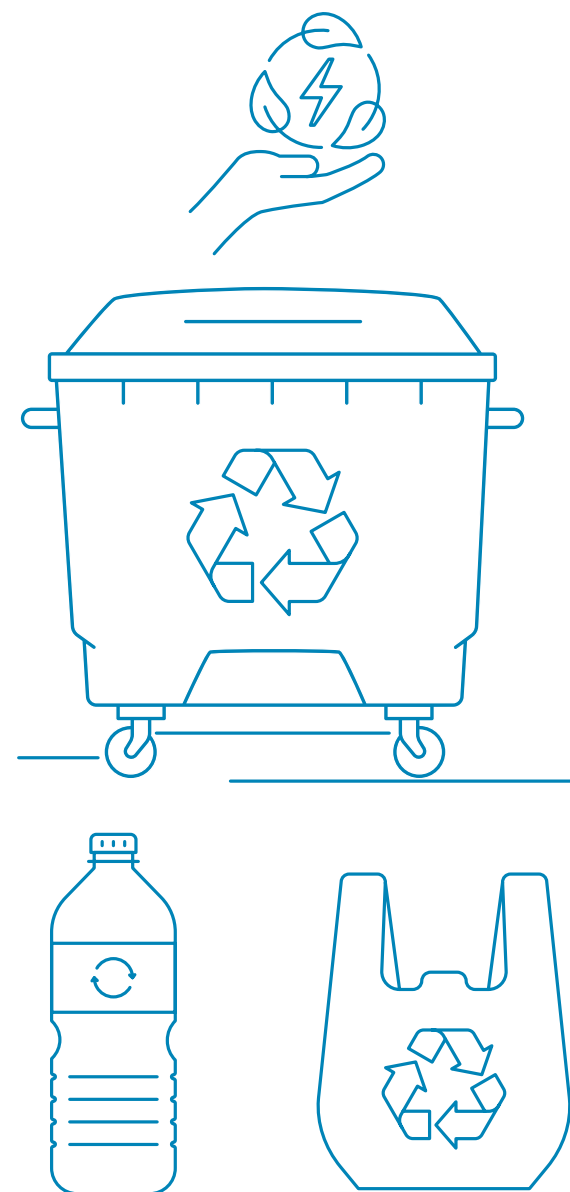
Case study – Purchase of measuring equipment to support the production of plastic regranulate with documented properties suitable for packaging material production

The development of a circular economy, where the product and material life cycles are prolonged, is essential for a more sustainable way of living. In the circular economy, at the end of its life cycle, a product is recycled for example via material recovery, through which the materials flow to the next product, replacing primary materials.

The green bonds supported the purchase of 8 pieces of equipment that will enable the production of plastic regranulate with high purity and excellent properties, which can be sold to processors producing new products from the regranulate, together with a technical data sheet documenting the properties of the regranulate.

The regranulate is produced in the context of waste recycling and the development of the circular economy, which can be used as secondary raw material ultimately allowing an increasingly wider range of products to be made from recycled plastic waste. This is in line with the EU Taxonomy objective, under which the project was assessed. The project is partially aligned with the criteria set out in the EU Taxonomy Climate Delegated Act for activity 5.9 Material recovery from non-hazardous waste.

The project was realised in 2022. The green bond supported 70% of the project funding, while 30% is covered through self-financing by the beneficiary. Impact indicators will be available in the next reporting period.



IV. EU Taxonomy assessment



Main programme scheme	Allocated amount (HUF bn)	EU Taxonomy activity	Alignment	Substantial contribution - SC	Do no significant harm – DNSH				
				Climate change mitigation	Climate change adaptation	Sustainable use and protection of water and marine resources	Transition to a circular economy	Pollution prevention and control	Protection and restoration of biodiversity and ecosystems
Clean transportation									
Reimbursement of uncovered costs of railway passenger traffic	1.732	CCM 6.1. Passenger interurban rail transport	Aligned			N/A			N/A
	30.014	CCM 6.1. Passenger interurban rail transport	Partially aligned			N/A			N/A
Clean transportation									
Reimbursement of the operation of the railway network	1.258	CCM 6.14. Infrastructure for rail transport	Aligned						
	10.584	CCM 6.14. Infrastructure for rail transport	Partially aligned						
Clean transportation									
Modernization of urban public transport	1.619	CCM 6.14. Infrastructure for rail transport	Partially aligned						

 Fullfilled
  Partially fulfilled
  Not fulfilled

Table 9: EU Taxonomy assessment for Climate change mitigation

(N/A: there is no DNSH criteria for the environmental objective as described in the EU Taxonomy for this economic activity)

Main programme scheme	Allocated amount (HUF bn)	EU Taxonomy activity	Alignment	Substantial contribution - SC	Do no significant harm – DNSH				
				Climate change mitigation	Climate change adaptation	Sustainable use and protection of water and marine resources	Transition to a circular economy	Pollution prevention and control	Protection and restoration of biodiversity and ecosystems
Clean transportation									
Modernisation of rail transport	0.010	CCM 6.14. Infrastructure for rail transport	Aligned						
	0.140	CCM 6.14. Infrastructure for rail transport	Partially aligned						
Clean transportation									
Electrification of railway lines	0.010	CCM 6.14. Infrastructure for rail transport	Partially aligned						
Clean transportation									
Rolling stock development	0.002	CCM 6.1. Passenger interurban rail transport	Partially aligned			N/A			N/A

 Fullfilled
  Partially fulfilled
  Not fulfilled

Table 9: EU Taxonomy assessment for Climate change mitigation

(N/A: there is no DNSH criteria for the environmental objective as described in the EU Taxonomy for this economic activity)

Main programme scheme	Allocated amount (HUF bn)	EU Taxonomy activity	Alignment	Substantial contribution - SC	Do no significant harm – DNSH				
				Climate change mitigation	Climate change adaptation	Sustainable use and protection of water and marine resources	Transition to a circular economy	Pollution prevention and control	Protection and restoration of biodiversity and ecosystems
Clean transportation									
Tax exemptions of environmentally friendly vehicles	0.815	CCM 6.5. Transport by motorbikes, passenger cars and light commercial vehicles	Partially aligned						
Pollution prevention & control									
Supporting the waste management tasks	0.062	CCM 5.9. Material recovery from non-hazardous waste	Partially aligned			N/A	N/A	N/A	



Fullfilled



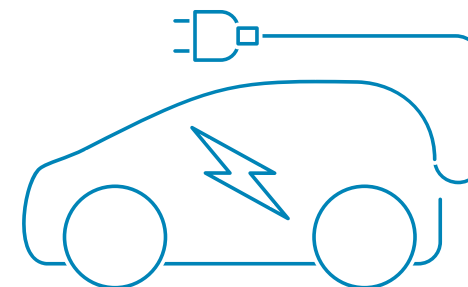
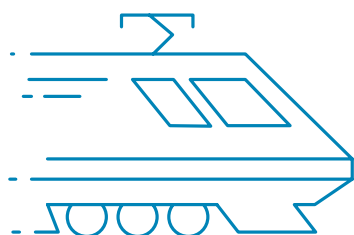
Partially fulfilled



Not fulfilled

Table 9: EU Taxonomy assessment for Climate change mitigation

(N/A: there is no DNSH criteria for the environmental objective as described in the EU Taxonomy for this economic activity)



Main programme scheme	Allocated amount (HUF bn)	EU Taxonomy activity	Alignment	Substantial contribution - SC	Do no significant harm – DNSH				
				Protection and restoration of biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Sustainable use and protection of water and marine resources	Transition to a circular economy	Pollution prevention and control
Land use & living natural resources									
Sustainable agriculture and forestry	0.037	BIO 1.1 Conservation, including restoration, of habitats, ecosystems and species	Partially aligned					N/A	

● Fulfilled
 ◐ Partially fulfilled
 ○ Not fulfilled

Table 10: EU Taxonomy assessment for protection and restoration of biodiversity and ecosystems
(N/A: there is no DNSH criteria for the environmental objective as described in the EU Taxonomy for this economic activity)



Appendix – Methodologies



A.1 Allocation methodology

Eligible green expenditures can fall under eight green categories according to the Hungary's Green Bond Framework (2023), including:

- Investment expenditures: expenses of goods and services for future use. For example, public investment money spent on railway electrification;
- Intervention expenditures: refers to the active role of the government in implementing policies in the economy. For example, supporting or funding organizations performing important political tasks for the public. These can be financing NGOs working with environmental protection, nature conservation indemnification, or forest area development and improvement of the viability of forests, etc;
- Tax expenditures: government revenue losses from tax exclusions, exemptions, deductions, credits, deferrals, and preferential tax rates;
- Operating expenditures: refers to expenses incurred to day-to-day operations of the government. Pay for the costs of running the services, such as salaries, equipment, utilities etc.

Budget expenditures, which already obtained dedicated funding (e.g. EU funding, proceeds from the sale of EU ETS allowances, a dedicated tax, or EIB and/or other supranational entities' loans) have been excluded to avoid double counting. The allocation of green bond proceeds is determined based on the value of the bonds deducted by redemptions.¹² The MoF, along with the other relevant Ministries are responsible for regularly reviewing the expenditures and the relevance of the associated information. In the allocation process the MoF recommends a list of projects, which are reviewed and verified on project level by the responsible Ministries to ensure that each budget line complies with the green eligibility

¹²The principles of managing redemptions of green bonds:

- It is not allowed to deduct redemptions carried out in a given time period from proceeds already allocated in the previous time period;
- The allocable value of the bonds for a given time period (i.e. non-allocated proceeds from the preceding time period and additional issuances of the given time period), deducting redemptions, cannot be less than 0.

¹³Eligible green expenditures not selected may receive allocation in future year's report according to the management of proceeds criteria in Hungary's Green Bond Framework (2023).

criteria defined in Hungary's Green Bond Framework (2023). Expenditures linked to nuclear power, the armament and defence sector, fossil fuel production and related power generation are excluded.

The green bond allocation methodology follows the Green Bond Principles version '2021 (with June 2022 Appendix 1)' published by the ICMA. In addition, the methodology considers the EU Taxonomy Regulation.

Summary of the allocation methodology:

- Eligible green expenditures amounted to HUF 410.4 bn for 2022. The eligible green expenditures were determined based on data provided by the MoF, adjusted and reviewed according to the information provided by the responsible Ministries.
- Out of the HUF 410.4 bn of eligible green expenditures, HUF 380.5 bn worth of projects were selected¹³ as partially or fully aligned with the EU Taxonomy criteria. The selected eligible green expenditures are aligned at least with the EU Taxonomy's substantial contribution criteria, and where possible fully or partially aligned with the DNSH criteria as well.
- Green bond proceeds from issuances between 1 June 2023 – 31 December 2023 covered 12.2% (HUF 46.3 bn) of the selected projects (HUF 380.5 bn).
- The expenditures of the selected projects were proportioned according to the ratio for allocation (12.2%).



Woman planting

A.2 Impact methodology

For the impact assessment of the supported projects, the ICMA Handbook - Harmonised Framework for Impact Reporting (June 2024 edition) was primarily used. The Report includes the annual impact data (ex-ante and ex-post) of the projects financed by green bonds as per main programme schemes. The impacts are calculated based on various methodologies, which may be adjusted due to data updates and data collection developments over time.

The Report showcases 15 indicators:

- 8 core and 3 other indicators in line with the principles and recommendations of the ICMA Handbook - Harmonised Framework for Impact Reporting (June 2024 edition);
- 4 own indicators.

The impact results for the selected projects are showcased as per main programme schemes with a time horizon of one or two years. The impacts of operating expenditures are captured only for the year(s) of allocation.



Wetland habitat at the river Danube

A.3 EU Taxonomy assessment

Hungary has aimed to refinance projects that are in line with EU Taxonomy activities described in the EU Taxonomy Climate Delegated Act¹⁴ and its amending regulation¹⁵, and the Environmental Delegated Act¹⁶, according to the criteria in Hungary's Green Bond Framework (2023). To determine the alignment with the EU Taxonomy criteria, stakeholders have been engaged to assess each project:

- The assessment was based on multiple interviews, questionnaires and the related supporting documentation provided by the stakeholders.
- In addition, publicly available documents and statistics were also used for the evaluation.
- After identifying projects that fulfilled the taxonomy's eligibility criteria, projects were assessed based on the EU Taxonomy relevant technical screening criteria (TSC) – including the substantial contribution (SC) and do no significant harm (DNSH). The alignment methodology is detailed in [Table 11](#). Only projects that are at least partially aligned have been refinanced by the green bond proceeds.
- The minimum safeguards (MS) criteria is considered fulfilled since projects refinanced by the green bond proceeds are associated with entities that operate in the EU and therefore obliged to meet certain standards when it comes to human and labour rights, taxation, and fair competition.



	Description	Eligibility criteria	Substantial contribution	Do not significant harm
Aligned	The project fulfils the eligibility criteria, the substantial contribution criteria and all relevant DNSH criteria.	●	●	●
Partially aligned	The project fulfils the eligibility criteria and the substantial contribution criteria, however, it does not fulfil or only partially fulfils the relevant DNSH criteria.	●	●	● ○

● Fulfilled

●

○

 Partially fulfilled
 ○ Not fulfilled

Table 11: Alignment methodology for EU Taxonomy assessment

¹⁴Commission Delegated Regulation (EU) 2021/2139

¹⁵Commission Delegated Regulation (EU) 2023/2485

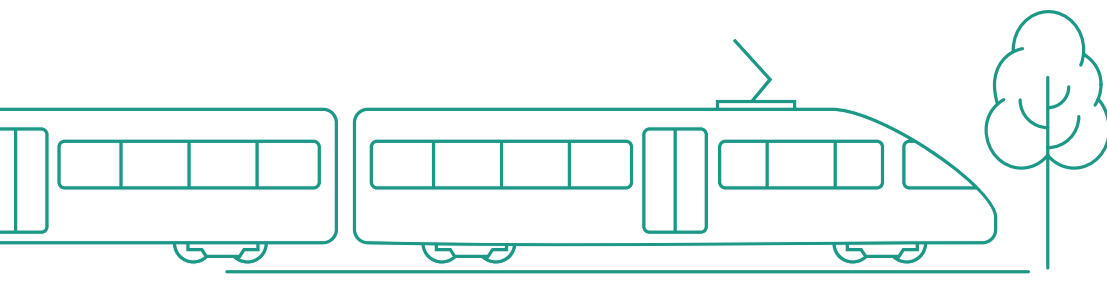
¹⁶Commission Delegated Regulation (EU) 2023/2486

A.4 Methodology for the electrification ratio for reimbursement of uncovered costs of railway passenger traffic and reimbursement of uncovered cost of the operation of the railway network

Green bond proceeds were only used to support the operation related to electrified railway infrastructure and railway passenger transport with electrically powered trains. The electrification ratio of the railway was determined based on the reimbursed costs (income subtracted from operating costs) linked to:

- electrified railway line operation of MÁV Ltd. and GYSEV; and
- electrified railway passenger transportation of MÁV-START and GYSEV.

Railway lines dedicated for the transport of fossil fuel were not included in the allocation.



A.5 Methodology for GHG emission avoidance in terms of modal shift to railway transportation

The GHG emissions avoided as a result of the cumulated effects of the projects supporting railway transportation is estimated based on the assumption that those passengers who use railway transportation shifted from using passenger cars or long-distance buses. The impact of the modal shift from passenger cars to railway transportation is 130g CO₂eq and from long-distance buses is 2g CO₂eq per passenger-kilometre. The impact of the railway transportation is proportioned to only showcase the impact of railway passenger transport with electrically powered trains.

The calculation is performed based on the following parameters:

- GHG emissions from rail passenger transport per passenger-kilometre (average value) based on MÁV-START assessment;
- GHG emissions from passenger car transport per passenger-kilometre (average value) based on MÁV-START assessment and adjustment for electric cars;
- GHG emissions from bus transport per passenger-kilometre (average value) based on Volánbusz Ltd. data;
- Substitution ratio for railway passenger transportation based on Eurostat data on modal split of inland passenger transport¹⁷ (83% for passenger cars and 17% for buses);
- Share of green bond proceeds allocated to reimburse MÁV-START and GYSEV operating costs.

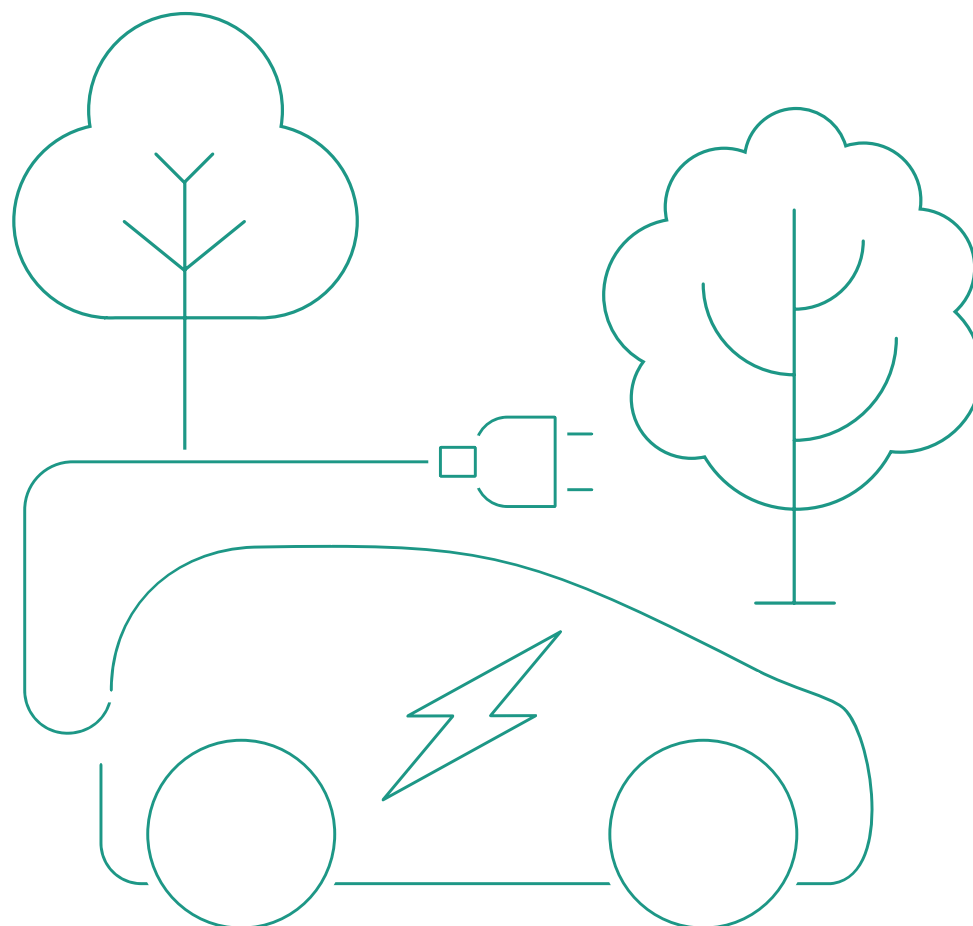
The contribution of green bond proceeds to emission avoidance is based on the assessment of the two beneficiaries' (MÁV-START and GYSEV) main expenses which the green bond could cover.

¹⁷Data source: https://ec.europa.eu/eurostat/databrowser/view/tran_hv_psmo/default/table?lang=en

A.6 Methodology for GHG emission avoidance in term of modal shift for environmentally friendly passenger vehicles

Regarding tax exemptions (registration tax, motor vehicles tax, company car tax and motor vehicle duty) for environmentally friendly vehicles, the GHG emission avoidance was calculated based on the MoF methodology by the following indicators:

- The annual number of environmentally friendly vehicles and their average annual mileage – the MoF estimated the approximate mileage data for environmentally friendly vehicles based on the vehicle's roadworthiness test mileage data;
- GHG emission from electricity production – based on EEA emission report;¹⁸
- Electricity consumption of environmentally friendly vehicles and fuel consumption of internal combustion engine-based vehicles – for environmentally friendly vehicles these values are based on WLTP standards. Consumption values for vehicles with internal combustion engines were determined based on petrol sale volumes, mileage, and the number of petrol-based vehicles;
- Avoided emission for carbon monoxide (CO) and nitrogen oxides (NOx) – estimations were calculated based on the Euro 6 emission standards for petrol passenger vehicles¹⁹.



¹⁸Data source: <https://www.eea.europa.eu/en/analysis/maps-and-charts/co2-emission-intensity-15>

¹⁹Data source: <https://www.eea.europa.eu/publications/explaining-road-transport-emissions>

