

HUNGARY

Green Bond Allocation Report 2020



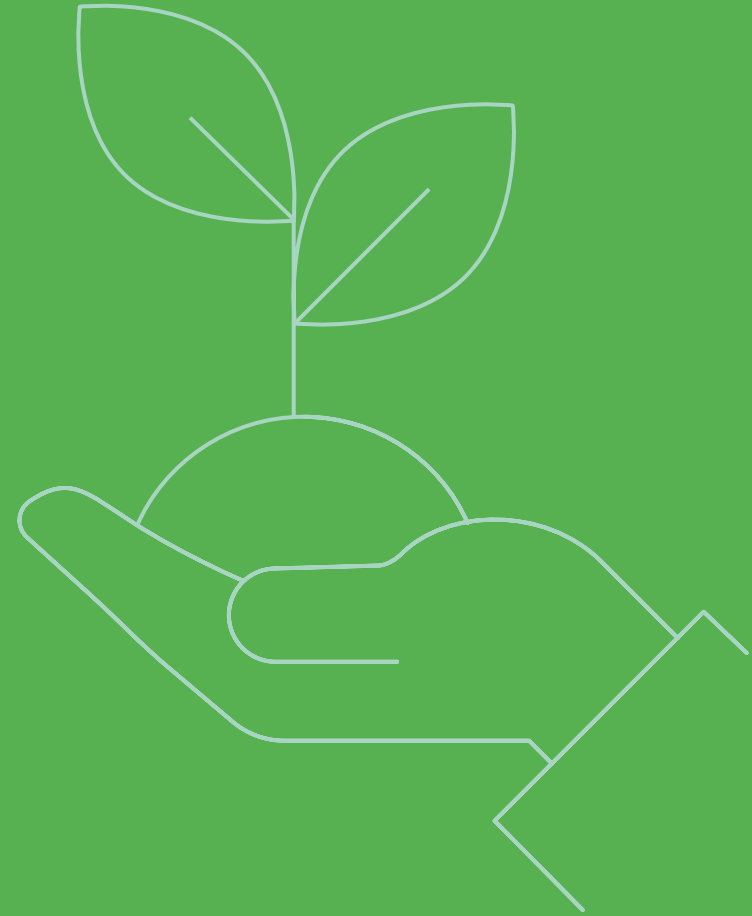
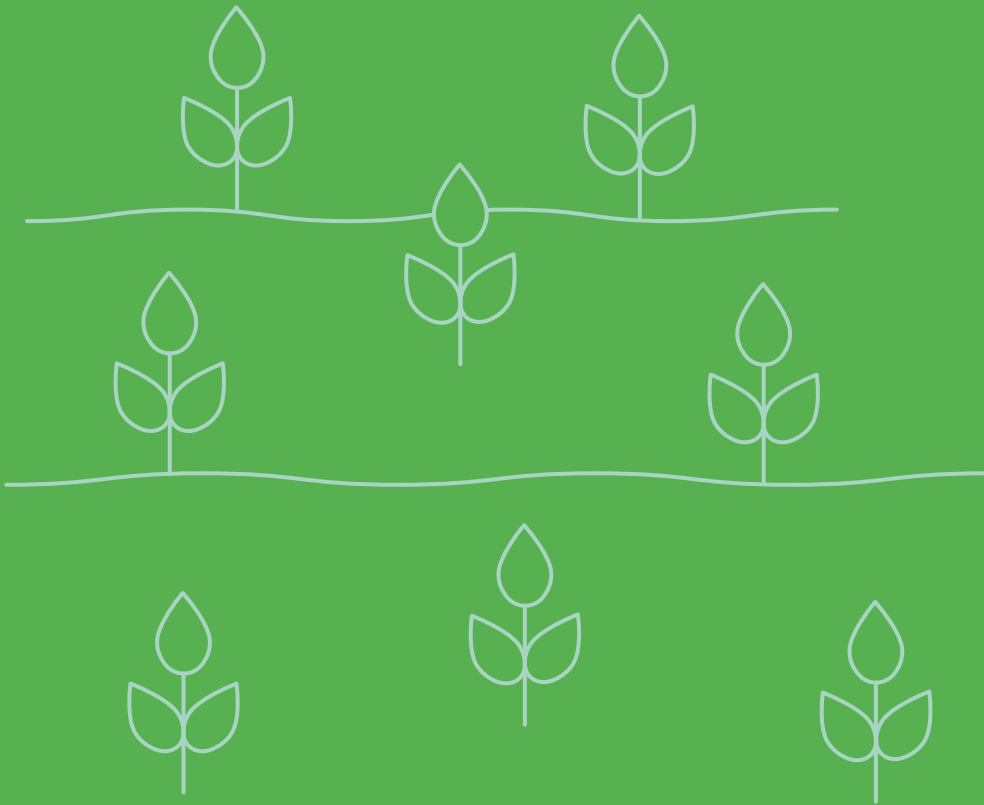
March 2021

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I. Introduction



In line with international efforts, Hungary is strongly committed to fight climate change and biodiversity loss. Further to its EU's Nationally Determined Contribution under the Paris Agreement, Hungary supported the EU climate neutrality target at the December 2019 European Council and will strive to achieve climate neutrality by 2050. Building on the Hungarian Energy and Climate Plan and the National Clean Development Strategy (2050), the Hungarian government is implementing wide and overreaching climate, energy and environmental policies to transition the country to a low-carbon and environment-friendly economy. Following the publication of the Green Bond Framework, Act XLIV of 2020 on Climate Protection was adopted, in which Hungary undertakes achieving climate neutrality by 2050.

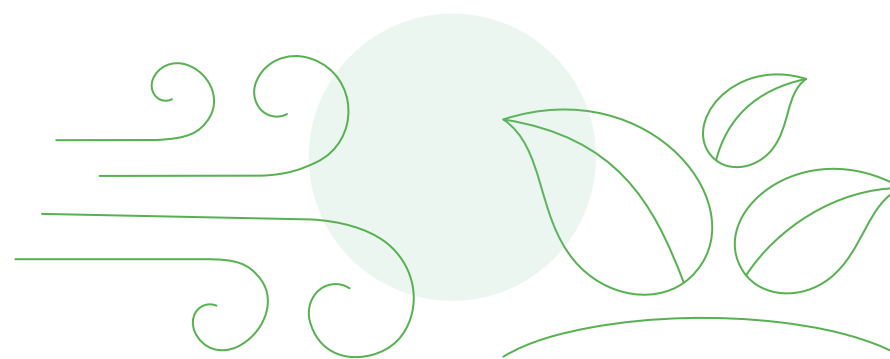
To support this ambitious commitment, the publication of the Green Bond Framework of Hungary in May 2020 has been a key milestone in Hungary's Sustainable Finance journey and helped raise awareness on Hungary's environmental challenges and objectives. By the same token, the Green Bonds issued in 2020 have contributed to raise a part of the necessary funding from the capital markets and diversify Hungary's international investor base. By issuing Green Bonds, Hungary also intends to contribute actively to the development of Sustainable Finance both internationally and domestically. Based on its inaugural Green Bond issued in June 2020 in Euro, Hungary brought to the Samurai market the first ever Green Samurai Bond issued by a sovereign. Thanks to this transaction Hungary was not only able to attract significant investor interest, but also to extend its Japanese Yen yield curve, since out of the four tranches, the 7 and the 10 year tranches were issued in green format.

In the wake of these international bond issues and according to the financing plan for 2021 Hungary envisages to issue a 30-year Green bond in its domestic capital market in HUF, with an objective to raise awareness of Hungarian domestic investors in sustainable finance.

Hungary committed to provide investors with annual reporting on the allocation and the impact of its green bonds. This report contains relevant information on the allocation of the green bond proceeds of 2020 versus "Green Eligible expenditures". The impact reporting for 2020 is expected to be published in Q4 2021.

Hungary selected projects according to the eligibility criteria defined in the Green Bond Framework, best market practices and the independent assessment of SPO provider CICERO. This Allocation Report further details the allocation methodology, and the forthcoming Impact Report will present the positive environmental outcomes of projects and green assets that benefited from the Green Eligible Expenditures, such as Hungary's public transportation system and national parks.

Under the supervision of the Green Bond Steering Committee, the Ministry of Finance of Hungary has been playing a leading role in the coordination and elaboration of the Allocation Report presented here. The 2020 Allocation Report discloses information about eligible Green Expenditures from budget years 2018, 2019, which have been allocated to green bonds issued in 2020, as the budget for these years is legally closed. The budget data for 2020 is also included in the tables for information purposes, as the 2020 budget is not officially closed yet, and will be detailed in the 2021 Allocation Report, at which point the Parliament will have approved the implementation of the 2020 budget. Each relevant Ministry collected and verified the data on the Green Eligible Expenditures for 2018 and 2019, and prepared the reports for each subsectors of the Allocation Report. The Ministry of Finance coordinated the Ministries' work and aggregated the reports. Hungary's Allocation Report 2020 has been reviewed by the Inter-Governmental Working Group and validated by the Steering Committee on 11 March 2021.



II. Main allocation results



1. Timing and scope of reporting:

Hungary is committed to provide investors with transparent reporting:

- on the allocation of proceeds towards Eligible Green Expenditures (“Allocation Report”) on an annual basis and
- on the environmental impact of those expenditures (“Impact Report”) after the full allocation of the bond proceeds or more frequently as Hungary deems necessary

Further Green Bond Allocation Reports of Hungary are intended to be published in Q4 each year following the annual State Budget audit and will be published on the ÁKK’s website Green Bond section.

March 2021

- Publication of Allocation Report for Green Bonds issued in 2020
- Based on eligible expenditures of budget years 2018, 2019 and 2020

Q4 2021

- Inaugural Impact Report expected
- Allocation Report based on final audit of 2020 budget

2020 Green bond issuance:

Market	ISIN	Issue date	Amount	Maturity	Total Green Bond proceeds (in HUF)	Total Green Bond proceeds (in EUR)
Eurobond	XS2181689659	05/06/2020	EUR 1,500 million	15 yr	HUF 516,930 million	EUR 1,500 million
Samurai	JP534800CL92	18/09/2020	JPY 15,500 million	7 yr	HUF 43,981 million	EUR 123.0 million
Samurai	JP534800DL91	18/09/2020	JPY 4,500 million	10 yr	HUF 12,769 million	EUR 35.7 million
Total:					HUF 573,680 million	

Note: National Bank of Hungary (“NBH”) exchange rate at the date of issuance of Euro Bond (2 June 2020): HUF 344.75 = EUR 1.00
 NBH exchange rate at the day of issuance of Samurai Bonds (11 September 2020): HUF 283.75=JPY 100.00 and HUF 357.44=EUR 1.00

2. Allocation methodology:

In accordance with Hungary's Green Bond Framework, **Eligible Green Expenditures** include expenditures within Hungary's central government budget identified as contributing to the transition to a low carbon, climate-resilient and environmentally sustainable economy, and falling under the six Green Sectors defined in Hungary Green Bond Framework. Eligible Green Expenditures include investment expenditures, intervention expenditures, tax expenditures and selected operating expenditures. Budget expenditures, which already obtain dedicated funding (e.g. a dedicated tax, proceeds from sale of EU ETS allowances or EU funding) have been excluded. The Ministry of Finance, along with the relevant Ministry responsible for the expenditures under review, verified and ensured that each budget line complies with the green eligible criteria defined in Hungary's Green Bond Framework, including any exclusions linked to nuclear power, the armament and defence sector, fossil fuel production and power generation. In addition, in line with best market practices, including the draft EU Taxonomy legislation, each relevant Ministry has ensured that – to their best knowledge – none of the expenditures significantly harms any environmental objective of the EU. Each of the budget lines has individually been screened and verified by the dedicated team of the Ministry in charge of the project via specific line reference codes. Accordingly, any expenditures directly related to fossil fuel have systematically been excluded. Granted that state expenditures related to the infrastructure and operation of the rail passenger and freight transport are necessary to the maintenance of a green asset, subsidies to Hungarian operators (MAV Ltd. and GYSEV Ltd.) are considered to meet the Green Eligible Criteria. These specific budget items shall be reviewed and detailed in the upcoming impact report.



High angle view of plants by lake, Balatonakali

3. Main items of 2020 Green Bond Allocation Report

Eligible Green Expenditures per Green Sector and budget years:

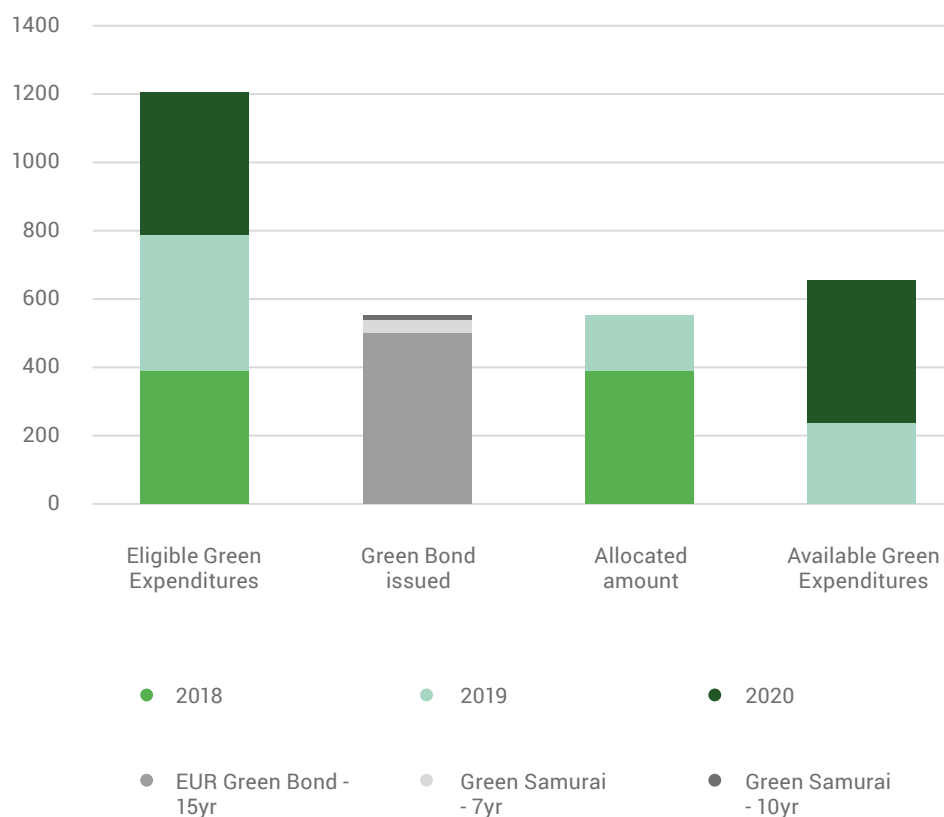
Green Sectors		Green Expenditures per budget year			% of total	2020 Planned HUF 351.17=EUR
		2018 HUF 318.87=EUR	2019 HUF 325.35=EUR	Total		
Renewable Energy	(HUF bn)	4.86	0.84	5.70	0.7%	2.05
	(EUR million)	15.24	2.58	17.82		5.84
Energy Efficiency	(HUF bn)	2.24	4.48	6.72	0.9%	15.26
	(EUR million)	7.01	13.76	20.77		43.40
Land Use and Living Natural Resources	(HUF bn)	32.58	35.32	67.90	8.9%	35.64
	(EUR million)	102.19	108.55	210.73		101.48
Waste and Water Management	(HUF bn)	4.36	2.66	7.02	0.9%	2.80
	(EUR million)	13.67	8.18	21.85		7.98
Clean Transportation	(HUF bn)	327.36	340.23	667.59	87.5%	372.63
	(EUR million)	1,026.62	1,045.72	2,072.35		1,0611.11
Adaptation	(HUF bn)	0.67	7.60	8.27	1.1%	12.94
	(EUR million)	2.09	23.35	25.45		36.85
Total:	(HUF bn)	372.07	391.13	763.20	100%	441.32
	(EUR million)	1,166.82	1,202.14	2,368.97		1,256.66

Note: Using the yearly EUR/HUF average exchange rate, as published by the Hungarian National Bank for the relevant year

Breakdown of Green Eligible Expenditures:

Available Green Expenditures

in HUF bn



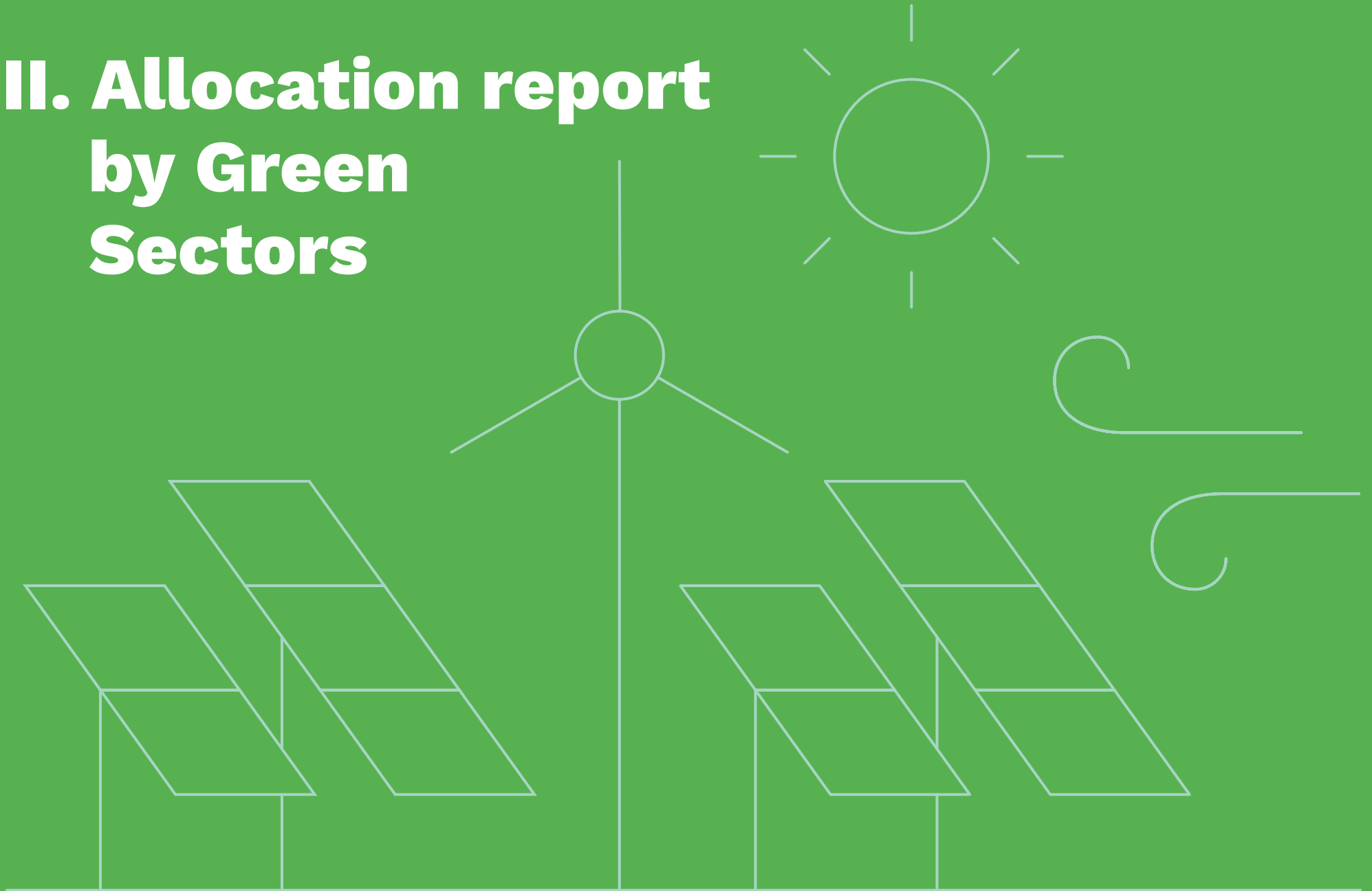
The **allocated amount** is the amount of Eligible Green Expenditures equal to the net proceeds raised from the issuance under Hungary Green Bond Framework, during the reporting period. For any given year, the amount of Green Bond issued (or tapped) in that year will be allocated in priority to the older eligible budget years, and receive a proportional allocation of the final year to be allocated. The allocated amount for the purpose of 2020 Green Bond Allocation Report is equal to:

	Eligible Green Expenditures	Allocated Amount
2018	HUF 372,066 million	HUF 372,066 million
2019	HUF 391,117 million	HUF 201,614 million
2020	HUF 441,301 million	-
Total:		HUF 573,680 million EUR 1,658 million equiv.

Available Green Expenditures equal the difference between all Eligible Green Expenditures identified within Hungary's central government budget and the net proceeds of Green Bond issuances as of the end of the reporting period. This share of Green Expenditures still remains available for allocation to future Green bond issuance.

For the purpose of 2020 Green Bond Allocation Report, the available Green Bond Expenditures are equal to HUF 630,804 million (EUR 1,839 million equiv.)

III. Allocation report by Green Sectors

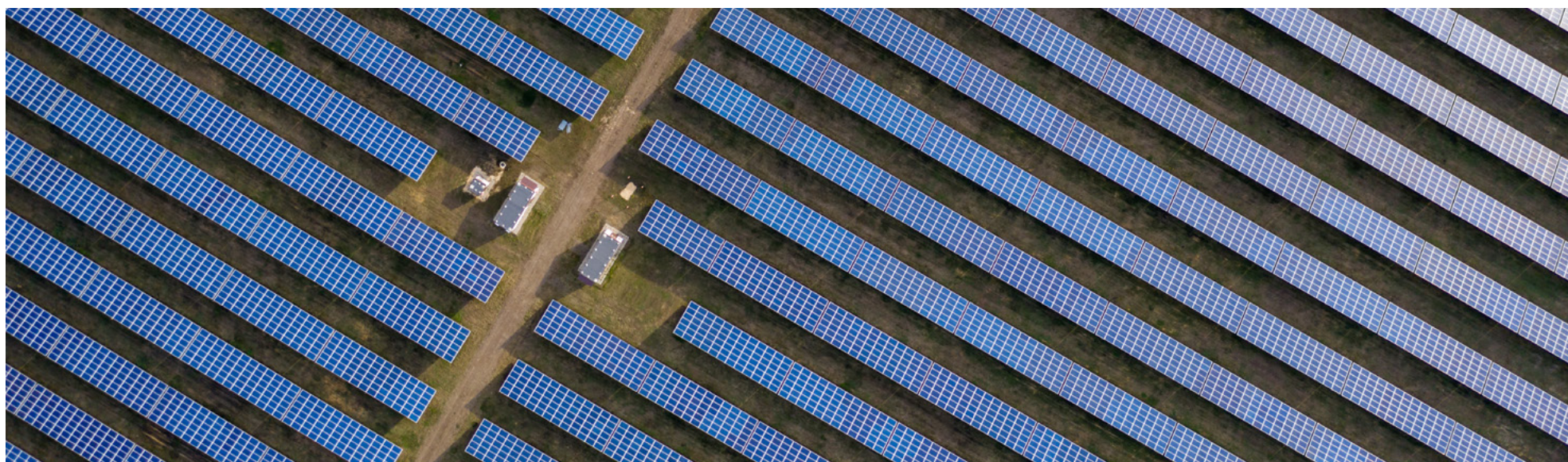


1. Renewable Energy



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. Subsidized loan for renewable energy use in buildings	intervention expenditure	micro, small and medium-sized enterprises	0.15	0.84	0.99	1.00
2. Subsidized loan for increase energy efficiency and renewable energy use in residential buildings	intervention expenditure	private individuals	4.71	-	4.71	1.05
Total:			4.86	0.84	5.70	2.05



Aerial view of solar panels, Hungary

1.1. Subsidized loan for renewable energy use in buildings

Objective:

The combined loan and non-refundable support provided for SMEs aim to increase the use of renewable energy in buildings. In Hungary, about 40% of energy consumption takes place in buildings¹.

Responsible body:

Hungarian Development Bank, Ministry of Finance

Description of financing:

The activities financed might include:

- Solar system
- Modernization of non-productive heating
- Cooling and domestic hot water systems with the use of renewable energy sources
- Modernization of lighting systems and renewable electricity generation.

Beneficiaries:

Micro, small and medium-sized enterprises located in Pest county and Budapest.

1.2. Subsidized loan for increase energy efficiency and renewable energy use in residential buildings

Objective:

The purpose of the Loan Program is to provide financial support for building energy investments in the residential sector in order to increase the use of renewable energy and energy efficiency of the residential buildings.

Responsible body:

Hungarian Development Bank, Ministry of Finance

Description of financing:

The activities financed might include:

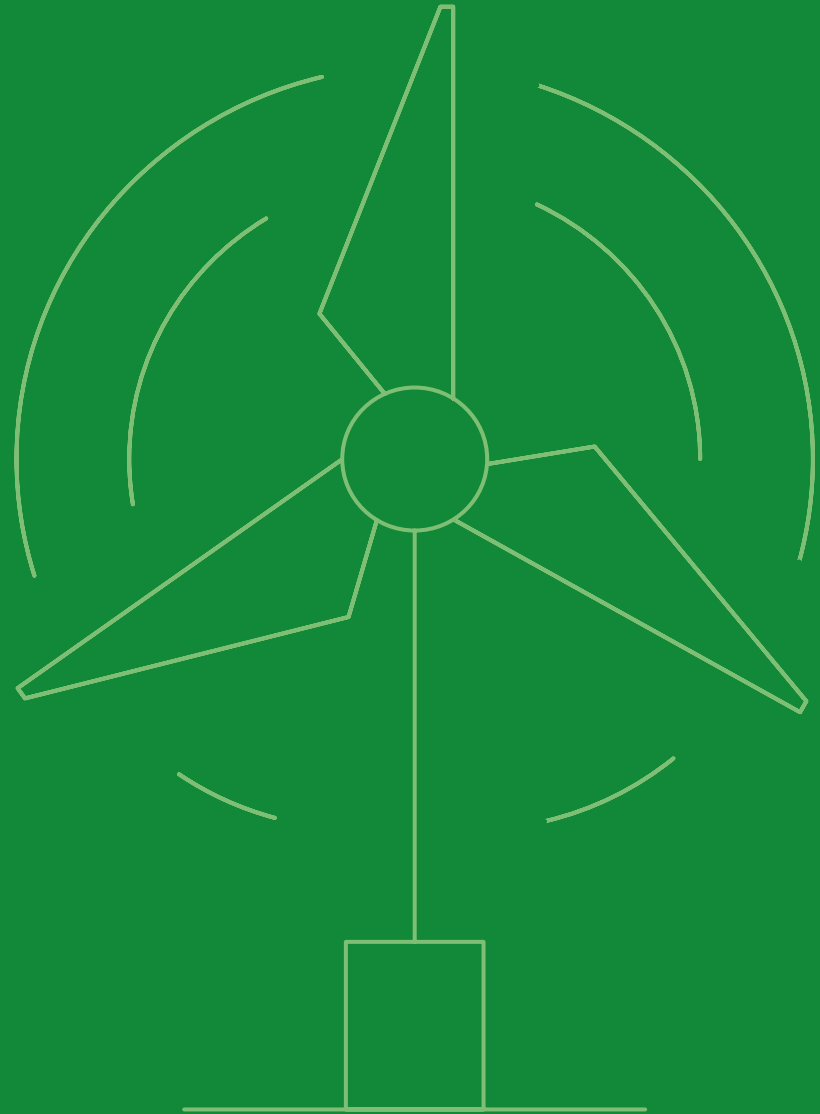
- Installation of a solar system.
- Construction of a boiler system heated by the following materials: briquettes, pellets, wood chips.
- Installation of geothermal water-, water-to-water-, air-to-water heat pump systems.

Beneficiaries:

Private individuals, condominium, flat cooperatives, residential sector.

¹ https://ec.europa.eu/energy/sites/ener/files/documents/hungaryActionPlan2014_en.pdf

2. Energy Efficiency



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. Energy efficiency grant scheme	intervention expenditure	private individuals and public buildings	0.37	-	0.37	7.53
2. Tax allowance in corporate income tax	tax expenditure	enterprises	1.44	2.97	4.41	3.15
3. Investment expenditures for agriculture	intervention expenditure	agricultural producers	0.42	1.51	1.93	4.56
Total:			2.24	4.48	6.72	15.26

Note: Values of this table have been rounded, figures shown as total may not be an arithmetic aggregation of the figures which precede them.



Solar panels on the top of a building, Hungary

2.1. Energy efficiency grant scheme

Objective:

The purpose of the grant is to improve energy efficiency in households by enabling the purchase of new large household appliances at a reduced purchase price (shop price reduced by a subsidy). From 2020, new projects will help to increase energy efficiency in this category.

Responsible body:

Ministry of Innovation and Technology

Description of financing:

The sub-programme “Warm Home Programme’s: Replacement of Household Appliances” supports the replacement of existing large household appliances (refrigerators, freezers or washing machines) with high-efficiency, which means EU Energy Label of at least A+. In 2018, as a result of this programme, 9,099 appliances were replaced with a total grant contribution of HUF 375,538,440.

Beneficiaries:

Private individuals (Hungarian residents) and public buildings.

2.2. Tax allowance in corporate income tax

Objective:

Tax credits² on energy efficiency investments were initially introduced in 2017. Since 2018, the base of these tax credits was broadened to include energy efficiency renovations too. The main purpose of this measure is to boost the overall energy efficiency of the companies (including energy consumption, efficiency of buildings, transportation and production).

Responsible body:

Ministry of Finance

Description of financing:

In case of the taxpayers, making renovation or investments resulting in the reduction of final energy consumption, they may benefit from a tax credit in the tax year following the commissioning of the investment – or in the year of commissioning, if the taxpayer decides so – and in the five tax years thereafter. The tax allowance may be claimed up to 70 percent of the calculated corporate income tax. The tax credits on investments in energy efficiency not claimed by the taxpayer in the corporate tax can also be claimed in the special tax of energy suppliers up to the 50 percent of the calculated tax. Respectively in 2018 and in 2019³, 167 and 323 companies were eligible for the tax credit.

Beneficiaries:

Enterprises subject to corporate income tax making energy efficiency investments.

² Based on Act CXXV of 1996.

³ According to the preliminary report of NTCA



2.3. Investment expenditures for agriculture

Objective:

This sub-measure of the Hungarian Rural Development Programme aims to support the modernization of buildings and built-in technologies from the aspect of energy use and the facilitation of applying renewable energy sources. Built-in technologies in the case of a livestock farm mean: ventilation technology (for example fan with a movable side wall), heating technology (for example boiler, heat blower), milking technology (for example automatized barn-mounted milking parlour) or egg collection technology. In the case of horticulture, it might include: ventilators, shading equipment, nutrient dispenser, humidifiers and heating systems built into the greenhouses. If these technologies are upgraded in the course of an investment, significant energy improvements can be achieved.

Responsible body:

Ministry of Agriculture

Description of financing:

The aim of the measure is to decrease energy use in livestock farms in order to reduce the environmental load of the sector. This operation improves the efficiency of energy of livestock farms primarily by implementing building energy and mechanical modernisations and developments, as well as applying technologies that use renewable energy.

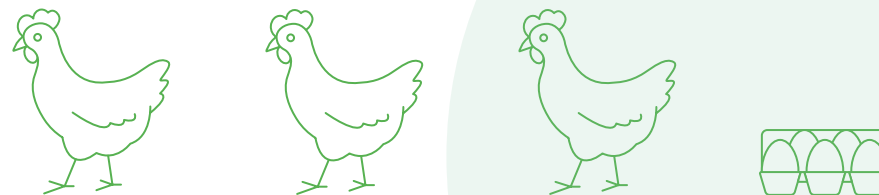
There is a sub-measure, which contributes to decrease energy use in animal husbandry facilities in order to reduce the environmental burden of the sector. This sub-measure enhances the efficient energy utilisation of animal husbandry holdings by implementing building energy and mechanical modernisations and developments as well as applying technologies aiming at renewable energy use.

The operation includes the following developments:

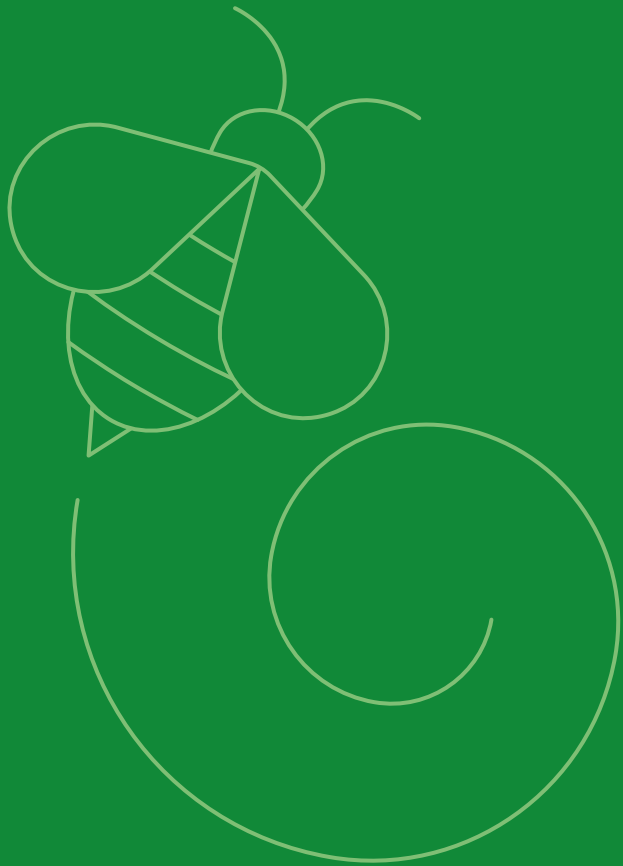
- improving the thermal insulation contributes to reduction of the buildings' heat loss
- renewing the heating, cooling and hot water systems of buildings
- modernisation of lighting systems
- modernisation of other built-in technologies
- utilisation of solar thermal collectors to provide hot water or as a collateral heating system
- utilisation of heat pumps to provide warm water or as a collateral heating system
- utilisation of solar panels in order to produce electricity serving the supply of a building involved in the development
- producing biomass-based energy

Beneficiaries:

Farmers



3. Land Use and Living Natural Resources



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. Nature protection and biodiversity	intervention expenditure	various (National park directorates, Ministry of Agriculture, gene conservation institutions, scientific institutes, etc.)	6.34	6.90	13.25	6.98
2. Environmental administration	operating expenditure	various (National Park Directorates, forest managers, etc.)	7.24	10.86	18.11	8.31
3. Education, awareness raising	intervention expenditure	various (environmental NGOs, Herman Otto Institute agricultural producers, forest managers, etc.)	1.02	1.75	2.78	1.00
4. Sustainable agriculture	intervention expenditure	agricultural producers	16.93	14.61	31.54	18.70
5. Others (noise mapping, remediation, environmental projects)	intervention expenditure	various (local governments, Herman Otto Institute, environmental NGOs, governmental institutions, etc.)	1.05	1.18	2.23	0.65
Total:			32.58	35.32	67.90	35.64

Note: Values of this table have been rounded, figures shown as total may not be an arithmetic aggregation of the figures which precede them.

3.1. Nature protection and biodiversity

Objective:

This category of expenditures contains programs related to nature conservation, protection of ecosystem and preservation of genetic resources.

Responsible body:

Ministry of Agriculture, Ministry of Finance, Ministry of Innovation and Technology

Description of financing:

The Environment and Energy Efficiency Operational Programme and the Competitive Central Hungary Operational programme support a package of nature conservation investments (88 individual projects) in an amount of approximately HUF 38 billion, 15% of which is provided from the state budget, while the remaining 85% comes from the European Regional Development Fund. As a result of the above projects, ecological conditions and infrastructure necessary for the improvement of the conservation status of species and habitats will be improved on more than 100 000 hectares, constituting ca.5% of the national Natura 2000 network.

The interventions and projects focus on the restoration of degraded habitats, the development and improvement of site management infrastructure, species' conservation measures, the protection and preservation of non-living natural values, the development of infrastructure for nature interpretation aiming to help visitors develop a personal relationship with nature and the cultural landscape, the improvement of site surveillance infrastructure (ranger service), as well as national scale strategic assessments (e.g. conservation status, green infrastructure, ecosystem services).

Gene conservation institutions' tasks are conservation and maintenance of genetic resources, promotion of the utilization of preserved resources as well as providing professional supports.



Dominik Misák: Hortobágyi híd (Nine-arched Bridge, Hortobágy)

<https://termeszetem.hu/hu/hirek/galleries/a-mit-jelent-szamodra-a-taj-rajzpalyazat-nyertesei>

In this work, several institutions are participating, such as the Hortobágy Nature Protection and Gene Conservation Nonprofit Ltd. which is a not-for-profit establishment under the professional supervision of the Ministry of Agriculture, dealing with nature conservation related maintenance tasks at the Hortobágy National Park (The "Puszta"); the National Centre for Biodiversity and Gene Conservation, which functions as Hungary's largest and central gene bank under the professional supervision of the Ministry of Agriculture, and where around 57 000 unique plant genetic resources accessions are conserved.

Beneficiaries:

National park directorates and their possible partners such as water directorates, state forestry companies, local authorities and NGOs.

3.2. Environmental administration

Objective:

The main objectives supported by this type of expenditure are: promotion of environmental technological advances aiming to monitor and control the environment, improvement of air quality, reduction of noise pollution, preservation of protected natural areas and Natura 2000 areas, maintenance and regeneration of forests.

Responsible body:

Ministry of Agriculture

Description of financing:

This budget line supports the expenditures of national park directorates, including salaries of national park directorate employees; operating expenditure costs; state nature conservation tasks prescribed by legislation (e.g. operation of the national ranger service, tasks related to management and declaration of protected areas and protected species, performance of official duties in case of misdemeanour, participation in biodiversity research, representing nature conservation interests in the district forest planning process, preparatory tasks concerning forest and wildlife planning).

In total, there are 10 national park directorates in Hungary. Besides the management, maintenance and conservation of protected areas, national park directorates also have a significant role in raising ecological awareness and education. They organize thematic programmes, including guided hiking or cave tours, offer a wide range of possibility for the general public for environmental education, including visitor centres, arboreturns and educational trails. The number of the registered visitors in the facilities of the directorates, including participation on different programmes in 2018 and 2019 were approximately 1.65 million people each year.

The financed projects include the following: regeneration and maintenance costs in private forests (with eligibility defined in related national regulations on de minimis⁴ support of forest management and forest regeneration activities), forest-related administrative activities



Dominika Horváth: Darázs (Wasp)

<https://termeszetem.hu/hu/hirek/galleries/a-termeszeti-ajandekai-rajzpalyazat-nyertesei>

and implementation of preparatory tasks of decision-making, research activities and topics focusing on sustainable forest management and regeneration of forests and related professional trainings, informative and professional publications and communication of forest policy goals, as well as, implementation of obligatory forest management measures.

Beneficiaries:

National Park Directorates⁵, forest managers on private forest land, registered individuals in the professional forestry staff register and budgetary organs under the control or supervision of the Minister of Agriculture, or other members of the government.

⁴ It disciplines small state aid amounts (so-called De minimis aid) that are exempted from state aid control as they are deemed to have no impact on competition and trade in the EU's internal market.

⁵ <http://magyarnemzetiparkok.hu>

3.3. Education, awareness raising

Objective:

The programme aims at supporting the implementation of environmental awareness and environmental education programs.

The Ministry of Agriculture supports the non-governmental organizations' tasks related to the National Environmental Program. In the field of agriculture, awareness raising is aimed at providing technical assistance for agriculture, forestry and food economy players to assist efficient knowledge-sharing, enhance innovation and increase economic competitiveness by taking account of sustainability, environment and climate protection, as well as resource efficiency requirements.

Responsible body:

Ministry of Agriculture

Description of financing:

The support for the NGOs is provided based on individual requests received by the Ministry through individual assessment. Activities related to the implementation of the objectives of the National Environmental Programme can be supported. The call for proposals is published annually and the program supports 50-60 projects of different organizations every year.

As a limited company owned by the Agricultural Ministry, Herman Otto Institute Nonprofit Ltd.⁶ participates in environmental education, for example elaborates and publishes training materials for agricultural secondary schools on sustainable agricultural practices. Education and awareness raising is also key to the field of forestry, both in a professional level reflecting to emerging issues within the sector (such as those related to sustainability and climate protection) and for the wider society including the role of connection to nature in children education.

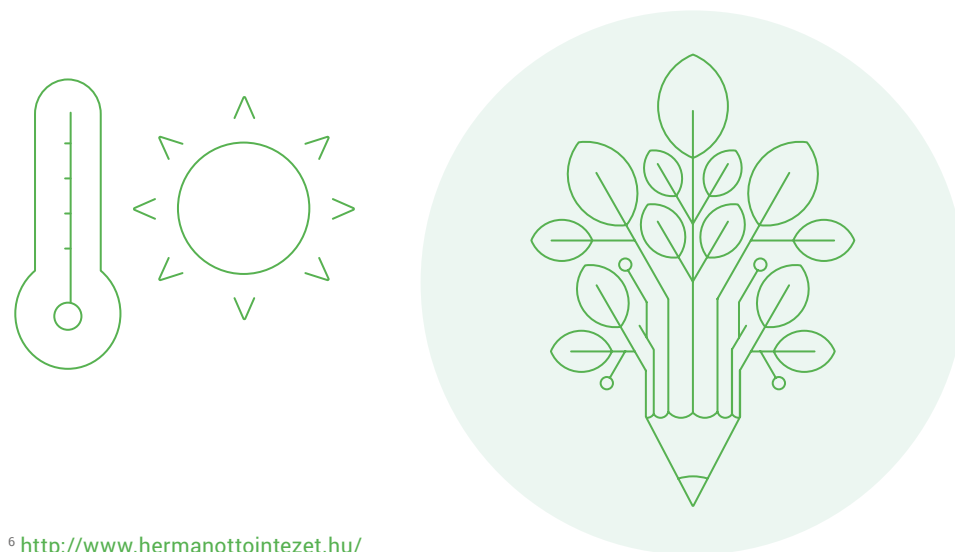
Advisory services are fundamentally aimed at conserving natural habitats, protecting wild fauna and flora and the enforcement of the Water Framework Directive in the case of forestry management and the production of healthy and safe foodstuffs in the case of food processors.

Within the forestry-related objectives, the following targets are financed: afforestation actions in progress allocated prior to 1 May 2004 (eligibility criteria based on respective regulations), forestry-related administrative activities and implementation of preparatory tasks of decision-making, research activities and topics focusing on sustainable forest management and afforestation and related professional trainings, informative and professional publications and communication of forest policy goals, as well as, forest-related environmental education.

The programme excludes activities related to livestock.

Beneficiaries:

Environmental NGOs, budgetary organs, Herman Otto Institute, agricultural producers, forest managers, young agricultural producers, forest managers and micro and small food processing enterprises.



⁶ <http://www.hermanottointezet.hu/>

3.4. Sustainable agriculture

Objective:

This expenditure is part of Hungarian Rural Development Programme that aims to create a sustainable and competitive agri-food economy, to increase the contribution of agri-food sector to economic development, employment and the conservation of natural resources.

The agri-environmental climate measure's (AECM) main objectives are for example:

- support of the sustainable development of rural areas,
- strengthening of agricultural practices based on the sustainable utilisation of natural resources,
- establishment of environmentally aware farming and sustainable landscape use,
- ensuring the sustainable management of natural resources and the actions related to climate change.

Responsible body:

Ministry of Agriculture

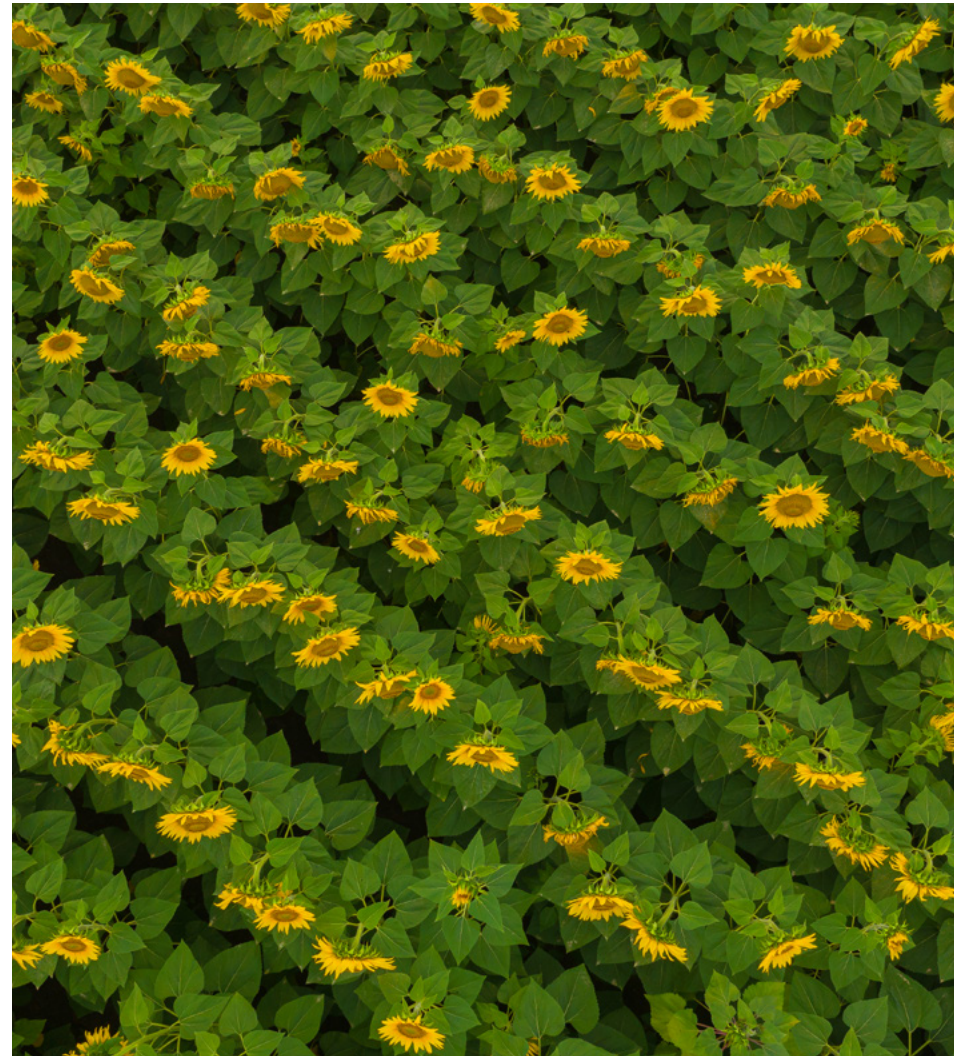
Description of financing:

The agri-environment payments contribute to the development of rural areas and provide environmental services to the entire society. They promote the agricultural producers to preserve the genetic resources and to apply agricultural production methods that are in compliance with the sustainable utilisation of the environment, the landscape and the natural resources.

The first round of the AECM support schemes was launched in 2015. The beneficiaries had to undertake 5 year commitments to fulfil the above mentioned goals. Total affected area by this measure is 776 990 ha, where 70% of it is arable land and 24% is lawn, 5% is grape, and 1% vegetables. 13515 contracts were made and EUR 360,781,448 was paid between 2014 and 2018.

Beneficiaries:

Agricultural producers



Sunflower stripes, Mezőfalva

3.5. Others (noise mapping, remediation, environmental projects)

Objective:

The aim of noise mapping and action planning is to collect information about the population's noise exposure deriving from transport infrastructure and industrial activity and to design action plans to manage environmental noise in agglomerations (urban areas above 100 000 inhabitants delimited by Member States).

The aim of remediation projects is to remediate the environmental damages left behind from polluted sites.

The "Support for environmental projects" budget item supports international applications and EU funded projects for environmental protection, which make a significant contribution to the implementation of Member States' policies.

Responsible body:

Ministry of Agriculture and Ministry of Innovation and Technology

Description of financing:

The noise maps give information about the noise exposure of about 3 million people, and about 150 000 people experience noise reduction due to the implementation of action plans.

Remediation projects cover cleaning up of polluted sites (formal industrial areas, depots, former Soviet barracks) to decrease groundwater and soil pollution.

Support for environmental projects focuses on the protection of the components of the environment, whether they concern air, water, soil, wildlife or the artificial environment. Environmental awareness, environmental education of future generations, the promotion of the spread of environmentally friendly, low-waste technologies and all appearances affecting the field that create opportunities for the implementation of future development goals, priorities and strategic directions.

Beneficiaries:

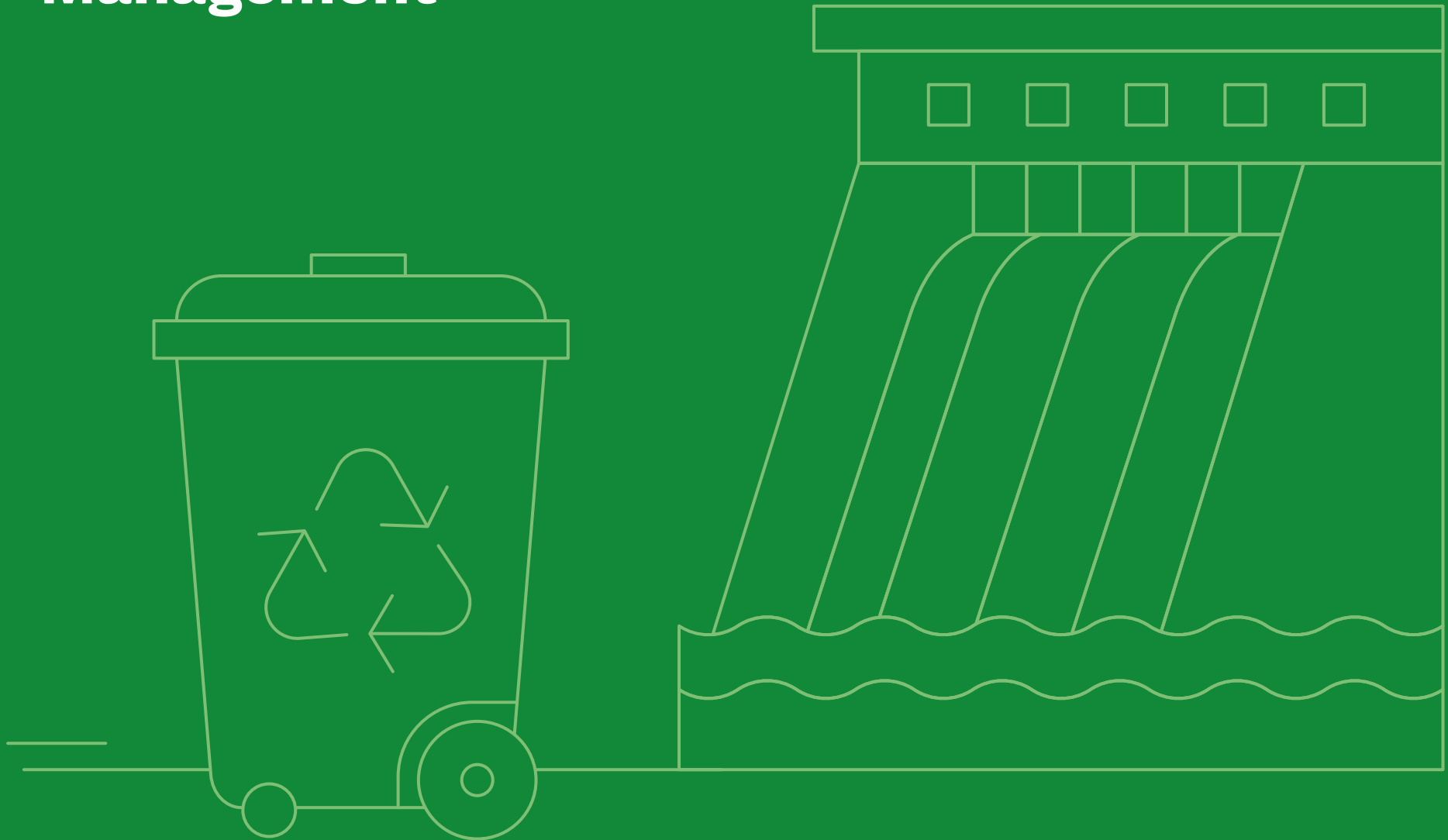
Herman Otto Institute Nonprofit Ltd. for the noise mapping and local governments for action planning.

Beneficiaries of remediation projects are governmental institutions (National Park Directorates, Water Directorates), state national asset managing companies.

Support for environmental projects, the beneficiaries are legal persons in Hungary (eg. local authorities, NGOs, governmental institutions, private companies etc.)



4. Waste & Water Management



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. State Reconstruction Fund for Water Utilities	intervention expenditure	local governments and water utility companies	1.50	1.50	3.00	1.50
2. Subvention for waste separation and reutilization as energy resource	intervention expenditure	small to medium-sized enterprises	0.16	0.14	0.30	0.34
3. Supporting the waste management tasks	intervention expenditure	inland waste collection and treatment companies	2.50	0.81	3.31	-
4. Others (monitoring, remediation, efficient water use in agriculture)	intervention and operative expenditure, other support	various (farmers, etc.)	0.20	0.21	0.41	0.96
Total:			4.36	2.66	7.02	2.80



Selective waste collection

4.1. State Reconstruction Fund for Water Utilities

Objective:

To implement the reconstructions fixed in the Rolling Development Plan⁷ and approved by the Hungarian Energy and Utilities Regulatory Authority, and to improve the technical condition of water utility systems.

Responsible body:

Ministry of Innovation and Technology

Description of financing:

With the help of the implemented projects (renewal of drinking water treatment and wastewater treatment system, or reconstruction of drinking water and wastewater pipelines), the existing systems will be integrated, efficiency will be increased, water loss will be reduced, rainwater will be treated, and wastewater and sewage sludge will be treated and utilized. The quality of surface water can be improved by developing wastewater treatment plants and replacing receiving water bodies. Currently, the proportion of households connected to the sewerage system is 82%⁸. Nearly 8% of wastewater systems are risky or largely risky, and replacing them can reduce soil and water base pollution. The proportion of households connected to the drinking water network is 95.3%⁹. The water loss of the networks is 22% (nearly 150 million m³/ year), almost 56% of the drinking water networks are largely risky, while 30% are risky, which can be reduced by replacing the leading networks.

Beneficiaries:

Local governments and water utility companies

⁷ Based on Act CCIX of 2011. There are about 40 water utility companies, that need to make Rolling Development Plan for 15 years.

⁸ Central Statistical Office, 2018.

⁹ Central Statistical Office, 2018.



Liberty Bridge from aerial view, Budapest

4.2. Subvention for waste separation and reutilization as energy resource

Objective:

Re-industrialisation and development of the Hungarian industry. The Irinyi Plan focuses on the development and marketing of high value-added products that can compete on international markets. The aim is to support the development and commercialization of technologies and devices that serve climate protection goals.

Responsible body:

Ministry for Innovation and Technology

Description of financing:

Projects will fund R&D&I, capacity and infrastructure development and market entry.

The Hungarian development projects implemented over the recent period allow for the utilisation of different types of wastes and hazardous wastes, as a result of which valuable products can be generated e.g., granulate from plastic packaging material, which may be used for 3D printing; this technology was upgraded by EBK Hungary Ltd. in 2019 and supported with HUF 146,434,616 grants under Irinyi Plan. In 2020, further projects received grants for – among others – material recovery of waste in order to generate cheap and easily processable high value recycled materials (e.g. energy sources – recovered oil waste, electronics waste) and to contribute to the reduction of industrial prices and to promote the green economic revolution. The Irinyi Plan brings together Hungary's industrial development ideas, including those related to the green economy and the transition to a circular economy. It does not in any way support the generation of waste, incineration to eliminate landfills.

Funds are designated for general enterprise development, but also include non-repayable support that finances projects implemented in all Hungarian regions.

Beneficiaries:

Small- and medium-sized enterprises interested in developing and launching new products on the world market.

The majority of applicants for the Irinyi Plan program in 2020 were in the food industry, the green economy and specialized machinery and vehicle industry.



Yellow field rapeseed in bloom, Hungary

4.3. Supporting the waste management tasks

Objective:

To support the transition into a circular economy through achieving EU waste recycling targets.

Responsible body:

Ministry of Innovation and Technology

Description of financing:

The state waste management coordination body provides financial support for the renewal and development of inland waste management infrastructure of collection, pre-treatment and recycling of packaging wastes, waste electrical and electronic equipment, certain waste batteries and tyre wastes. This happens in part of the collective fulfilment of extended producer responsibility. Supply can be applied for the investment in machinery and equipment and in construction developments.

In 2018, in line with the objectives of the circular economy, the programme had the specific aim of among others investing to the inclusion of plastic, wooden and paper packaging wastes into production technologies and to the replacement of primary with secondary raw materials produced from waste. In that year, 81 projects applied for a support of almost the double of the yearly budget. After evaluation, 44 from that were selected to support. In 2019, there were 17 applications in a support amount of almost 390% of the budget. After evaluation, 5 applications were supported.

Beneficiaries:

Inland waste collection and treatment companies, these mostly collect and recycle wastes from the whole territory of Hungary.



Young woman putting cardboard into recycling bin

4.4. Others (monitoring, remediation, efficient water use in agriculture)

Objective:

The aim of the National Environmental Remediation Program is to investigate and register the danger, pollution, damage to groundwater and the geological medium, and to reduce the risk of pollution and to help reduce or eliminate contamination.

The fundamental aim of Rural Development Program is to support measures necessary for reaching or maintaining the good state of both surface and underground waters, including water retention, sustainable management of water supply, water saving irrigation methods, climate-resilient production methods and sustainable land use.

Responsible body:

Ministry of Agriculture

Description of financing:

Projects:

- Preparation and implementation of the damage prevention and reclamation plan for the Cséry site.
- Support to a research consortium to develop an efficient remediation technology for chlorinated hydrocarbons.
- Ecological monitoring in Szigetköz. The main goal of the joint Hungarian-Slovak monitoring is to mutually record and evaluate the changes in the environmental condition of the Bős Hydropower Plant's impact area.

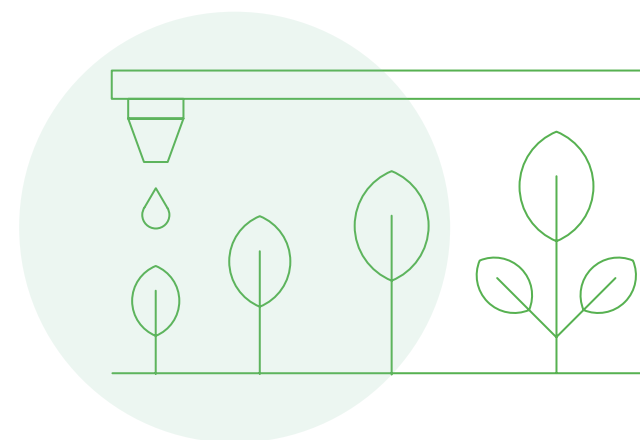
Under the framework of Rural Development Program, three areas have been identified in the field of water management:

- investments in amelioration,
- investments to improve water retention and the efficiency of water use
- to increase the surface of irrigated areas.

All operations take into account the recommendations of the National River Basin Management Plan related to the planned agricultural measures. As a result of this, the fundamental aim of these operations is to support measures necessary for reaching or maintaining the good state of both surface and underground waters, including water retention, sustainable management of water supply, water saving irrigation methods, climate-resilient production methods and sustainable land use. All three operations serve ecological objectives and, at the same time, they contribute to a more balanced agricultural production. Farmers, as water users play a key role in water management. Therefore, to promote water efficiency developments among farmers has multiplicative impact in the whole water sector. This promotion activity can only be successful if real production advantage can be measured at holding level for the involved farmers.

Beneficiaries:

Farmers



5. Clean Transportation



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. Reimbursement of the operation of the railway network	operating expenditure	MAV-START and GYSEV	89.67	94.18	183.85	102.17
2. Tax exemptions of environmentally friendly vehicles	tax expenditure	private individuals, enterprises	0.47	0.80	1.27	0.60
3. Reimbursement of uncovered costs of railway passenger traffic	intervention expenditure	passenger railway operator (MAV-START and GYSEV are the operators)	161.40	164.80	326.20	169.30
4. Modernization of rail transport	investment expenditure	NID Ltd., NISZ Ltd., GYSEV	59.70	57.04	116.74	50.03
5. Electrification of railway lines	intervention expenditure	MAV-START, NID Ltd.	12.85	7.71	20.56	3.35
6. Modernization of urban public transport	investment expenditure	municipalities, Budapest Transport Centre (BKK Ltd.) and Budapest Transport Ltd.	2.58	11.17	13.75	23.86
7. Rolling stock development	investment expenditure	MAV-START and GYSEV	0.69	4.52	5.22	23.33
Total:			327.36	340.23	667.59	372.63

Note: Values of this table have been rounded, figures shown as total may not be an arithmetic aggregation of the figures which precede them.

All fossil fuel expenditures are excluded. Specifically, under this category, Hungary confirms the exclusion of operating expenditures related to diesel fuel. All rail guided vehicles finance in this category will be electric and investments into fossil fuel carrying freight trains are not eligible.

5.1. Reimbursement of the operation of the railway network

Objective:

Reimbursement of operations of the railways network from national budget since incomes from the railway network (mainly track access fees) do not cover all operations and maintenance expenditures.

According to Hungarian Central Statistical Office, Hungarian rail traffic reached 52.27 million tons (10.625 billion tonne-kilometres) and 146.9 million passengers (7.752 billion passenger-kilometres) were carried by rail in 2019. According to 2017 Eurostat data 30.7% share of railway freight from total Hungarian freight transport was 5th highest, while 8.6% share of railway from Hungarian total passenger transport was 7th highest in the EU-28.¹⁰

Responsible body:

Ministry of Innovation and Technology

Description of financing:

This line includes among others the following type of expenditures:

- Buying rails, sleepers, crushed stone for ballast bed, copper wires for maintenance and renewal of given sections, where transport speed should be lowered without intervention.
- Buying electricity for operation of safety and communication devices and lightning of railway buildings, areas.
- Procurement of special services, which needs to seamless operation of the network.
- Salaries to nearly 20,000 employees, among them track inspectors, pointsmen, station masters, maintainers of railway infrastructure companies.

The required sum from Green Bond to cover reimbursement of the operation of the railway network does not contain cost-elements, which

may be related to fossil fuels like buying diesel oil for maintenance machines and units.

Reimbursement is based on the railway network operation contracts 2016-2025 between Hungarian State and MAV Ltd. (operates 95% of the network) and Hungarian State and GYSEV Ltd. (operates 5% of the network). MAV Ltd. and GYSEV Ltd. get monthly tranches in advance after state secretary responsible for transport certifies the fulfilment of previous month commitments. Green bond financing is allocated to these railway companies both for maintenance and operational expenditures.

Beneficiaries:

Public service operators, 100% state-owned: MAV Ltd.¹¹ (operates 95% of the network) and GYSEV Ltd.¹² (operates 5% of the network).

¹⁰ Calculated on <https://ec.europa.eu/transport/sites/transport/files/pb2019-section22.xls> (Freight transport), <https://ec.europa.eu/transport/sites/transport/files/pb2019-section23.xls> (Passenger transport).

¹¹ <https://www.mavcsoport.hu/en>

¹² <https://www2.gysev.hu/>

5.2. Tax exemptions of environmentally friendly vehicles

Objective:

To promote the purchase of environmentally friendly vehicles, thereby contributing to efforts aimed at reducing GHG emissions.

Responsible body:

Ministry of Finance

Description of financing:

Due to the environmental considerations of the Jedlik Ányos Plan, the concept of “environmentally friendly” vehicles has been introduced as a new legal definition in the vehicle tax system, these cars will be entitled to a green plate from 30 September 2015. Accordingly, based on Decree No. 6/1990 (IV. 12.) KöHÉM “Regulation on the technical conditions of public vehicles entered into and kept in service”, the following types are regarded as such vehicles:

- electric cars: purely electric car “5E”, extended-range externally chargeable hybrid electric cars “5N”, externally chargeable hybrid electric cars or plug-in hybrid cars “5P”), and
- zero emission cars “5Z”, which do not emit pollutants listed in the regulation.

The so-called environmentally friendly vehicles shall be exempt from motor vehicles tax and motor vehicle duty. In addition, since 1st January 2016, their registration tax rate is zero forint.

Beneficiaries:

Private individuals or enterprise, who own or operate an environmentally friendly vehicle (PHEV, BEV or ZEV) – 24.487 in total on 31 October 2020, a 100-fold increase since the introduction of the programme.



Close-up of electric car, Budapest

5.3. Reimbursement of uncovered costs of railway passenger traffic

Objective:

Financing of the costs of the electric traction part of public transport services.

To remain competitive with less green modes of transport (especially cars) the railway traffic should be frequent and operating with wide operating time. The integrated scheme timetable helps keeping the frequent timetables easy to follow, and giving every connection in the main railway hubs, mainly at bigger cities.

The programme indirectly affects most of the population by keeping the public services competitive, thus reducing traffic queues and emission of pollutants. Directly it affects the majority of the total annual number of the 150 million passengers of the two companies (in which many people counted multiple times), because the majority of them uses the carbon neutral part of the solutions, but it is impossible to measure the exact percentage of that.

Responsible body:

Ministry of Innovation and Technology, as national authority, is responsible for the ordering of any public transport service at national level.

Description of financing:

This category finances intervention expenditures for the reimbursement of uncovered costs of railway passenger traffic based on EU directive (reimbursements, which are uncovered by the income through the public transport services).

The acceptance of the justified costs uncovered by incomes is made according to the 1370/2007 EC regulation¹³. Justified cost is the sum of costs and expenses cropped up consecutively and non-consecutively, required for complying public services on the quantitative and qualitative levels, and also taken into account its efficiency requirements.

Types of costs:

- Personal costs
- Costs connected to vehicles (cleaning, guarding)
- Costs of using the infrastructure
- Maintenance costs
- Costs of tools for vehicles, ticket checks, examining vehicles, maintenance and cleaning
- Further operating costs (connected to provide activity)
- General company costs

The justified costs cropped up connected to the activity and uncovered by incomes are reimbursed 100% by the State.

Beneficiaries:

Public service operators, 100% state-owned: MAV-START and GYSEV.

¹³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32007R1370>

5.4. Modernization of rail transport

Objective:

To modernize rail network and improve quality of services.

The financed projects will also:

- Reduce travel time on the TEN-T network.
- Maintaining urban-suburban community transport performance, with regard to the extremely high percentage of community transport in Hungary by EU standards.
- Decreasing particulate matter (PM10) and nitrogen-oxides emissions of urban community transport.

Responsible body:

The Deputy State Secretariat for Transport Operational Programmes within Ministry of Innovation and Technology

Description of financing:

The operational programme finances the following environmental friendly activities related to “Modernization of Railway transport” measure:

Priority Axis 2.: Improvement of international (TEN-T) railway

- Eliminating the bottlenecks of railway lines and preventing their recurrence;
- Infrastructure upgrading with technical parameters corresponding to their functions specified in the transport strategy includes the related GSM-R and ETCS;
- Transport safety developments;
- Procurement of (suitable also for bicycle transport) suburban passenger multiple unit trains.

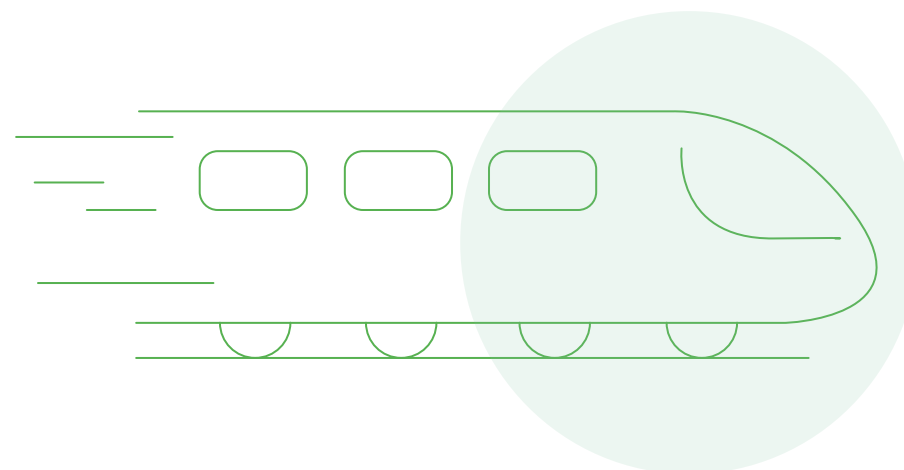
Priority Axes 3.1 (Central Hungarian Region) and 3.2 (other regions): Development of sustainable urban transport, improvement of suburban railway accessibility

- Elimination of bottlenecks primarily through the termination of slow signals and the electrification of lines (non-TEN-T network).

The Connecting Europe Facility (CEF) for Transport is the funding instrument to implement the European transport infrastructure policy. It aims at supporting investments in building new transport infrastructure in Europe or rehabilitating and upgrading the existing one. CEF Transport focuses on cross-border projects and projects aiming at removing bottlenecks or bridging missing links in various sections of the Core Network and on the Comprehensive Network, as well as for horizontal priorities such as traffic management systems. CEF Transport also supports innovation in the transport system in order to improve the use of infrastructure, reduce the environmental impact of transport, enhance energy efficiency and increase safety. In the OP, the co-financing rate is 85%, 15% and VAT has to be financed from national sources. (Funding gap is 100% in the concerned projects).

Beneficiaries:

National Infrastructure Development Ltd. (NID Ltd., designated developer by legislation), National Info-communication Service Company (NISZ Ltd.) and Győr–Sopron–Ebenfurti Vasút Ltd. (GYSEV)



HUF bn

Expenditure	Operational Programme	Green Expenditures		Total
		2018	2019	
Upgrade of the Százhalombatta–Pusztaszabolcs railway section, including installation of ETCS Level 2	CEF Transport	4.63	11.87	16.50
Bridge reconstruction programme Phase I	Integrated Transport Operational Programme, national co-financing	0.62	0.01	0.63
Construction of Budapest–Lőkösháza Section III/1; construction of Békéscsaba railway station tracks and construction of safety system between Gyoma and Békéscsaba, deploying Ferencváros junction „C”–Lőkösháza ETCS2	Integrated Transport Operational Programme, national co-financing	0.43	-	0.43
ETCS 2 installation construction of junction „C” Budapest–Ferencváros–Székesfehérvár railway line	Integrated Transport Operational Programme, national co-financing	0.00	0.37	0.37
ETCS 2 installation construction of railway line Bajánsenye–Boba	Integrated Transport Operational Programme, national co-financing	-	0.37	0.37
Modernisation of Gödöllő station	Integrated Transport Operational Programme, national co-financing	1.61	0.97	2.57
Modernisation of railway section Püspökladány–Debrecen, partial rebuilding of Debrecen station and installation of ETCS2 on railway line Szajol–Debrecen	Integrated Transport Operational Programme, national co-financing	15.66	9.26	24.92
Modernisation of the Budapest–Hatvan railway line	Integrated Transport Operational Programme, national co-financing	1.41	0.72	2.13
Purchase of GSM-R system and related services (Stage I.)	Integrated Transport Operational Programme, national co-financing	1.17	0.61	1.78
Purchase of GSM-R system and related services (Stage II.)	Integrated Transport Operational Programme, national co-financing	0.88	0.48	1.36

HUF bn

Expenditure	Operational Programme	Green Expenditures		Total
		2018	2019	
Purchase of GSM-R system and related services (Stage II.)	Integrated Transport Operational Programme, national co-financing	0.12	0.60	0.72
Purchase of GSM-R system and related services (Stage II.)	Integrated Transport Operational Programme, national co-financing	0.09	0.48	0.57
Reconstruction of railway line Budapest Kelenföld–Székesfehérvár Phase 1/3: Upgrading Székesfehérvár railway station	Integrated Transport Operational Programme, national co-financing	0.97	0.09	1.06
Reconstruction of the South-Balaton railway line Stage I Section 2, Szántód-Köröshegy–Balatonszentgyörgy	Integrated Transport Operational Programme, national co-financing	7.14	-	7.14
Stage 2 of deployment of the GSM-R system on the TEN-T Railway Core Network in Hungary	CEF Transport	1.35	0.20	1.55
Supplementary development of Budapest–Esztergom railway line	Integrated Transport Operational Programme, national co-financing	0.42	-	0.42
Traffic safety programme of MAV Ltd., Stage II/A	Integrated Transport Operational Programme, national co-financing	0.14	-	0.14
Upgrade of the Budapest, Rákos–Hatvan railway section, including installation of ETCS Level 2	CEF Transport	9.23	13.50	22.73
Upgrading railway line Kaposvár–Fonyód	Integrated Transport Operational Programme, national co-financing	0.68	0.38	1.06
Upgrading railway line Szombathely–Kőszeg	Integrated Transport Operational Programme, national co-financing	0.01	0.01	0.01
Upgrading the Kelenföld–Pusztaszabolcs railway line, Stage I (Upgrading the Kelenföld–Százhalombatta section and installation of ETCS level 2)	CEF Transport	13.14	17.13	30.27
Total:		59.70	57.05	116.73

5.5. Electrification of railway lines

Objective:

To reduce energy consumption of modern vehicles by increasing the competitiveness of public transport, and changing traction to a more environmentally friendly mode.

Responsible body:

Ministry of Innovation and Technology

Description of financing:

The Integrated Transport Operational Programmes (IKOP) finances the following environmental friendly activities related to “Modernization of Railway transport” measure:

- **Priority Axis 2.: Improvement of international (TEN-T) railway**
 - Improvement of the electric power supply of railway lines:

The programme will be applied nationwide on different lines, both on mainlines and on branch lines as well.

Beneficiaries:

MAV-START and National Infrastructure Development Ltd. (designated developer by legislation)

5.6. Modernization of urban public transport

Objective:

Development of sustainable urban transport, improvement of suburban railway accessibility.

Responsible body:

Ministry of Innovation and Technology, Deputy State Secretariat for Transport Operational Programmes

Description of financing:

Projects under category ‘Modernization of urban public transport’ financed from Integrated Transport Operational Programmes (IKOP). Priority Axes 3.1 (Central Hungarian Region) and 3.2 (other regions). Environmental friendly activities related to this measure: procurement of urban/local buses and trolley buses, which reduce the specific emission of local pollutants (in particular, particulate matter and nitrogen oxides) compared with the community transport vehicles to be replaced.

Through the measure, inter alia, purchase of 48 trams, 22 trolley buses, 67 buses and 20 km urban tram and metro development can be completed.

Beneficiaries:

Municipalities, Budapest Transport Centre Ltd. (BKK Ltd.), Budapest Transport Ltd.

HUF bn

Beneficiaries	Development	Green Expenditures		Total
		2018	2019	
Municipality of Pécs	10 pcs electric buses and construction of filling station	-	0.18	0.18
Municipality of Nyíregyháza	41 pcs CNG and 6 pcs electric and construction of filling station	0.12	-	0.12
Budapest Transport Centre Ltd. (BKK Ltd.)	47 trams and 36 trolleybuses	0.96	1.38	2.34
Budapest Transport Centre Ltd. (BKK Ltd.)	renewal of tram line No. 1	0.61	0.40	1.01
Budapest Transport Ltd.	upgrading metro line M3	0.89	9.21	10.10
Total:		2.58	11.17	13.75



Red train moving on railway in rapeseed field

5.7. Rolling stock development

Objective:

To improve and to innovate the service level of public transport.

Responsible body:

The responsible body depends on the financing construction of each procurement. The public service operators usually take major part on their procurements, besides mostly the Ministry of Innovation and Technology is relevant through the financing authority of PSO, which highly depends on the type and attributes of certain vehicles. Ministry of Innovation and Technology.

Description of financing:

Environmental friendly activities related to “Modernization of Railway transport” measure:

- **Priority Axis 2.: Improvement of international (TEN-T) railway**
 - Procurement of (suitable also for bicycle transport) suburban passenger multiple unit trains.

Within this programme, rolling stock with higher comfort and technical level is procured in the public transport.

Type of vehicle	Year	Beneficiary	Main goal
10 pieces of EMU	2018	GYSEV	Elevate comfort level on regional mainlines at Western Hungary
19 pieces of double decker EMU	2018–2020 (under process)	MAV-START	Elevate comfort level and save energy on suburban trains near Budapest
20 pieces of InterCity carriages	2018–2019	MAV-START	Elevate comfort level on high distance and international trains

The programme will be applied nationwide on different lines, both on mainlines and on branch lines as well. The main climate protection reasons in this programme are the less energy consumption of the more modern vehicles, the reduction of emissions by elevating the competitiveness of public transport, and – at the bimodal trainsets which are capable to operate both from overhead catenary and own battery power supplies on non-electrified railway lines – the change of traction to a more environmentally friendly mode.

Through the measure, inter alia, 149,6 km railway development can be completed, as well as the purchase of 19 electric trains, 8 tram-train vehicles, and 4 bimodal EMUs.

Beneficiaries:

Mostly MAV-START, the larger operator of the country, since GYSEV has already a complete modern rolling stock at its disposal.



Trains of Hungarian railroads

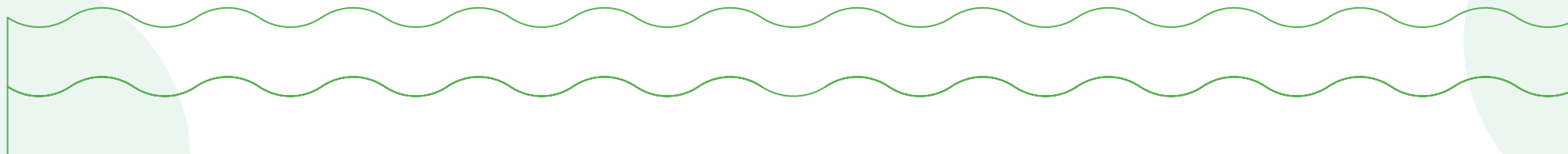
6. Adaptation



HUF bn

Main Programmes/Schemes	Expenditure type	Beneficiaries	Green Expenditures		Total	2020 Planned
			2018	2019		
1. Development of the monitoring stations for the implementation of the Water Framework Directive	investment expenditure	General Directorate of Water Management	0.02	0.39	0.41	0.77
2. Water level rehabilitation of the Mosoni-Danube	investment expenditure	General Directorate of Water Management	-	5.38	5.38	11.51
3. Reduction of PM10/National Air Pollution Control Program (NAPCP)	intervention expenditure	various (Hungarian Meteorological Service, Herman Ottó Institute, etc.)	0.04	0.10	0.13	0.07
4. Hungarian Meteorological Service	intervention expenditure	Hungarian Meteorological Service	0.61	1.73	2.34	0.59
Total:			0.67	7.60	8.27	12.94

Note: Values of this table have been rounded, figures shown as total may not be an arithmetic aggregation of the figures which precede them.



6.1. Development of the monitoring stations for the implementation of the Water Framework Directive

Objective:

To create a data and knowledge base for adaptation to climate change and the prevention of natural disasters. All residents (9.8 million) and businesses (about 1.9 million) in the country are affected by water monitoring. The state should ensure the water and environmental safety, drinking water supply, sanitation, food of so many inhabitants and at the same time, the state should have relevant information about so many water users.

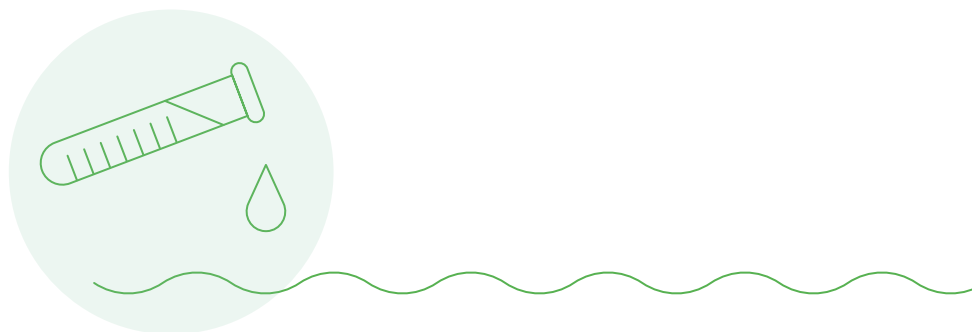
Responsible body:

Ministry of Interior holds this program

Description of financing:

The project includes the following elements, which covers the whole territory of Hungary:

- Review and coordination of the national quantitative monitoring station network
- Design and development of monitoring software elements and regional subsystems
- Renovation and modernization of hydrographic monitoring stations
- Upgrading and replacement of mobile measuring devices
- Development and procurement of measuring vessels suitable for measurements from water
- High-precision measurement of the altitude position of monitoring stations
- Extension of the accreditation of water quality sampling groups of the Directorates for the examination of groundwater and development of the equipment required for water quality monitoring in line with the

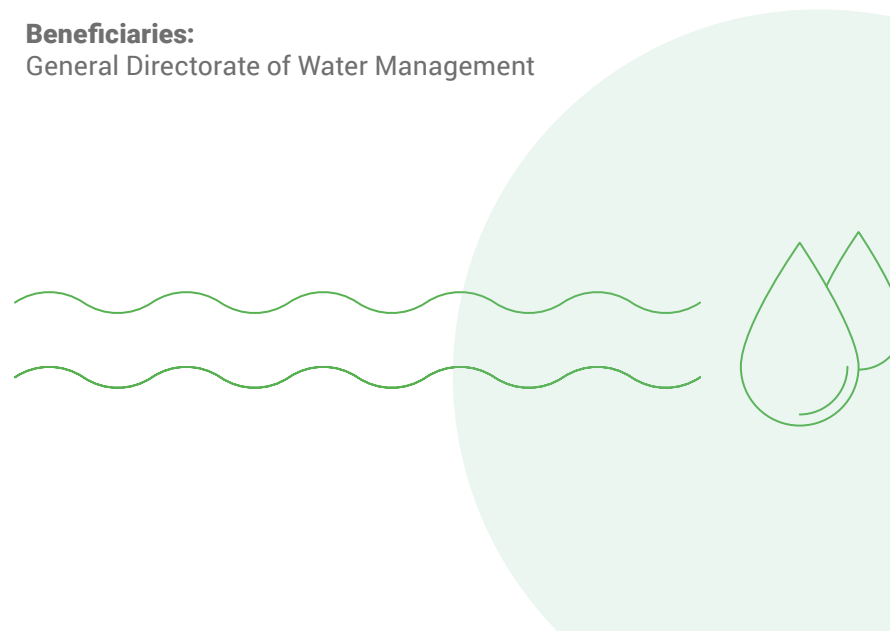


implementation of the Balaton Regional Development Concept and the Balaton Regional Development Strategic Program

- Development of groundwater chemical monitoring: renovation of wells, drilling of new wells
- Research – method development – data collection program in the group of biological and chemical quality elements of the WFD, for the development of evaluation and data systems, for the filling of professional gaps and for the performance of the tasks of the biological intercalibration procedure
- Development of hydromorphological monitoring
- Modernization of Upper Tisza accident emergency water quality monitoring stations on the border sections.

Beneficiaries:

General Directorate of Water Management



6.2. Water level rehabilitation of the Mosoni-Danube

Objective:

To mitigate the effects of the diversion of the Danube main branch, to retain water in the Szigetköz area and to restore the natural ecosystem of the Mosoni-Danube tributary. In addition to the benefits achieved in the natural environment, the project also contributes to flood risk reduction and economic development of the region by creating recreational and navigational opportunities.

Responsible body:

Ministry of Interior

Description of financing:

The project influences 8350 hectares in Szigetköz area water balances in Győr-Moson-Sopron County thereby contributing to the mitigation of the effects of climate change. A weir/floodgate at the mouth of the Mosoni-Danube will regulate the water level of the branches. Weir is equipped with movable closure mechanisms and that is used to raise the water level in mid and low water situation while floodgate function is used to protect 660 hectares from inundation. Groundwater level will rise to 8350 hectares, supporting 2258 hectares Natura 2000 sites in increasing vegetation mass, which together will also affect the microclimate by increasing evapotranspiration, leading to lower ambient temperatures. In the case of agricultural crops and forests, as groundwater levels change, soil moisture is also a particularly important site condition, which also affects yields. It is expected that the average yield on 3071 hectares will increase by 10% just because the groundwater level is being rehabilitated.

Beneficiaries:

General Directorate of Water Management

6.3. Reduction of PM10/National Air Pollution Control Program (NAPCP)

Objective:

To meet long-term air quality targets, accordingly to the EU Directive 2016/2284¹⁴ (NEC) on the reduction of emissions of certain atmospheric pollutants, entered into force at the end of 2016. The Directive sets a quantified national emission reduction obligation for certain pollutants for 2020 and 2030 compared to 2005 emissions, specifies which emission sources should not be taken into account, and requires Member States to adopt national action plans, i.e. air pollution-development, implementation and regular updating of reduction programs.

Responsible body:

Ministry of Agriculture

Description of financing:

Above mentioned directive requires Member States to draw up and regularly update national emission inventories and projections and obliges Member States to monitor, as far as possible, the adverse effects of air pollution on the ecosystem and health. Beneficiaries are responsible for contributing to the fulfilment of the obligations of the directive: implementation of air pollution reduction measures, preparation of emission inventories, preparation of emission forecast, establishment and operation of an ecosystem monitoring network, related data provision to the EU.

Beneficiaries:

Hungarian Meteorological Service, Herman Ottó Institute, Eötvös Loránd Research, Network Ecological Research Center, Institute of Soil Science and Agrochemistry, National Agricultural Research and Innovation Center, Forest Research Institute, National Land Centre

¹⁴ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.344.01.0001.01.ENG

6.4. Hungarian Meteorological Service

Objective:

To support the Hungarian Meteorological Service (HMS) activities including collecting, processing, and providing meteorological data and information.

Responsible body:

Ministry of Agriculture

Description of financing:

The task and competence of the HMS is defined in a government decree. The budget line is used to finance only the public tasks defined in the decree. These tasks of HMS:

Next to running nationwide monitoring network, HMS provides radiosonde upper air measurements, operates meteorological radar system as well as lightning localization system, and guarantees the continuous collection, verification and assimilation of the above information, as well as the maintenance of the meteorological data base.

The institute analyses and calculates weather development by using its own numerical model runs as well as up to date forecast products issued from international weather forecast centres. In order to fulfil its above listed duties on a high standard, HMS is engaged in research and development projects. Therefore it is capable for carrying out such safeguarding activities as the catastrophe warning system, the storm warning system at Lake Balaton and Lake Velence, and the prediction of chemical as well as nuclear pollution dispersion.

Beneficiaries:

The Hungarian Meteorological Service responsible for the performance of governmental tasks related to meteorology and carrying out activities covering the entire territory of Hungary.



Storm at Lake Balaton

List of abbreviations

AECM	Agri-environmental climate measure's
BKK Ltd.	Budapest Transport Centre Ltd.
CEF	Connecting Europe Facility
EMU	Electric Multiple Unit
ETCS	European Train Control System
GSM-R	Global System for Mobile Communications – Rail(way)
GYSEV Ltd.	Győr–Sopron–Ebenfurti Railway Ltd.
HMS	Hungarian Meteorological Service
IKOP	Integrated Transport Operational Programmes
MAV Ltd.	Hungarian State Railways Private Company Ltd.
NAPCP	National Air Pollution Control Program
NID Ltd.	National Infrastructure Development Ltd.
NISZ Ltd.	National Info-communication Service Company Ltd.
PM	particulate matter
PSO	Public Service Operator
TEN-T	Trans-European Transport Network
WFD	Water Framework Directive



Ádám Grünfeld: Óvjuk (Protect it)

<https://termeszetem.hu/hu/hirek/galleries/a-termesz-et-ajandekai-rajzpalyazat-nyertesei>

Case study



An aerial photograph of a residential neighborhood, showing a dense arrangement of houses with various roof shapes and colors. The image is overlaid with a semi-transparent teal color. In the upper left corner, the text "1. Warm Home Programme" is written in white, bold, sans-serif font.

1. Warm Home Programme

Case study 1: Warm House programme (Energy Efficiency)

Challenges faced

Due to the growing risk of climate change, one of the most basic forms of environmental intervention is to reduce greenhouse gas emissions from fossil fuels.

The main goal of the fight against climate change and global warming is to reduce CO2 emissions, through measures that contribute to promote energy efficiency solutions. In this context the Warm Home Programme has played a significant role, providing a high level of assistance to the population for the implementation of investments in energy modernisation of buildings in order to increase energy efficiency and to reduce greenhouse gas emissions, with State support.

The popularity of the programmes is confirmed by the fact that the funds provided separately to regions were exhausted soon after the call, and in many cases, the submitted applications largely exceeded the available allocation, therefore it became necessary to increase the budget.

Solution provided

The grant scheme designed to replace large household appliances, suspended in August 2017, was re-launched by the Ministry of Innovation and Technology as the legal successor of the Ministry of National Development, on 17 October 2018.

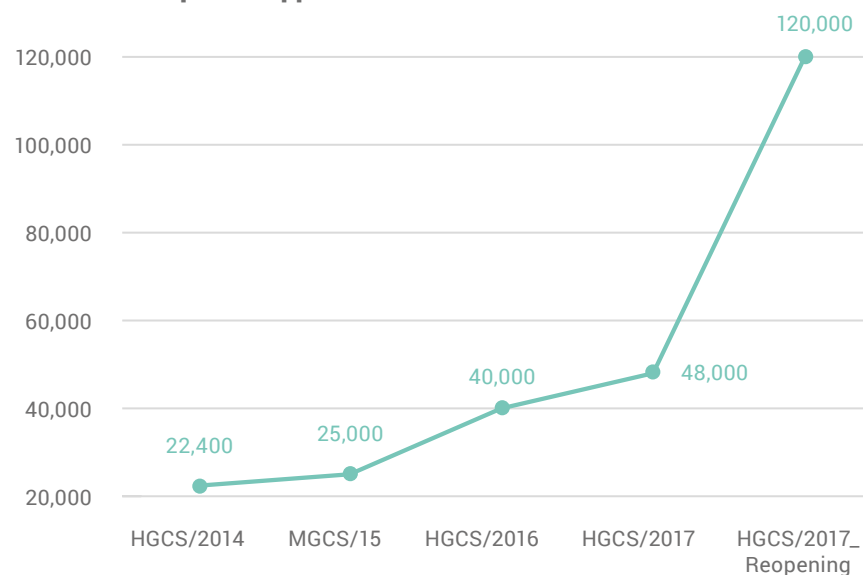
Within the framework of the grant scheme, adult natural persons could submit application to support the replacement of existing obsolete household appliances (refrigerators or freezers or washing machines and washers-dryers) with new energy-efficient appliances in order to increase the energy efficiency of Hungarian households. The main purpose of the grant was to improve energy efficiency. The Beneficiaries of the application were entitled to purchase a new household appliance at the purchase price reduced by non-refundable subsidy (subsidised store price).

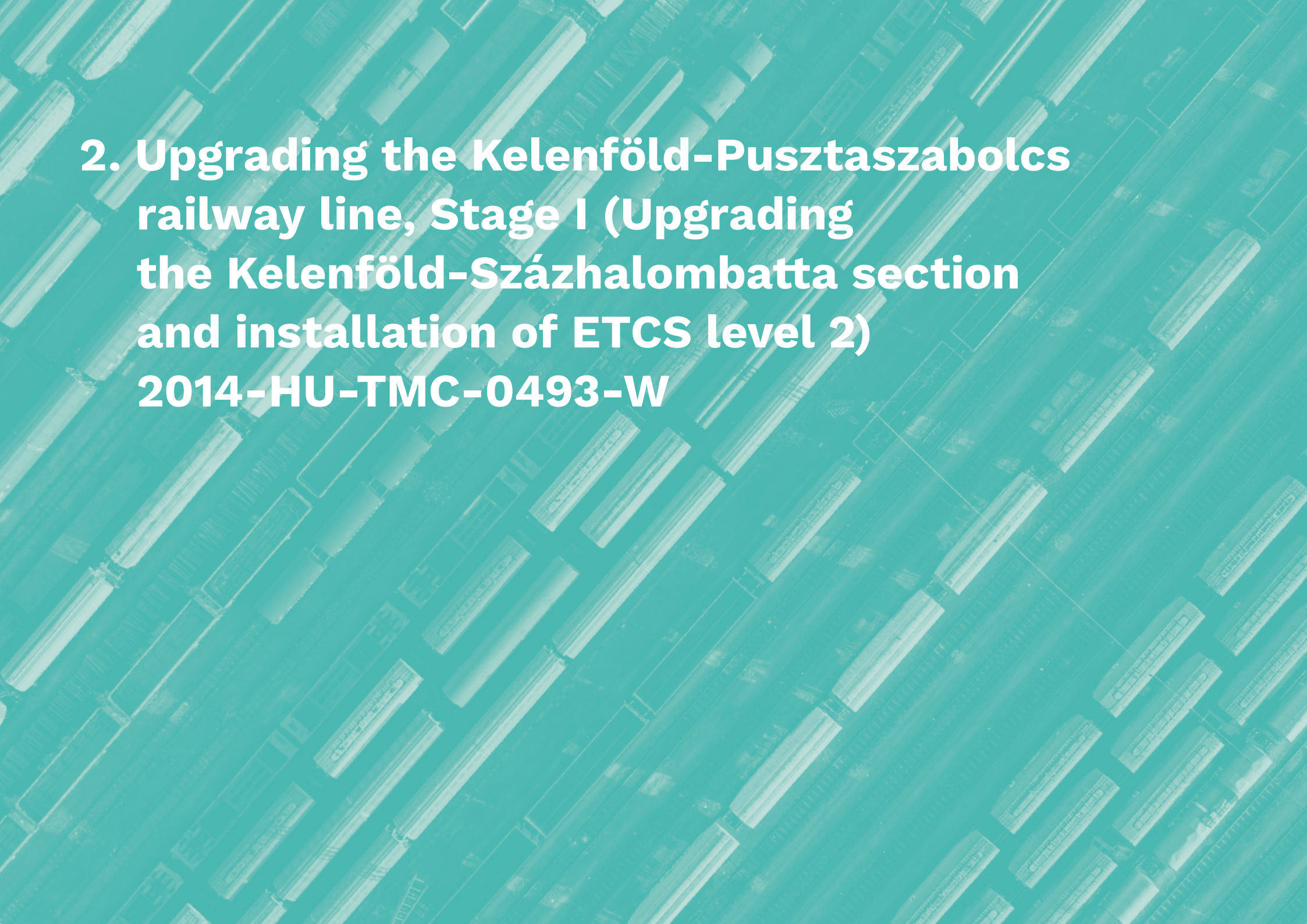
The financial resources have been provided through the budget appropriation 'Building Energy Grant Programme' (ÁHT: 368562) from year 2018 in the form of a non-refundable grant, at an amount of HUF 388,885,000.

Mains results

As a result of the investments financed by the grant schemes from budget appropriation 'Building Energy Grant Programme', 9,099 devices were replaced at a grant value of HUF 375,538,440, which significantly contributed to upgrading household machinery, as well as to reducing CO2 emissions with a saving result of 1,543,391 CO2 kg / year.

Number of replaced appliances



An aerial photograph of a large railway yard, showing numerous train cars and tracks arranged in a grid-like pattern. The image is overlaid with a semi-transparent teal color.

2. Upgrading the Kelenföld-Pusztaszabolcs railway line, Stage I (Upgrading the Kelenföld-Százhalombatta section and installation of ETCS level 2)

2014-HU-TMC-0493-W

Case study 2: Upgrading the Kelenföld-Pusztaszabolcs railway line (clean transportation)

Challenges faced

In the Kelenföld-Százhalombatta region, the changing demographic situation needs be addressed. The area bounded by Bicske – Martonvásár – Százhalombatta have become a popular area for companies and population moving out of the capital city.

With more than 60,000 inhabitants the city of Érd is one of the cities the most impacted by the project. The railway lines 30a. and 40a. pass across the town centre, where there are railway station and stops as well. Line 40a mainly runs through contiguous residential areas.

The region, and especially district XI, plays a key role in the capital city's life. Kelenföld station is a significant rail junction, with the fourth largest traffic in Budapest. The substantial part of rail transport to the Transdanubia pass across the station.

In addition to the line 40, several dispatch locations have become valuable at national level because of growing demand for freight transport. Measure and growth of the freight transport on the relevant line are ensured with regard to the Danube Refinery and the continuous expansion of the industrial park at Százhalombatta.

Solution provided

The project consists in the modernisation of the 20.5 km railway section Kelenföld-Százhalombatta, which is part of the TEN-T Mediterranean Corridor and the line no.40 of the Hungarian railway network. It is considered as a project of common interest since it fulfils the criteria of the TEN-T and the CEF regulation, the project aims at improving:

- Cohesion: reduction of infrastructure quality gaps between Member States, interconnection between transport infrastructure for both passenger and freight traffic, etc.
- Efficiency: removal of bottlenecks, interoperability, promotion of economically efficient transport)
- Sustainability: promotion of low-carbon and clean transport, fuel security, etc.

From an environmental point of view, the following objectives have been set:

- make rail freight transportation more attractive than road freight transportation
- make public transport more attractive in suburban transport
- reduce noise pollution related to rail transport especially in populated areas.

The project includes the following components:

Civil works (including track works and stations)

- Rehabilitation of about 20.5 km double track railways (49 km of tracks)
- Rehabilitation of 27 small bridges/culverts
- Rehabilitation of 2 existing passenger underpasses in stations
- Construction of 5 new passenger underpasses
- Installation of lifts and ramps in 3 stations and 1 stop
- Rehabilitation of 6 grade separated road crossings
- Rehabilitation of 6 level crossings
- Demolishment of 1 level crossing
- Rehabilitation of 3 stations and 5 stops
- Rehabilitation of 15 platforms
- Construction of higher platforms (55 cm) at three stations and five stops.
- Reconstruction of railway station buildings in Nagytétény-Diósd and Érd and Háros
- Dismantlement and reconstruction of Budafok old station building.
- New elevators and ramps at 3 stations
- Installation of passenger information systems and new lighting facilities at stations
- Construction of P+R facilities (around 182 parking places in Budafok, Háros, Nagytétény-Diósd Érd felső and Érd station) and B+R facilities (around 100 places in Háros: 22 and Érd)

Electrification

- Rehabilitation of overhead contact line (56 km of wires)
- Rehabilitation of 1 traction substation

Signalling

- Rehabilitation of 3 station interlockings
- Construction of a new Centralised Traffic Control (CTC)
- Installation of ETCS level 2 and modernisation of the existing EVM signalling system

Environment

- Installation of 14 km of noise barriers.
- Passive noise protection (replacement of windows).
- Use of platform elements with noise protection panel.
- Active noise reduction elements: application of flexible rail washers, base slippers and rail noise reduction systems mounted on the rail ridge.

Main results:

The modernization of the railway, which is to be completed by end 2022 will make rail freight transport more competitive by increasing axle load and reducing travel time and will reducing of noise on the surrounded areas.

Project cost:

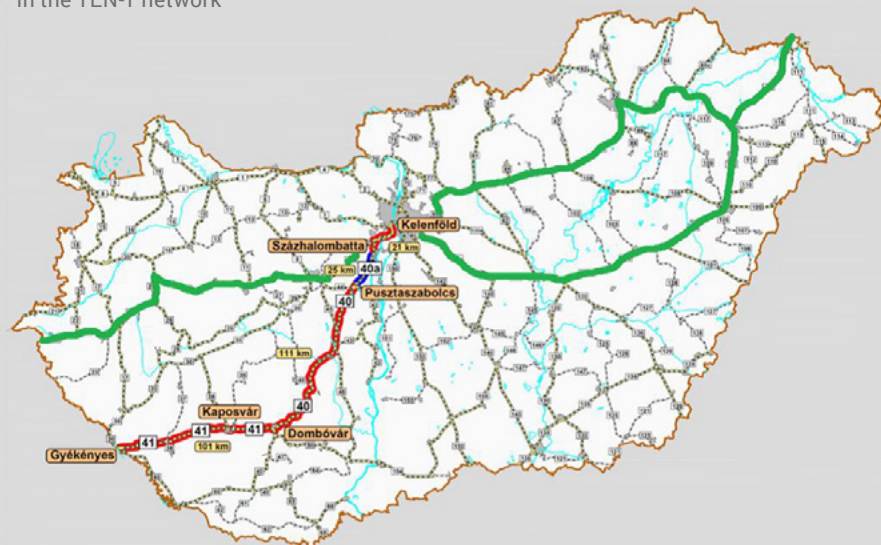
Project investment cost (net)	2015	2016	2017	2018	2019	2020	2021	2022
HUF	100,744	162,799,298	20,944,968,443	50,627,582,689	63,341,959,691	73,333,681,850	73,633,681,850	74,524,529,432
EUR	323	521,793	67,131,309	162,267,893	203,019,102	235,043,852	236,005,391	238,860,671

According to the Grant Agreement in force, includes, among other:

- the rehabilitation of track railways, bridges, platforms, overhead trackline, P+R and B+R facilities
- the construction of a new Centralised Traffic Control (CTC), passenger underpasses, higher platforms
- the installation of new lighting facilities and 14 km of noise barriers

All in all, the project highly contributes to making both the more competitive rail public and rail freight transport more competitive by increasing axle load and reducing travel time, as well as significantly reducing noise pollution.

Location of the railway line covered by this project
in the TEN-T network





3. Strategic Assessments supporting the long term conservation of natural values and the implementation of the EU Biodiversity Strategy

Case study 3: Strategic Assessments supporting the long term conservation of natural values and the implementation of the EU Biodiversity Strategy (KEHOP-4.3.0-VEKOP-15-2016-00001)

Challenges faced

The project entails the development of means (i.e. maps, databases, methodologies etc.) to respond to the below **challenges and needs faced by environmental policy and governance**:

- gaps of knowledge and reduced quality of data necessary to ensure the long term protection of certain species and habitats of community interest;
- the globally recognised negative trend in the ability of natural ecosystems to ensure the continued provision of key ecosystem services necessary for maintaining and improving human wellbeing;
- the lack of scientifically sound methodologies to capture the quality, status and value of ecosystems and ecosystem services at a national scale;
- the lack of policy means and methodologies to ensure the integration of the status and evaluation of ecosystem services in local and national level decision making;
- the lack of policy means and methodologies to capture the benefits of green infrastructure outside the existing systems of protected areas, and to ensure a coordinated development of green infrastructure at a national scale;
- the lack of methodologies and data to ensure a better integration of the protection of landscape values and characteristics throughout spatial development processes.

Solution provided

The project aims to ensure the implementation of commitments defined within the national and EU Biodiversity Strategy to 2020 as well as those laid down in the European Landscape Convention. It includes four main sub-projects as presented below, implemented in parallel while seeking to explore possibilities for synergies wherever relevant.

- The NATURA sub-project supports the assessment of the conservation status of species and habitats of community interest;
- The ECOSYSTEM SERVICES sub-project focuses on the mapping and assessment of ecosystems and their services;
- The LANDSCAPE CHARACTER sub-project provides a methodological and policy background for integrating the protection of landscapes into spatial planning;
- The GREEN INFRASTRUCTURE sub-project ensures the delimitation of green infrastructure at the national scale and defines future directions of development.

The project operates with an overall budget of HUF 1.07 billion, its technical implementation is to be concluded by June 2021 and is implemented in the framework of the Environment and Energy Efficiency Operational Programme (EEEOP) and the Competitive Central Hungary Operational Programme (CCHOP), with the financial support of the European Regional Development Fund (ERDF) and 15% co-financing provided by the state budget of Hungary.

The partnership implementing the project includes the Ministry of Agriculture (main beneficiary), the Hortobágy and Kiskunság National Park Directorates, the Centre for Ecological Research, the Lechner Nonprofit Ltd., the Institute for Soil Sciences and Agricultural Chemistry, as well as the National Agricultural Research and Innovation Centre, Research Institute of Agricultural Economics.

Main results:

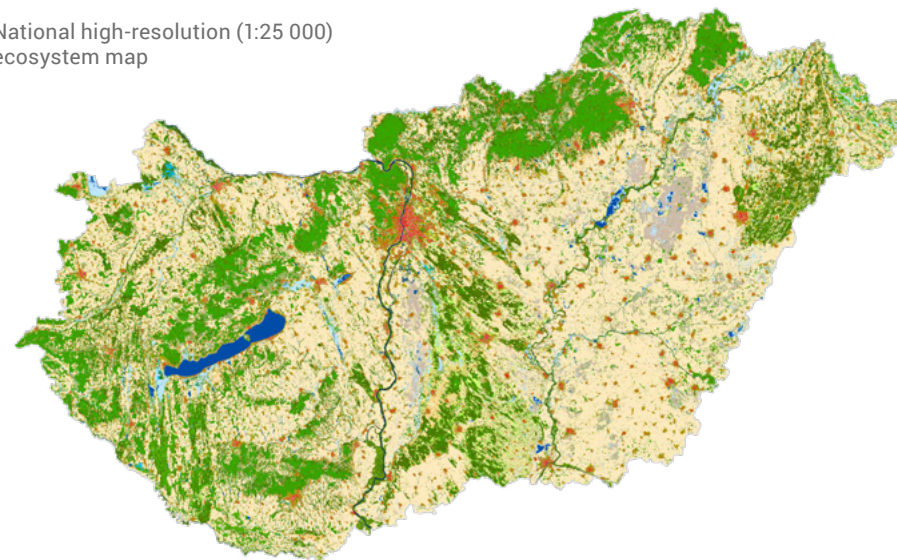
Project indicators	unit	baseline		target	
		value	year	value	year
The percentage of species of community interest characterised by an improving data quality	%	0	2013	10	2020
The size of the area concerned by the preparation of habitat maps	ha	133,500	2013	158,500	2020
Species and habitats of community interest for the assessment of which an improved or newly defined methodology is available	nr	0	2013	30	2020
The number of priority ecosystem services identified and mapped	nr	0	2013	10	2020

Beyond the above indicators key outcomes of the project include the following: range, distribution and ecology defined for 25 data deficient species of community interest; refined methodology for assessing the conservation status of 45 habitat types; updated conflict map of powerlines threatening birds; updated/newly prepared species' management plans for 16 species of community interest; Natura 2000 Prioritised Action Framework for 2021-2027; high resolution national map of ecosystems; national map of ecosystem status and 13 priority ecosystem

services; methodology for the classification of Hungarian landscapes based on landscape character; guidelines for the classification of landscape character types; a delimitation and description of national landscape character units; methodology for the delimitation and protection of landscape character at the local level; national GIS database on green infrastructure; national green infrastructure handbook and development plan.



National high-resolution (1:25 000)
ecosystem map



Expert training on the methodology of habitat assessment
<https://termeszetem.hu/hu/hirek/galleries/natura-terepi-trening-2020-julius-1>



Local best practice – green infrastructure in the city of Szeged

