

GREEN BOND INVESTOR PRESENTATION

April 2021



PRESENTERS



Gábor Gion, State Secretary
Ministry of Finance

- Mr. Gábor Gion is the Minister of State for Financial Policy Affairs in the Hungarian Ministry of Finance, since November 2018.
- He graduated from Eötvös Lóránd University as a mathematician in 1992.
- Early in his career he worked at Arthur Andersen Hungary, Ernst & Young and Deloitte. In 2009 he became the Chairman and CEO of Deloitte Hungary. Between 2009 and 2018 he was responsible for the government relations of Deloitte Hungary.
- He is a honorary associate professor at University of Miskolc.



Attila Steiner, State Secretary
Ministry of Innovation and Technology

- Mr. Attila Steiner is the Minister of State for the Development for Circular Economy, Energy and Climate Policy in the Ministry of Innovation and Technology since January 2021.
- He graduated from the Corvinus University Budapest as an economist in 2007.
- He started his professional career at the MOL Group as a strategy and business development expert. In 2010 he started to work in the European Parliament as a political advisor.
- Prior being appointed to his current position he served as State Secretary for EU Affairs at the Hungarian Ministry for Justice.



Zoltán Kurali, Chief Executive Officer
Government Debt Management Agency
of Hungary ("ÁKK")

- Mr. Zoltán Kurali was appointed as Chief Executive Officer of ÁKK in 2019.
- He graduated from the Budapest University of Economics in 1998.
- He started his professional career during his studies as a research analyst at various local brokerages. He worked at BNP-Dresdner Securities and Citibank Hungary
- He moved to Deutsche Bank Hungary in August 2006 as deputy CEO, and became CEO in 2007. He co-headed CEEMEA Financing & Solutions Group from 2016, and became sole head from 2018 until his departure from Deutsche Bank.

KEY FACTS AND FIGURES ON HUNGARY

Area: 93,023 sq. kilometres

Capital: Budapest

Population: 9.7m

Life expectancy: 76.1 years

Currency: Forint (HUF)

Exchange rate (2020): 307.93 HUF = 1.00 USD¹

Nominal GDP (2020): HUF 47,743 billion

Real GDP growth (2020): -5.0%

Public debt (2020): HUF 36,684 billion

Public debt in foreign currency (2020):
HUF 7,318bn (EUR 20 billion)

Sovereign ratings: BBB / Baa3 / BBB
Positive outlook in case of Moody's; ratings affirmed in Spring 2021

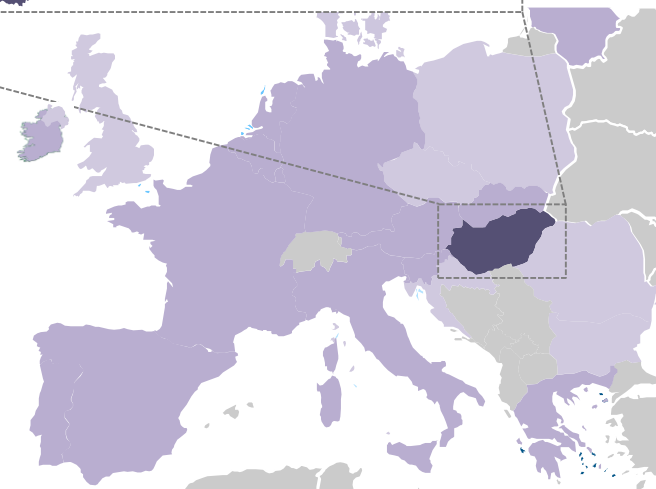
Government: parliamentary republic

EU member country since: 2004

Schengen area member since: 2007

Key economic sectors: manufacturing; wholesale and retail trade; automotive; education and health

A high income economy with a strategic location at the centre of Europe and memberships in key international organizations

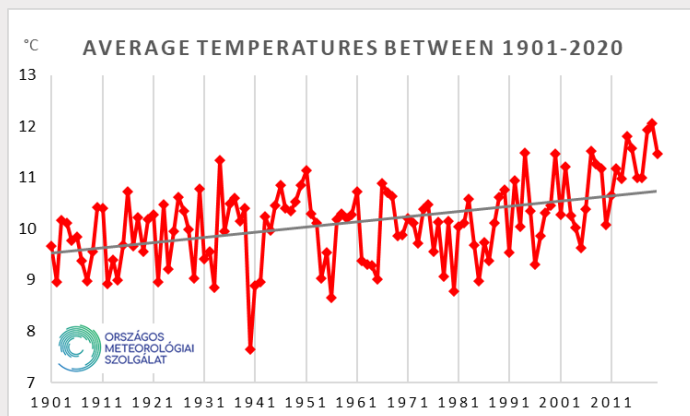


CLIMATE CHANGE IMPACTS OBSERVED IN HUNGARY

Hungary is already witnessing the consequences of climate change such as the aggravation of floods and droughts, the deterioration of arable land, water and air pollution

Temperatures

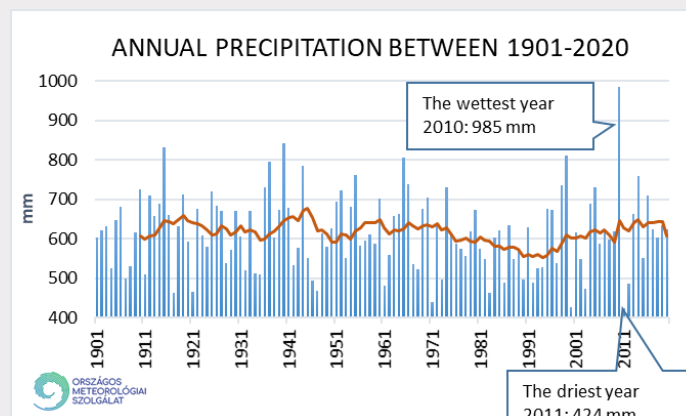
- Country-level **temperatures** increased 1.23°C, since the beginning of the previous century, exceeding the estimated 0.9°C of the global change.
- Between 1901-2020, the springs and summers warmed the most in Hungary, by 1.2 °C and 1.32 °C respectively. Warm temperature extremities have become more frequent in Hungary.



Rain precipitation

Changes in **precipitation** are also relevant:

- Slight annual precipitation decrease (-3%), notably in the spring (-16%) and autumn (-10%), since 1901.
- Fewer days with precipitation (-17 days since 1901)
- Longer drier periods (+4 days)
- The rainiest and driest years during the last 100 years were 2010 and 2011



HUNGARY'S **GREEN BOND** STRATEGY OVERVIEW

Rationale

Hungary's strong commitment to fight climate change and biodiversity loss.

- Commitment to EU NDCs under the Paris Agreement.
- Hungary supported the EU climate neutrality target and committed to climate neutrality by 2050.

Green Bond issues to support the government's integrated energy & climate strategy.

- National Energy and Climate Plan and Second National Climate Change Strategy provide guidance and set tasks in the field of mitigation of GHG emission and adaptation to climate change impacts for the period of 2018-2030.

Response to investors' demand for green sovereign bonds and further diversification of Hungary's investor base.

Hungary issued Euro and Japanese Yen denominated Green Bonds in 2020.

- Hungary intends to become a regular green bond issuer in international capital markets, including Euro Japanese Yen and Chinese Renminbi subject to market conditions.

Hungary will issue domestic HUF-denominated Green Bonds to develop sustainable domestic capital markets.

Green Bond Framework overview

Hungary's Green Bonds will support the country's climate change & environmental commitments with proceeds dedicated to **six Eligible Green Expenditures categories**:

1. Renewable Energy
2. Energy Efficiency
3. Land Use and Living Natural Resources
4. Waste & Water Management
5. Clean Transportation
6. Adaptation

Dedicated governance for Green Bonds thanks to Steering Committee and Inter-Governmental Working Group.

Green Bond Framework in line with the **ICMA Green Bond Principles** and best market practices.

Second Party Opinion by Cicero with Medium Green shading.

Allocation Report containing relevant information on the allocation of the green bond proceeds of 2020 versus green eligible expenditures.

External Review of the Allocation Report by Cicero finding no discrepancies against Hungary's Green Bond Framework, reporting is aligned with ICMA.

GREEN FINANCE IN HUNGARY

Greening Hungarian Financial markets

- Ensuring adequate financing is key for developing green economy and promoting environmental sustainability.
- The Hungarian green financial products include:
 - **Sovereign Green Bonds:** Euro and Japanese Yen denominated Hungarian Government Green Bonds issued in 2020.
 - **Corporate Green Bonds:** first issuance took place in August, 2020; there are three Green Bonds issued by Hungarian corporates in both local and foreign currency.
 - **Green loans:** Residential Energy Efficiency Loan Programme, a non-market-based loan-like product, is the most important one.
 - **Investment funds:** among the products offered by domestic fund managers, there are several funds that can be considered green.
- The **Euro and Japanese Yen denominated Hungarian green bonds** issued in 2020 were heavily oversubscribed and lengthened the average maturity of the debt portfolio significantly.
- The **new HUF green government bond** is intended to serve as benchmark reference for other Hungarian green bond issuers, catalysing the development of the local green bond market and increasing the Sustainable Finance awareness in Hungary. In addition, the new bond will attract international ESG-conscious bond investors into the HUF bond market, further developing the potential investor base for domestic issuers.

Magyar Nemzeti Bank („MNB”) leadership

- MNB (the central bank of Hungary) announced its **Green Programme** on February 2019 aiming to:
 - reduce the risks associated with climate change and other environmental problems.
 - expand the financing of the green economy in Hungary.
- Under this programme, the MNB implements several measures to encourage the increase of environmental awareness among Hungarian financial institutions and the greening of the products including the launch of a separate green bond portfolio (as one of the first central banks to do so).
- MNB gave early support to the Green Bond market by becoming **the first Central Bank worldwide to set-up of a dedicated Green Bond portfolio**, as an investor, in June 2019 .
- MNB launched a consultation paper to financial market players to boost Green Finance in Hungary.
- MNB issued the first **Green Finance Report** in March 2021.
- MNB announced to release a part or all of the capital requirements prescribed in Pillar 2 of capital regulation for environmentally sustainable corporate and municipal exposures for 5 years starting 2021.



I. HUNGARY CLIMATE CHANGE AND ENVIRONMENTAL STRATEGY



A BROAD COMMITMENT TO COMBAT CLIMATE CHANGE

International requirements

United Nations Framework Convention on Climate Change; Paris Agreement (2015).

European goals

Clean Energy Package, European Green Deal.

Carpathian Basin

Scientific evidence on climate change impacts on the Carpathian Basin.

Hungary

Public survey and consultations on preferences for climate protection; National Clean Development Strategy; first Climate Change Action Plan.

ECONOMIC DEVELOPMENT AND COMBATING CLIMATE CHANGE ARE MUTUALLY REINFORCING OBJECTIVES

Energy and climate strategy is about to support high-tech and green economic development

Basic principles



Balance

- Combating climate change
- Competitiveness
- Security of supply



Cost effectiveness

- GDP convergence
- Underdeveloped regions



Importance of additional benefits

- Decreasing import dependency
- Affordable prices
- Innovative economic development



Technology neutrality

- Energy efficiency measures
- RES utilization
- Maintenance of nuclear capacities



Fair transition

- No one is left behind

HUNGARIAN RESULT IS THE 9TH BEST IN REDUCING EMISSIONS (vs 1990 LEVELS)

GHG emissions in the EU-28, 1990-2017 (in million tonnes CO2 equiv., excl. LULUCF)

- 32% GHG emission reduction compared to the base year of 1990.
- Four climate-ambitious member states have not been showing any reduction since 1990 (Austria, Ireland, Portugal, Spain).
- The Hungarian GHG emission per capita is only 75% of the EU average (the 6th lowest value).

	1990 (million tonnes)	2017 (million tonnes)	2016 - 2017 (million tonnes)	Change 2016 - 2017 (%)	Change 1990-2017 (%)
Austria	78.7	82.3	2.7	3.3%	4.6%
Belgium	146.6	114.5	-1.2	-1.1%	-21.9%
Bulgaria	101.8	61.4	2.3	3.6%	-39.7%
Croatia	31.9	25.0	0.6	2.6%	-21.5%
Cyprus	5.7	8.9	0.2	2.3%	57.8%
Czechia	199.2	129.4	-1.1	-0.6%	-35.1%
Denmark	70.3	47.9	-2.3	-4.5%	-31.9%
Estonia	40.4	20.9	1.2	6.2%	-48.4%
Finland	71.3	55.4	-2.7	-4.7%	-22.3%
France	548.1	464.6	3.9	0.6%	-15.2%
Germany	1251.0	906.6	-4.4	-0.5%	-27.5%
Greece	103.1	95.4	3.7	4.1%	-7.4%
Hungary	93.7	63.8	2.6	4.3%	-31.9%
Ireland	55.4	60.7	-0.5	-0.6%	9.6%
Italy	517.7	427.7	-4.4	-1.0%	-17.4%
Latvia	26.3	11.3	0.0	0.3%	-56.9%
Lithuania	48.2	20.4	0.2	1.1%	-57.7%
Luxembourg	12.8	10.2	0.2	1.8%	-19.8%
Malta	2.1	2.2	0.3	13.5%	2.3%
Netherlands	221.7	193.7	-2.1	-1.1%	-12.6%
Poland	474.4	413.8	14.7	3.7%	-12.8%
Portugal	59.2	70.7	4.6	7.0%	19.5%
Romania	248.1	113.8	-0.5	-0.4%	-54.1%
Slovakia	73.4	43.3	1.2	2.8%	-41.0%
Slovenia	18.6	17.5	-0.2	-1.3%	-6.4%
Spain	288.5	340.2	13.8	4.2%	17.9%
Sweden	71.3	52.7	-0.3	-0.5%	-26.1%
United Kingdom	794.4	470.5	-12.8	-2.6%	-40.8%
EU-28	5653.7	4324.9	19.8	0.5%	-23.5%

FIRST CLIMATE CHANGE ACTION PLAN (2018-2020)

On **8th January 2020**, the Hungarian Government adopted five climate and energy strategy documents. One of these documents is the 1st Climate Change Action Plan (2018-2020) (CCAP-1).

The aim of the CCAP-1 is to implement the **short-term emission reduction, adaptation and awareness-raising tasks** of the second National Climate Change Strategy (NCCS-2) in the form of concrete measures.

The CCAP-1 includes **three main programmes** with specific groups of measures:

1. National Decarbonisation Programme:

energy (electricity and heat production), energy efficiency, waste management, agriculture, industry, transport and influencing the carbon sequestration of woods.

2. National Adaptation Programme:

energy infrastructure, human health, water management, disaster management and security policy, agriculture and rural development, nature protection, forestry, tourism.

3. Awareness-raising Programme:

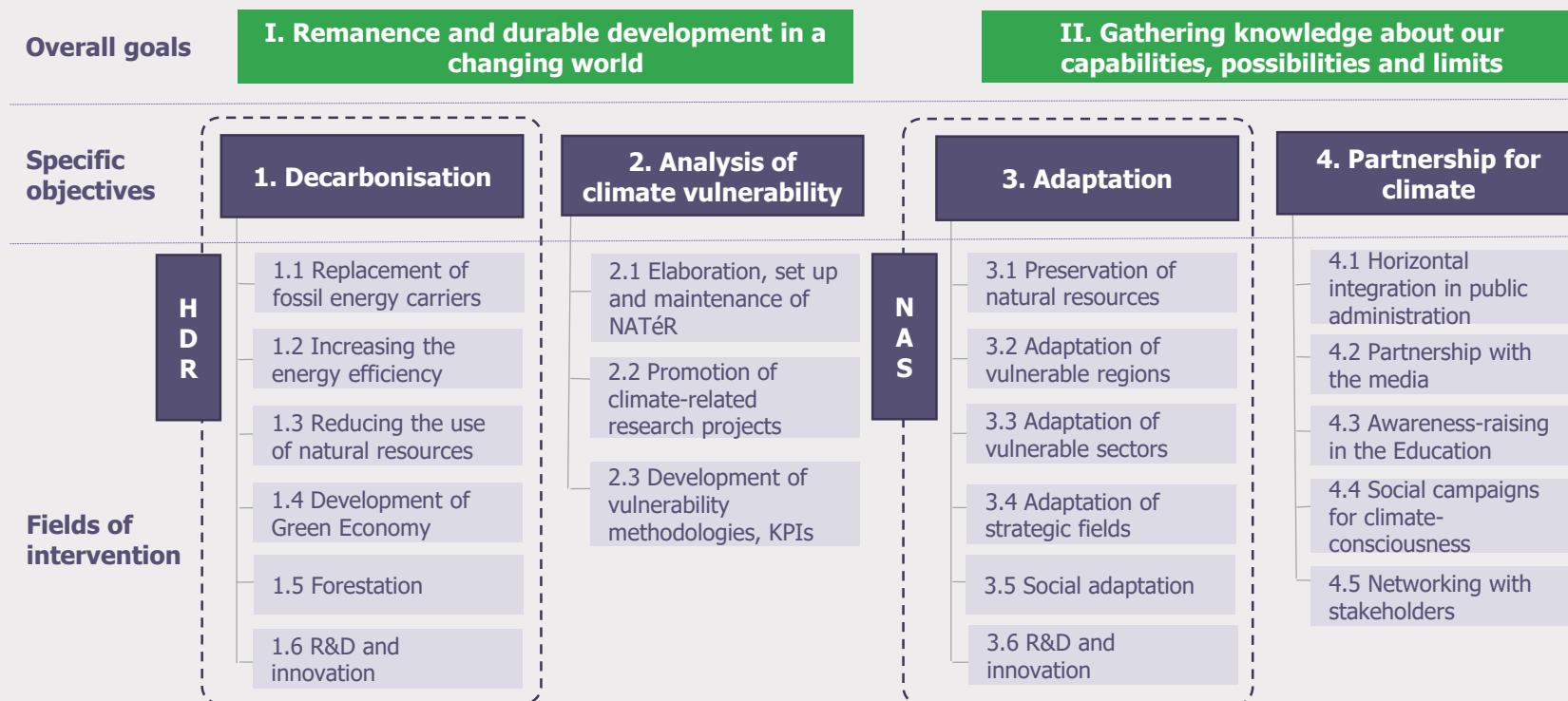
partnership with the media, awareness-raising and training for practical action in education, pilot projects, and networking with governmental, economic, NGO, scientific and religious stakeholders.

Implementation framework:

it includes 6 horizontal measures on implementation, influencing each of the 3 climate policy pillars and most CCAP1 measures.

The Second Climate Change Action Plan (CCAP-2) is planned to be adopted in 2021.

Important role of coordination of all the other sectoral strategies thanks to Hungarian Decarbonisation Roadmap ("HDR") & National Adaptation Strategy ("NAS").



NATIONAL CLEAN DEVELOPMENT STRATEGY TO ACHIEVE CLIMATE NEUTRALITY BY 2050

National Clean Development Strategy

The National Clean Development Strategy aims to achieve climate neutrality by 2050.

Timing

Adoption of the Draft National Clean Development Strategy

Revision and finalisation of the Strategy (*modelling background: TIMES model* and GEM model***)

The Strategy is currently under discussion within the Government

Q1. 2020.

Q2. 2021.

Enhanced efforts are needed to achieve net zero GHG emissions by 2050 in the following areas:

1. energy consumption: **energy saving and energy efficiency**
2. **electrification** in all segments of the economy (*In parallel with the green transformation of the electricity sector.*)
3. **sustainable usage of bioenergy**
4. application of **new solutions and technologies** (CCUS, hydrogen and fuel cells)
5. **decarbonisation of industrial processes and product use (IPPU)** (*hydrogen, CC(U)S, efficiency*)

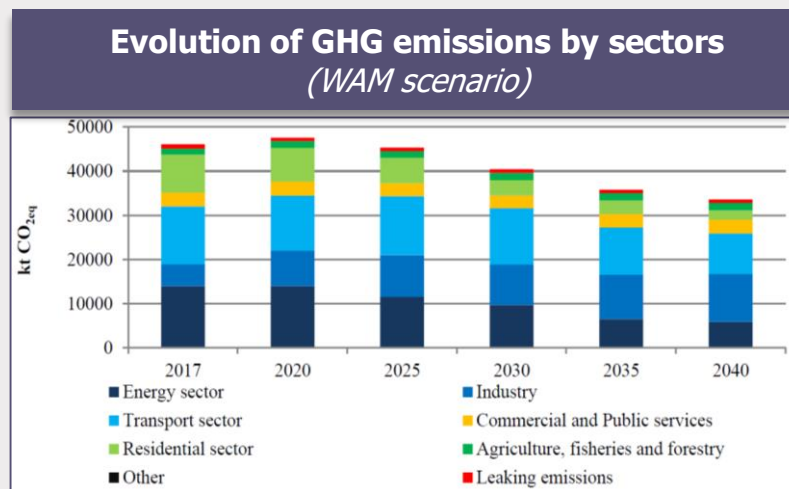
6. **"transport greening"** (*advanced biofuels, hydrogen, e-mobility*)
7. more efficient **waste management in a circular economy** (*waste prevention, development of waste management, transition to a circular economy*)
8. **sustainable and more efficient agriculture** (*precision farming, digitization & automation, more efficient feeding and irrigation, less fertilisers, energy efficiency*)
9. **ensuring the preservation of natural sink capacities**
10. supporting **RDI** activity and **education**

GHG EMISSION REDUCTION PATHWAY

- As part of the EU's 2030 Climate and Energy Framework, Hungary's overall GHG emissions will be reduced by 40% by 2030
- Transport sector will become the major emitter (with 31.6%) by 2030
- However, in 2040, industry's emissions will be the highest

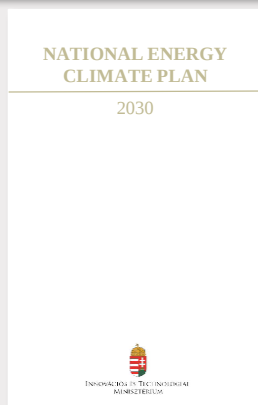
Main actions

- Share of carbon-free electricity production to increase from 60% in 2018 to 90% in 2030
 - Phase out of coal-based power generation, with the restructuring of the lignite-fired "Mátra Power Plant"
 - Maintain nuclear power generation capacity
 - Renewable electricity production to increase from current 10% to 20% in 2030 and 37% in 2040; mostly PV based
- The new "greening transport" program to play a key role in the decarbonisation of the economy
- Share of renewables in district heating to increase from 20% to 50% by 2030
- Emission reductions from agriculture by various financing measures and legislation
- New waste management strategy (under development)
- Raise CO₂ sink capacities by raising the area covered by forests in line with the National Forest Strategy



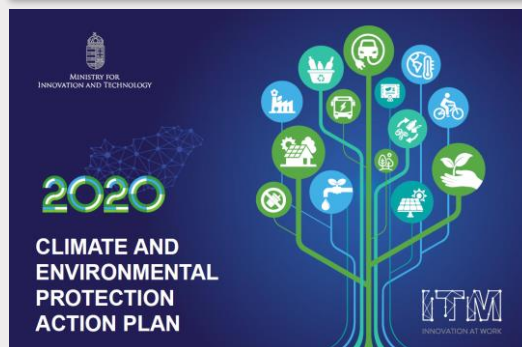
AN UP-TO-DATE SET OF LEGISLATION AND STRATEGIES

National Energy Strategy



- Complementary strategic documents, elaborated in parallel and released in January 2020:
 - NES 2030 (with an outlook to 2040) targets reduction of fossil energy imports.
 - NECP defines the path to meet EU 2030 climate and GHG emissions reductions commitments
- Based upon the conclusions of an administrative and social debate.

Action Plan on Climate and Nature Conservation



- Presented in Feb 2020 by MoIT
- Eight concrete measures to achieve three climate objectives:
 - contribute to the reduction of harmful substance emissions
 - serve to adapt to climate change, and
 - play a part in shaping mentality

National Water Strategy 2030

- Avoid water crisis and protection of water.
- Water management and safety against water damages (floods, droughts, pollution).

National Building Energy Strategy

- Strategy objectives include:
 - harmonisation with the energy and environmental objectives of the EU,
 - modernisation of buildings,
 - reducing energy poverty and
 - reducing GHG emissions
- Adopted in 2015 (Long-term renovation strategy likely to be adopted during spring 2021).

National Biodiversity Strategy 2015 - 2020

- Sets objectives for:
 - protection of areas and species,
 - maintenance of landscape diversity,
 - green infrastructure and ecosystem services,
 - agriculture, sustainable forest management,
 - protection of water resources,
 - invasive alien species.

CLIMATE AND ENVIRONMENTAL PROTECTION ACTION PLAN

In 2020, the Government has published Climate and Environmental Action Plan which contains **8 action points** corresponding to the main goal of Hungary's integrated energy and climate policy. The Action Plan aims to meet our 2030 climate protection goals in order **to preserve Hungary and the Carpathian Basin for our children and grandchildren.**



The 8 action points are the following:

1. Elimination of illegal waste disposal sites.
2. Banning the distribution of single-use plastics. Creation of a deposit return system.
3. Protection of our rivers from waste.
4. Enhanced usage of environmentally friendly technologies by multinational companies. Support of renewable energy production by SMEs.
5. Planting trees for newborn babies.
6. Sixfold increase of solar power plant capacities.
7. Support of wider availability of electric cars.
8. Introduction of Green Sovereign Bonds.

CLEAR PATHWAY TO REACH HUNGARY'S COMMITMENTS

Comparison of EU and Hungarian targets for 2030

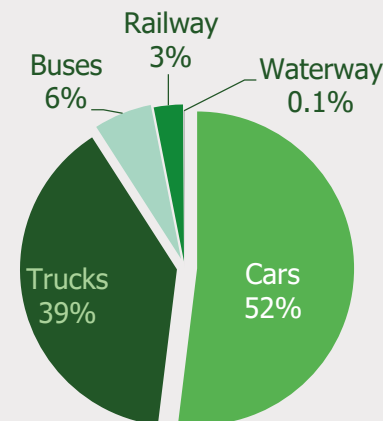
Dimensions of Energy Union	Indicators	 EU targets for 2030	 Hungarian targets for 2030	 Recent Hungarian situation (2018)	 Most important measures
Decarbonization	Reduction of GHG emission (%) compared to 1990	At least -55% (increased in December, 2020 from the previous -40%)	min. -40%	-33%	- Climate-friendly transformation of the electricity sector - Energy efficiency obligation scheme - Greening transport
	GHG intensity of GDP	-	continuous decrease	1.87 t CO ₂ eq/million HUF	
	Reduction of GHG emission in the non-ETS sector (%) compared to 2005	min. -30% (subject to change in light of the introduction of the 2030 climate package due to the increased at least 55% climate target)	min. -7% (subject to change in light of the introduction of the 2030 climate package due to the increased at least 55% climate target)	-9.8%	
	Share of RES in gross final energy consumption	min. 32%	min. 21%	12.61%	- Photovoltaics (PV) - E-mobility - Green District Heating Program
Energy efficiency	Final energy consumption	Indicative 32.5% reduction	max. 785 PJ The source of any extra consumption can be only RES between 2030 and 2040	776 PJ	- Reduction of final consumption by 0.8% per year - Introduction of the Energy Efficiency Obligation Scheme in 2021

THE CLEAN TRANSPORTATION CHALLENGE

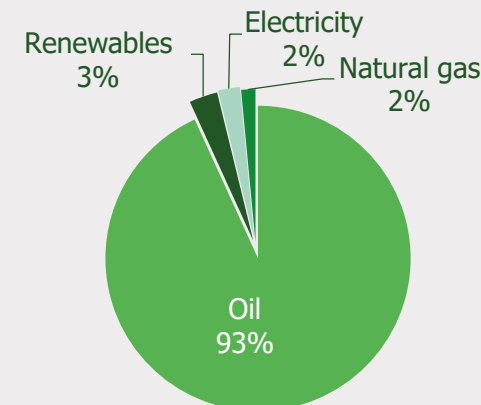
- Transport sector was responsible for 26.9% of Hungary's total domestic energy consumption (of which 95.5% from road transport) in 2018
- This economic growth-driven transport increase poses a real threat to achieving our GHG emissions reduction targets (40% GHG emissions increase between 2013 and 2018)
- Our goal is to reverse this growing trend:
 - 15.5% reduction of transport GHG emissions by 2030
 - Progressively replace transport fuel consumption (currently 92.1%) by electricity and other alternatives
 - The proportion of biofuels used in transport has increased, and expected to reach 8.2% by the end of 2020, **which is a legal obligation** [according to the Government Decree 279/2017 6.§ (3)].
 - In the future, we want to encourage both the use and domestic production of the so-called advanced or second-generation biofuels

Transport sector key indicators	2018	2030
Sector GHG emissions	14,778 kt CO ₂ eq	12,485 kt CO ₂ eq
Share of renewable energy in sector's final energy consumption	8.03% (2019)	min. 14%

Energy consumption by type of transport



Energy consumption by type of fuel



GREENING TRANSPORT

The implementation of the Transport Greening Program is one of the main actions of the National Energy Strategy covering four main topics:

- Support for electro-mobility (investment aids for the purchase of vehicles)
- Green Bus Program
- Promotion of road-rail transport
- Promotion of domestic developed biofuel production

EU Directive on Clean procurement: the promotion of clean and energy-efficient road transport vehicles can be applied in public procurement in the Member States between 21 Aug 2021 and 31 Dec 2030

EU minimum Clean procurement targets		
Categories	Aug-21 – Dec-25	Jan-26 – Dec-30
M1, M2, N1	23.1%	23.1%
N2, N3	8%	9%
M3	37%	53%



The Green Bus Programme will provide a total of HUF 35,9 bn between 2020 and 2029 to support the purchase of e-buses



Jedlik Ányos Plan 2.0 defines the 2030 strategy for electrification of road transport, promoting electric vehicles and infrastructure through regulatory, fiscal and financial support instruments

II. HUNGARY'S GREEN BOND FRAMEWORK



GREEN BOND FRAMEWORK OVERVIEW

The Green Bond Framework of Hungary is in line with the best market practices: Green Bond Principles, Japanese Ministry of Environment Green Bond Guidelines and the Guidelines on Green Note of Non-Financial Enterprise published by NAFMII.

The proposed EU Green Bond Standard by the EU TEG was also taken into consideration.

Use of Proceeds	Renewable Energy	Land Use and Living Natural Resources	Clean Transportation
	Energy Efficiency	Waste & Water Management	Adaptation
Process for Expenditure Evaluation and Selection	Ministry of Finance is in charge of coordinating the process ➤ Inter-Governmental Working Group (IWG) evaluates potential green expenditures ➤ Steering Committee approves Eligible Green Expenditures		
Management of Proceeds	Ministry of Finance is in charge of Green Bonds proceeds management ➤ IWG monitors the level of Eligible Green Expenditures ➤ Steering Committee approves the proceeds allocation Eligible Green Expenditures can include expenditures from the 2 previous year, the current year and future years.		
Reporting	Green Bond Report including Allocation and Impact Reporting		
External review	Second Party Opinion from CICERO Shades of Green	Allocation Reporting review	

More information: <https://akk.hu/content/path=green-framework>

GREEN BOND GOVERNANCE AND ORGANISATION

For the governance of the Green Bond Framework, the Ministry of Finance in cooperation with the Government Debt Management Agency of Hungary ("ÁKK") has set-up a Steering Committee ("SC") and an Inter-Governmental Working Group ("IWG") composed by senior officials and representatives respectively of the following Ministries:

- Ministry of Finance (Chair)
- Ministry of Agriculture
- ÁKK
- Ministry of Innovation and Technology
- Ministry of Interior

Main responsibilities	Steering Committee	Inter-Governmental Working Group
Process for Expenditure Evaluation and Selection	Approval of Eligible Green Expenditures	Evaluation and selection of potential green expenditures
Management of Proceeds	Approval of proceeds allocation	Data collection and monitoring of Eligible Green Expenditures
Reporting	Final validation	Review and pre-validation

EXTERNAL REVIEW PRE- AND POST-ISSUANCE

Green Bond Framework pre-issuance verification

- Hungary engaged CICERO Shades of Green to provide an independent Second Party Opinion on this Green Bond Framework
- Hungary's Green Bond Framework was rated "Medium Green" and "Good" on Governance

Allocation Reporting post-issuance review

- Hungary engaged an independent third party to review the Allocation Reporting and its conformity with this Green Bond Framework
- The initial Allocation Reporting review was provided by CICERO Shades of Green
- This process will be made on an annual basis until full allocation

More information: <https://akk.hu/content/path=green-opinion>



°CICERO
Shades of
Green

Hungary Green Bond Second Opinion

May 25, 2020

Hungary is a country in Central Europe and member of the European Union. Hungary has approximately 9.8 million citizens, an area of 93,000 square kilometers and a GDP of USD 170 billion constituting the 54th largest economy globally according to the IMF. The issuer currently plans to reduce GHG emissions by 95% until 2050 compared to 1990 levels and compensate the remaining 5% by enlarging sink capacities, mainly by afforestation. Hungary's GHG emissions decreased by 23% compared to 1990 levels, but have mostly increased since 2013 while the share of renewable energy has decreased since 2013.

Considering that Hungary's emissions result by 21% from transportation which have more than doubled in significance since 1990, we are encouraged to see approximately 90% of proceeds being designated this sector. Approximately 1/3 of total proceeds fund electric railway, subway, trolley or tram. Rail-guided vehicles financed under this framework will all be electric. While direct investments in diesel related rail infrastructure is excluded from the framework, all other railway related expenditures include fossil fuel elements as they support diesel fueled transportation, e.g., operations of the railway network, construction and upgrade of tracks and reimbursements of uncovered costs of railway passenger traffic. According to Hungary, 41% of the Hungarian open-access railway network is currently electrified.

The sovereign also includes the project categories renewable energy, energy efficiency, land use and living natural resources, waste & water management as well as adaption in its framework. Some of the potential projects include support for fossil fuels and do not necessarily generate positive climate impact and require additional evaluation procedures, e.g., in the area of building refurbishments, sustainable agriculture, forestry, organic farming and operation of national parks. Life-cycle and supply chain assessment requirements would improve the framework. Eligible expenditures will to a large extent include funding operating expenses, e.g., for national parks where more than 60% will cover personnel costs and as well as for railway operation. Hungary also anticipates including, e.g., support of environmental NGOs without further selection criteria.

Hungary will obtain an external review of its reporting and expects to report impacts according to current market practices. As the selection criteria are in parts vague, fossil fuel could be supported as well as administration costs. The issuer is encouraged to provide transparency on these aspects in its reporting.

Based on an assessment of the framework's alignment with the Green Bond Principles, the project categories and Hungary's governance, Hungary's green bond framework receives the overall CICERO Medium Green shading and a governance score of Good. This shading reflects the framework's strength focusing on electric railway expenditures, but also Light Green elements such as

SHADES OF GREEN
Based on our review, we rate the Hungary's green bond framework CICERO Medium Green.

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in Hungary's framework to be Good.



GREEN BOND PRINCIPLES
Based on this review, this Framework is found in alignment with the principles.



°CICERO
Medium Green

III. HUNGARY'S ALLOCATION REPORT



ALLOCATION REPORT - 2020

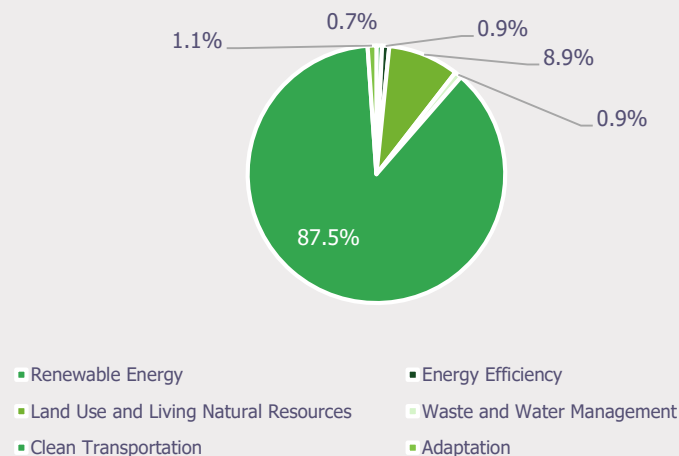
Hungary is committed to provide investors with transparent reporting:

On the allocation of proceeds towards Eligible Green Expenditures ("Allocation Report") on an annual basis and allocation methodology.

On the environmental impact of those expenditures ("Impact Report") after the full allocation of the bond proceeds or more frequently as Hungary deems necessary.



Green Sectors share in 2018-2019 budget years



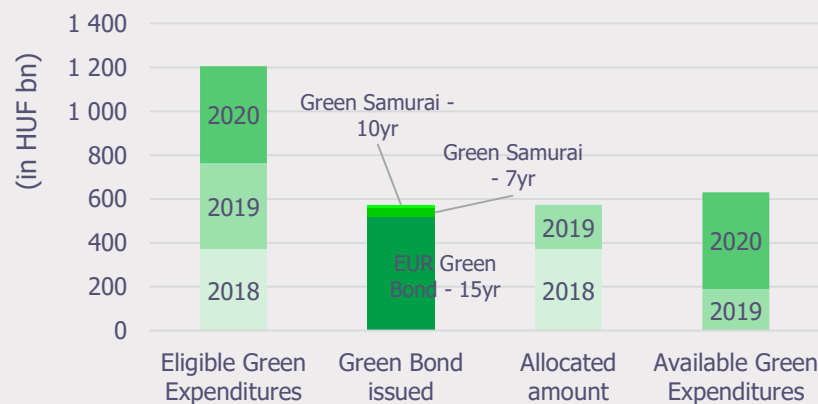
More information: <https://akk.hu/content/path=Allocation-report>

ALLOCATION REPORT 2020 – CONT'ED

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	516,930 million	1,500 million
Samurai	JP534800CL92	18/09/2020	JPY 15,500 million	7 yr	43,981 million	123.0 million
Samurai	JP534800DL91	18/09/2020	JPY 4,500 million	10 yr	12,769 million	35.7 million
Total:					573,680 million	1,658.7 million

Available Green Expenditures



Allocation methodology

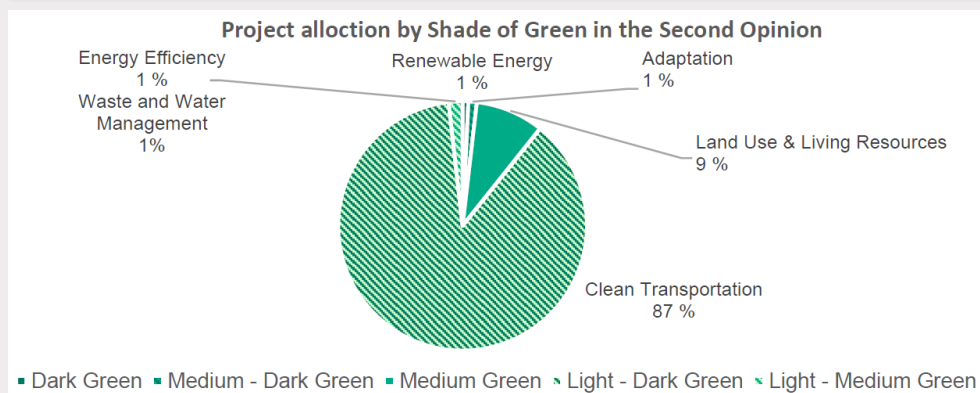
Hungary's central government budget expenditures contribute to the transition.

- To a low carbon,
- climate-resilient and
- environmentally sustainable economy, and
- falling under the six Green Sectors defined in Hungary Green Bond Framework.

More information: <https://akk.hu/content/path=Allocation-report>

EXTERNAL REVIEW OF ALLOCATION REPORT

Project allocation by Shade of Green in the SPO



Review of CICERO Shades of Green

- CICERO Green found no discrepancies in the allocation reporting against Hungary's Green Bond Framework.
- The reporting is aligned with relevant principles and recommendations for green bond reporting included in the ICMA Handbook, Harmonized Framework for Impact Reporting.
- Hungary has a formal process in place for the allocation of proceeds which is described in the Allocation Report and Green Bond Framework.



°CICERO
Shades of
Green

Hungary External Review of 2020 Green Bond Allocation Reporting

February 18th, 2021

CICERO Green has reviewed Hungary's 2020 Green Bond allocation report. Hungary has also committed to reporting on environmental impacts and expects to release its inaugural impact report in Q4 2021.

CICERO Green finds no discrepancies in our review of the allocation reporting against Hungary's Green Bond Framework. The reporting is aligned with relevant principles and recommendations for green bond reporting included in the ICMA Handbook, Harmonized Framework for Impact Reporting. Investors should note that proceeds have been allocated to operating expenditures. While these expenditures are eligible under the framework, we encourage further transparency on operating expenditures to be included in impact reporting.

More information: <https://akk.hu/content/path=Allocation-report>

IV. KEY PROJECTS



KEY PROJECT: RENEWABLE ENERGY

Construction of Felsőzsolca Solar Power Plant, the largest capacity solar in Hungary

- Description: Felsőzsolca Solar Power Plant is the largest capacity solar power plant in Hungary. Located at Felsőzsolca, the project counts with nearly 74,000 polycrystalline solar panels installed and was concluded in November 2018.
- The project was implemented under the direction of the MVM Group engaged in renewable energy generation. The total investment was of HUF 9 billion (35% co-financed by EU funds).
- The Felsőzsolca Solar Power Plant is the first facility out of 110 solar units to be developed and constructed by the MVM Group in the country.
- Type of expenditure financed: investment
- State Programme supported: KEHOP
- Outputs and impact indicators:
 - Installed capacity: 20 MW
 - Annual energy production: 21 GWh, which corresponds to the annual electricity consumption of ~ 10,000 households.
 - Annual GHG emission avoidance: 20,000 tonnes of CO₂eq.



KEY PROJECT: ENERGY EFFICIENCY

Energy efficiency improvements in ELTE University

- Description of the project: 15 buildings of Eötvös Loránd University were renovated. The energy efficiency works of one hundred thousand square meters, included thermal insulation, replacement of external doors and windows and upgrade of boilers and heating systems. Solar panels have also been installed in the university buildings. The total investment was of HUF 5 billion (97% co-financed by EU funds)
- Type of expenditure financed: investment
- State Programme supported: KEHOP
- Outputs and impact indicators:
 - Annual energy savings: 16 990 MWh/year, equivalent to HUF 300 million
 - Annual GHG emission avoidance: 4,600 tonnes of CO₂ equivalent



KEY PROJECT: LAND USE AND LIVING NATURAL RESOURCES

Implementation of EU Biodiversity Strategy to 2020

- Description of the project:

- Sub-project 1 - NATURA:

Field surveys targeting wild species and natural habitats in order to reduce data deficiencies and better define the conservation status of species and habitats of community interest.



- Sub-project 2 - ECOSYSTEM SERVICES:

Mapping and assessment of ecosystems and the socio-economic evaluation of selected key ecosystem services at the national scale.



- Sub-project 3 - LANDSCAPE CHARACTER:

Developing the methodology for the classification of Hungarian landscapes based on landscape character, delimitation and description of national landscape character units, defining directions of use and developing guidelines.



- Sub-project 4 - GREEN INFRASTRUCTURE:

Assessing the status of green infrastructure in Hungary, setting objectives and defining priorities of restoration, defining conflict areas, and providing a delimitation of restoration zones.



The total investment was of HUF 1.07 billion (85% co-financed by EU funds)

- Type of expenditure financed: Investment
- State Programme supported: KEHOP
- Outputs indicators: maps of species' range and habitats, map of ecosystems and ecosystem status; methodologies of monitoring, of mapping and assessing ecosystems and for delimitation and protection of landscape character units; guidelines for the classification of landscape character types; priority list of ecosystem services; national GIS database of landscape character units, national GIS database of the green infrastructure network; national priorities and target areas of conservation.



KEY PROJECT: CLEAN TRANSPORTATION

Electrification of the Mezőzombor - Sátoraljaújhely railway line

- Description of the project: Electrification of 46.3 km long railway line between Mezőzombor and Sátoraljaújhely have been concluded in 2020, after two years of work. Notified Body certification is ongoing. The project included the renovation of stations in order to increase passage comfort and safety.
- Part of the line between Sárospatak - Sátoraljaújhely station was also adapted to perform the flood protection function, reducing the risk of train traffic disruption caused by the flooding of the Bodrog river.
- The project was conducted by National Infrastructure (NIF). The total investment was of HUF 23 billion (85% co-financed by EU).
- Type of expenditure financed: Investment
- State Programme supported: Integrated Transport Operational Programme



KEY PROJECT: CLEAN TRANSPORTATION

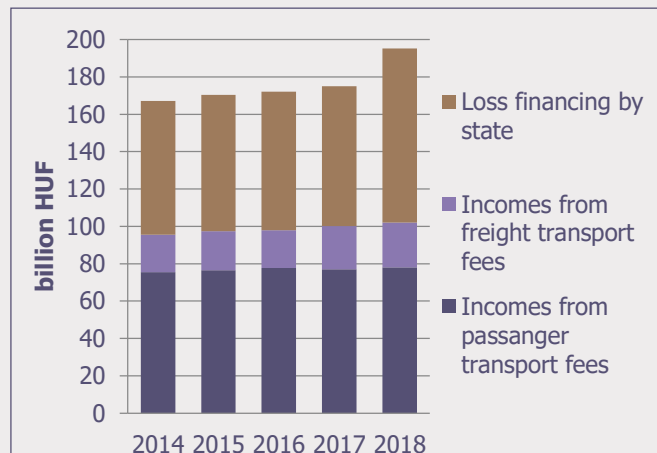
Railway public transport support

Railway infrastructure operators support

- Length of Hungarian railway lines is 7 712 km, of which 3 000 km belongs to Trans-European network (TEN-T).
- Operation of Hungarian network is contracted between Hungarian State and 2 track operators (MAV, GYSEV) for 2016-2025.
- The difference between total operation expenditures vs. incomes from network access fees is financed by Hungarian central budget.

Railway public services

- Reimbursement of uncovered costs of railway passenger traffic based on EU directive.
- Keeping of the high level service with frequent traffic is essential for avoiding bigger increasing of modal split reduction.
- Main actions of keep and improve the financial sustainability:
 - prioritizing railway traffic at the long-distance mainlines and suburban areas.
 - making the service more attractive by constant development of tracks, timetable, vehicles and further connecting services
 - improving the passenger-side facilities of ticketing by launching e-platforms for purchasing and ticket-checking.



KEY PROJECT: CLEAN TRANSPORTATION

Accelerating in electric vehicles

Tax exemption for electric and plug-in hybrid vehicles

- Description of the project: Environmentally friendly vehicles are exempt from registration tax, motor vehicles tax and motor vehicle duty
- Type of expenditure financed: tax expenditure
- State Programme supported: Jedlik Ányos Plan 2.0.

Financing Battery Electric Vehicle through tenders

- Tenders to provide financial support for purchasing electric vehicles.
- To date there have been three calls with a total budget of HUF 12,5 billion. The tenders contribute to the financing of 4700 electric cars and 500 e-scooters.
- This investment is financed by CO₂ allowances (EU Emissions Trading System)



New program: Subsidy for pedelecs

Since Oct. 2020, HUF 1 billion is available for the purchase of pedelecs.

Through this scheme, the Government supported the greening of transport with an additional HUF 5.88 billion. Within the framework of the opening in the direction of micro mobility, companies have the opportunity to purchase a purely electric motor bike (scooter) with the help of the support.

The interest in this tender, as well as the fact that the total value of the applications reached the total amount in just ten hours even exceeded our preliminary expectations.

KEY PROJECT: WASTE AND WATER MANAGEMENT

Subsidies for waste recycling companies

- Description of the project: the Ministry for Innovation and Technology provides subsidies to companies for the development and production of new devices and technologies for the recovery and treatment of waste, including plastic, glass, wood, metal, paper and related packaging waste, and electrical and electronic waste.
- The objective is to support a circular economy, increase efficiency, and the use of secondary raw materials in the waste sector.



Subsidies for SMEs working with waste management development

Type of expenditure financed:	Intervention
State Programme supported:	Irinyi Plan
Outputs and impact indicators:	number of registered patents



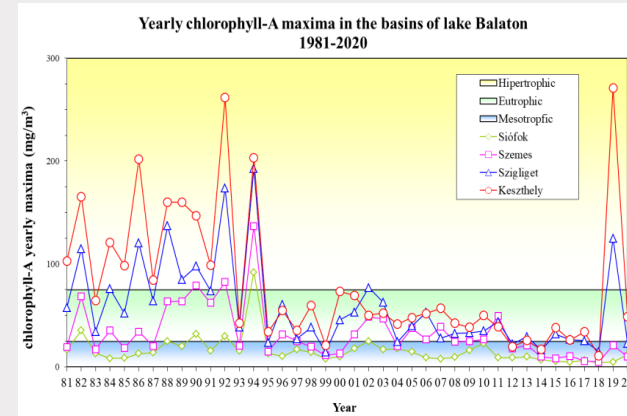
KEY PROJECT: ADAPTATION

Comprehensive environmental monitoring and information system on Lake Balaton

- Description of the project: Lake Balaton is the largest lake in Central Europe. The lake has a high degree of sensitivity to environmental and meteorological changes.
- The aim of the project is to contribute to a better understanding of the vulnerability and adaptability of the ecological and socio-economic system of Lake Balaton. Appropriate adaptation measures will also be developed by analysing the results of the project.
- The project includes the development of a water monitoring system and the establishment of a unified information and decision support system by connecting subsystems.
- The project is implemented by the National Water Directorate General, has started in October 2017 and will be completed by February 2022. The total investment is of HUF 1 billion (85% co-financed by EU funds).
- Type of expenditure financed: Investment
- State Programme supported: KEHOP
- Outputs indicators: increasing the knowledge base on water status (more frequent and accurate information for decision – making), improved status of water



Trophic change in Lake Balaton 1981-2020 Chlorophyll-A (mg/m^3)



KEY PROJECT: ADAPTATION

Monitoring studies and developments of Water Framework Directive

- Description of the project: The project aims to develop the equipment, measurement and monitoring methods of the Hungarian monitoring system, the development of databases obtained from the performed measurements and the evaluation methods of the data in line with the requirements of the European Union (Water Framework Directive), as well as the development of future river basin management plans.
- Each element of the project can be divided into two groups: quantitative (or hydrographic) and qualitative monitoring elements. The implementation of the project has a national scope, separate target areas and investment development areas have not been delimited.
- The project has started in February 2017 and will be completed by January 2023. The total investment is of HUF 4.8 billion (85% co-financed by EU funds)
- Type of expenditure financed: investment
- State Programme supported: KEHOP
- Outputs and impact indicators: increasing the knowledge base on water status (more frequent and accurate information for decision – making), improved status of water (impact)



THANK YOU FOR YOUR ATTENTION!

