Sustainability Report

Fenntarthatósági jelentés

2023

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Sopron, 2024

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Introduction

Dear Reader!

The University of Sopron, a "Green University" located in Hungary's "Most Loyal City," Sopron, has placed sustainability at the heart of its activities following its change of operating model. However, due to its historical background, the University of Sopron has always embraced the "Green University" concept in its ethos, the implementation of which is a complex task at the institutional level. Our university strives to shape the natural, social, and human environment to preserve and improve the quality of life. Its faculties and activities are characterized by an environmentally conscious mindset. It cherishes ethical and human values, and its objectives and operations serve the intellectual upliftment of the region and the entire country. Its mission is: "A continuously renewing, standard-setting (and measurable), university knowledge center in Central Europe**."**

"It is essential for the University of Sopron to fulfill the role incumbent upon it through the students trained here and through its research in terms of disseminating the principles of sustainability and developing solutions applied for the sake of sustainability. This is of particular significance because the benefits derived from the successful implementation of this task serve the good of not only the University of Sopron but also the city, the region, and the entire country."

Prof. Dr. Attila Fábián, Rector of the University of Sopron

In the University of Sopron's present Sustainability Report, you can learn about the measurable results of our institution through our environmental policy, objectives, and projections. We present the development of our environmental performance based on essential criteria within the dimensions of *"Location, Infrastructure, and Biodiversity," "Material and Energy Consumption," "Waste Management," "Water Management," "Emissions and Climate Change," "Transportation,"* and *"Education and Research."* For continuous improvement, we regularly review our activities, which allows us to propose effective measures for improving our environmental performance indicators (following the recommendations of ISO 14001, EMAS, and UI GreenMetric).

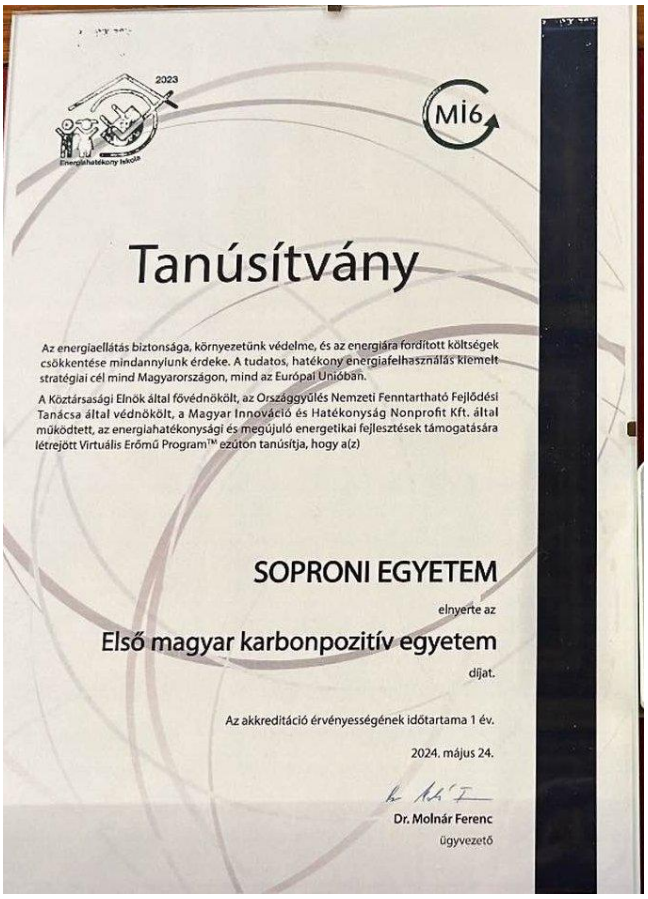
Get to know the University of Sopron's complex efforts for the sake of sustainability! We wish you a pleasant read!

Highlights

THE UNIVERSITY OF SOPRON WINS THE "FIRST HUNGARIAN CARBON POSITIVE UNIVERSITY 2023" AWARD

The "First Hungarian Carbon Positive University 2023" award was presented at the gala of the XIV. Virtual Power Plant Program (VEP), which the University of Sopron won thanks to its outstanding sustainability efforts. The prestigious recognition was received by Prof. Dr. Ferenc Lakatos, Vice-Rector, at the award ceremony held in the Parliament.

The goal of the Virtual Power Plant Program (VEP) is for every 10th Hungarian citizen to be a direct and every 3rd Hungarian citizen to be at least an indirect active participant in the world's most extensive energy efficiency, saving, and green energy program relative to its population. The Virtual Power Plant Program is a system in which participants "bank" the 'traditional' energy consumption that has been replaced by investments such as solar panels, insulation, window replacements, etc., i.e., energy from the domestic energy mix that was not used. VEP collects, makes visible, and rewards these savings. By doing this, it makes users aware of the most effective energy avoidance solution (unused or replaced by renewable energy) and can encourage institutional players, large corporations, small businesses, and the public.



2023

Energiahatékony Iskola

MI6

Tanúsítvány

Az energiaellátás biztonsága, környezetünk védelme, és az energiára fordított költségek csökkentése mindannyiunk érdeke. A tudatos, hatékony energiafelhasználás kiemelt stratégiai cél mind Magyarországon, mind az Európai Unióban.

A Köztársasági Elnök által fővédnökölt, az Országgyűlés Nemzeti Fenntartható Fejlődési Tanácsa által védnökölt, a Magyar Innováció és Hatékonyság Nonprofit Kft. által működtett, az energiahatékonysági és megújuló energetikai fejlesztések támogatására létrejött Virtuális Erőmű Program™ ezúton tanúsítja, hogy a(z)

SOPRONI EGYETEM

elnyerte az

Első magyar karbonpozitív egyetem

díjat.

Az akkreditáció érvényességének időtartama 1 év.

2024. május 24.

Dr. Molnár Ferenc
ügyvezető

In 2023, the University of Sopron implemented significant energy developments, establishing three biomass heating plants. These facilities provide heating for 22 buildings, significantly reducing greenhouse gas emissions. Through the new heating plants, the university cuts harmful emissions by 1,675.85 tonnes of CO_2 equivalent annually, making it the first institution in Hungary to achieve climate-positive operation.

The University of Sopron keeps the principles of sustainability in mind in all areas of its activities. The institution continuously monitors its greenhouse gas emissions and implements measures that contribute to the fight against climate change and the achievement of domestic and international climate goals.

The University of Sopron is committed to nature conservation and the fight against climate change and is proud to set an example in sustainability as Hungary's first carbon-positive university.

On the opening image: Ferenc Molnár, owner of Magyar Innováció és Hatékonyság Nonprofit Kft.; Katalin Szili, Chief Advisor to the Prime Minister and Perpetual Patron of the Virtual Power Plant Program (VEP); Prof. Dr. Ferenc Lakatos, Vice-Rector of the University of Sopron; and Natália Borsos-Papp, Deputy State Secretary of the Ministry of Energy (EM).

URL: https://greenuniversity.uni-sopron.hu/i-magyar-karbonpozitiv-egyetem

1 Introduction

Through their educational and research activities, universities play an outstanding role in the transmission of professional knowledge related to the environmental, social, and economic aspects of sustainability, and in shaping public awareness. In addition to this, as institutions, they must also be committed in terms of their processes to energy efficiency, clean energy, economical water and material use, waste prevention, and recycling.
The University of Sopron has long been committed to sustainable, environmentally friendly operation, an approach that is heavily emphasized in the taught subjects and research at the University's four faculties (Benedek Elek Faculty of Pedagogy, Faculty of Forestry, Faculty of Wood Engineering and Creative Industries, Sándor Lámfalussy Faculty of Economics), as well as its scientific institute (Forest Research Institute), and is increasingly woven into the daily operations. Accordingly, environmental awareness appears in both the training programs (starting from early childhood education) and the portfolio of research and services, covering the fields of climate research, climate adaptation, energy efficiency, alternative energies, sustainable and renewable materials and products, waste management, circular economy, awareness-raising, and education.

Our Soul-Lifting Green Environmental Assets: The main campus and most of the educational buildings of the University of Sopron are located in the wonderful University Botanical Garden, which serves educational, living plant collection, nature conservation, biology, and recreational purposes. The fifth main organizational unit, which is part of the university, carries out educational tasks but primarily focuses on research: the Forest Research Institute of the University of Sopron (SOE). This Institute is organically linked to the university through its 5 Experimental Stations (Sopron, Sárvár, Budapest, Mátrafüred, Püspökladány) and 3 Arboreta (Sárvár, Kámon, and Püspökladány). According to the professional vision of the University, a perspective that prioritizes sustainability is the guarantee of innovative operation and education.

Our university's institutional "green operation" is characterized by meeting the highest requirements:

- We possess an Environmental Management System (EMS) certified according to the MSZ EN ISO 14001:2015 international standard, and we continuously develop and optimize our processes for environmentally friendly and energy-efficient operation.
- Our university strives to use renewable energy sources and operate energy-efficient equipment and devices.
- Our institution is featured in the UI GreenMetric World University Rankings, an international list that unites the greenest universities, and our main initiatives are realized along the lines of the UI GreenMetric guidelines. The University of Sopron is a member of the UI GreenMetric World University Rankings Network.
- We confirm our institutional efforts towards the UN Sustainable Development Goals (SDGs) by participating in the THE Impact Rankings international world ranking.
- We regularly prepare and publish our institutional Sustainability Report, as well as our annual organizational carbon footprint calculation.
- The University of Sopron won the International Green Gown Award in the "2030 – Climate Action" category and achieved this as the only Hungarian finalist university in the entire competition.

- The University of Sopron became a founding member of the "Nature Positive Universities Alliance." This global network of universities was launched by the United Nations Environment Programme (UNEP) in collaboration with the University of Oxford to support the prioritization of nature restoration in the higher education sector.
- The University of Sopron is a member of the Hungarian Universities' Sustainability Platform (MEFP).
- Our university strives for the practical implementation of the Green Office concept.
- Loyalty Forest Project (Hűségerdő project): We maintain a unique university afforestation program: every year, the University of Sopron plants a new sapling in Sopron and its surroundings for every first-year student admitted to the autumn semester. Thus, not only will society be richer in well-trained professionals in a few years, but the size of forested areas in our country will also increase. Expanding forest areas is of paramount importance in the fight against climate change, as afforestation is the world's most effective human-led carbon sequestration activity.
- Within the framework of our Green University Programs, we implement numerous initiatives that play a significant role in raising the sustainability awareness of all university citizens and shaping the appropriate mindset.
- We support our student organizations dealing with sustainability to carry out their activities as effectively as possible.

As a result of the above-mentioned approach, Hungary's "Green University" is maximally committed to all initiatives that serve economic, social, or environmental sustainability. This attitude is also conveyed by the University's motto, “Naturally with You!” (Természetesen Veled!), which places the individual and nature at the center.

Sustainable Development in Higher Education

The increasing importance of our livable environment is evidenced by the concept of “sustainable development,” which has become one of the most frequently used ideas in both international and domestic professional literature concerning environmental protection. Its principles were first laid down in the comprehensive program titled "Our Common Future," prepared by the UN Commission on Environment and Development in 1987 (where it was initially referred to as "harmonious development"). Subsequently, the concept of sustainable development became known first among environmental professionals and then among the wider public in the 1990s (Sustainable Development Strategy 2019).

"Sustainable development, in short, means development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (*Our Common Future* 1987). The scale of global changes necessitates a complete paradigm shift. Solving this global and civilizational challenge requires conscious responsibility, systems-thinking, and appropriate forms of individual and communal action.

In this shift of perspective and attitude, higher education plays a major role, primarily due to the education and nurturing of young intellectual generations, and secondly, through institutional role modeling and the values it conveys.

Consequently, the University of Sopron has (and will continue to have) a prominent role. Under its “Green University” ideology, it names and adopts a principle that not only mandates sustainability and environmental education but also lays the groundwork for all the strategic steps that move beyond theory and put the conscious and voluntary protection of the environment into practice (Sustainable Development Strategy 2019).

The UI GreenMetric indicator system places great emphasis on the question of university responsibility about the UN Agenda 2030 – Sustainable Development Goals (SDGs) and global complex challenges, particularly the fight against the COVID-19 pandemic. Among its metrics, the "Education and Research (ED)" area is connected to the highest number of SDGs (13 SDGs). (UI GreenMetric Guideline, 2020)

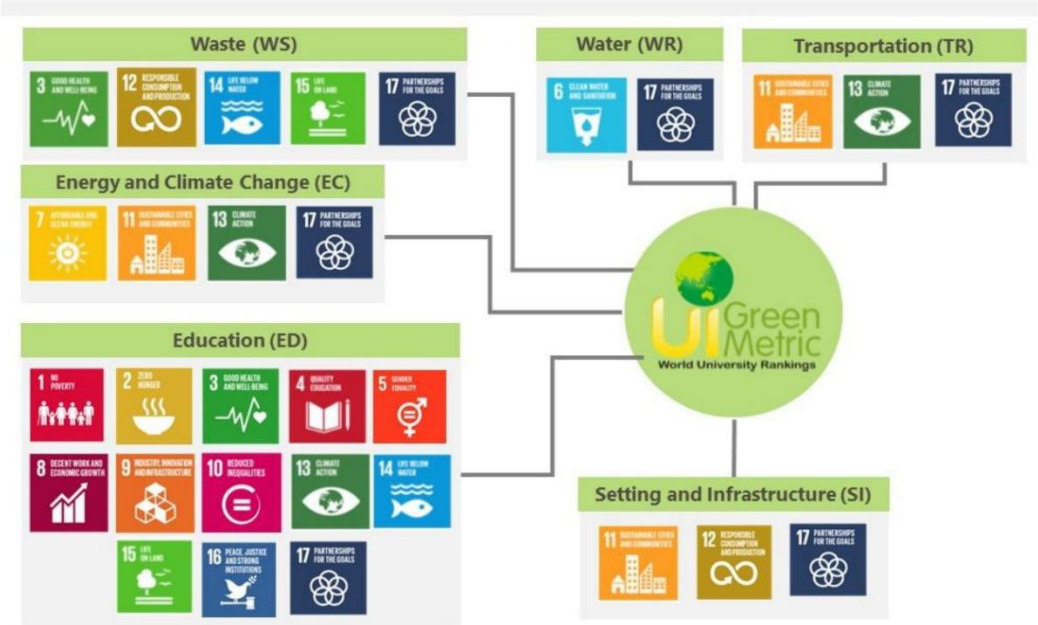


Figure 1.: The relationship between the UI GreenMetric main indicator groups and the Sustainable Development Goals (UI GreenMetric Guideline, 2020).

2 The Environmental Management System of the University of Sopron according to ISO 14001

Our institutional "green operation" is characterized by compliance with the highest requirements. To this end, we possess an Environmental Management System (EMS) certified according to the MSZ EN ISO 14001:2015 international standard, and we continuously develop and optimize our processes for environmentally friendly and energy-efficient operation. Below you can view the university's certificate according to the MSZ EN ISO 14001:2015 standard.

IWS

TANÚSÍTVÁNY | CERTIFICATE

N° C7232337603

Az IWS Solutions Kft. (IWS Tanúsítás) tanúsítja, hogy a
IWS Solutions Ltd. (IWS Certification) certifies that

Soproni Egyetem

által működtetett irányítási rendszer az alábbi címen
implemented a management system on the following location

9400 Sopron, Bajcsy-Zsilinszky u. 4.

a következő tevékenység tekintetében
for the following activities

Felsőfokú oktatás, kutatás
Tertiary education, research

megfelel az
which has been assessed to meet the

ISO 14001 : 2015

szabvány követelményeinek.
standard's requirements.

Először tanúsítva / Initial certification date:
2011.07.04.
A tanúsítvány érvényességének kezdete / This certificate is valid from:
2023.07.04.
A tanúsítvány érvényességének lejárata / This certificate is valid until:
2026.07.03.

Seres Diána
Az IWS Solutions Kft. operatív igazgatója
Operative Director of IWS Solutions Ltd.

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

NAH-4-0152/2022 MANAGEMENT SYSTEM CERTIFICATION BODY

007-FORM-15_v04

Commitment and Motivation towards the EMS

The University of Sopron's environmental management is carried out in a way that ensures that operations, education, and services burden the workplace, local, and natural environment as little as possible, which includes the continuous effort to improve environmental performance in these areas. This management method assumes that environmental priorities are central to the University's organizational objectives.

The Goal of the EMS

To disseminate and further develop practical methods of environmentally conscious management in the higher education, university, and research sectors.

Benefits of Applying the EMS

- By applying EMS, the University demonstrates its commitment to environmental protection,
- Systematization of environmental protection at the university,
- Ensuring compliance with environmental regulations and requirements,
- Innovative services,
- Cost savings and making environmental costs more transparent,
- Reducing waste management costs by making the entire operation more environmentally friendly,
- Reducing environmental risks: avoiding unexpected incidents, emergencies, and potential fines,
- Easier dialogue with environmental authorities, the local community, and other interested parties.

History of Our EMS Certifications

The Environmental Management System according to the ISO 14001:2004 standard was established in 2011. In the same year, the EMS operated at the University was first certified according to the ISO 14001:2004 standard, and then in 2015, according to the ISO 14001:2015 standard. The start date of the validity of the University of Sopron's current EMS certificate is 22.01.2021, and the expiration date of the certificate is 03.07.2026.

Scope of Application of the EMS

At the University of Sopron, we operate an Environmental Management System that:

- Comply with the requirements of the MSZ EN ISO 14001:2015 standard,
- Extends to the regulation and supervision of processes,
- Monitors pollutant emissions and indicates compliance or non-compliance of operations through regular measurement, checking, and technical calculation based on factual data,
- Ensures effective intervention to prevent or reduce environmental impact,
- Ensures further development planned, taking possibilities into account.

By operating and further developing this system, and by adhering to the requirements of the relevant legislation and standards, we ensure the environmentally friendly execution of our education, research, training, and expert consulting processes, and the services associated with them.

Significant Environmental Impacts

In the EMS procedure, we define the procedures, methods, and responsibilities related to the identification and evaluation of environmental aspects and impacts within the environmental impact matrix. To determine the significant environmental impacts, we developed a point system where the evaluation criteria were defined according to the severity of the impact, the probability of occurrence, and the detectability of the impact.

The examination of environmental aspects and impacts was extended to cover educational and research activities, as well as emergencies. We have committed ourselves to regularly perform

these examinations for technologies, educational methods, or activities currently being carried out, as well as any that may be changed or introduced in the future.
Our significant environmental impacts are:

- Heating of buildings,
- Air conditioning of buildings,
- Discharge of municipal wastewater,
- Cleaning of buildings,
- Chemical use in laboratories during education and research.

Main University Environmental Management Objectives and Targets
By setting environmental objectives and targets, our aim is to define medium-term tasks that:

- Consider the significant environmental impacts identified and are directed towards their improvement and reduction,
- Ensure the provision of personnel, material, and financial resources for their implementation.

Our main objectives are:

- Education of environmentally conscious mindset/attitude.
- Continuous removal/disposal of hazardous waste generated in laboratories.
- Reduction of energy consumption.

3 The Environmental Policy of the University of Sopron

SOPRONI EGYETEM
KÖRNYEZETI POLITIKA

Soproni Egyetem működése során a környezeti teljesítényének folyamatos fejlesztésére törekszik, amely a hallgatók-munkatársak környezettudatos gondolkodásra és viselkedésére nevelésében, az ökológiai és gazdálkodási szempontból fenntartható folyamatok kutatásában, továbbá az infrastruktúra környezetkímelő működtetésében nyilvánul meg.
A fenntartható fejlődés elveinek érvényesítése érdekében közvetíti az ökológiai eltartóképesség növelésének, a természet megőrzésének és átalakításának, az emberi élet kibontakozásának ökológiai, gazdaságilag és társadalmilag egyaránt elfogadható formáit.
A környezeti tényezőket, hatásokat mérlegeli, az ajánlások figyelembevételével a környezetközpontú irányítási rendszerét a megelőzés elve szerint, folyamatosan fejleszti.

A környezetközpontú irányítási alapelvek alapján vállalja, hogy

- a tevékenységéhez köthető környezeti tényezőket folyamatosan felméri, értékeli és elemzi a lehetséges kihatásokat és megfelelő intézkedésekkel csökkenti a környezeti kockázatokat;
- az oktatási, kutatási, s valamennyi azt támogató tevékenységet a környezetvédelemi szempontok figyelembevételével végzi. A környezettudatos gondolkodást és a fenntartható fejlődés elveit a képzési rendszer minden szintjén beépíti, a munkatársak szemléletformálását célzott képzésekkel valósítja meg;
- tevékenysége során vizsgálja es optimalizálja a hulladék keletkezését és gazdálkodását, különös figyelmet fordít a vízbázis védelmére, a szelektív hulladék gyűjtésére és újrahasznosíthatóságára, a veszélyes hulladék megfelelő kezelésére. Törekszik a fajlagos energiafelhasználás csökkentésére, támogatja a környezetkímélő termékek beszerzését, alkalmazását;
- egészséges es biztonságos környezetet alakít ki, mérsékeli a karos környezeti hatásokat, csökkenti a környezeti terhelést, a munkahelyek kialakításánál betartja az ergonómiai szempontokat;
- a környezetközpontú irányítási rendszerét következetesen aktualizálja a környezetvédelmi törvény és jogszabályok alapján, a hazai és nemzetközi gyakorlatban alkalmazott módszerekkel és eljárásokkal folyamatosan fejleszti.

A Soproni Egyetem a környezeti politikáját széles körben nyilvánossá teszi, a környezetközpontú irányítási rendszerének működésével példát mutat a hallgatók, munkatársak és partnerei számára, és elvárja annak támogatását, bevonja őket céljai teljesülésébe.

Sopron, 2021. december 1.

Prof. dr. Fábián Attila Gábor
rektor

4 The University of Sopron's Participation in the UI GreenMetric World University Rankings

The evaluation of the University's efforts toward sustainable development, and its internal and external perception, is key to formulating further development and strategic concepts, as well as to the objective measurement of environmental performance.
The environmental performance evaluation and qualification of the University of Sopron's "Green University" ideology can be realized along two lines:

- One possibility is the tracking of the organization's time-series environmental indicators (related to the EMS) (internal evaluation),
- The other possibility is comparison with other universities at the national and international level, which can be carried out, for example, according to a ranking based on standardized indicators developed for higher education institutions (external evaluation).

Both solutions (internal and external evaluation) lay the foundation for the organization's continuous short-, medium-, and long-term development.

One of the excellent tools for national and, simultaneously, international measurement, ranking, and comparison is the "UI GreenMetric World University Rankings" method, which is based on indicators developed by the University of Indonesia (Universitas Indonesia). During the preparation for this globally applied procedure, which was specifically developed for the sustainability ranking of universities, the university can further develop and expand the indicators formulated for measuring its environmental performance within its EMS according to MSZ EN ISO 14001.
After thorough preparation for participation in the system (establishing data collection procedures and collecting data related to the "UI GreenMetric World University Rankings" indicators), the University of Sopron first measured itself in 2020 and became involved in the international ranking system.
This prestigious world ranking was established in 2010 to measure the efforts made for the sustainability of university campuses. The initiative, which started with 95 universities from 35 countries around the world at the time, included 780 institutions by 2019, while by 2021, it encompassed 956 of the greenest universities from 80 countries.

"This shows that UI GreenMetric is internationally recognized as the world's first and only university ranking on sustainability." (UI GreenMetric Guideline, 2019)

The UI GreenMetric indicators make "green performance" objectively measurable, which provides an excellent basis for targeted sustainability-related developments and the evaluation of progress year over year. We had to perform analyses concerning the institution's green areas, built and open spaces, energy-efficient equipment, building stock, renewable energy sources, energy consumption, greenhouse gas emissions, measures taken to reduce them, waste management and recycling principles, selective waste collection, water protection program, specific features related to zero-emission vehicles, sustainability-related courses, self-governing student organizations, and scientific publications.
The assessment highlighted the strengths and the areas to be further developed that continue to lead the university toward environmental excellence. In 2021, our institution, with its long

history, achieved an outstanding score in the sustainability-related evaluation areas of "Education and Research," "Water Management," and "Setting and Infrastructure." This success is thanks to our large number of courses and scientific research related to sustainability, our programs for biodiversity, water protection, and gene conservation, and the university's magnificent green environmental assets. Our focal areas for development include the modernization of the old building stock according to green guidelines and making waste management even more efficient.

The key UI GreenMetric sustainability indicators for measuring educational activities and scientific work are the following:

- Percentage of sustainability courses out of the total number of courses
- Percentage of research funding for sustainability compared to total research funding
- Number of scientific publications related to sustainability
- Number of events related to sustainability
- Number of student organizations related to sustainability
- The university's annual budget is allocated for sustainability goals as a percentage of the total university budget

The University of Sopron was ranked as the 3rd greenest university in Hungary and the 130th greenest in the world in the authoritative UI GreenMetric environmental and sustainability world ranking in 2023, improving its previous year's result by 76 places, which is unique among domestic participating institutions.

This year, it again achieved the Gold cluster with 8,200 points (Gold cluster: 7501-10000 points), reaching the threshold of the global TOP 10% in the international ranking, which includes more than 86 countries and 1,183 institutions.

In the 2023 ranking evaluation cycle, the University of Sopron again proved that it is a worthy representative of the Green University title, a philosophy that is deeply rooted in the institution's past and continues to permeate its educational, research, service, and third-mission activities in a defining way.

The focus of the 2023 UI GreenMetric survey was the examination of the innovations, impacts, and future directions of sustainable universities, based on the UI GreenMetric indicators and the UN Sustainable Development Goals (SDGs).

Among 12 domestic participating universities, the University of Sopron achieved the 3rd place overall. Regarding the key areas, it ranked 1st domestically in the "Transportation" and "Water Management" evaluation dimensions, 2nd domestically in the "Energy and Climate Change" area, and reinforced its position with a 3rd domestic place in the key area of "Education and Research" related to sustainability, and 4th domestically in the "Waste Management" performance dimension (and 5th domestically for "Setting and Infrastructure").

In 2023, the University of Sopron also entered the European TOP 50 list (ranking 47th in Europe in 2023).

The GreenMetric World University Rankings, developed by Universitas Indonesia (UI), was launched in 2010 to measure the efforts made for the sustainability of university campuses. The initiative, which started then with 95 universities from 35 countries worldwide, is now recognized on every continent, with 1050 participants from 85 countries today. Its popularity among higher education institutions is unbroken, featuring organizations like this year's world number one, the Dutch "Wageningen University & Research," the second-placed British "Nottingham Trent University," and the third-placed "University of Nottingham."

In this year's survey, which covered more than 80 indicators, the monitoring of waste streams became even more emphasized, concerning the amounts of generated and treated selective waste fractions, green waste, and hazardous waste, as well as sustainability reporting. We had to perform analyses regarding the institution's green areas, built-up and open spaces, energy-saving devices, building stock, renewable energy sources, energy consumption, greenhouse gas emissions, measures taken to reduce its carbon footprint, waste management and recycling principles, selective waste collection, water protection program, characteristics related to zero-emission vehicles, sustainability-related courses, self-operating student organizations, and scientific publications.

The University of Sopron achieved its exceptionally high bonus scores in the sub-areas of "Waste Management" and "Transportation," thanks to targeted developments ((RRF-2.1.2-21-2022-00011 Digital Transformation of the University of Sopron in Education (SOE – DTO) 2022-2026)). Our focus areas for development include, among others, the modernization of the old building stock according to green guidelines.

The University of Sopron, ranked 130th globally, improved by a further 76 places this year and reinforced its 3rd place in Hungary out of 12 domestic entrants. Among Hungarian universities, the following were included in the world ranking: 23rd the University of Pécs, 77th the University of Szeged, 340th the University of Debrecen, 348th the Semmelweis University, 368th the Eötvös Loránd University, 583rd the Pannon University, 750th the Corvinus University of Budapest, 785th the Budapest Business School, 870th the Eszterházy Károly

Catholic University, 1099th the University of Miskolc, and 1161st the University of Nyíregyháza.

The ranking position in the world ranking is highly dependent on the current number and performance of participants; therefore, to determine development, it is worthwhile to review the time-series evaluation of the total scores and examine the scores of the individual sub-areas independently. The University of Sopron—compared to the 2020 baseline year—was able to demonstrate further progress in all 6 main performance dimensions for the 2023 cycle of the UI GreenMetric survey:

- We achieved the best result in the "Transportation" sub-area, where we made significant improvements (1,700 points, performance: 94.44%, improvement: +50.00%), which translates to the 1st domestic place.
- Our second-best performance dimension is "Education and Research" (performance: 93.06%, improvement: +30.56%), where we achieved the 3rd place domestically in terms of the score obtained (1,675 points)
- This is followed by the "Water Management" area (900 points, performance: 90.00%, improvement: +55.00%), where we rank 1st among domestic universities.
- We also achieved significant improvement in the "Energy and Climate Change" sub-area (1,565 points, performance: 74.52%, improvement: +40.00%), where we ranked 2nd among domestic universities.
- The 1,425 points (performance: 79.17%, improvement: +33.34%) achieved in the "Waste Management" evaluation sub-area translate to the 4th domestic place for us.
- The University of Sopron's Botanical Garden and Arboreta consistently provide a high score in the "Setting and Infrastructure" dimension (935 points, performance: 62.33%, improvement: +12.33%).
- The final score of 8,200 points obtained in the 2023 survey represents an 82% achieved performance in the total evaluation system for the University of Sopron. Compared to the 2020 baseline year, this constitutes a 36.25% improvement, which means an advancement of 460 places from the 2020 ranking.

Prof. Dr. Attila Fábián, Rector of the University of Sopron, said: *"The goal of our developments is to create an energy- and environmentally conscious, innovation-oriented, economical, efficient, and sustainable university in its management. This not only allows us to be among the best in international sustainability rankings, which are so important for institutions, but also makes the institution's management sustainable, strengthens its resilience to economic and energy crises, reduces its exposure, and ultimately enhances its market potential. The University of Sopron aims to become the Central European innovation hub for ecotechnology, as one of the world's most sustainable universities."*

The UI GreenMetric survey reflects the unified and joint efforts of the four faculties and the scientific institute of the University of Sopron along the lines of the "Green University" concept, which we also present in the form of a website: https://greenuniversity.uni-sopron.hu/kezdolap

The UI GreenMetric website: http://greenmetric.ui.ac.id/

5 Sound of Earth Implementation Program

The University of Sopron proudly presented its trademark-protected "Sound of Earth University of Sopron" Sustainability Implementation Program.

The “Sound of Earth” is also a philosophy: The Sound of Earth finds attentive ears through the efforts of the University of Sopron. The work, research, and measures taking place within the institution coalesce into an organic whole for the sake of the practical implementation and development of sustainability. The goal is the development of green infrastructure and shaping social attitudes. Its milestones include net-zero climate neutrality, climate and nature positivity, and the conveyance of the message of environmental awareness.

The University of Sopron, applying a systemic approach based on sustainability criteria and leveraging its best practices, has created the University of Sopron Sustainable University Model (SOE-SUM). In its Institutional Sustainability Strategy, it defines its vision and SMART goals, which are linked to an Implementation Program. Through university measures and Work Packages (WPs), the model supports the realization, operation, and continuous development of the Sustainable University.

The SOE-SUM takes the form of a pyramid model, aiming to establish a university operational culture that prioritizes sustainability, which can then spread to other sectors and wider social circles.

Based on Sustainability Strategy, the University of Sopron announced its trademark-protected "Sound of Earth University of Sopron" Implementation Program (SOE-IP). This implementation program, which features a range of measures (thematic work packages), is aligned with the UN Sustainable Development Goals (SDGs) and provides a framework for the complex practical application and continuous development of the institutional sustainability culture.

A key element of the SOE-IP is the "University as a Living Lab Concept" approach, which serves as a framework encompassing the work packages and measures. The Living Lab concept involves: the multifunctional use of the green and built university environment in the service of sustainability efforts; students, faculty, mentors, researchers, and employees can develop their ideas in a real-world setting and examine the realization through feedback loops. Achieving a balance between theory and practical implementation is paramount during the implementation of the measures. The individual SOE-IP work packages are the following: Partnership, Planet, People, Prosperity, Peace.

6 Nature Positive University

Our Soul-Lifting Green Environmental Endowments: The main campus and most of the educational buildings of the University of Sopron are located in the wonderful, 100-year-old University Botanical Garden, which serves educational, living plant collection, nature conservation, biology, and recreational purposes. The Forest Research Institute (ERTI), which is part of the university and carries out educational tasks but primarily focuses on research, is

organically linked to the institution through its 5 Experimental Stations (Sopron, Sárvár, Budapest, Mátrafüred, Püspökladány) and 3 Arboreta (Sárvár, Kámon, and Püspökladány).

The "Nature Positive Universities Alliance" global network was launched by the United Nations Environment Programme (UNEP) in collaboration with the University of Oxford to support the prioritization of nature restoration in the higher education sector.

Globally, more than 400 universities, along with numerous researchers, students, and experts, have already joined the network, which significantly contributes to the UN's "Decade on Ecosystem Restoration" and the Sustainable Development Goals (SDGs). A benefit of the collaboration is that universities can share their experiences and learn about each other's best practices. Universities have a significant role in shifting nature-damaging, environmentally destructive activities towards restoration, as students, as future leaders, with their acquired knowledge and mindset, and as future owners and managers of land, and as consumers, directly affect the planet and the state of the natural environment.

Higher education institutions holding membership in the "Nature Positive Universities Alliance" can verify and monitor their efforts in biodiversity protection, achieving carbon neutrality, and developing their sustainability practices in their operational processes and supply chains on campuses, as well as in their surrounding communities.

The University of Sopron was among the first to express its intention to join the initiative as a founding member in 2022, recorded and assessed its baseline status, and registered its development programs ("Nature Positive Pledge") through SMART goals. Thus, it was not only a founding member but also the first Hungarian registered higher education institution in the "Nature Positive Universities Alliance". The university's most important goals are the comprehensive development of the Botanical Garden (campus development), the shift towards institutional carbon-neutral operation, and the university's afforestation program (Forest of Loyalty - Hűségerdő). The institution reports on the achieved and measurable results in annual reports.

The university also strives to prioritize the nature-positive approach in its daily operations. A detailed description of its programs and activities organized in this spirit is available at the link below: https://greenuniversity.uni-sopron.hu/termeszetpozitiv-egyetem

7 Energy Awareness

The University of Sopron has made significant efforts in the field of energy awareness in recent years. The institution aims to reduce its ecological footprint and set an example in sustainable development.

In 2023, the university received a major recognition: it became Hungary's first carbon-positive university. This title is thanks to our institution's outstanding sustainability efforts. The

developments realized in Sopron not only make the university's operation greener but are also exemplary for the whole country.

Carbon-positive operation means that the university actively contributes to mitigating climate change. At the university, the principles of sustainability are kept in mind in all areas of activity. The most significant step was the establishment of biomass heating plants – these modern facilities use domestic dendromass to provide heating for several of the university's buildings. Thanks to the new heating plants, the university's fossil-fuel-based greenhouse gas (GHG) emissions have significantly decreased. Solar power plants on our buildings ensure renewable energy generation and the avoidance of GHG emissions.

We have implemented numerous other measures at the university that contribute to increasing energy efficiency and protecting the environment. Energy consumption has become significantly more efficient through increasing the proportion of energy-saving devices and the widespread application of renewable energy sources. During the planning and renovation of university buildings, special attention is paid to green architectural and timber construction solutions. Natural light, natural ventilation, and systems suitable for the natural air conditioning of buildings (e.g., shading by vegetation) also play an important role.

The university has programs to reduce GHG emissions in several emission scopes (Scope 1, 2, 3). For example, we encourage environmentally friendly commuting for employees and students by supporting cycling and public transport. As a result of our performance in 2023, the University of Sopron earned the Advanced Cyclist-Friendly Workplace certification. Furthermore, concerning the institutional vehicle fleet, we are gradually transitioning to the use of purely electric vehicles based on the purpose of use.

The good practices of the University of Sopron demonstrate that the energy awareness and efficiency of higher education institutions also play an important role in sustainable development.

8 Waste Management and Recycling

The University of Sopron is committed to sustainability and environmental awareness, making significant efforts to reduce waste generation and enhance recycling, based on its "3R Waste Management Program". We have introduced numerous measures at the university to reduce paper and plastic consumption and increase the efficiency of selective waste collection.

The 3R Waste Management Program is an environmentally friendly approach that emphasizes waste reduction, reuse, and recycling of existing waste. The 3Rs stand for the English terms "reduce, reuse, recycle," and mean reduction, reuse, and recycling.

Reduction means generating less waste, primarily through prevention, such as buying less packaging material or composting organic waste. Double-sided printing and electronic document management are everyday practices at the university, thereby avoiding unnecessary printing. We have also reduced the amount of paper waste by digitizing administrative processes (e.g., financial authorization processes). Organic waste is composted on-site in the Botanical Garden.

Reuse allows products to be used multiple times for their original or a different purpose, thus extending their lifespan. We have set up free water dispensing points at the university to encourage the use of reusable water bottles and cups, thereby reducing the amount of single-use plastic and paper cups.

Recycling means that secondary raw materials can be produced from waste, and new products can be made from those. The goal of 3R waste management is to reduce the environmental burden, conserve natural resources, and promote sustainable development.

Our selective waste collection extends to separate collections of paper, plastic, glass, mixed, green and organic waste, metal, and hazardous waste (e.g., batteries, accumulators, toners, spent chemicals). The university continuously strives to reduce waste generation, prioritize reuse and recycling by following the principles of the waste hierarchy.

At the University of Sopron, we place great emphasis on involving every member of the university community in sustainability efforts. Our goal at the university is to take on a leading role in environmental awareness and ensure long-term sustainable operation.

9 Water Management and Water Conservation

From the perspective of maintaining and caring for the green areas and green spaces of the University of Sopron, it is necessary to retain and utilise natural water resources and rainwater locally as much as possible. As a result of extreme climatic conditions, increasingly long periods of drought must be anticipated, while the runoff from sudden downpours cannot be adequately drained and stored by the drainage system. Conscious, sustainable, and systemic management of rainwater – meaning the development of blue infrastructure networks and their integration with green infrastructure elements—can be the solution to this climatic challenge. Green areas are also suitable for establishing local rainwater management systems by creating smaller or larger rain gardens, reservoirs, and multifunctional rainwater treatment spaces. Novel technical solutions must be introduced for the drainage problems caused by extreme rainfall. Securing irrigation is essential for maintaining high-quality green spaces, partly because of climate change. The water quantity required for this must be primarily secured by utilizing groundwater and rainwater, and only secondary by a more economical use of drinking water.

The University is already doing a lot on both sides and is continuously developing its water management. The primary solution is rainwater harvesting in the Botanical Garden, which now takes place in three different locations. Two underground tanks serve this purpose next to the

Ligneum building, and three connected, newly installed surface tanks next to Building E and three next to the Botanical Garden's greenhouse ensure the collection and later utilization of valuable rainwater. With these tanks, we can save 70-80 m^3 of tap water annually, which is a huge help not only in terms of cost but also from an environmental perspective.

In addition, the number of water-saving taps and infrared-flushing restrooms is continuously expanding in the buildings and dormitories, which allows us to save further valuable cubic meters of water for our planet.

10 Sustainable Transportation

The University of Sopron is committed to sustainable mobility, thus the transition to environmentally friendly transportation is of key importance for daily commuting to work, classes, and during official trips. We have excellent conditions for carrying out our daily tasks, as our three Sopron campuses and the dormitories are all reachable within a 10-minute walk or a 5-minute bike ride.

Cycling, as a means of sustainable micromobility, receives a prominent role at our university and has long-standing traditions. Several bicycles, complete with full equipment, have been distributed among the institution's employees, considering technical and safety aspects. In addition, bicycle storage facilities and ergonomic bicycle stands are available next to all our buildings, and we have also set up two public DIY bicycle service points.

To motivate instructors, students, and employees, we launched the "Walk with us to Selmec!" and "Bike with us to Selmec!" programs, which use information technology and kilometre counting to also promote a healthy lifestyle.

We limit the use and entry of private cars on campuses, with the goal of preserving the undisturbed wildlife of the Botanical Garden and reducing harmful emissions. This is supported by a barrier and a license plate-reading smart-camera system. Underground garages are also available for vehicles on some campuses.

We support public transport with an employee pass subsidy.

Sustainable mobility is of paramount importance to the University of Sopron, and we will continue to place great emphasis on further developing and perfecting these efforts in the future.

11 Sustainability: Education and R+D+I

The University of Sopron is a prominent intellectual, educational, and research center in the Western Hungarian region. Education at the university's four faculties (Faculty of Forestry, Faculty of Wood Engineering and Creative Industries, Benedek Elek Faculty of Pedagogy, Lámfalussy Sándor Faculty of Economics) is rooted in centuries-old traditions. The Forest Research Institute, which recently joined the University of Sopron, was founded in 1898. The

institute's research and development projects, across numerous scientific fields (ecology, forest management, forest breeding, forest protection, silviculture, forest asset management), serve sustainable forest management.

The University of Sopron strives to shape the natural, social, and human-made environment, with its activity aiming to preserve and improve the quality of life through an environmentally conscious mindset. It cherishes moral and human values and seeks to develop the region and the entire country through its operations.

With the model change (becoming a university maintained by a foundation), the university has placed sustainability at the center of its educational, research, service, third mission, and institutional operational activities. Due to its past, it has always embraced the "Green University" concept in its spirit. Its strategic goal is to be a "Continuously renewing, benchmark-setting, university knowledge center in Central Europe." It has set the development of green infrastructure and the shaping of social attitudes as its strategic goals. It strives to achieve its milestones—net zero climate neutrality, climate and nature positivity—by conveying the message of environmental awareness and actively involving university students and the public.

The sustainability approach is greatly emphasized and increasingly permeates its daily operations. Our university is able to impart, in the most complex way, knowledge regarding the knowledge-intensive management and sustained use of the forest ecosystem and the timber material that originates within it, which is the foundation of a sustainable forest-based economy. In addition to natural science, climate adaptation, and engineering research, it approaches the complex issues of sustainability from environmental education, pedagogy, as well as economic and social science aspects.

With its sustainability-related activities and performance, the University of Sopron is building itself and the future. Hungary's "Green University," stemming from the above approach, is maximally committed to all initiatives that serve economic, social, or natural sustainability. This attitude is also conveyed by the university's motto, "Naturally with You!", which centers the individual and nature.

12 Culture and Community

At the University of Sopron, every university citizen can choose from numerous community-building opportunities. These include, for example, the Sopron student traditions, but there are also several student organisations and cultural programs and events at the university.

The Sopron Selmec student traditions date back to the end of the 18th century when a distinctive tradition developed among the students of the Mining and Forestry Academy operating in Selmecbánya (Banská Štiavnica). The traditions remained and continued to evolve even after the institution moved to Sopron and are now referred to as the Selmec-Sopron student traditions. These traditions were not merely created for entertainment but also carry a deeper meaning. They forge cohesion among the students, strengthening their attachment to the institution. By nurturing these traditions, students belong to a special community that has its own values, rules, and symbols. Furthermore, traditions also play an important role in education, as they can even pass on professional knowledge, as well as ethics and responsibility. Since 2014, the traditions have also been included in the UNESCO National Inventory of Intangible Cultural Heritage, recognizing their historical and cultural significance.

Sports also play a prominent role in the life of the university. SMAFC 1860 (Sopron University of Technology Athletic and Football Club) is the oldest sports association in Hungary that is still operating in Europe today. In the past, it achieved numerous significant successes, including winning the NB II (Hungarian second division football) and the national university basketball championship. Today, it primarily offers sports opportunities for university students and employees, but also for the people of Sopron, and joining is open to anyone. The club has a wide range of offerings (with more than 24 sections: Basketball, Karate, Orienteering, Horse Riding, Chess, Sectorball, Floorball, Volleyball, Ice Hockey, Athletics, Archery, Table Tennis, Parasport, Leisure Sports, E-sports, Futsal, Hiking Section, Combat Sports, Water Sports, Fencing, Aerobics, Squash, Cycling, Boxing), from swimming and squash to aikido and gym workouts, and various team sports.

The University of Sopron is not only a creative force in the field of science but also a vibrant center of art and culture. The Ligneum Visitor Center is one of the university's most active workshops, where traditional art forms are given space alongside contemporary art. Regular exhibitions, concerts, family days, workshops, and other cultural events enrich university life. The university also organizes several festivals annually, such as the SEN (Sopron University Days) and is an active partner of the "SopronFest." These events provide an excellent opportunity for both students and the citizens of Sopron to relax and gain new experiences. Student art groups also play an active role in the university's cultural life. Theater performances, concerts, and various exhibitions diversify the offerings. The university regularly organizes guest lectures where renowned artists, writers, and performers share their knowledge and experiences with the students.

The Eszterházy Palace Forestry Museum is also a unique place full of cultural programs, where the relationship between the forest and humans comes to life. The museum's collection contains numerous interesting objects, documents, and photographs that showcase the history and traditions of forestry. Visitors to the museum can learn about the mining and forestry traditions of Selmec, the life and work of foresters, and the varied world of forest management. The Forestry Museum regularly organizes diverse programs related to the forest, forestry, and nature. These programs offer visitors the opportunity to get closer to nature, learn about the role of the forest in our lives, and participate in interactive, experience-based activities. These

include permanent and thematic exhibitions that explore various topics, such as forest animals, wood processing, or the lifestyle of foresters, such as the permanent Béla Hidvégi Hunting Collection or the Alma Mater exhibition. There are various educational and entertaining sessions for children that introduce them to the forest and its inhabitants in a playful way, such as the experiential session titled "The Mysterious 'Inhabitants' of the Forest." There are interesting lectures by experts on the topics of forestry, nature conservation, and environmental awareness. Creative sessions and workshops where participants can personally make various objects from natural materials. Explorations: Guided tours in the forest where guides present the forest's wildlife and the peculiarities of forest management. Larger events are also organised several times during the year, such as forest celebrations, family days, or professional conferences.

The diverse cultural activity of the University of Sopron has been enriched with a new feature, with an evening summer theater performance series also launched in the inner courtyard of the Esterházy Palace-Forestry Museum as a highlight attraction.

13 The Evolution of Environmental Performance at the University of Sopron considering the Green University Concept

Below you can learn about the measurable results of the University of Sopron through our environmental policy, objectives, and targets. We present the evolution of our environmental performance based on the respective survey years, across essential criteria within the dimensions of *"Setting, Infrastructure, and Biodiversity", "Material and Energy Consumption", "Waste Management", "Water Management", "Emissions and Climate Change", "Transportation"* and *"Education and Research"*.

13.1 Setting and Infrastructure, Biodiversity

Information related to the university's territory and infrastructure provides a general picture of the university's green environment. This indicator group also measures the extent to which the university meets the title of Green University. The goal is to provide as much space as possible for biologically active surfaces, for wooded and planted vegetation, to have a high proportion of open spaces versus built-up areas, and for our specific indicators to confirm the existence of a livable environment (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The **University of Sopron (SOE)** is in the inner area of the dynamically developing, medium-urban city of Sopron, a county-seat city rich in historical monuments, in Győr-Moson-Sopron County, Western Transdanubia, Hungary. The city of Sopron is located near the western border of Hungary, at the foot of the Alps, 80 km from Vienna (Austria) and 220 km from Budapest (Hungary). The residents of the city are famous for their hospitality and their loyalty to their home. Its population is approximately 60,000.

The University of Sopron is an internationally significant higher education institution with four faculties (Benedek Elek Faculty of Pedagogy, Faculty of Forestry, Faculty of Wood Engineering and Creative Industries, Sándor Lámfalussy Faculty of Economics), playing a national and regional role, and is the intellectual, educational, and research center of the Western Hungarian region. Education and research at the university's faculties look back on centuries of tradition. The main campus and most of the educational buildings of the University of Sopron are in the wonderful University Botanical Garden, which serves educational, living plant collection, nature conservation, conservation biology, and recreational purposes.

The fifth main organizational unit, which is part of the university and primarily deals with research while also performing educational tasks, is the SOE Forest Research Institute. Its 5 Experimental Stations (Sopron, Sárvár, Budapest, Mátrafüred, Püspökladány) and 3 Arboreta (Sárvár, Kámon, and Püspökladány) are organically connected to the institution.

The ratio of our university's open spaces relative to the total university area falls into the highest qualification category globally (> 95%). It follows that the area covered by forest and woody vegetation also serving higher education purposes, as well as the size of open spaces per university citizen, is unique. The University Botanical Garden and the Arboreta support nature conservation programs and gene conservation goals that are rated as "fully realized" according to the qualification.

The entire area of the Botanical Garden (17 ha) is a nationally significant protected natural area, meaning all the woody and herbaceous plants, fungi, and animals found within it enjoy protection. According to the continuously updated database, there are 134 protected plant species in the garden, which constitute about one-fifth of Hungary's protected flora. These individuals serve not only education, outreach, and research but also bear important conservation biology significance. The Botanical Garden is also a recognized genetic *clone orchard*, containing approximately 2,800 registered mother plants, which represents a valuable gene reserve for the future.

The first trees of the Sárvár Arboretum were planted in 1802 over a total of 10 hectares. At the same time, some parts contain remnants of the former floodplain gallery forest with 400-500-year-old oak and ash specimens. Its greatest botanical value is the Magnolia collection, which consists of 120-150-year-old specimens of 10 taxa.

The Kámon Arboretum in Szombathely is spread over 27 hectares, possessing 3,500 woody taxa, and features a significant number and distribution area of spring bulbous plants. The arboretum was founded by Dr. István Saághy in 1891-92. Its most important collection units are Rhododendrons and Azaleas (Rhododendron and Azalea sp.), magnolias (Magnolia), conifers, woody peonies (Paeonia), viburnums (Viburnum), and Hungarian-bred pine and deciduous varieties. Gene conservation is also underway, in addition to the 3,500 taxa, in the Scots pine and Austrian pine plantations and the East German (NDK) plantation.

The Püspökladány Arboretum can be fundamentally divided into three main parts in terms of its plant material and landscape, which are also distinctly separable geographically. The largest part is the enclosed forest area resulting from the salty soil afforestation experiments, which is now nearly one hundred years old. Experiments were established in these areas with the aim of applying different stands of varying tree species composition and cultivation technologies on different sites, involving about 35 tree species. The northern third of the Arboretum is highly mosaic-like due to the varying degrees of salinity in the soil. Mainly groves, tree groups, and forest belts alternate, recalling the characteristic former hard-wooded floodplain gallery forests of the Great Sárrét region, using varied tree species composition and different cultivation technologies. The southern area of the Arboretum started from the foundations of a gene reserve plantation begun nearly 100 years ago. Currently, we register more than 800 individuals of approximately 400 tree and shrub species, varieties, and cultivars. In recently established experiments, we are investigating nearly 2,000 additional tree and shrub species, varieties, and cultivars. Our fundamental task is to maintain this significant gene pool reserve.

Based on the above, the green environmental assets of the University of Sopron are unique and represent an outstanding level internationally.

Table 1.: Evolution of the Metrics/Indicators for Setting and Infrastructure, Biodiversity

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Number of University Buildings	Units serving educational purposes	18	32	++	n.r.
2.	Percentage of University Open Space Area Compared to Total University Area (%)	n.r.	87,18%	99,33%	++	[1] ≤ 1% [2] > 1 - 80% [3] > 80 - 90% [4] > 90 - 95% **[5] > 95%**
3.	Percentage of Total University Area Covered with Forest Compared to Total University Area (%)	Area covered with woody and forested vegetation (natural and/or planted biodiversity), owned by the university.	66,44%	79,85%	+	[1] ≤ 2% [2] > 2 - 9% [3] > 9 - 22% [4] > 22 - 35% **[5] > 35%**
4.	Percentage of Total University Area Covered with Planted Vegetation Compared to Total University Area (%)	Excluding woody vegetation. Including lawn, garden, green roof, indoor planting (green wall), vertical garden, for the purpose of providing any additional vegetation.	7,54%	17,74%	++	[1] ≤ 10% **[2] > 10 - 20%** [3] > 20 - 30% [4] > 30 – 40% [5] > 40%
5.	Percentage of Total University Permeable Surface Area, Excluding Forested and Planted Vegetation (%)	Percentage of permeable surfaces (e.g., gravel path, soil, grass, paving stone, synthetic turf, etc.) compared to the total	9,24%	1,23%	-	**[1] ≤2%** [2] > 1 - 10% [3] > 10 - 20% [4] > 20 - 30% [5] > 30%,

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
		area of university buildings.				
6.	Size of Open Spaces Divided by the Number of University Citizens (m^2/person) (active full-time and correspondence students, full-time teaching and administrative staff in the given year)	Size of university open spaces per capita. University citizens: active full-time and correspondence students, full-time teaching and administrative staff in the given year.	70,49 m^2/person	1536 m^2/person	+	[1] ≤10 m^2/person [2] > 10 – 20 m^2/person [3] > 20 - 40 m^2/person [4] > 40 – 70 m^2/person **[5] > 70 m^2/person**
7.	Percentage of the University's Annual Budget Allocated to Sustainability (here: Maintenance) Goals	Considering the average of the 3 years ending with the reporting period, including: infrastructure costs, equipment costs, related personnel costs.	1,96%	16,8%	+++	[1] ≤ 1% [2] > 1 - 5% [3] > 5 - 10% [4] > 10 - 15% **[5] > 15%**
8.	Protection, Conservation: Genetic Stock of Plants, Animals, Wildlife, and Agriculture Ensured in Medium- or Long-Term Protection Facilities	Protection, conservation: genetic stock of plants, animals, wildlife, and agriculture ensured in medium- or long-term protection facilities.	[5] (Nature) Protection Program Fully Implemented	[5] (Nature) Protection Program Fully Implemented	+	[1] (Nature) Protection Program Under Preparation [2] (Nature) Protection Program Implemented by 1-25% [3] (Nature) Protection Program Implemented by 25-50% [4] (Nature) Protection Program Implemented by 50-75% **[5] (Nature) Protection Program Fully Implemented**

13.1 Material and Energy Consumption, Efficiency

The indicators below express the amount of attention the university pays to issues related to energy consumption. Special attention is given to the use of energy-saving appliances, the realization and construction of automated/smart buildings, the use of renewable energy, total electricity consumption, energy saving programs, and the application of green building criteria (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The proportion of the University of Sopron's energy-saving appliances has shown improvement in recent years, with a larger share of energy-efficient equipment now in use. Currently, there are no buildings in the university's building stock with a smart building certification.

The University's total electricity consumption divided by the number of university citizens falls into the medium qualification category.

The University of Sopron uses several renewable energy sources to meet its energy needs. The production of renewable energy from biomass and solar energy is significant. The use of biodiesel and geothermal energy can also be found in our institution. The ratio of renewable energy production to annual energy consumption is high at the university level (56.62%), which falls into the highest international qualification category (> 25%).

Elements of green building implementation are present in our building stock and are also reflected in the university's construction and renovation guidelines. Natural light, natural ventilation, and systems suitable for the natural air conditioning of buildings (e.g., shading by vegetation) play an important role.

Table 2.: Evolution of the Metrics/Indicators for Material and Energy Consumption, Efficiency

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Use of Energy-Saving Appliances (%)	Including energy-saving appliances/lighting fixtures (e.g., air conditioning with inverter technology, LED bulbs, computer, etc.).	57,25%	86,34%	++	[1] < 1% [2] 1 - 25% [3] > 25 - 50% [4] > 50 - 75% **[5] > 75%**
2.	Extent of Smart Buildings on Campus (%)	The percentage of the total built-up floor area of smart buildings compared to the area of all university buildings.	0 %	5,37 %	+	[1] < 1% **[2] 1 - 25%** [3] > 25 - 50% [4] > 50 - 75% [5] > 75%
3.	Number of Renewable Energy Sources on Campus (pcs)	The availability of several renewable energy sources indicates that a university has made greater efforts to provide alternative energy.	1 pc	4 pcs	++	[1] 0 energy sources [2] 1 energy source [3] 2 energy sources [4] 3 energy sources **[5] >3 energy sources**
4.	Total Electricity Consumption of the University Divided by the Number of University Citizens (kWh/person)	Electricity consumption per capita. University citizens: active full-time and correspondence students, full-time teaching and administrative staff in the given year.	795 kWh/person	566,99 kWh/person	++	[1] ≥ 2424 kWh [2] < 2424 - 1535 kWh [3] < 1535 - 633 kWh **[4] < 633 - 279 kWh** [5] < 279 kWh

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
5.	Ratio of Renewable Energy Production to Annual Energy Consumption (%)	The ratio of renewable energy generation to total annual energy consumption.	25,53%	73,49 %	+	[1] ≤ 0.5% [2] > 0.5 - 1% [3] > 1 - 2% [4] > 2 - 25% [**5] > 25%**
6.	Elements of Green Building Implementation Reflected in All Construction and Renovation Guidelines (pcs)	Elements of green building implementation that are reflected in the university's construction and renovation guidelines (e.g., natural ventilation, natural light, building energy efficiency, and the existence of a green building, etc.).	0 pc	4 pcs	++	[1] None [2] 1 element [3] 2 elements [4] 3 elements **[5] > 3 elements**

13.2 Waste Management

Waste treatment and recycling activities are key factors in creating a sustainable environment. The activities of university employees and students on campus result in a lot of waste, so the university must consider several recycling and waste treatment programs, such as recycling, organic waste treatment, inorganic waste treatment, recycling of toxic/hazardous waste, wastewater treatment, and the application of policies aimed at reducing paper and plastic usage on campus (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The University of Sopron has developed its waste recycling activities in recent times by increasing the efficiency of selective waste collection and applying additional segregated collection bins (qualification: extensive - *more than 75% of waste is recycled*). The university also maintains reduction programs in paper and plastic consumption, such as preferring double-sided printing, handling documents in electronic form, and avoiding printing whenever possible. Furthermore, for administrative processes, especially financial authorization procedures, we follow dematerialization policies and use online systems. Free water dispensing points are available to all university citizens on campus, prioritizing the use of reusable bottles, glass cups, mugs, etc., instead of single-use plastic and paper cups. The quality of tap drinking water is excellent in both Hungary and Sopron and is accessible to all university citizens. Electric hand dryers are also available in restrooms to replace the use of paper towels.

The treatment of the university's organic waste is almost entirely managed through local composting in the Botanical Garden and Arboreta. If the resulting green waste cannot be treated on the institution's premises due to space constraints, it is transported to the city's composting site for professional treatment.

Selective waste collection extends to the fractions of paper, plastic, glass, green waste, metal, hazardous waste (special waste from laboratories, batteries, accumulators, toners, paints, lacquers, etc.), and electronic waste. The collection and handover of hazardous waste to licensed hazardous waste treatment providers follow legal regulations. Paper-based documents that are ruined or designated for destruction are shredded and then placed in the university's selective waste collection bin. Further non-hazardous waste forms the mixed municipal waste of the university and constitutes the volume that is regularly transported by our public utility waste management partner. Our university strives to further increase the efficiency of selective waste collection as much as possible.

The wastewater generated at the university undergoes value-added treatment in partnership with the city's wastewater treatment plant (by creating biogas, electrical energy, and compost).

Table 3.: Evolution of the Metrics/Indicators for Waste Management

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Waste Recycling Program at the University	The current situation of university efforts to encourage employees and students to recycle waste.	[2] Partial (1-25% of waste is recycled)	[5] Extensive (> 75% of waste is recycled)	++	[1] Not Applicable. Please choose this answer if there is no such program at the university. [2] Partial (1-25% of waste is recycled) [3] Partial (> 25 - 50% of waste is recycled) [4] Partial (> 50 - 75% of waste is recycled) **[5] Extensive (> 75% of waste is recycled)**
2.	Paper and Plastic Consumption Reduction Program	The university's status in developing an official policy aimed at reducing paper and plastic consumption (e.g., double-sided printing, use of hand dryers, use of reusable bags, printing only, when necessary, free water dispensing point, policies on the dematerialization of administrative procedures, etc.)	2 pcs	20 pcs	++	[1] No such program. [2] 1 program [3] 2 programs [4] 3 programs **[5] More than 10 programs**
3.	Treatment of Organic Waste	The general treatment method for most of the organic waste (e.g., compost or other plant-	[2] Partial (1-25% is treated)	[5] Extensive (> 85% is treated)	++	[1]] Open landfill [2] Partial (1 - 35% is treated) [3] Partial (> 35 - 65% is treated)

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
		derived waste) at the university.				[4] Partial (> 65 -85% is treated) **[5] Extensive (> 85% is treated)**
4.	Inorganic Waste Treatment	The general treatment method for most of the inorganic waste (e.g., wastepaper, plastic, metal, etc.) at the university.	[3] Partial (> 25 - 50% is treated)	[5] Extensive (> 85% is treated)	++	[1]] Open burning [2] Partial (1 - 35% is treated) [3] Partial (> 35 - 65% is treated) [4] Partial (> 65 -85% is treated) **[5] Extensive (> 85% is treated)**
5.	Toxic Waste Treatment	The university's status on how it handles toxic/hazardous waste. The treatment process includes whether toxic/hazardous waste is treated separately, for example, by classification and handover to a third party or certified treatment companies.	[5] Extensive (> 75% is treated)	[5] Extensive (> 85% is treated)	0	[1]] Not treated [2] Partial (1 - 35% is treated) [3] Partial (> 35 - 65% is treated) [4] Partial (> 65 -85% is treated) **[5] Extensive (> 85% is treated)**
6.	Wastewater Disposal	The primary method of wastewater disposal at the university.	[2] Conventionally treated	[5] Technically treated for value enhancement	++	[1] Discharged without treatment [2] Conventionally treated [3] Technically treated for recycling purposes [4] Technically treated for reduced-value recycling opportunity **[5] Technically treated for value enhancement**

13.3 Water Management

The university's water use is also an important indicator from the perspective of sustainability. The goal is to reduce groundwater usage and protect habitats. Water conservation and water recycling programs, the use of water-saving appliances, and the utilization of treated water are among the criteria (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The status of the University's water conservation program is in the highest quality category (> 50% water saved).

A rainwater drainage valley has been established in the paving around most buildings of the University of Sopron. All buildings of the University of Sopron are connected to the city of Sopron's sewage network, which drains the rainwater generated in the area and ensures the collection of wastewaters for conventional treatment at the city's sewage plant. There is a drilled well in the Botanical Garden as a water extraction point. The water from this well feeds various facilities, such as the circular pool, the bird feeder, the aquatic plant collection, the reservoir in the upper part of the Botanical Garden, the marsh plant pool, and the water collector next to the area of habitat-indicator plants, primarily for irrigation purposes, via a gravity-fed open channel or, in some cases, a closed, pressurized pipeline system.

The rainwater flowing off the roof of the Ligneum Visitor Center building of the University of Sopron (Botanical Garden) is collected in a tank. This is used when planting, and for irrigation during dry periods. With continuous summer use, it provides approximately 60-70 of pumped irrigation water. Rainwater is much more suitable for watering plants than tap water. As a result, a higher percentage of the plant installations in the Botanical Garden have survived recently.

A 7-7-meter foil-lined fire-water storage pond (approx. 50 m^3) has been established next to the University of Sopron's Hidegvíz-völgy Research House (Sopron Hills, Hungary), approximately 10 meters in a south-eastern direction, which stores the rainwater running off the roof.

The Gyöngyös Stream runs through the middle of the Sárvár Arboretum. By damming it, we continuously supply water to a lake of about 1 hectare, significantly contributing to the adequate water supply of the Arboretum's habitat and the maintenance of wetlands.

The Kámon Arboretum is bordered by the Gyöngyös Stream, which is an artificially created canal. With the structures (sluices) on the stream, we can regulate the water level of the four lakes in the arboretum. The surface area of the lakes is approximately 1-1.5 hectares. Small channels ensure water movement between the lakes. The arboretum also contains two intermittent pools covered with water, as well as a waterfall and a flood-reduction ditch.

The area of the Farkassziget Püspökladány Arboretum was once crisscrossed by numerous streams. The natural beds of the former streams can still be found today, where precipitation collects and/or flows by gravity through certain parts of the Arboretum and into the lakes in the central area that serve for ecological water replenishment. The lakes ensure the storage of approximately 4000 m^3 of water. Water leaves the lakes, which have natural riparian vegetation, by gravity into the Makkodi-főcsatorna, which borders the Arboretum on the eastern side. The

entire area of the Arboretum is protected, so we do not use chemicals during the cultivation of stands or in nursery work.

Several water-saving appliances are available at the University of Sopron, and new ones are continuously being installed (water-saving toilets, automatic taps). The ratio of treated water used relative to the university's total water sources (e.g., rainwater tank, groundwater, surface water, etc.) is high. Development plans include collecting rainwater running off buildings and paved surfaces in rainwater tanks for irrigation purposes (for external and indoor vegetation) and for greywater use, which would significantly reduce the use of mains water. The percentage of handwashing and hygiene facilities on campus is maximal during the pandemic.

Table 4.: Evolution of the Metrics/Indicators for Water Management

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Implementation of Water Protection Program	The status of the university's water conservation program (e.g., water management systems, rainwater collection systems, water tanks, charging well, etc.).	[3] Implementation in early stages, 1–25% application (e.g., measuring potential surface runoff)	[5] > 50% water conserved	+	[1] None. Please choose this if such a program is needed, but no steps have been taken yet. [2] Program in progress. (e.g., feasibility study and promotion) [3] Implementation in early stages, 1–25% application (e.g., measuring potential surface runoff) **[4] > 25 - 50% water conserved** [5] > 50% water conserved
2.	Implementation of Water Recycling Program	The university's status regarding the development of policies for water recycling programs (e.g., using recycled water for toilet flushing, car washing, irrigation systems, etc.).	[1] None	[4] > 25 - 50% of water is recycled	++	[1] None. Please choose this if such a program is needed, but no steps have been taken yet. [2] Program in progress. (e.g., feasibility study and promotion) [3] Implementation in early stages, 1–25% application (e.g., assessing wastewater quantity). **[4] > 25 - 50% of water is recycled** [5] > 50% of water is recycled
3.	Use of Water-Saving Appliances	Use of water-saving appliances (e.g., automatic hand-washing taps, ultra-low-flush toilets, etc.).	[1] None.	[4] 25 - 50% use of water-saving appliances	+++	[1] None. Please choose this if water-saving appliances are needed, but no steps have been taken yet. [2] Program in progress. (e.g., feasibility study and promotion).

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
						[3] 1 - 25% use of water-saving appliances **[4] > 25 - 50% use of water-saving appliances** [5] > 50% use of water-saving appliances
4.	Treated Water Consumed (%)	The ratio of treated water used compared to all the university's water sources (e.g., rainwater tank, groundwater, surface water, etc.).	98,33%	98,36%	0	[1] None. [2] 1 - 25% treated water consumption [3] > 25 - 50% treated water consumption [4] > 50 - 75% treated water consumption **[5] > 75% treated water consumption**

13.4 Transportation

Transportation methods play an important role in terms of universities' carbon dioxide emissions and pollutant emissions. The goal of the transportation policy is to support the use of university buses and bicycles through the reduction of other motor vehicle traffic to achieve a more livable and healthier environment. Policies regarding pedestrians encourage students and university employees to travel between university buildings on foot and refrain from using their own motor vehicles. The use of environmentally friendly public transport reduces the university's carbon footprint (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The total number of motor vehicles divided by the number of university citizens at the University of Sopron shows a low value (0.11), which is very favorable from an environmental perspective. The relatively short distance between university campuses allows for walking and cycling, and public transport is also available. The university aids (public) transport for employees by providing bicycles free of charge and subsidizing transit passes, which reduces the use of private cars for commuting. Zero-emission vehicles are provided by the university for employees in certain cases and are free to use.

The use of bicycles by students and employees has a long tradition at our institution, which is well indicated by the favorable number of zero-emission vehicles per capita on campus.

Motor vehicle access to the University of Sopron area is only permitted with authorization. Entry permits are checked by security staff at the main campus entrance. These permits are issued in a limited number based on central evaluation. A license plate recognition system enables parking for employees and students, which has significantly reduced the number of cars parking on university premises.

The paving of roads suitable for motor vehicle traffic and the sidewalks between buildings are sometimes different at the University of Sopron, with this paving separating pedestrian traffic from motor vehicle traffic. The Botanical Garden roads on the main campus are only usable by pedestrians and, with restrictions, by cyclists, like our Arboreta. For pedestrian sidewalks on the main campus, a tactile paving strip for the visually impaired has been installed or a white-striped paint has been applied for those with low vision. Barrier-free solutions have also been implemented at the Main Building, Dormitory, Ligneum Visitor Center, and most buildings to facilitate the movement of people with disabilities. Public lighting is provided for the main pedestrian routes and sidewalks.

Table 5.: Evolution of the Metrics/Indicators for Transportation

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Total Number of Motor Vehicles Divided by the Number of University Citizens	Number of motor vehicles (cars and motorcycles) per university citizen on campus.	0,026	0,049	+	[1] ≥ 1 [2] < 1 - 0.5 [3] < 0.5 - 0.125 **[4] < 0.125 - 0.045** [5] < 0.045
2.	Shuttle Services	The current conditions of the shuttle service provided for on-campus travel, whether the travel is free or fee-based, and whether it is operated by the university or an external organization.	[2] Shuttle service provided (by the university or an external party), which is regular but not free of charge.	[5] Shuttle service is not feasible (not applicable).	++	[1] Shuttle service is provided, but not by the university. [2] Shuttle service provided (by the university or an external party), which is regular but not free of charge [3] Shuttle service provided (by the university or an external party) and the university covers a portion of the costs. [4] Shuttle service provided by the university, which is regular and free of charge. **[5] The university provides a shuttle service that is regular and operates with zero-emission technology. Or, the shuttle service is not feasible (not applicable).**
3.	Zero-Emission Vehicle (ZEV) Policy at the University	Support for the use of Zero-Emission Vehicles	[3] Zero-emission vehicles are	[5] Zero-emission vehicles are provided	++	[1] Such vehicles are not available

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
		(e.g., bicycles, scooters, electric cars, etc.) for transportation on campus.	available but not provided by the university	by the university and are free of charge		[2] Use of zero-emission vehicles is not feasible or practical [3] Zero-emission vehicles are available but not provided by the university [4] Zero-emission vehicles are provided by the university but are subject to a fee **[5] Zero-emission vehicles are provided by the university and are free of charge**
4.	Number of Zero-Emission Vehicles (ZEV) used at the University Divided by the Number of University Citizens	Number of zero-emission vehicles per university citizen on campus.	0,009	0,038	+	[1] ≤ 0.002 [2] > 0.002 ≤ 0.004 [3] > 0.004 ≤ 0.008 [4] > 0.008 ≤ 0.02 **[5] > 0.02**
5.	Ratio of University Parking Area to Total University Area (%)		1,25%	0,29%	+	[1] > 11% [2] < 11 - 7% [3] < 7 - 4% [4] < 4 - 1% **[5] < 1%**

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
6.	Transportation Program to Restrict or Reduce University Parking area in the last 3 years	The status of the university's transportation program over the average of the 3 years ending with the reporting period, which aims to restrict or reduce university parking space.	[1] Such a program is not applicable	[4] The program resulted in a decrease in parking areas lower than 10-30%.	++	[1] Such a program is not applicable. [2] Program is in progress (e.g., feasibility study and promotion). [3] The program resulted in a decrease in parking areas lower than 10%. [4] The program resulted in a decrease in parking areas lower than 10-30%. **[5] The program resulted in a decrease in parking areas higher than 30% or parking regulations have been tightened.**
7.	Number of Traffic Restriction and Transportation Initiatives to Reduce Private Motor Vehicle use on Campus	The university's current traffic restriction initiatives to limit or reduce the number of private motor vehicles on campus (e.g., carpooling, high parking fees, metro/tram/bus service, bike sharing, fair-fare subscription, etc.).	1 pc	> 3 initiatives	++	[1] No such initiative [2] 1 initiative [3] 2 initiatives [4] 3 initiatives **[5] > 3 initiatives**

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
8.	Pedestrian Sidewalk Policy at the University	Support for the use of pedestrian sidewalks on campus.	[2] There are pedestrian sidewalks	[5] There are pedestrian sidewalks, which are rated as safe and user-friendly, and are also barrier-free in some locations	++	[1] No pedestrian sidewalks [2] There are pedestrian sidewalks [3] There are pedestrian sidewalks, and they are rated as safe [4] There are pedestrian sidewalks, rated as safe and user-friendly **[5] There are pedestrian sidewalks, which are rated as safe and user-friendly, and are also barrier-free in some locations**

13.5 Emissions and Climate Changes

The indicators below show the emphasis the university places on issues related to climate change. Programs that aid adaptation to and mitigation of climate change, policies aimed at reducing greenhouse gas emissions, and the evolution of the carbon footprint play an important role (UI GreenMetric Guideline, 2019).

Summary Evaluation:

The total calculated carbon footprint of the University of Sopron divided by the number of university citizens (t/person) falls almost into the most favorable qualification category (< 0,42 – 0,10 t).

Our university maintains programs to reduce greenhouse gas emissions in 3 relevant areas:

- Scope 1: Instead of fossil-based energy production, it partly favors biomass firing, and it reduces the emissions from the internal combustion engines of university vehicles by using bicycles and providing an e-car alternative.
- Scope 2: It offsets the indirect greenhouse gas emissions resulting from the production of electricity purchased and used by the institution by relying on renewable energy sources.
- Scope 3: It enables the reduction of indirect greenhouse gas emissions from the regular commuting of students and employees to and from the institutions by supporting public transportation for employees and promoting the use of zero-emission vehicles for everyone. Cycling for students and employees has a long tradition at our university.

Table 6.: Evolution of the Metrics/Indicators for Emissions and Climate Change

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Total Carbon Footprint Divided by the Number of University Citizens (t/person)	The amount of carbon footprint per capita on campus.	0,94 t/person	0,22 t/person	+	[1] ≥ 2.05 t [2] < 2.05 - 1.11 t [3] < 1.11 - 0.42 t **[4] < 0.42 - 0.10 t** [5] < 0.10 t
2.	Greenhouse Gas Emission Reduction Program	The university's status in providing programs aimed at reducing greenhouse gas emissions (in any regard).	[1] No such program	[5] Reduction programs found in all three areas out of 3 areas (Scope 1, 2, and 3)	++	[1] No such program, or such a reduction program is needed but no steps have been taken yet. [2] Program is in progress. (e.g., feasibility study and promotion) [3] Reduction program found in 1 area out of the 3 areas in the table (Scope 1 or 2 or 3) [4] Reduction program found in 2 areas out of the 3 areas in the table (Scope 1 and 2, or 1 and 3, or 2 and 3) **[5] Reduction programs found in all three areas out of the 3 areas in the table (Scope 1, 2, and 3)**

13.6 Education and Research

Our institution has long been committed to sustainable, environmentally friendly operation, an approach that is highly emphasized in the research and taught subjects at the University's four faculties and is increasingly interwoven into daily operations. Accordingly, environmental awareness appears in both the training programs (starting from early childhood education) and the portfolio of research and services, covering the fields of climate research, climate adaptation, energy efficiency, alternative energies, sustainable and renewable materials and products, waste management, circular economy, awareness-raising, and education. According to the professional vision of the University, an approach that prioritizes sustainability is the guarantee of innovative operation and education.

Summary Evaluation:

The percentage of the University of Sopron's sustainability-related courses out of all courses shows a maximal qualification value, which means a measure of over 60%. We can state that, based on the sustainability orientation of the university's programs, we are in the international forefront.

In addition to the strong sustainability focus in education, the similar nature of our research is well indicated by the fact that the percentage of university sustainability research funding compared to all research funding is around 90%, which also allows for placement in the highest qualification category in an international context. The number of scientific publications related to sustainability is one of the most favorably judged.

The number of our sustainability-related events places us in the highest category, similar to our cultural events.

The number of student organizations related to sustainability is six. The activity of these student organizations is outstanding, and in addition to numerous community programs, they also pursue scientific student circle activities. During their operation, they complement university education and make efforts for issues important to students (e.g., cleaning up our environment, shaping attitudes, knowledge dissemination, organizing study trips, participation in national initiatives, and even the initialization of national initiatives, etc.).

In this performance dimension, we mention that the University of Sopron has created its continuously updated, thematic website related to sustainability: https://greenuniversity.uni-sopron.hu/kezdolap

The University of Sopron regularly prepares its annual Sustainability Report and continuously develops its content aspects to comply with the highest requirements.

Finally, it must be mentioned that the University of Sopron maintains numerous programs to promote the effectiveness of teaching and learning (e.g., handling distance learning issues, providing a digital background, providing online course materials, distance learning tools, applications, implementing curriculum reform, supporting digital transition, student mentor program, etc.).

Table 7.: Evolution of the Metrics/Indicators for Education and Research

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
1.	Sustainability-Related Courses Divided by the Total Number of Courses (%)		54,17%	72,1%	+	[1] ≤1% [2] > 1 - 5% [3] > 5 - 10% [4] > 10 - 20% **[5] > 20%**
2.	Ratio of Sustainability Research Funding to Total Research Funding (%)	The ratio of sustainability research funding to the university's total research fund, averaged over the last 3 years.	91,77%	93,43%	+	[1] ≤ 1% [2] > 1 - 8% [3] > 8 - 20% [4] > 20 - 40% **[5] > 40%**
3.	Annual Average Number of Scientific Publications Related to Sustainability (pcs/year)	The number of scientific publications (Google Scholar) related to the environment and sustainability published in the last 3 years. Search keywords: e.g., green, environment, sustainability, renewable energy, climate change.	113,67 pcs/year	239 pcs/year	+	[1] 0 [2] 1 – 20 [3] 21 – 83 **[4] 84 – 300** [5] > 300

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
4.	Annual Average Number of Sustainability-Related Events (pcs/year)	The annual number of events related to environmental and sustainability issues (e.g., conferences, workshops, awareness-raising, practical training, etc.) organized or served by the university during the 3 years ending with the reporting period.	18,67 pcs/year	128 pcs/year	++	[1] 0 [2] 1 – 4 [3] 5 – 17 [4] 18 – 47 **[5] > 47**
5.	Number of Student Organizations Related to Sustainability (pcs)	The number of student organizations at the faculty and university level. (An existing college/university student community that is related to sustainability qualifies as an organization.)	2 pcs	15 pcs	++	[1] 0 [2] 1 – 2 [3] 3 – 4 [4] 5 – 10 **[5] > 10**
6.	The University's Sustainability-Related Website	The number of student organizations at the faculty and university level. (An existing college/university student community that is related to sustainability qualifies as an organization.)	[1] No such website at the university	[5] There is such a website at the university, it is accessible and regularly updated	++	[1] No such website at the university [2] The website is in progress or under development [3] There is such a website at the university, and it is accessible [4] There is such a website at the university, it is accessible and occasionally updated **[5] There is such a website at the university, it is accessible and regularly updated**

No.	Indicator	Interpretation of the Indicator	Indicator Result (Baseline Year: 2020)	Indicator Result (Most Recent Reporting Year)	Change Compared to Baseline Year (2020) in Most Recent Reporting Year + / - / 0	Qualification of Most Recent Reporting Year's Result (According to UI GreenMetric Category)
			2020	**2023**		
7.	Sustainability Report	The existence and updating of the university's sustainability report.	[1] None	[5] There is a report and it is updated annually	++	[1] None [2] Report is in progress [3] There is a report and it is accessible [4] There is a report and it is occasionally updated **[5] There is a report and it is updated annually**
8.	Number of Cultural Activities on Campus	The fact that "green" facilities at the university are accessible to the public, for example, during cultural activities, indicates the wider impact of the existence of the green campus on its environment.	[5] More than 3 events annually	[5] More than 3 events annually	+	[1] None [2] 1 event annually [3] 2 events annually [4] 3 events annually **[5] More than 3 events annually**

14 Future Plans

Below, we briefly define the proposals which, if implemented, would significantly increase the University of Sopron's environmental/sustainability performance and lead to a significant improvement in its UI GreenMetric scores.

14.1 Short-Term Plans

Setting and Infrastructure, Biodiversity

- We maintain a university afforestation program: every year, the University of Sopron plants a new sapling in Sopron and its surroundings for every first-year student admitted to the autumn semester. Thus, not only will society be richer in well-trained professionals in a few years, but the size of forested areas in our country will also increase. Expanding forest areas is of paramount importance in the fight against climate change, as afforestation is the world's most effective human-led carbon sequestration activity.
- Continuous development of the University Botanical Garden and the Arboreta of the Forest Research Institute (ensuring their nature conservation role and gene reservation function).

Material and Energy Consumption, Efficiency

- Further increase the proportion of energy-saving appliances: this includes the use of energy-efficient devices/lighting fixtures (e.g., air conditioning with inverter technology, LED bulbs, computer power management, etc.). Proven preference for energy-saving devices during faculty procurements.
- Further development of green building implementation elements at the faculty level, reflecting all construction and renovation guidelines.
- Further increase renewable energy generation efficiency.
- Increase the number of renewable energy sources (potentially serving only higher education purposes).
- Decoupling from carbon-dependent sectors.

Waste Management

- Further increase the efficiency of selective waste collection.
- Ensuring even stronger active faculty-level participation in the use and efficiency improvement of the university's selective waste collection system, holding internal training sessions on waste collection, monitoring employee practice, and strictly enforcing regulations.
- Further development of the faculty paper and plastic consumption reduction program (e.g., increasing double-sided printing (e.g., for theses and dissertations), increasing the use of hand dryers, using reusable bags, printing only when necessary, maintaining free water dispensing points, and enforcing policies on the dematerialization of administrative procedures).
- Furthermore, improve the efficiency of green waste composting.

Water Management

- Further development of the water protection area: development of water management systems, rainwater collection systems, water tanks, and charging wells.

- Further development of water recycling: developing a water recycling program. Assessing the possibilities for greywater utilization and creating technical conditions for irrigated areas, and for our planned, old, and new buildings (e.g., using recycled water for toilet flushing, car washing, irrigation systems, etc.).
- Increasing the proportion of water-saving appliances: e.g., additional automatic hand-washing taps, ultra-low-flush toilets, etc..

Transportation

- Maintaining and extending travel/pass subsidies for employees/students.
- Faculty participation in and use of the "UNI-SOPRON BIKE" public bike-sharing system for employees/students for commuting between campuses and frequent city points.
- Restricting and reducing parking areas within the faculty/campus, encouraging public transport, walking, and cycling.
- Maintaining traffic restriction initiatives within the faculty/campus: barriers, speed limits, and exclusive pedestrian traffic.
- Pedestrian sidewalk development program within the faculty/campus: further development of barrier-free sidewalks.

Emissions and Climate Change

- Saving indirect GHG emissions from the treatment of deposited waste by increasing the efficiency of selective waste collection.
- Reducing the indirect GHG emissions of the main water system by substituting rainwater for irrigation purposes.
- Faculty participation in the creation/use of the "UNI-SOPRON BIKE" public bike-sharing system for students/employees for commuting between campuses; paying a carbon reduction contribution when purchasing tickets for institutional paid air travel.

Awareness Raising (Education, Research, Publicity)

- Continuous review of the number of sustainability-related courses: continuous, updated data provision, ensuring that the topic of sustainability is integrated into as many curriculum programs as possible.
- Further support for sustainability-related events (conferences, workshops, awareness-raising, practical training).
- Support for existing and new student organizations related to sustainability.
- Continuous development of the University's sustainability website.
- Continuous preparation and content development of the University's Sustainability Report.

14.2 Medium-Term Plans

- Increase the proportion of smart buildings at the university in the case of campus development and construction investments.
- Emphasize the elements of green building implementation in all construction and renovation guidelines.

Sopron, October 23, 2023.

SOPRONI EGYETEM

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