SITUATION ANALYSIS ON THE STATUS QUO OF UNIVERSITIES AS GREEN INSTITUTIONS

UNIVERSITY OF MONTENEGRO

UNIVERSITY OF PÉCS

UNIVERSITY OF SARAJEVO

MASARYK UNIVERSITY

JAGELLONIAN UNIVERSITY OF KRAKOW

J. SELYE UNIVERSITY

PANNON EUROPEAN GROUPING OF TERRITORIAL

2025

Visegrad Fund

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University of Sarajevo

Masaryk University

Jagellonian University of Kraków

J. Selye University

1. INTRODUCTION

Pannon EGTC and its partner universities from six countries have come together to explore opportunities for collaboration in advancing the green transition. Their efforts focus on undergraduate and postgraduate education, research, and universities' third-mission activities in regional and economic development. The goal is to develop joint programs based on best practices, as well as the knowledge and practical experience of the partners, including their strengths and weaknesses. This collaboration led to the submission of a project titled *"Accelerating and Enhancing Green Transition: Collaboration of Universities in Climate Adaptation"* to the Visegrad Fund. The project, funded under grant number 22420082, is supported by the Visegrad Fund.

Universities play a crucial role in educating future generations, and in recent years, their mission has expanded to include a strong social dimension. This means that universities are not only centres of learning and research but also key contributors to the well-being of their surrounding communities and regions. However, higher education institutions face numerous challenges, particularly in integrating sustainability into their daily operations. One of the most pressing issues is how to incorporate green policies into university life and actively involve students, faculty, researchers, and administrative staff in these efforts. Additionally, universities must find ways to share their sustainability achievements with the wider community.

The European Grouping of Territorial Cooperation (EGTC) is a special institutional framework established by the European Union to facilitate and promote cross-border territorial cooperation. EGTCs are legally recognized entities formed under European law, typically consisting of local or regional public institutions. Some EGTCs also include universities as members or actively engage them in specific initiatives.

Our joint project, initiated by Pannon EGTC in collaboration with the University of Pécs, Masaryk University, J. Selye University, Jagiellonian University in Krakow, the University of Sarajevo, and the University of Montenegro, is innovative in its approach. This unique partnership between one EGTC and five universities aims to develop solutions and recommendations for advancing green policies and the green transition in higher education.

The present report, *"Situation Analysis of Universities as Green Institutions,"* provides a detailed assessment of each partner university's progress toward becoming a green institution. From the beginning of the project, the partners have worked together to define methodologies and key areas of focus. As part of this collaboration, they organized both an online and an in-person meeting to establish the framework for their joint work. As a result, this report offers a comprehensive overview of each university's sustainability policies, highlighting their current state, challenges, opportunities, and strategic directions.

This expertise document will be published on the websites of the participating partners and will serve as a model of best practices in university-led green initiatives. Beyond universities, the insights presented here can also serve as a valuable reference for local public authorities, private companies, NGOs, and other institutions seeking to implement sustainable policies at their own organizational level.

For further information about project activities and additional expertise documents developed within the project, please visit the websites of the partner universities and Pannon EGTC.

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2. GREEN LAWS AND INITIATIVES IN MONTENEGRO

Montenegro has adopted a comprehensive legal framework and several strategic initiatives to promote environmental sustainability and align with EU Green Deal objectives. The University of Montenegro (UoM) plays a pivotal role in supporting these efforts, integrating environmental regulations and green initiatives into its curriculum, research, and community partnerships.

Constitutional and Legal Foundations for an "Ecological State"

Montenegro's Constitution establishes the country as an "ecological state," giving citizens the right to a healthy environment and placing a duty on the state to protect natural resources and ensure sustainable development (Constitution of Montenegro, Article 1)[1]. This principle underscores all environmental laws and policies in the country, as Montenegro was the first country to have such commitment inscribed in its Constitution. As the only public HEI in the country, the UoM's commitment to green and sustainable practices is reflected in the university's policies and educational programs that emphasize environmental responsibility and sustainability in both teaching, research and campus management.

Key Environmental Laws and Policies

Several core environmental laws in Montenegro directly inform UoM's operational and educational approaches, ensuring that the university remains aligned with national priorities for sustainable development.

- **Law on the Environment**[2]: This law, which aligns with EU standards, outlines principles for sustainable development, pollution prevention, biodiversity protection, waste management, and chemical safety. UoM integrates these principles into its environmental science, policy, and law curricula, educating students on topics like pollution control, resource efficiency, and ecosystem conservation. Through applied research and community projects, students and faculty contribute directly to achieving the objectives of this law.

[1] https://www.gov.me/dokumenta/9f19ed1f-5b58-4232-9fb7-168f20cb3206
[2] https://www.gov.me/dokumenta/74746713-6b4d-42ed-93eb-85c10799b3b5

- **Law on Nature Protection**[3]: This law emphasizes ecosystem preservation, biodiversity, and protected area management, establishing standards for air, water, and soil conservation. UoM's department of biology conducts research on biodiversity conservation and ecosystem health, engaging students in field studies and conservation initiatives. These efforts support Montenegro's commitment to preserving natural habitats and protecting endangered species.
- **Law on Environmental Impact Assessment (EIA)**[4]: The EIA law mandates assessments for projects that may significantly impact the environment, ensuring alignment with the EU's EIA Directive.
- **Law on Sustainable Development**[5]: This law incorporates the National Strategy for Sustainable Development (NSSD), promoting sustainable use of natural resources and targeting improvements across human, social, and economic resources. UoM supports these goals through research in sustainable tourism, renewable energy, and green technology, areas aligned with Montenegro's sustainability objectives. This law also guides UoM's operational policies, influencing waste reduction, energy efficiency, and resource management on campus.
- **National Strategy for Sustainable Development (NSSD)**: This comprehensive strategy outlines Montenegro's vision for sustainability, with goals in renewable energy, biodiversity, and water quality. UoM aligns its research agenda with NSSD priorities, conducting studies on renewable resource management, conservation, and sustainable development. Through this alignment, UoM's research outputs directly support Montenegro's progress towards meeting EU Green Deal targets for a resource-efficient, low-carbon economy.

In addition, Montenegro has several other laws, regulations, and guidelines aimed at promoting sustainability and environmental protection (Appendix 1).

Institutional Support for Sustainable Development

In addition to these key laws, several institutional bodies and policy frameworks guide Montenegro's sustainable development efforts, with which UoM actively collaborates:

[3] https://www.gov.me/dokumenta/0b636cff-3fe0-4ca2-ac62-87fa3e9acf75
[4] https://shorturl.at/IwCJE
[5] https://shorturl.at/8nx4x

- **Ministry of Ecology, Sustainable Development, and Northern Development**[6]**:** Responsible for safeguarding Montenegro's natural resources through robust environmental protection initiatives. It is responsible for implementing and enforcing environmental laws and policies to ensure the preservation of air, water, and soil quality. The ministry oversees biodiversity conservation, the management of ecosystems, and the protection of natural habitats, including national parks. Additionally, it addresses pollution control by regulating waste management and promoting sustainable practices to minimize environmental degradation. Through these efforts, the ministry aims to foster a healthier environment, aligning with national and international sustainability goals and commitments.
- **Environmental Protection Agency (EPA)**[7]: Responsible for implementing and overseeing environmental laws, the EPA partners with UoM on projects related to pollution prevention, resource management, and biodiversity conservation. Faculty members often work with the EPA on research that informs policy improvements, and students gain practical experience by participating in EPA initiatives, contributing valuable data and analysis that support the agency's objectives.
- **Eco Fund**[8]: Established with support from UNDP, the Eco Fund finances projects in renewable energy, energy efficiency, and environmental conservation, offering grants and loans for green projects. UoM signed a Memorandum of cooperation with the Eco Fund in 2022 and regularly applies regularly participates in their calls and activities.
- **UNDP Initiatives**[9]: UoM participates in UNDP-led projects, such as "Growing Green Business in Montenegro," which promotes low-carbon development, green job creation, and sustainable business practices. Faculty and students work alongside UNDP experts, conducting research and developing solutions that support Montenegro's alignment with EU Green Deal goals.

6 https://www.gov.me/en/mers
7 https://epa.org.me/
8 https://www.eko-fond.co.me/naslovna
9 https://www.undp.org/montenegro/projects/growing-green-business-montenegro

3. THE INSTITUTION´S LONG-TERM DEVELOPMENT PLAN REGARDING ON SUSTAINABILITY

The University of Montenegro integrates sustainability and environmental protection into its long-term development strategies through several key initiatives:

1. **Strategic Frameworks:**
    - **2019–2024 Development Strategy**[10]**:** This strategy emphasizes the creation of high-quality, innovative curricula with internationally comparable learning outcomes, tailored to modern societal and labor market needs. It also focuses on strengthening research capacities, fostering international cooperation, and enhancing the university's role in sustainable development.

Mission and Strategy

The University of Montenegro integrates sustainability into its mission, focusing on:

- Education, science, and international cooperation.
- Producing socially responsible graduates.
- Promoting sustainable development for Montenegro's society and state.

2. **Climate and Sustainability Plan**[11]**:**
    - In August 2024, UoM published a comprehensive Climate and Sustainability Plan outlining specific actions to promote sustainability across various domains. Key objectives include:
        - **Curriculum Enhancement:** Introducing programs that provide comprehensive education in sustainable development, aiming for a 10% increase in student participation and success in these courses.
        - **Research Initiatives:** Expanding faculty involvement in research aligned with global sustainability goals, with a target of engaging three faculties or organizational units by 2028.

[10] https://www.ucg.ac.me/skladiste/blog_6/objava_145116/fajlovi/Strategy%20of%20the%20University%20of%20Montenegro%202019_2024.pdf
[11] https://1future.feut.edu.al/wp-content/uploads/2024/08/D2.2_Plan-For-Climate-Action-Report_UOM.pdf

- **Community Engagement:** Organizing conferences, roundtables, and other activities to foster community and social inclusion, promoting sustainability citizenship.

3. **Internationalization Strategy (2021–2026)**[12]**:**
    - UoM's Internationalization Strategy aims to enhance global engagement and collaboration. While its primary focus is on international cooperation, it indirectly supports sustainability by promoting cross-border research and educational initiatives that address global challenges, including environmental issues.

Through these strategic documents and initiatives, the University of Montenegro demonstrates a commitment to integrating sustainability and environmental protection into its educational, research, and community engagement activities, aligning with both national and international sustainable development objectives.

[12] https://www.ucg.ac.me/skladiste/blog_1023/objava_152210/fajlovi/Strategija%20internacionalizacije%20UCG%202021-2026(2).pdf

4. EDUCATION PROGRAMS AND SUSTAINABILITY INTEGRATION

The University of Montenegro actively integrates sustainability into its academic framework, offering a variety of study programs and specialized modules designed to address environmental, social, and economic challenges.

Teaching and Curriculum Development:

- Integration of Sustainable Development Goals (SDGs) into:
  - App. 40 bachelor-level courses.
  - App. 30 master-level courses.
  - App. 10 doctoral-level courses.

Key **study programs** include:

1. **PhD Program in Sustainable Development[13]:**

   This interdisciplinary program focuses on equipping students with advanced knowledge and research skills to address global sustainability challenges. It combines insights from environmental, economic, and social disciplines, emphasizing collaboration and innovation.

2. **Faculty of Metallurgy and Technology[14]:**

   The **Environmental Protection Program** emphasizes sustainable practices in metallurgy, with a focus on minimizing environmental impact and fostering sustainable industrial development.

3. **Maritime Environmental Protection and Management (MEP&M)[15]:**

   A joint master's program offered by the Faculty of Maritime Studies in collaboration with international partners, focusing on marine and coastal sustainability, including pollution management and marine ecosystem preservation.

[13] https://www.ucg.ac.me/studprog/24/1/1/2024-odrzivi-razvoj-2021#lat
[14] https://www.ucg.ac.me/studprog/6/3/1/2024-zastita-zivotne-sredine-2020#lat
[15] https://www.ucg.ac.me/studprog/10/19/7/2024-maritime-environmental-protection-and-management-2024

4. **Biology Module[16]:**

   Offered by the Faculty of Natural Sciences and Mathematics, this module covers ecology, biodiversity, and conservation, preparing students for roles in sustainable resource management and environmental protection.

5. **Mechanical Engineering[17]**:

   Masters Studies, Energy Efficiency (Interdisciplinary).

The University of Montenegro integrates sustainability and environmental protection themes across various faculties through dedicated **courses**:

1. **Faculty of Architecture:** Offers courses on sustainable urban planning and energy-efficient building design.
2. **Faculty of Biotechnology:** Provides courses in sustainable agriculture practices and environmental management in agriculture.
3. **Faculty of Civil Engineering:** Includes courses on environmental impact assessment and sustainable construction materials.
4. **Faculty of Economics:** Features courses in environmental economics and sustainable development economics.
5. **Faculty of Electrical Engineering:** Offers courses on renewable energy systems and energy efficiency in electrical engineering.
6. **Faculty of Law:** Provides courses in environmental law and international environmental agreements.
7. **Faculty of Maritime Studies Kotor:** Includes courses on marine environmental protection and sustainable maritime transport.
8. **Faculty of Mechanical Engineering:** Offers courses in sustainable manufacturing processes and environmental considerations in mechanical design.
9. **Faculty of Metallurgy and Technology:** Provides courses on industrial ecology and waste management technologies.

[16] https://www.ucg.ac.me/studprog/7/3/1/2024-biologija-2017#lat
[17] https://www.ucg.ac.me/studprog/5/1/6/2024-energy-efficiency-2020#lat

10. **Faculty of Natural Sciences and Mathematics:** Features courses in ecology and conservation biology, and climate change science.
11. **Faculty of Philology:** Includes courses on environmental geography and sustainable land use planning.
12. **Faculty of Political Sciences:** Offers courses in environmental policy and global environmental governance.
13. **Faculty of Tourism and Hotel Management:** Provides courses on eco-tourism management and sustainable hospitality operations.

5. RESEARCH AND PROJECTS IN SUSTAINABILITY

The University of Montenegro is actively engaged in addressing climate change through its **specialized research institutes, centers and hubs**.

1. **Institute of Marine Biology**[18]: Established in 1961 and located in Kotor, this institute focuses on the study and conservation of marine ecosystems, emphasizing sustainable management of marine resources.
2. **Aquarium Boka**[19]: As an extension of the Institute of Marine Biology, Aquarium Boka serves as a public educational center promoting marine biodiversity conservation and environmental awareness.
3. **Institute for Advanced Studies**[20]: This institute develops scientific research and advanced studies tackling interdisciplinary themes. This institute organizes research projects centered on climate change.
4. **Institute for Interdisciplinary/Multidisciplinary Studies**[21]: Focused on bridging different scientific disciplines to address complex social and environmental challenges.
5. **Center for Energy Efficiency at the Faculty of Architecture:** The center aims to contribute significantly to educating diverse target groups on energy-efficient practices and technologies, fostering innovation and sustainable design solutions within the architectural field.
6. **Ulysseus Alliance Hubs (Ulysseus Innovation Centers)**: The University of Montenegro is part of the Ulysses Alliance, which includes innovation hubs designed to foster collaboration and address global challenges. Key hubs include:
    - **Center for Socio-Ecological Sustainability**[22]: Tackling ecological issues with an emphasis on social sciences and humanities perspectives.
    - **Center for Sustainable Energy, Transport, and Mobility for Smart Cities**[23]: Focusing on smart energy and mobility solutions for future cities.

[18] https://www.ucg.ac.me/ibm
[19] https://aquariumboka.ucg.ac.me/
[20] https://www.ucg.ac.me/ins
[21] https://www.ucg.ac.me/iims/dnd2024
[22] https://ulysseus.eu/innovation-hubs/socio-ecological-sustainability/
[23] https://ulysseus.eu/innovation-hubs/energy-transport-mobility-smart-cities/

- **Center for Sustainable Entrepreneurship and Impact**[24]**:** Accelerating technological business models and integrating partner services for sustainable entrepreneurship.

The University of Montenegro has implemented numerous sustainability-related projects across its academic and research initiatives. Here are the several **projects** as in last few years:

1. **SmartWB**[25]
   - Focus: Climate-smart urban development, green energy, and efficiency.
   - Objective: Strengthen higher education quality in climate-smart urban development and relevance to the labor market.
2. **CROSS-REIS**[26]
   - Focus: Regenerative economy innovation ecosystems.
   - Objective: Foster scientific excellence and promote a regenerative economy through broad collaboration.
3. **IoT-ECO**[27]
   - Focus: Green transformation through IoT.
   - Objective: Enhance teaching quality and efficiency, fostering digital skills in the Western Balkans.
4. **1FUTURE**[28]
   - Focus: Climate-resilient communities.
   - Objective: Strengthen regional capacities for implementing EU Green Deal objectives in higher education.
5. **WRECKS4ALL 2.0**[29]
   - Focus: Underwater heritage protection.
   - Activity: Digitalize and promote underwater heritage for tourism and educational purposes.
6. **COMPOSITES FOR ALL**
   - Focus: Advanced materials for a sustainable society.

[24] https://ulysseus.eu/innovation-hubs/sustainable-entrepreneurship-impact/
[25] https://www.smartwb.ucg.ac.me/
[26] https://crossreis.com/index.html
[27] https://iot-eco.eu/
[28] https://1future.feut.edu.al/
[29] https://wrecks4all.com/about

- Objective: Improve societal sustainability through innovative material use.

7. **MARDS**[30]
   - Focus: Doctoral studies reform.
   - Activity: Align doctoral education with sustainable development goals.
8. **WELCOME**
   - Focus: Sustainable water landscapes.
   - Activity: Reuse marine waste for environmental conservation.
9. **BLUEWBC**[31]
   - Focus: Sustainable blue economies.
   - Activity: Develop higher education and innovation for sustainable maritime practices in the Western Balkans.
10. **PORTS PLUS**[32]
    - Focus: Sustainable transport and logistics.
    - Objective: Promote resilient and smart transportation in the South Adriatic.
11. **HARISA**[33]
    - Focus: Sustainable agriculture.
    - Activity: Innovate doctoral programs in plant health for sustainable farming.
12. **CARBON 4 SOIL QUALITY**[34]
    - Focus: Atmospheric CO2 sequestration.
    - Objective: Improve soil quality through innovative carbon storage methods.
13. **DECARBONIZATION OF THE MARITIME SECTOR – GREEN BOKA BAY (DeMS-GBB)**
    - Focus: Sustainable maritime transport and emission reduction.
    - Objective: Reduce harmful gas emissions in the Boka Kotorska Bay area.
14. **FOSTERING INNOVATION CAPACITIES AND SKILLS FOR MARINE ROBOTICS DEPLOYMENT FOR MONITORING AND MARINE ENVIRONMENT PROTECTION (MARROBO)**[35]
    - Focus: Marine robotics for environmental monitoring and protection.

[30] https://mards.ucg.ac.me/workflow.html
[31] https://bluewbc.eu/
[32] https://tanacetum.kotor.travel/uncategorized/ports-plus-shaping-the-future-of-maritime-and-tourism-through-sustainability-and-innovation-in-the-adriatic-region/
[33] https://harisa.site123.me/
[34] https://www.isd.si/carbon-4-soil-quality/
[35] https://interreg-hr-ba-me.eu/project/project-library/marrobo/

- Objective: Enhance capacities to monitor and protect the marine environment, addressing microplastics, metals, and noise pollution.

15. **GREEN ROUTES – Green Corridors for Carbon-Neutral Cruise and Ferry Shipping in the ADRION Region**
    - Focus: Establishing green corridors for sustainable maritime transport.
    - Objective: Promote carbon-neutral cruise and ferry shipping operations within the ADRION region.

The University of Montenegro has actively organized various conferences, **round tables, and training sessions** focused on sustainability and environmental protection. For example:

1. **Montenegrin International Conference on Economics & Business (MICEB) 2023**: **SUSTAINABLE DEVELOPMENT: TRANSITION TO GREEN ECONOMY**[36,37]
    - **Objective**: To initiate academic and professional debates on sustainable development, economic growth, and the green economy, bringing together scientists, researchers, business representatives, and policymakers.
2. **International Conference on Mathematical and Numerical Methods in Heat and Mass Transfer and Energy Systems**
    - **Objective:** Addressing thermal and energy challenges, fostering global collaboration among scientists and researchers.
3. **University Forum: Challenges and Opportunities – Transition to a Circular Economy**
    - **Objective:** Explore the challenges and opportunities in adopting circular economy principles, emphasizing sustainable resource use and waste reduction.
4. **Erasmus+ in Service of Green Economy and Sustainable Development – Education Towards a Green Montenegro**[38,39]
    - **Objective:** Encourage the development of Erasmus+ projects that align with sustainability goals, focusing on education as a tool for fostering a green economy in Montenegro.
5. **GEA (Geo Eco-Eco Agro) International Conference**

[36] https://www.miceb.me/
[37] See Annex 1, Photo A1
[38] https://www.erasmusplus.ac.me/odrzan-dogadaj-pod-nazivom-erasmus-u-sluzbi-zelene-ekonomije-i-odrzivog-razvoja-obrazovanjem-ka-zelenoj-crnoj-gori/?lang=en
[39] See Annex A, Photo A2

- **Objective**: To discuss topics related to land degradation, watershed management, sustainability, and agroecology, featuring keynote speakers and sessions on environmental challenges.

During the "**Days of Science and Innovation**" event, the University of Montenegro organized several activities focused on sustainability and environmental awareness:

1. **"Science for Youth Towards a Sustainable Energy Future" Project**:
   - **Objective**: Engage young individuals in sustainable energy practices and promote environmental awareness.
2. **"Green Economy in Montenegro" Round Table**[40]:
   - **Objective**: Discuss the development of the green economy in Montenegro, focusing on sustainable practices and policies.
3. **Round Table: Establishment of the International Institute for Sustainable Technologies in Southeast Europe (SEEIIST)**
   - **Objective:** Discuss the development opportunities and challenges related to establishing SEEIIST, focusing on sustainable technologies.
4. **Innovative Approach to Sustainable Development of the Blue Economy**
   - **Objective:** Explore strategies for the sustainable development of the blue economy in the Adriatic-Ionian region.
5. **Interactive Demonstrations: Technological Processes, New Materials, and the Environment**
   - **Objective:** Showcase advancements in metallurgy, material science, and their applications for environmental sustainability.

[40] https://www.circularchange.com/events-cc/2021/5/24/round-table-green-economy-in-montenegro

6. GREEN ACTIVITIES OF UNIVERSITY OF MONTENEGRO

6.1. OFFICE

The University of Montenegro integrates sustainability into its administrative and operational framework through initiatives aimed at fostering eco-friendly practices within its offices. Key features include:

1. **Paperless Operations**:
    - Implementation of digital management systems (e.g., DMS) to minimize paper usage in administrative processes.
    - Use of electronic records and communications to promote efficient and sustainable practices.
2. **Energy Efficiency in Office Spaces**:
    - Integration of smart lighting systems and energy-efficient equipment in administrative buildings to reduce energy consumption.
3. **Waste Management**:
    - Placement of recycling bins for paper, plastic, and other waste materials in all offices, encouraging proper disposal and recycling habits.

6.2. PROJECT PROMOTION AND GIFT

The University of Montenegro incorporates sustainability into its project promotion and gifting practices by emphasizing eco-friendly and locally produced items. Key initiatives include:

1. **Eco-Friendly Promotional Materials and Gifts**:
    - Focus on sustainable promotion materials and gifts.
    - Gifts often include olive oil produced from the university's own campus resources and locally sourced wines, showcasing sustainable and regional production.
2. **Digital Promotion**:
    - Preference for digital communication and promotion materials to reduce paper waste and support energy-efficient practices.

3. **Awareness Campaigns**[41,42:]
    - Events and campaigns to promote the importance of supporting local products and adopting environmentally responsible practices in project promotions.
4. **Green donations**
    - The University's partners and donors are encouraged to provide ecological support to the University, so that many of the international organisations, Embassies and institutions choose to donate a tree to the University campus instead of providing non-ecological gifts.

6.3. WASTE MANAGEMENT

The University of Montenegro is committed to effective waste management practices to promote environmental sustainability across its campuses. Key initiatives include:

1. **Recycling Programs**:
    - **Implementation**: Recycling bins are strategically placed throughout university facilities to encourage the segregation of recyclable materials such as paper, plastic, and glass.[43]
2. **Waste Reduction Campaigns**:
    - **Awareness Initiatives**: Regular campaigns and workshops are conducted to educate the university community on waste reduction strategies, including minimizing single-use plastics and promoting reusable materials.
3. **Digitalization Efforts**:
    - **Paperless Systems**: The university has implemented digital platforms for administrative and academic processes, significantly reducing paper consumption.
4. **Green Procurement Policies**:

[41] https://www.ucg.ac.me/objava/blog/10/objava/186586-berba-maslina-u-kampusu-univerziteta-crne-gore-nastavak-tradicije-organske-proizvodnje-i-ekoloske-odrzivosti#lat

[42] See Annex B, Photo B1

[43] See Annex B, Photo B2

- **Sustainable Purchasing**: Preference for products and services that have minimal environmental impact, including recycled paper and eco-friendly office supplies.

6.4. EVENTS

The University of Montenegro regularly organizes events that promote sustainability, environmental awareness, and innovative solutions to contemporary challenges. Key events include:

1. **Scientific Conferences and Roundtables**:
   - Topics focus on sustainable development, climate change, and energy efficiency[44,45].
2. **Sustainability Competitions**:
   - Events such as the student startup competition, organized by the Career Development Centre, encourage students to propose innovative solutions for sustainability-related issues[46,47].
3. **Workshops and Training**:
   - Practical workshops on waste management, energy conservation, and sustainable urban planning are organized for students and the local community[48].
4. **Community Engagement Programs**:
   - Events like "Science for Youth Towards a Sustainable Energy Future" inspire young people to adopt sustainable practices.
5. **Green Economy Events**:
   - Collaboration with national and regional stakeholders to discuss green economic practices and policies, as seen in the "Green Economy in Montenegro" roundtable.
6. **Celebration of Environmental Awareness Days**:

[44] https://shorturl.at/N6FLr
[45] See Annex B, Photo B3
[46] See Annex B, Photo B4
[47] See Annex B, Photo B5
[48] https://www.ucg.ac.me/objava/blog/1267/objava/176780-uspjesno-zavrsen-projekat-etf-a-zelena-transformacija-crne-gore-podrzan-od-fonda-za-inovacije

- The university marks global events such as Earth Day and Energy Efficiency Day with activities involving students and staff, including tree planting and eco-friendly initiatives.

6.5. FOOD, DRINKS AND CATERING

Sustainable Catering Services:

- The university's catering services prioritize eco-friendly practices during campus events to minimize waste and environmental impact.

Promotion of Local and Seasonal Food:

- The university actively supports the use of locally sourced and seasonal ingredients in its catering services[49].

6.6. TRANSPORTATION

Sustainable Transportation:

- Creation of parking spaces for bicycles and scooters on campus.
- Installation of electric vehicle (EV) charging stations at the Faculty of Mechanical Engineering[50].

6.7. ACCOMMODATION

- N/A

6.8. CAMPUS INFRASTRUCTURE AND GREEN INITIATIVES

Energy-Efficient Buildings:

- **Heating System Reconstruction:** The university implemented a sustainable heating system upgrade, adhering to ECO standards, to reduce carbon emissions and improve energy efficiency.

[49] See Annex B, Photo B6

[50] https://www.ucg.ac.me/objava/blog/1291/objava/47126-na-masinskom-fakultetu-ucg-instaliran-punjac-za-vozila-na-struju

- **Smart Lighting Systems:** Technical faculties are equipped with intelligent lighting solutions that optimize energy consumption by adjusting to occupancy and natural light availability.

Green Spaces and Biodiversity:

- **Student Park (2023)**[51,52]**:** A 25,000 square meter park was developed to enhance campus greenery and support biodiversity.
- **Ljeskopolje agricultural research base**: The experimental farm "Lješkopolje", established in 1954, spans approximately 35 hectares and serves as a professional and scientific base (formerly associated with the Institute) and, today, as an educational resource for the Faculty. Its primary focus is on advancing viticulture, winemaking, and fruit growing, while also supporting other agricultural disciplines. The estate features around 22 hectares of active vineyards, a collection of diverse fruit species, greenhouses for experiments in crop and vegetable production, and a wine cellar built in 1956. The estate hosts one of the richest grapevine collections in the Balkans, with an impressive inventory of 443 varieties, encompassing native, naturalized, and introduced genotypes. This extensive repository underscores the estate's critical role in preserving regional biodiversity and supporting innovation in viticulture and agriculture.

Digitalization initiatives:

The University of Montenegro has undertaken several digitalization initiatives aimed at enhancing energy efficiency and promoting sustainability by reducing paper usage. For instance:

1. **Document Management System (DMS)**[53]**:**
    - **Overview:** The University of Montenegro uses a DMS system to manage documents electronically, eliminating the need for paper-based processes.
    - **Impact:** This system enhances efficiency, reduces administrative workload, and significantly decreases paper consumption, contributing to sustainability goals.

[51] https://www.ucg.ac.me/objava/blog/10/objava/165748-svecano-otvoren-studentski-park-ukupne-povrsine-25-hiljada-kvadrata

[52] See Annex B, Photo B7

[53] See Annex B, Photo B8

2. **Online Enrolment System**: The university introduced a paperless online enrolment service, streamlining the admission process for approximately 3,500 incoming students annually. This system enhances transparency and efficiency, contributing to improved student services.
3. **E-Index System:**
    - **Purpose:** The E-Index[54] system digitizes student records, grades, and other academic processes.
4. **Provision of learning materials in electronic format to reduce paper usage.**

6.9. STUDENT AND COMMUNITY ENGAGEMENT IN SUSTAINABILITY

Stablo znanja (Tree of Knowledge)[55,56]

- Focus: Student-led tree planting for environmental awareness.
- Objective: Reinforce the importance of environmental protection through symbolic tree planting by graduating students.

Student Startup Competition on Sustainability at the University of Montenegro

The University of Montenegro actively encourages innovation and entrepreneurship among its students through initiatives such as startup competitions focused on sustainability. One notable event is:

- **Competition for Best Startup Ideas**[57,58]:
    - **Objective:** To inspire students to develop innovative solutions addressing sustainability challenges, such as energy efficiency, waste reduction, and green technology.

[54] See Annex B, Photo B9
[55] https://stabloznanja.ucg.ac.me/
[56] See Annex B, Photo B10
[57] https://www.ucg.ac.me/objava/blog/1025/objava/127021-nagradeni-startap-projekti-na-konkursu-univerziteta-crne-gore-za-najbolju-startap-ideju-studenata
[58] https://www.ucg.ac.me/objava/blog/1025/objava/175307-urucene-nagrade-studentima-univerziteta-crne-gore-za-najbolje-startap-ideje#lat

- **Highlights:** Awards were presented to students with outstanding startup ideas, showcasing their creativity in fostering sustainable practices and contributing to a greener future.

Sustainability in Focus: Student Video Competition[59]

The Faculty of Economics at the University of Montenegro organized a competition highlighting sustainability as its central theme. Students were invited to create video projects addressing sustainability-related topics, showcasing their creativity and understanding of pressing environmental and societal issues.

- **Objective:** To engage students in creatively addressing sustainability-related topics, raising awareness and encouraging active participation in promoting sustainable practices through innovative video projects.

Green Perspectives: Analyzing Student Sustainability Behaviors[60]

The University of Montenegro conducted a study focused on assessing student behaviors and attitudes towards sustainability within the university setting. Students participated in a comprehensive survey to provide insights into their engagement with eco-friendly practices, perceptions of sustainability initiatives, and areas for improvement in fostering greener habits.

- **Objective:** To evaluate and understand student engagement with sustainable practices, identify gaps in awareness, and inspire actionable steps toward a more environmentally conscious university community.

59 https://www.ucg.ac.me/objava/blog/1226/objava/179081-odrzivost-u-fokusu-najbolji-video-radovi-studenata-sa-ekonomskog-fakulteta

60 See Annex B, Photo B11

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8. ANNEX 1. LIST OF LEGISLATIVE INSTRUMENTS

Laws:

1. Law on Biocidal Products
2. Law on Chemicals
3. Law on Protection from Non-Ionizing Radiation
4. Law on Protection from Ionizing Radiation and Radiation Safety
5. Law on Air Protection
6. Law on Nature Protection
7. Law on Noise Protection in the Environment
8. Law on National Parks

Regulations:

1. Regulation on the National List of Environmental Protection Indicators
2. Regulation on Activities Affecting Air Quality
3. Regulation on Limit Values for Pollutants from Stationary Sources
4. Regulation on Limit Values for Pollutants in Petroleum-Based Fuels
5. Regulation on Maximum National Emissions of Certain Pollutants
6. Regulation on Substances Harmful to the Ozone Layer
7. Regulation on Establishing Monitoring Networks for Air Quality

Rulebooks:

1. BAT for Cement, Lime, and Magnesium Oxide Industries
2. BAT for Poultry and Pig Farming
3. BAT for Food, Beverage, and Dairy Industries
4. Guidelines on Radioactive Waste Management
5. Rules on Monitoring Pollutants from Industrial Facilities
6. Rules on Limits for Exposure to Non-Ionizing Radiation
7. Rules on Radioactive Contamination and Decontamination

Decisions:

1. Decision on Recording Ionizing Radiation Sources
2. Decision on Systematic Assessment of Radionuclides
3. Program for Aligning Industries with Integrated Pollution Prevention Standards

9. ANNEX A: RESEARCH AND PROJECTS IN SUSTAINABILITY

Photo A1: Montenegrin International Conference on Economics & Business (MICEB) 2023

Photo A2: Erasmus+ in Service of Green Economy and Sustainable Development – Education Towards a Green Montenegro Panel Discussion (2022)

10. ANNEX B: GREEN ACTIVITIES OF UNIVERSITY OF MONTENEGRO

Photo B1: Olive harvest at the University of Montenegro campus (2024)

Photo B2: Recycling bins at the Rectorate of the University of Montenegro

Photo B3: Public Debate about Climate Changes during the first Sustainability Week on the Faculty of Economics (2023)

Photo B4: Students who won third place with their idea „EkoBaust – Recycling construction waste for sustainable building" at the competition for the Best Startup Idea (2024)

Photo B5: Student who won second place with the idea „RCW – Recycle, Collect, and Win" at the at the competition for the Best Startup Idea (2022)

Photo B6: Products made at the University of Montenegro: wine, brandy, and olive oil.

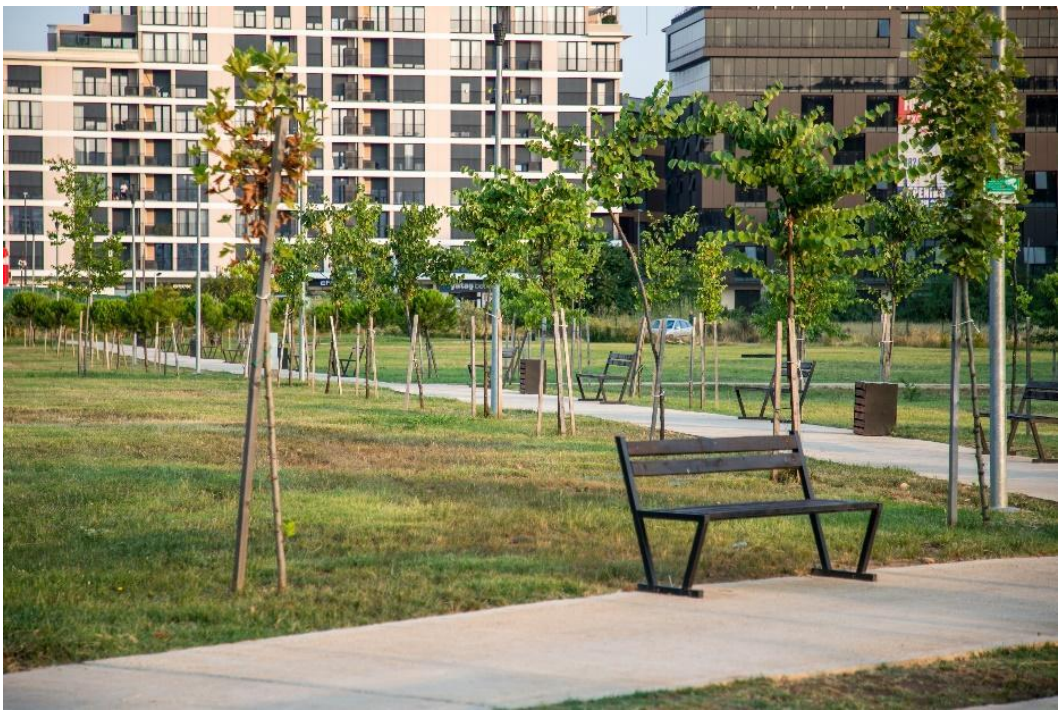

Photo B7: Student Park (before and After)

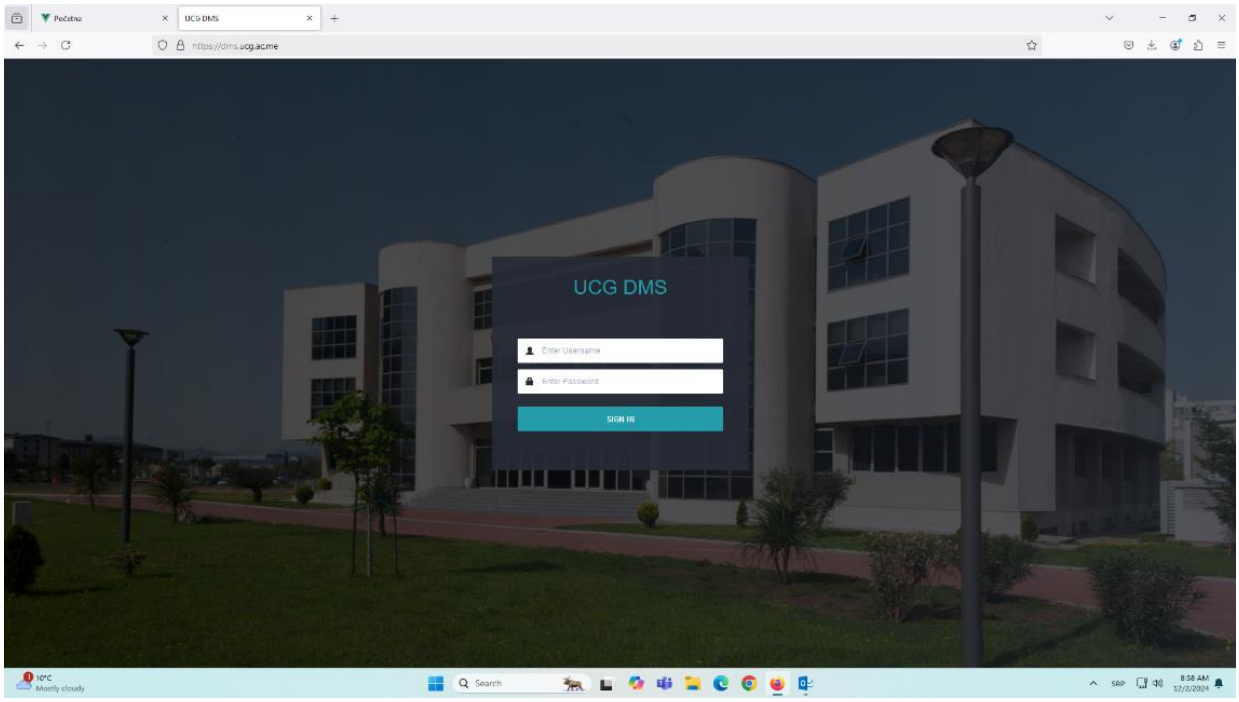

Photo B8: Digital managment system (DMS)

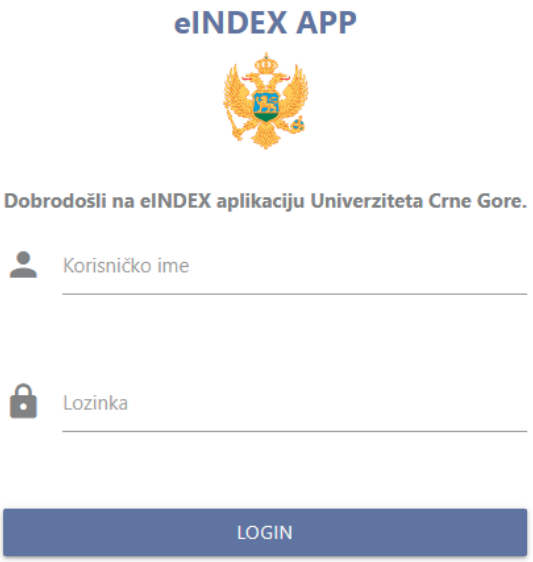

Photo B9: E-index application

Photo B10: Project Tree of Knowledge

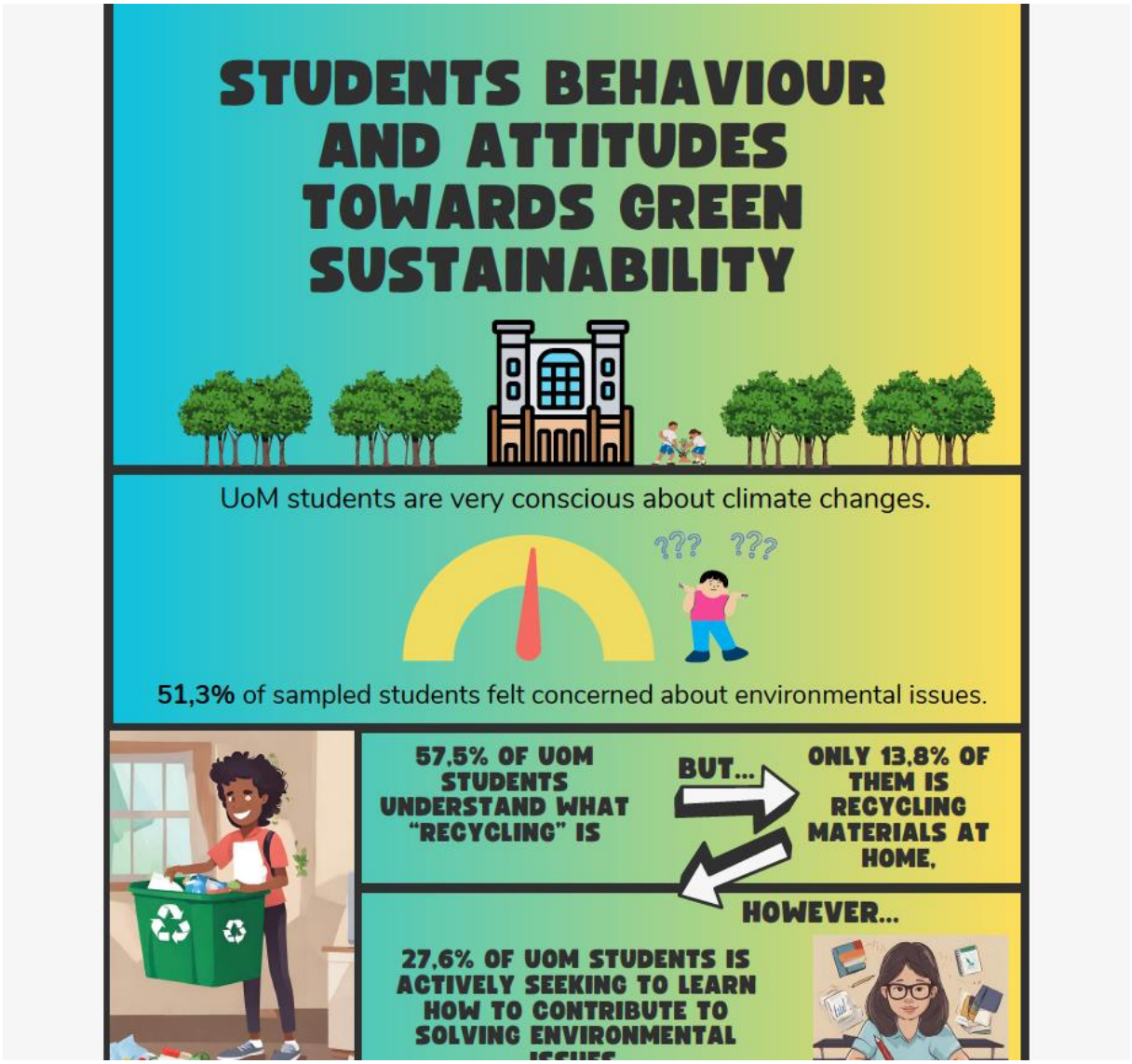

Photo A11: Project Tree of Knowledge

SITUATION ANALYSIS ON THE STATUS OF UNIVERSITIES AS GREEN INSTITUTIONS

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11. GREEN LAWS AND INITIATIVES IN HUNGARY, IDENTIFICATION OF STRATEGIC INTERFACES

11.1. INTERFACES AT NATIONAL LEVEL

Fundamental Law[61]

In Hungary, the entire text of the Fundamental Law (constitution), which came into force on the 1st of January 2012, is pervaded by the principles of sustainable development, environmental protection and the responsibility felt for future generations.

Particularly, articles XX and XXI set the principles for the right to a safe, clean and sustainable environment:

Article XX

(1) Everyone shall have the right to physical and mental health.

(2) Hungary shall promote the effective application of the right referred to in Paragraph (1) by an agriculture free of genetically modified organisms, by ensuring access to healthy food and drinking water, by organising safety at work and healthcare provision, by supporting sports and regular physical exercise, as well as by ensuring the protection of the environment.

Article XXI

(1) Hungary shall recognise and give effect to the right of everyone to a healthy environment.

(2) Anyone who causes damage to the environment shall be obliged to restore it or to bear the costs of restoration, as provided for by an Act.

(3) The transport of pollutant waste into the territory of Hungary for the purpose of disposal shall be prohibited.

Act LIII of 1995 on the General Rules of Environmental Protection

The general rules related to ensuring the right to a safe, clean and sustainable environment and environment protection are set in the Act LIII of 1995 on the General Rules of Environmental Protection. This Act explicitly declares that it aims to set up the enabling framework for ensuring the right to a safe, clean and sustainable environment.

[61] https://www.ohchr.org/sites/default/files/Documents/Issues/Environment/SREnvironment/SafeClean/State/Hungary.docx

National Environmental Protection Programme

The main policy document in Hungary in the field of environment is the National Environmental Protection Programme. From 1995, a regularly (every sixth year) revised and updated National Environmental Programme (hereinafter referred to as "NEP") is prepared. NEP is the comprehensive strategic plan of environmental issues in Hungary to be used as a framework for every environmental strategy, programme, or plan. NEP is closely linked to the National Framework Strategy on Sustainable Development approved by the Hungarian Parliament. The latter is considered a long-term concept, being particularly relevant for the objectives and measures related to natural resources from the four basic resources. As environmental issues are rather complex, NEP is not specialized in any given field, but has a horizontal approach covering society and economy in their entirety.

The strategic area "Improving the quality of life and the environmental conditions of human health" explicitly aims to improve the conditions for the enjoyment of the right to a safe, clean and sustainable environment, through its intervention areas, such as:

- Improving air quality
- Reducing noise pollution
- Drinking water and health
- Sewage disposal and treatment, sewage sludge treatment and utilization
- Environment and health
- Protection of green areas
- Chemical safety
- Nuclear safety, radiological healthcare

Under the **European Green Deal** [62], the European Union has set a 2050 target for achieving climate neutrality. This agreement is central to Hungary's sustainability goals and includes increasing energy efficiency, expanding renewable energy sources and promoting sustainable transport.

Government Decree No 282/2024 (30.IX.) focuses on **the development of green infrastructure and the increase of green spaces in municipalities** [63]. Article 3 of the Decree provides for the maintenance and expansion of green spaces, while Article 7 refers to the

[62] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
[63] https://net.jogtar.hu/jogszabaly?docid=a2400282.kor

conservation of biodiversity. Accordingly, the University of Pécs actively maintains and expands its green spaces, creating parks and planted areas. These measures contribute to the creation of a more liveable environment and to meeting the requirements of the Regulation.

An important element of the **Waste Management Act** (CLXXXV. 2012)[64] is the provision for the selective collection of waste and the promotion of recycling. Article 11 of the Act provides for the establishment of selective waste collection systems, while Article 15 focuses on waste prevention. The selective waste collection facilities and recycling promotion programs available on the campuses of the University of Pécs comply with these requirements. The University also runs special waste management campaigns to promote environmental awareness among students and staff.

The **Energy Efficiency Act** (LVII. 2015) [65] requires the reduction of energy consumption and the use of energy efficient technologies. Article 3 of the Act sets out strategies to reduce energy consumption, while Article 6 requires the use of energy efficient technologies. Based on these principles, the University of Pécs has upgraded the insulation of its buildings and installed energy-efficient systems, solar panels on several of its sites and energy-efficient lighting systems, which are in line with the energy efficiency and renewable energy objectives of the Act.

The **Second National Climate Change Strategy**[66] focuses on climate change mitigation and adaptation. The University's energy efficient building renovation and renewable energy programmes are aligned with the Strategy's objectives. The UP plays an active role in climate change education, research projects and awareness-raising activities.

The **National Energy Strategy 2030** [67] promotes the wider use of renewable energy sources and increased energy efficiency, with the aim of sustainable energy management. The installation of solar systems on UP campuses and the use of biomass district heating can reduce fossil energy use.

[64] https://net.jogtar.hu/jogszabaly?docid=a1200185.tv
[65] https://net.jogtar.hu/jogszabaly?docid=a1500057.tv
[66] https://2010-2014.kormany.hu/download/7/ac/01000/M%C3%A1sodik%20Nemzeti%20%C3%89ghajlatv%C3%A1ltoz%C3%A1si%20Strat%C3%A9gia%202014-2025%20kitekint%C3%A9ssel%202050-re%20-%20szakpolitikai%20vitaanyag.pdf
[67] https://2010-2014.kormany.hu/download/4/f8/70000/Nemzeti%20Energiastrat%C3%A9gia%202030%20teljes%20v%C3%A1ltozat.pdf

A key objective of **the National Sustainable Development Framework Strategy**[68] is to ensure the conditions for adaptability to a constantly changing socio-human-economic-economic external environment and to improve the quality of the cultural adaptation required. The University is developing new courses with a focus on sustainable development. The University will develop partnerships for sustainability projects where synergies can be exploited.

Hungary's Climate and Energy Action Plan also plays a key role. Point 4.2 of the Action Plan emphasises the promotion of renewable energies, while point 6.1 focuses on greening the transport sector. In line with these objectives, the University has installed electric vehicle charging stations and developed cycling infrastructure, which contributes to the promotion of sustainable transport.

The **Energy and Climate Awareness Action Plan** [69] aims to strengthen climate-conscious behaviour among the population and institutions. The University is involved in awareness-raising campaigns, lectures and workshops to raise the environmental awareness of students and staff.

Hungarian green laws and initiatives are therefore closely intertwined with the operation of the University of Pécs. The institution actively applies these laws, setting an example in the field of sustainability. The University not only complies with the law, but also plays a prominent role in promoting environmental awareness.

11.2. INTERFACES AT COUNTY LEVEL

The objectives of **the Regional Development Concept and Program of Baranya County** include the promotion of sustainable development, the development of the green economy and environmental protection. The University actively contributes to the implementation of the strategic objectives of the County through its research programs and sustainability courses. In addition, its role in local partnerships (municipalities, businesses, NGOs) strengthens the success of sustainability actions.

[68] https://eionet.kormany.hu/akadalymentes/download/1/26/71000/NFFT-HUN-web.pdf
[69] https://2010-2014.kormany.hu/download/0/0c/41000/Energia-%20%C3%A9s%20Kl%C3%ADmatudatoss%C3%A1gi%20Szeml%C3%A9letform%C3%A1l%C3%A1si%20Cselekv%C3%A9si%20Terv.pdf

The Spatial Plan of Baranya County emphasises the development of green spaces and sustainable transport systems. The development of green infrastructure (parks, green roofs) on the campuses of the UP contributes to the maintenance of the urban ecosystem, while the implementation of sustainable transport programs (e.g. bicycle storage, electric vehicles) reduces the environmental burden.

Baranya County Climate Strategy (2017-2030) prioritises emission reduction, adaptation and climate awareness. The university's energy efficiency investments and awareness-raising programs support the strategic goals. Climate change research and education activities also directly contribute to the implementation of the strategy.

The county strategies are closely linked to the UP's operations, encouraging the university to develop sustainable infrastructure, increase energy efficiency and promote environmental awareness. The University is leading by example in achieving these goals, while contributing to the sustainability goals of the local community.

11.3. INTERFACES TO THE PLANNING DOCUMENTS OF PÉCS

The Municipal Climate Protection Strategy and Action Plan of the City of Pécs with County Rights[70] sets out several policies and objectives that are directly related to the operation and daily life of the University of Pécs. The University, as one of the largest institutions in the city of Pécs, plays an important role in the implementation of the city's sustainability and climate protection efforts.

The Urban Development Concept of the City of Pécs County includes sustainable urban development, the promotion of a low-carbon economy and the development of green spaces. In addition to sustainable development projects, the UP helps to develop a sustainable approach in the urban community by organising awareness-raising actions. ***Integrated Urban Development Strategy 2021-2027 of the City of Pécs***[71] encompasses some indicators that play an essential role in achieving the principles of a sustainable settlement. Meantime also contains the new expectations of sustainable development goals namely the locality and decentralisation. The positioning of economic areas and the development of the infrastructure serving them will

[70] pecs-megyei-jogu-varos-telepulesi-klimavedelmi-strategiaja-es-cselekvesi-terve-1.pdf
[71] https://tarsadalmasitas.pvfzrt.hu/sites/default/files/dokumentumok/its_aktualizalasa_partnersegi_fejezettel_2_021_10_21_asztvel.pdf

only be in line with sustainable urban management and environmentally friendly transport if the population of large urban areas is not forced to use jobs and services far from their homes.

The **Sustainable Urban Mobility Plan of Pécs** aims to develop sustainable transport systems, reduce environmental impacts and promote public transport. The University encourages its students and staff to use sustainable modes of transport, such as cycling and public transport.

The Green Infrastructure Network Development Action Plan of Pécs aims to expand and maintain urban green spaces and protect biodiversity. By maintaining the green spaces on the university campuses, it will contribute to improving the urban environment, while at the same time using these areas for research and education.

Pécs' Sustainable Energy Action Plan focuses on reducing carbon emissions and increasing energy efficiency. The UP's energy developments, such as the installation of renewable energy sources and energy efficiency programs, directly support the objectives of the action plan.

The local strategies and action plans presented in this document are closely aligned with the operations of the UP. Through its infrastructure development, sustainability programs and educational activities, the university actively contributes to the energy-conscious and sustainable development of the city, setting an example for other institutions.

11.4. SUSTAINABILITY PLATFORM OF HUNGARIAN UNIVERSITIES

It is widely recognised that higher education institutions (HEIs) play a crucial role in promoting sustainability (Žalėnienė and Pereira, 2021; Leal Filho et al., 2018). Universities are pioneers of green thinking and innovation on the one hand, and key actors in the education of future policymakers, leaders, teachers, and lecturers on the other hand. They can effectively contribute to implementing the UN Sustainable Development Goals (SDGs). This contribution is very broad and diverse. Green steps can be disseminated positively in several ways, such as by attracting students, generating interest in investment, motivating employees, increasing job satisfaction and generating more positive media coverage (Pramono Sari et al., 2023). Furthermore, consistent efforts to operate in a more sustainable way over the long term can increase the legitimacy of HEIs (Lozano, 2011). The higher education system and the methodology of education have undergone drastic changes in recent decades (Seatter and

Ceulemans, 2017). Universities no longer merely transmit and assess knowledge within the courses; but undertake a diverse range of tasks. Universities provide comprehensive services, engaging in activities such as teaching, research, grant applications, organisation, counselling, and the initiation of national and international collaboration efforts.

They also play a significant role in cultural mediation, setting examples and offering extracurricular programmes. In essence, higher education is considered a strategic sector in the 21st century that is crucial to the success of a particular city, region or country (Besenyei, 2019). Through its institutions and lecturers, universities serve as both sources of social capital and as supportive knowledge bases, effectively contributing to the economy of the given city and its surroundings. HEIs need to participate in sustainable development practices, having education, research, internal management (operations) and community engagement (outreach) as main areas of study and development (Rasli et al., 2024; Clugston and Calder 2007). In today's VUCA world, linking seemingly disparate university systems has become essential. Operation and management, resilience and adaptation, education that accommodates to changing expectations, and a higher level of partnership management are now essential requirements and imperatives.

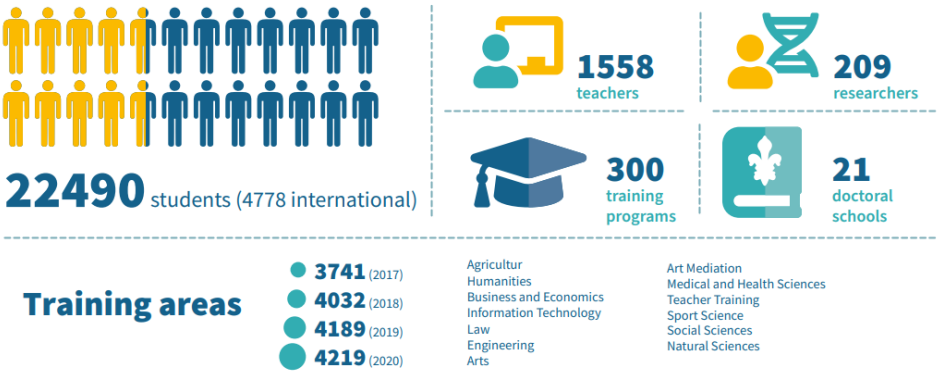
In 2022, on the initiative of the University of Pécs, **the Sustainability Platform of Hungarian Universities**[72] was established on the basis of a framework agreement between fourteen Hungarian universities, which was joined by two more universities in 2024[73]. The aim of the alliance is to share good practices in the field of sustainability, to organize regular joint actions and to develop closer cooperation for sustainable development. The Platform provides space and opportunities for joint thinking and coordinated sharing of good practices to take joint action towards the achievement of the 17 UN Sustainable Development Goals. In this context, universities in Hungary, which are committed to green efforts, are a major force, as they are responsible for shaping the attitudes of their regions and for promoting the SDGs and the associated tools as widely as possible. Since its inception, Platform members have shared good practices at numerous events, organized joint actions and appeared together at major events.

[72] https://zoldegyetem.pte.hu/en/news/sustainability_platform_hungarian_universities_was_established
[73]https://zoldegyetem.pte.hu/en/news/two_new_members_joined_sustainability_platform_hungarian_universities

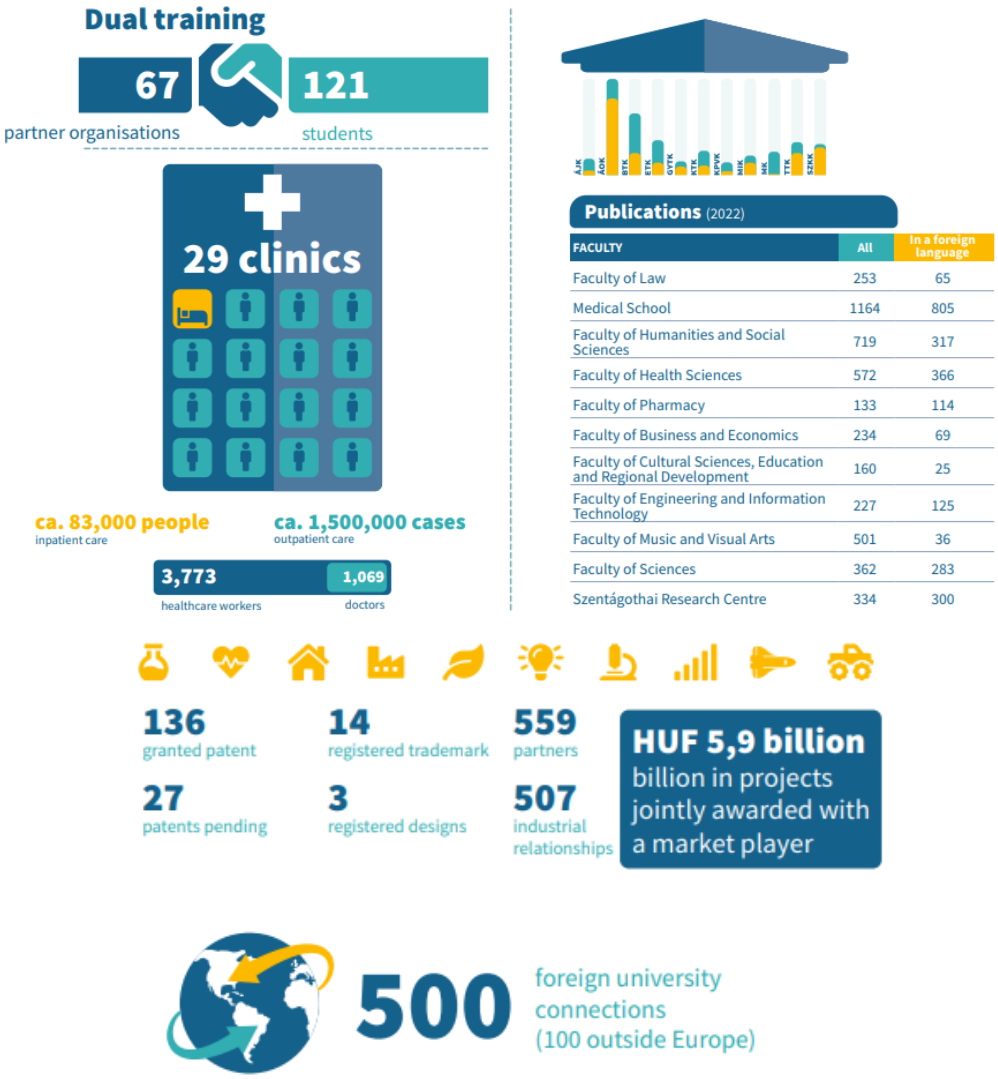
12. THE INSTITUTION´S LONG-TERM DEVELOPMENT PLAN REGARDING ON SUSTAINABILITY

12.1. THE UNIVERSITY OF PÉCS IN NUMBERS [74]

Photo: 10 faculties of the University of Pécs



[74] https://pte.hu/sites/pte.hu/files/share/PTE/PTE-Strategy-2023-2030.pdf



Publications (2022)

FACULTY	All	In a foreign language
Faculty of Law	253	65
Medical School	1164	805
Faculty of Humanities and Social Sciences	719	317
Faculty of Health Sciences	572	366
Faculty of Pharmacy	133	114
Faculty of Business and Economics	234	69
Faculty of Cultural Sciences, Education and Regional Development	160	25
Faculty of Engineering and Information Technology	227	125
Faculty of Music and Visual Arts	501	36
Faculty of Sciences	362	283
Szentágothai Research Centre	334	300

Figure 1: University of Pécs in numbers

12.2. THE GREEN UNIVERSITY PROGRAM AT THE UNIVERSITY OF PÉCS

Pécs is the fifth largest city in Hungary. With its 22,000 students—including 5000 international students—, more than 1700 professors and researchers and 10 faculties, UP is one of the largest and most prominent higher education institutions in Hungary. For the leadership of the University of Pécs, the 'green mission' means a self-conscious protection of the environment and the reduction of the environmental load. This environmentally-conscious approach can contribute to the improvement of quality of life and the well-being of people. Turning environmental awareness into action depends on several factors, but basically, it means creating the possibility and providing an alternative so that employees, professors and students at the university have the chance to act responsibly and conduct a (more) environmentally-friendly

lifestyle. One of the most important elements of creating and developing environmental awareness is the changing of thinking patterns, viewpoints, attitudes and behaviours, forming individual and group attitudes, receptiveness and sensitivity to detecting environmental problems and implementing such perspectives. Environmental awareness is a moral conviction that can make people broaden their knowledge and turn an approach into action.

Figure 2. Location of Pécs in Europe

In 2016, the University of Pécs symbolically laid the cornerstone of **the Green University Program of the UP**, which has as its mission to encourage good practice, innovation and management in all environments, to shape and strengthen ecological awareness through science and education.

The University of Pécs adopted its latest comprehensive strategy in June 2023. The strategic goals of the University and their indicators are partly defined by the requirements of the Universitas Quinqueecclesiensis Foundation, and partly – concerning the expectations of the state – by the public task financing contract concluded with the Ministry of Culture and Innovation, which are complemented by the University's own expectations, mission and vision, the faculty strategies, as well as the national and international – primarily EU – expectations.

Figure 3. Sustainability goals of the UP

The document (University of Pécs 2023–2030 Strategy) is concentrated around four priority objectives, out of which the first horizontal flagship objective is sustainability. The objective implies that in all other thematic objectives and on all priority levels and dimensions it is the principle of sustainability that should provide a general framework for all other value-generating activities. The UP is committed to becoming a trendsetter institution on the following levels:

- In the dimension of its **infrastructure, institution operation and management** the principles of sustainability must be applied as the general management principles. This provides the foundation for the Green University Program.
- In the dimension of **education** and all other relevant training activities sustainability must become integrated as a horizontal principle with relevant content to all forms of programmes and projects.
- In the dimension of **research, development and innovation** the resources of the university should primarily be focused on programmes that are directly related to projects with measurable indicators of sustainability.
- As the UP is the largest provider of health services and operator of hospitals in Southwestern Hungary, the application of sustainability in this field reflects a dual

attitude: sustainable services and solutions are offered and provided to the clients and prevention is the key to sustainable health systems.

- The generally accepted ’third mission’ of the universities is associated with their economic development activities and cooperation, which for the UP means a **formal and operational commitment to the local-regional development of a circular economy and initiating cooperation schemes related to the cleantech sector**.

Considering the implication of the strategy, the following dual framework should be highlighted:

- Based on the above strategy, sustainability is the general horizontal principle of managing, operating and developing the university as a complex and diverse institution of higher education and health service.
- The university – as an independent institution of academic knowledge and education – in general regards sustainability as the main value of all functional activities, including education, research and any relations with third parties.

13.EDUCATION PROGRAMS AND SUSTAINABILITY INTEGRATION

University education related to sustainability generally contributes to a better understanding of environmental problems. However, in a broader perspective teachers and researchers can also scrutinise the underlying deep social and economic causes of environmental conflicts, the role of individuals and communities in negative consumption patterns, moreover the responsibilities and opportunities of national, regional and international decision-making levels. In addition to teaching students how the macro level functions, shaping the individual's attitude is also a very important goal to prepare future decision-makers for multi-layered challenges. It is a fundamental expectation that all student education is aligned with the principles of sustainability. To achieve this, an interdisciplinary approach is inevitable, with critical thinking and analytical skills across all disciplines and professional levels.

Shaping university students into environmentally-aware individuals is an urgent need. However, swift changes do not leave time for these processes to come to fruition. Education for sustainability is framed by radically different ways of understanding learning; lecturers need to use new methodologies that help students learn and feel deeply involved in the topic. Basically, transformative education in parallel with personal transformation is required (Wooltorton 2002). On the one hand, students perceive sustainability as mostly related to technology and innovation, but on the other hand, also as something that supposes an economic alternative and a change in social attitudes. The assumption that changes are always community-oriented and constructive comes from their age.

The integration of the topic of sustainability into courses is becoming more and more important in higher education. Since 2016, there have been consistent developments in sustainability education at the UP, with an increasing number of courses addressing sustainability issues to varying degrees. You can find horizontal topics of sustainability in each and every faculty of the UP. Without being exhaustive, the subjects of intelligent environmental technologies, 3D technology, renewable energy, climate-conscious architecture, the circular economy, and sustainable material and energy management can be found.

The **UI GreenMetric WUR Network, in collaboration with 7 universities, including the UP, organized an online sustainability course in English**. The course was available to students from all 10 faculties of the UP[75].

[75]https://www.facebook.com/zoldegyetem.pte/posts/pfbid0HtJQEsLthCKxftEWQmmGBpyHjCXfFCTvJt27LXGfgms8xUMgVXQqSbjxYvF8c1Ukl

In the spring semester of the academic year 2023/24, the **online sustainability course "Introduction to the Sustainable Development Goals (SDGs)"**[76] **was held in the framework of the Sustainability Platform of Hungarian Universities, initiated by the Green University Program of the University of Pécs, in cooperation with 11 Hungarian universities.** The online course, which is unique in Hungary and was launched as a pilot project, was taught by experts from Platform member universities, who analysed different aspects of the SDGs. The importance and relevance of sustainability for the young generation is demonstrated by the fact that the course was attended by more than 1,400 students nationwide and 200 enthusiastic students from the UP.

[76] https://zoldegyetem.pte.hu/en/news/online_course_sustainability_spring_semester_2024

14.RESEARCH AND PROJECTS IN SUSTAINABILITY

Universities are creators of local knowledge bases, powerhouses of local economies, promoters of sustainability research and flagships of youth sustainability education. Research in higher education institutions contributes to overcoming environmental, social and economic challenges by involving business and civil society actors and building partnerships. Universities are essential to promote a green mentality and raise awareness among young people, representing the future generation that can no longer ignore sustainable approaches in their decisions.

At the University of Pécs, especially active research is conducted on the fields of health and medical, life, human and social sciences and arts, however, more and more emphasis is put on research connected to sustainability. Some of the most important research topics are: root zone wastewater treatment systems; extensive green roof; storm water retention; examination of building energy and acoustic comfort aspects; secondary fuel production process from municipal solid waste; development of hydrogen technologies and fuel cell equipment suitable for storing weather-dependent renewable electricity; water policy and water diplomacy, as well as research related to various medical and pharmaceutical sciences.

The National Energy and Climate Plan and the National Energy Strategy emphasize decarbonization targets. In order for Hungary to become a winner in the "Green Economy", it is necessary to create the knowledge base and the competence cluster that will enable domestic economic actors to be competitive in the various decarbonisation technologies. A new national laboratory will consolidate and dynamize domestic research and development in the field of renewable energies. The University of Pécs is the consortium leader of **the National Laboratory of Renewable Energies**[77], which is organized around two themes: research on hydrogen technology and its potential applications, and research on carbon storage and utilisation. MENL is an autonomous entity that concentrates all research, development and service activities at the UP related to hydrogen and can bring together other entities and industrial partners in the consortium to achieve common goals. Define the role of the UP in the national hydrogen competence map. This is not only a national, strategic segment, but also an important element for local development. The project is called the **Baranya Hydrogen Ecosystem Program**[78]. The objective is that to improve the quality of life of the citizens of

[77] https://www.nemzetilaborok.nkfih.gov.hu/megujulo-energiak-nemzeti-laboratorium/laboratorium-bemutatasa
[78] https://univpecs.com/zold/jovo_kulcsa_hidrogen_okoszisztema

Pécs and Baranya, it is necessary to prepare and create the possibility of a hydrogen-based economy. The programme focuses specifically on hydrogen-based mobility, namely public transport and freight transport in Pécs as a first step. The aim is to make Pécs a "living laboratory" of the hydrogen-based ecosystem and, once optimised, to build a protocol and know-how that will enable the UP to help any other city to build a hydrogen-based economy and mobility.

The Hydrogen Center [79] is a new independent department of the University of Pécs, dealing with hydrogen technologies and the hydrogen economy. In addition to research and development activities related to hydrogen technologies, the main objective is to plan and implement hydrogen production, storage and use based on renewable energies in more detail in the framework of demonstration projects. The development of hydrogen-based energy communities is still an immature field, and will be explored in detail, in addition to the technical challenges, its economic, legal and social aspects. The Hydrogen Center is working with a number of universities, research institutes and industrial partners to acquire and successfully apply an up-to-date knowledge base, practical approach and real-world problem solving in the implementation of hydrogen-based investments.

The aim of the "**Science and Innovation Park** at the University of Pécs"[80] project is to make the UP an innovative university, i.e. to mobilise its material and intellectual resources to become a creative, leading institution in the fields of education, research, medicine and social responsibility, capable of responding to socio-economic challenges. In line with the technical content of the project, 8 working groups have successfully started their work.

The Research Utilization and Technology Transfer Centre and the Simonyi Business and Economic Development Centre have been set up as a support unit to further develop existing knowledge utilisation and business development capacities, thus creating the potential for knowledge to flow between academia and industry, thus contributing to the development of an innovation ecosystem.

The Centre for Smart Health Technologies Development, Validation and Research offers a living laboratory environment for e-health, mobile health and smart device development,

[79] https://hcenter.pte.hu/hu
[80] https://www.bama.hu/pr/2023/11/megalakultak-a-tudomanyos-es-innovacios-park-munkacsoportjai-pecsett

testing and cost analysis. It is where new assistive devices and medical devices are tested and the effectiveness of existing assistive devices and medical devices is verified.

The Centre for Secondary Raw Materials Research focuses on the recycling of secondary raw materials, with a particular focus on the extraction of rare earth elements, taking into account national economic interests and industrial needs.

The Centre for Research and Development in Hydrogen Technology researches the zero greenhouse gas emissions in energy production, conversion and use that can be achieved through hydrogen technology, as well as the zero emission mobility that can be achieved through hydrogen technology.

The Centre for Health Data Management analyses and organizes real-life health data collected during patient care, enabling the efficient use of patient care data in the healthcare sector.

The Economic and Legal Research Group contributes to macro-level decision making through legal and economic research and analysis of industry and sectoral data.

The existing facilities of the Centre for Genomics and Bioinformatics will be extended with two new generation sequencers and a flow cytometer, enabling the Centre to perform detailed sequencing of both human and low-complexity plants, animals, bacteria and viruses.

The outstanding scientific work of the project teams will be continued in the future, enabling the region to further strengthen its integration into international research and innovation networks. This will bring long-term benefits to both the UP and the regional economy.

Global climate change and increasing human use of water are causing more and more watercourses to dry up, with growing impacts on daily life and the economy. The phenomenon has received very little attention so far, and researchers do not have enough data on the tens of thousands of small watercourses affected worldwide to understand the effects of the process, so they and researchers from the University of Pécs **have developed the DRYRivERS smartphone app**[81] **to ask for the public's help in collecting data to protect small watercourses**. More than 100 researchers from 25 research institutes in 16 countries are participating in the DRYvER project[82], and the University of Pécs represents the professional

[81] https://www.youtube.com/watch?v=TZL4Rx_PxrY
[82] https://www.dryver.eu/about/about-the-project

side of the project from Hungary. The main objective is to develop a new global framework, including strategies, tools, and recommendations for adaptive management of these river networks, based on detailed information collected on nine drying river networks in two continents, Europe and South America, and using a cross-disciplinary approach (hydrology, biogeochemistry, ecology, sociology, economics).

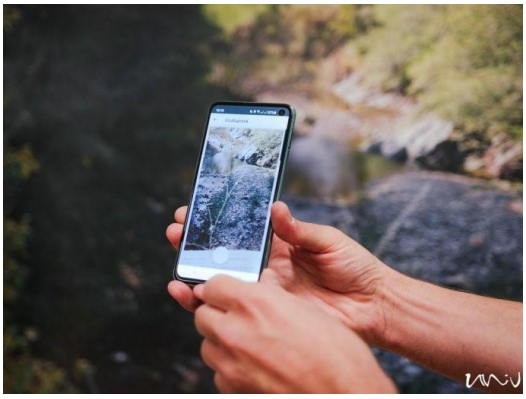


Photo: DRYvER project

The Green University Program of the UP wanted to present **the green developments of the UP and the city of Pécs** in an interesting way for younger generations, so in the framework of the **Green Aura** project it created a table depicting Pécs and three tables presenting environmentally friendly technologies (waste, energy, water). The tables feature 3D-printed landmarks with markers similar to QR codes. These are scanned and animations, descriptions, photos and videos on each topic are displayed on visitors' phones and tablets **using augmented reality**.

Photo: GREEN AURA field tables at the Eco-City Week [83]

Within the field of climate protection, the **"SpongeCity"** project focuses on reducing the risk of flash floods and on more efficient urban stormwater management - helping the city of Pécs in this task at the local level. Led by the UP, municipalities, water authorities and development agencies from 12 countries will work together from January 2024 to June 2026. The work will look at the city's topography, the risks posed by rainfall, and the infrastructure and procedures currently in place to deal with it. They will then develop an action plan to improve the city's stormwater management and carry out a feasibility study on one of the investment proposals in the action plan.

[83] Zöld terepasztal a város szívében (univpecs.com)

15. GREEN ACTIVITIES ON THE UNIVERSITY OF PÉCS

15.1. OFFICE

As part of its commitment to sustainability, the university launched the Green University Program of the UP in 2016, focusing on environmental, social and economic sustainability. In order to further strengthen the sustainability efforts represented by the program, the Board of Trustees of the Universitas Quinqueecclesiensis Foundation (UQA) adopted Resolution 108/2024 at its meeting on 10.09.2024, which unanimously supported the UQA Board of Trustees in establishing **the UP Green University Program Office** and **the UP Sustainable Development Coordination Council** (SDCC).

15.2. PROJECT PROMOTION AND GIFT

The University of Pécs sets its procurement policy in line with the sustainability guidelines set by **the Public Procurement** Authority[84]. The University has set a new vision, policy, and strategy for environmental sustainability as a goal, raising the University's profile in sustainability policy and practice. As part of our overall strategy, we have set ourselves the task of ensuring that all people, processes, goods, services, and works are carried out in a way that takes into account the appropriate environmental considerations within the University of Pécs. The UP's ambition is to integrate sustainability as a fundamental principle into the entire procurement process, assessing and defining procurement needs, in the field of selecting suppliers, evaluating offers, and post-contract management.

15.3. WASTE MANAGEMENT

The 3Rs – promoting waste reduction, product reuse, and recycling – form the basis of the *waste management initiatives*, programmes and campaigns that are put into place. **The University of Pécs is pleased to have the PET-free UP distinction**[85]. From 2019, the University of Pécs became the first Hungarian higher education institution to stop purchasing

[84] https://zoldegyetem.pte.hu/en/sustainability
[85] https://zoldegyetem.pte.hu/en/news/pet_bottle_free_university_pecs_0

plastic bottled water and beverages and became a **PET-free UP**. Instead, it installed free water filling stations and **has more than 500 water filling stations available**.

Photo: Water filling station

The UP upgraded its sorted waste recycling system with **new metal bins throughout the campus**. Concurrent with the rebranding, there was a modification made to the collection system as well. The standard procedure was to separate recyclable waste into various containers. As per the public service provider's waste collection and transport approach, paper, plastic, and metal waste can be gathered collectively in a mixed collection under the new system, ready for recycling.

Photo: New selective waste bin

Regarding the handling of waste, the UP's Green University Programme emphasizes the value of recycling and the necessity of seeing garbage as a resource to university residents. To ensure that garbage is sorted by the circular economy's tenets and that as much waste as possible may be recycled, sorted waste collection at the university level is crucial. **Paper and**

cardboard, iron and steel, plastics, scrap electrical and electronic equipment, glass packaging debris, batteries, used cooking oil and cell phones are examples of sorted waste made available for recycling.


Photo: "Pass it back, Brother!"[86]


Photo: "NotADrop Program" – used cooking oil collection [87]

Green waste is produced at the University of Pécs Research Institute of Viticulture and Oenology. This mass is recycled and shredded, then spread beneath the plantings. Additionally, the Botanical Garden of the UP generates green waste, part of which is composted on-site by the UP and some of which is handled by the public waste management firm. The waste management organisation transports and composts green garbage produced at other UP locations.

15.4. EVENTS

Many events related to sustainability (environment) are organized each year at the University of Pécs. Events related to sustainability and green(er) living are essentially built around the celebration of these days. On the one hand, if there is an International Day (Environmental, Water, Earth, Animals) or an international/national special day (Ride to Work Day, Car Free Day, etc.), on the other hand, a specific week or month organised around one

[86] https://zoldegyetem.pte.hu/en/news/pass_it_back_brother_spring_2022_campaign_organized_green_university_program
[87] https://zoldegyetem.pte.hu/en/news/nomoredrips_used_cooking_oil_collection_organizedgreen_university

theme (No Smoking Campaign/Smoke Free Week, Veganuary, Movember, etc.), Green University project also organises these events at the University.

Some of our sustainability events are listed below:

As an excellent start to the year, the UP Green University Program launched an online, playful awareness-raising reels video campaign called **"SmartLife – a more conscious present for a more sustainable future"**[88] for UP students on energy efficiency and energy saving. The reel videos were about saving energy in students' own environments (e.g. dormitories, university classrooms, offices, common areas) and aimed to show simple, positive examples that can be applied in everyday life. The videos were shared and published on the students' own and the UP Green University Program's Instagram platform.

Photo: SmartLife reels video campaign – awards ceremony

To further promote energy-saving behaviour and health promotion, on the Challenge Day, the Green University Program of the UP launched **the "Green Steps for Health – Take the stairs with us" campaign**[89]. The campaign took place in the University Library and Knowledge Centre and the Chancellery building. University citizens were delighted to take part in the campaign and enthusiastically used the stairs instead of the elevator.

[88] https://univpecs.com/zold/smartlife_tudatosabb_jelen_egy_fenntarthatobb_jovoert
[89] https://univpecs.com/zold/zold_lepcsofokok

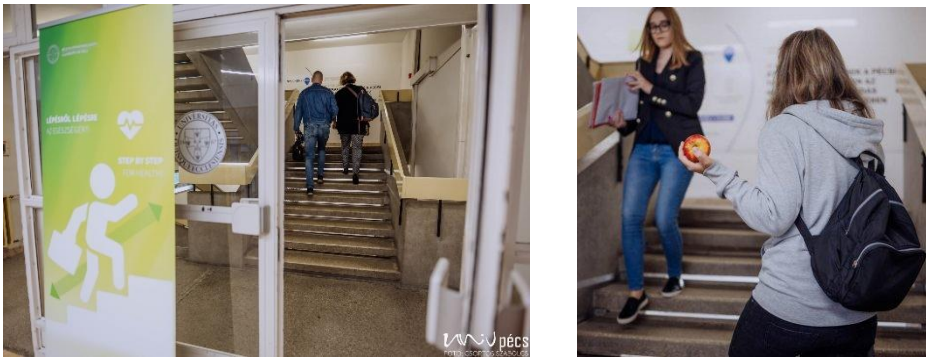


Photo: 'Green Steps for Health – Take the stairs with us' campaign on Challenge Day

The UP Green University Program has "smuggled" everyday green thoughts on energy saving and conscious energy use into the lock screen of IT devices *(Figure 4).*

Figure 4: Lock screen

Waste management actions, campaigns and measures are based on the 3Rs: encouraging **waste reduction, product reuse and recycling**. These are the three main guidelines (among many other options) that the UP has in mind when reassessing consumption habits. In all cases, the University of Pécs transfers the waste to a legally licensed waste management company.

In addition to being PET-free, the University of Pécs pays great attention to the recycling of aluminium cans. In this spirit, the UP Green University Program has set up an Aluminium Collection Wall at the Medical School of the University of Pécs in the framework of the Sustainability Week and the citizens of the University could drop off empty aluminium cans throughout the week. Those who did so in large numbers received a special gift. A total of 3700 aluminium cans were collected[90].

[90] https://zoldegyetem.pte.hu/en/news/total_3700_aluminium_cans_were_collected

Photo: "Let's throw together a greener future!" – Sustainability Week at the UP

On **World Packaging Free Day** and the **Green Gastro series of events** to promote responsible consumption, the UP Green University Program and the RAKUN Box Community have teamed up to encourage university citizens and local residents to try waste-free takeaway. The Rakun project aims to replace single-use takeaway boxes with refillable alternatives[91].

Photo: World Packaging Free Day

The NotADrop – used cooking oil collection programme continued in 2023. Some of the collection points are open not only to university citizens but also to the population of Pécs, and the service is available not only in Pécs but also in Zalaegerszeg, Szombathely and Szekszárd, and has been extended as a pilot project in one of the UP dormitories. Thanks to the UP Green University Program, the students learned where the used cooking oil containers are located in the dormitory and how to empty the collection can correctly.

[91] https://zoldegyetem.pte.hu/en/news/take_away_food_not_trash_packaging_free_day_30092023


Photo: "We cooked this up" campaign at Boszorkány Dormitory [92]

The aim of **World Recycling Day** is to educate the public, especially young people, about the importance of recycling and to look at waste as a resource to conserve the Earth's precious natural resources. To mark this day, the UP Green University Program organized field trips at the faculties to educate UP citizens on recycling through innovative, playful activities, including demonstrations on how to collect waste, how to collect used cooking oil and quizzes. The outreach series started with a fun fashion show called "Gicci Ricci Ecofashion Show", where students presented their creative handmade clothes designed with recycling in mind[93].


Photo: Campus outreach series

[92] https://univpecs.com/zold/zoldebb_kolik
[93] https://zoldegyetem.pte.hu/en/news/be_picky_us_campus_visit_series

Photo: Gicci Ricci Ecofashion Show

Thanks to the Green University Program of the UP and the Tettye Fountain House, a drinking fountain was inaugurated in front of the Boszorkány Dormitory at the Faculty of Engineering and Information Technology of the University of Pécs and in the courtyard of the Babits Mihály Teachers' Training Practice School of the University of Pécs as part of the "Wet City – Conscious Water and Sewerage Use" project[94].

Photo: New drinking fountains

On European Mobility Week 2023, the Green University Program of the University of Pécs organized a number of interactive and fun cycling activities for the participants (Bike Breakfast, Instagram voting, skill challenge, accident prevention game, free bike engraving, registration to the Bike Safe programs, quiz), aiming to promote environmentally friendly and sustainable

94 https://zoldegyetem.pte.hu/en/news/drinking_fountain_unveiled_courtyard_babits_mihaly_teachers_training_practice_school_university
https://zoldegyetem.pte.hu/en/news/drinking_fountain_unveiled_faculty_engineering_and_information_technology

urban transport. On Car-Free Day, the PécsiKe bike-sharing system and local bus services were available free of charge[95].


Photo: European Mobility Week 2023 at the UP

In the spirit of **Veganuary**, delicious recipe ideas were posted on the Facebook page of the Green University Program of the University of Pécs.

Photo: Veganuary

A "vegetarian" recipe competition, a visit to a local farmer and a pre-dinner lecture on nutrition science were organized to mark **Vegetarian October** and **Meatless Friday**[96].

Photo: Green Gastronomy 2023

Protecting planet Earth is a shared responsibility, and educating children to be environmentally aware is key to developing a sustainable, green attitude. With this in mind, **the** "**Alex's Eco**

[95] https://zoldegyetem.pte.hu/en/news/european_mobility_week_16_22092023_programs
[96] https://zoldegyetem.pte.hu/en/news/october_green_gastronomy_organized_green_university_program

adventures" **skill-building workbook** for children aged 6-10 was developed in collaboration with the UP Green University Program[97].

Photo: Alex's Eco Adventures

The UP Sustainable Development College, in cooperation with the Green University Program of the UP, launched **the UP Bird-Friendly University**, where bird feeders and watering troughs were placed in the faculties/campuses the Chancellory and the courtyards of the schools of practice[98].

Photo: UP Bird-Friendly University

15.5. FOOD, DRINKS AND CATERING

[97] https://zoldegyetem.pte.hu/hu/hirek/alex_okokalandjai_kornyezettudatossag_legkisebbeknek

[98] https://www.facebook.com/PTEFenntarthatoFejlodesertSzakkollegium/posts/pfbid02jmcQBinXZZLWoHWuPDrZV51X7MHDJ19B3hj4iVgHy7D6ZADbY8tST6daFkU25R56l

The ethos of green events is to promote sustainability and environmental protection, with a focus on reducing carbon footprints, minimising waste and working with local communities. A particularly important area is food and drink consumption, where the UP proposes a number of guidelines:

- **Use of local and seasonal ingredients**: Food should be sourced from local producers, giving preference to seasonal products, reducing the environmental impact of transport.
- **Waste reduction and recycling**: Minimizing packaging and using recyclable or biodegradable materials is key. Waste should be collected separately and leftover food can be recycled, for example by donation.
- **Sustainable utensils and containers**: Replacement of disposable plastics by reusable plastic containers and environmentally friendly cutlery is recommended.
- **Providing drinking water in a sustainable way**: Use of mains water dispensers and refillable canteens instead of UP bottles is preferred.
- **Supporting special diets**: Providing vegetarian, vegan, lactose and gluten-free options makes healthy eating accessible to all, promoting environmentally conscious dietary choices.

These measures help to ensure that an event is not only an experience but also a positive example of sustainability.

15.6. TRANSPORTATION

The University of Pécs also places great emphasis on promoting environmentally sustainable practices in the field of transport. As part of this, 11 **electric cars** are used daily for transport between UP sites. The University is committed to raising awareness of the benefits of cycling and reducing car use.

By purchasing more electric vehicles, the institution has been able to lower the percentage of fossil fuel use in its fleet. The locally used electric vehicles for the movement of people and products between the institution's different locations considerably lower the UP’s carbon dioxide emission.

The number of bicycle storage facilities on UP campuses is increasing year by year, and their utilisation is steadily improving as the urban bicycle network expands and the campuses

are connected. After 2021, the University of Pécs was awarded the title of **'Cyclist Friendly Workplace'** in 2022 and acclaimed the public institution category by the Ministry of Construction and Transport.

15.7. ACCOMODATION

One of the cardinal issues at the start of university life is housing. The University of Pécs operates 5 **dormitories** in Pécs and 4 in the countryside[99]. The UP has more than 22,000 students, many of whom prefer dormitories to rented accommodation, either because of the value for money or because of the unique atmosphere of dormitory life. This is why the decision was taken to renovate several dormitories in Pécs as part of the Modern Cities Program, which runs from 2016-2022. The investments involved improving the comfort of the rooms and the unused spaces were also upgraded to provide students with more communal space.

15.8. CAMPUS INFRASTRUCTURE AND GREEN INITIATIVES

Under the **Modern Cities Program**, HUF 30.5 billion has been invested in our university since 2016. The implemented developments will enable the strengthening of the competitiveness of the UP, the development of the educational and service portfolio, the increase of the number of foreign students and the provision of the necessary infrastructure. One of these is the development of the new theoretical block of the Medical School[100], which will provide 12,000 square metres of new teaching and research space with a budget of nearly HUF 24 billion. However, the improvements did not stop at the building alone, a 10,000 square metre green space renovation and park was established too. The percentage of planted areas on UP sites is above 40%. In addition to increasing green areas, regular park maintenance is a priority.

[99] https://1367.hu/hol-fogok-lakni-semmi-panik-varnak-a-pte-s-kolik/
[100] https://www.youtube.com/watch?v=yaelnwIFUVM

Photo: Ultramodern building of the Medical School – University of Pécs

The **percentage of planted areas** on UP sites is **above 40%.** In addition to increasing green areas, regular park maintenance is a priority.

Photo: The Park of the Medical School of the UP

The UP Research Institute of Viticulture and Enology[101] was established in 1949 on the basis of a centuries-old church estate, with research, education and technical advice as its main tasks. The intersection of research and practice takes place here. The Research Institute is proud to be the meeting place and common thinking place of the grape and wine sector, as well as the place where the wine training courses of Pécs are held. The Institute's grape variety collection consists of more than 1800 lots, the second largest grape genebank in Europe and the sixth largest in the world, a real treasure recognised in Europe and worldwide. The 30 hectares of vineyards, the 300-year-old multi-branched cellar and the accredited laboratory, as well as the enthusiastic team of experts, are at the service of making this treasure a public treasure.

[101] https://szbki.pte.hu/

The research institute carries out research into vine breeding, genetics, viticultural technology and oenology. Innovative research is carried out while preserving the values of the past. The collection serves to maintain genetic diversity and is the cradle of future vineyards. In Hungary, Pécs is the only place where world-class resistance breeding is being carried out, with the aim of creating and strengthening a more environmentally conscious and sustainable wine-growing sector.

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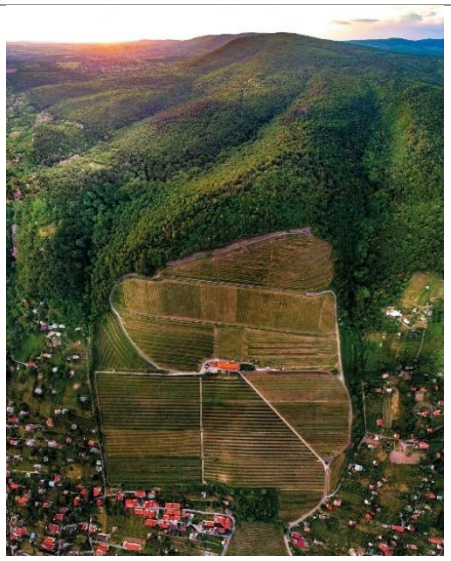
<tr><td>  </td><td> 
  </td></tr>
<tr><td>RIVE - Szentmiklós vineyard campus site, Pécs</td><td>RIVE - Szentmiklós vineyard campus site, Pécs</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Blue grapes in RIVE</td><td>RIVE - Pázmány Péter campus site, Pécs</td></tr>
</table>

The Botanical Garden of the University of Pécs is a county nature conservation area. It covers an area of 68,500 m2, with more than 8,000 plant species, of which approx. 5000 in park, in greenhouses approx. 3000. The number of individuals is more than 100,000. Number of protected or highly protected plant species present: 350. Of the 66 animal species observed in the garden, 60 are protected[102].

[102] https://botanikuskert.pte.hu/

  	  
Trees, shrubs	*Orchid- and Bromelia-house, Cacti house*
 	 
Mediterranean collection	*Greenhouses*
	
Leanders	*Palm house*




Aquatic and swamp plants | *Epiphyton house*

Nearly 200 members of more than 50 plant families are on display in the Melius-EGSC **Medicinal Plant Garden** of the Pharmacognosy Institution at the Faculty of Pharmacy of the University of Pécs. The main purpose of the garden is to provide fresh and dried plant material for the education of pharmacy students. The students can study the botanical characteristics of medicinal plant species in the Pharmacobotany course; as well as their use as drugs, laying the foundation for drug knowledge in the Pharmacognosy course. The garden also serves research purposes.




Herbal garden

The College for Sustainable Development of the University of Pécs has officially joined the Bird-Friendly School program of the Hungarian Ornithological and Nature Conservation

Association [103]. The Bird Friendly School program of the UP was launched in the framework of the Sustainable Development College of the UP, with the support of the Green University Program of the UP, and bird feeders, waterers and bird food were placed at various sites of the UP. The aim of the Bird Friendly University of the UP is to support the breeding of birds that breed in burrows (i.e. Common and Blue tit, House Wrens, etc.). In addition to using waterers and feeders in the yard, birds can now raise chicks.

15.9. STUDENT AND COMMUNITY ENGAGEMENT IN SUSTAINABILITY

The University of Pécs emphasises sustainability as its fundamental objective, along with a more eco-friendly operation. Also, it is constantly working hard to promote sustainable development[104]. **It seeks to integrate social, cultural, economic and environmental sustainability into all facets of higher education as well as its own internal operations**. The University of Pécs works to design and develop a sustainable campus, and it is up to the staff and students to actively engage in order to make this vision a reality.

The communication of sustainability programmes and campaigns is mainly managed through social media (Facebook, Instagram, YouTube, TikTok), but also through university lectures and by informing all first-year students about the UP Green University project. The University of Pécs has a Sustainable Development Special College and committed lecturers are also involved in making the university greener. As a horizontal approach is needed, operations, education and green initiatives can work together in a complementary way. Moreover, student involvement is indeed essential.

The UP's Green University Programme has opted for a bottom-up strategy to initiate the change from the ground up, concentrating first on the requirements of the institution and then on its viewpoints by including all relevant parties.

Focus areas:

- infrastructure development,
- increasing green areas,

[103] https://botanikuskert.pte.hu/

[104] https://www.facebook.com/PTEFenntarthatoFejlodesertSzakkollegium/posts/pfbid02xC5frBgqSTwrrqxS9zUoYR9wCBa5LffE3BEs7UcCAMPnW88kjVP2PYyBtrdCLTkCl
https://www.youtube.com/watch?v=3N9EwSGi4N4

- energy and climate protection,
- water management,
- waste management,
- zero emission transport,
- education – research – awareness-raising.

The 17 UN Sustainable Development Goals are intended to be achieved and served by emphasis on these focus areas. Within this framework, the UP's Green University Programme sets development strategies and projects, and also conducts annual awareness-raising events and activities.

LIST OF FIGURES

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SITUATION ANALYSIS ON THE STATUS QUO OF UNIVERSITIES AS GREEN INSTITUTIONS

Organisation: University of Sarajevo

Authors: Mirza Dautbasic

17. GREEN LAWS AND INITIATIVES IN THE COUNTRY

BiH (Bosnia and Herzegovina) is a country with a very complex decentralized administration systems comparing to other EU countries.

On state level, there is one ministry, the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MOFTER) whose jurisdiction is environmental protection. But, there are no laws on state level that regulate environmental and nature protection, air and water quality as well as waste management.

Bosnia and Herzegovina has a range of environmental laws and initiatives aimed at protecting natural resources, biodiversity, and promoting sustainable development. The efforts align with the country commitments to EU environmental standards, international agreements, and its own national priorities.

Following is an overview of policy in BiH regarding environment, nature, and air quality as well as waste management.

1) Law on Environmental Protection (including Environmental Impact Assessments -EIA and Strategic Environmental Assessments -SEA regulations)

As mentioned, the legislation regarding environment, EIAs, and SEAs is implemented separately in the Federation of Bosnia and Herzegovina (FBiH), Republika Srpska (RS), and the Brčko District (BD BiH). Following is an overview of the legislation:

1. Law on Environment Protection in FBiH (15/21)[105]
2. Law on Environmental Protection in RS (OG RS 71/2012, 79/2015[106], 70/2020[107]) and
3. Law on Environment Protection in BD (Official gazette of BD 24/04, 01/05, 19/07, 09/09)[108]

EIAs and SEAs are required for many development projects, ensuring environmental considerations are integrated into planning and decision-making processes. This aligns BiH with EU environmental standards and supports sustainable development by mitigating potential ecological impacts. The EIAs and SIAs policies are treated in the bylaws of the respective entities laws on environmental protection as follows:

[105] https://www.fmoit.gov.ba/upload/file/2021/Zakon o zastiti okolisa 15_21.pdf

[106] http://www.progres-doboj.com/Sluzbeni_glasnici/Zakon%20o%20zastiti%20zivotne%20sredine.pdf

[107] https://www.narodnaskupstinars.net/?q=la/akti/usvojeni-zakoni/zakon-o-izmjenama-i-dopunama-zakona-o-za%C5%A1titi-%C5%BEivotne-sredine-0

[108] https://skupstinabd.ba/ba/zakon.html?lang=ba&id=/Zakon%20o%20zas--titi%20z--ivotne%20sredine

Law on Environment Protection in FBiH (15/21)[109] with its bylaws:

- Regulation on projects for which EIA is mandatory and projects for which a decision on the need for EIA is required (OG FBiH 51/21)[110]
  - ~ Annex I - Projects for which EIA is mandatory[111]
  - ~ Annex II - projects for which the federal ministry decides on the need to carry out an EIA[112] – screening
  - ~ Annex III - Preliminary EIA [113]– needed for EIA– scoping
  - ~ Annex IV - criteria for deciding on the need to carry out an EIA[114]

Law on Environmental Protection (OG RS 71/2012, 79/2015[115], 70/2020[116])

- Rulebook on the procedure of revision and renewal of environmental permits (OG RS, 28/13[117], 104/17[118])
- Rulebook on plants that can be built and put into operation only if they have an environmental permit (OG RS 124/12)[119]
- Rulebook on projects for which environmental impact assessment is conducted and criteria for deciding on the obligation to conduct and scope of environmental impact assessment (OG RS 124/12)[120]
- Instruction on the content of the environmental impact study (OG RS 108/13)[121]

109 https://www.fmoit.gov.ba/upload/file/2021/Zakon o zastiti okolisa 15_21.pdf

110 https://www.fmoit.gov.ba/upload/file/PdfDownload-uredba%20procjena.pdf

111 https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.fmoit.gov.ba%2Fupload%2Ffile%2FPrilog%2520I%2520PROJEKTI%2520ZA%2520KOJE%2520SE%2520OBAVEZNO%2520PROVODI%2520PROCJENA%2520UTICAJA%2520NA%2520OKOLIS.docx&wdOrigin=BROWSELINK

112 https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.fmoit.gov.ba%2Fupload%2Ffile%2FPRILOG%2520II%2520PROJEKTI%2520ZA%2520KOJE%2520FEDERALNO%2520MINISTARSTVO%2520ODLU%25C4%258CUJE%2520O%2520POTREBI%2520PROVO%25C4%2590ENJA%2520PROCJENE%2520UTICAJA%2520NA%2520OKOLIS.docx&wdOrigin=BROWSELINK

113 https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.fmoit.gov.ba%2Fupload%2Ffile%2FPRILOG%2520III%2520OBRAZAC%2520ZAHTJEVA%2520ZA%2520PRETHODNU%2520PROCJENU%2520UTICAJA%2520NA%2520OKOLIS.docx&wdOrigin=BROWSELINK

114 https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.fmoit.gov.ba%2Fupload%2Ffile%2FPRILOG%2520IV%2520Uredba%2520procjena.doc&wdOrigin=BROWSELINK

115 http://www.progres-doboj.com/Sluzbeni_glasnici/Zakon%20o%20zastiti%20zivotne%20sredine.pdf

116 https://www.narodnaskupstinars.net/?q=la/akti/usvojeni-zakoni/zakon-o-izmjenama-i-dopunama-zakona-o-za%C5%A1titi-%C5%BEivotne-sredine-0

117 http://www.podaci.net/_gBiH/propis/Pravilnik_o_postupku/P-proedo03v1328.html

118 https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/8-104-17%20Prav%20o%20izmj%20i%20dopunama%20pravilnika%20o%20postupku%20revizije%20i%20obnavljanja%20ekolo%C5%A1kih%20dozvola.pdf

119 http://www.podaci.net/_gBiH/propis/Pravilnik_o_postrojenjima/P-pmbipr03v12C4.html

120 http://www.podaci.net/_gBiH/propis/Pravilnik_o_projektima/P-pspuzs03v12C4.html

121 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%A3%D0%BF%D1%83%D1%82%D1%81%D1%82%D0%B2%D0%BE%20%D0%BE%20%D1%81%D0%B0%D0%B4%D1%80%D0%B6%D0%B0%D1%98%D1%83%20%D1%81%D1%82%D1%83%D0%B4%D0%B8%D1%98%D0%B5%20%D1%83%D1%82%D0%B8%D1%86%D0%B0%D1%98%D0%B0%20%D0%BD%D0%B0%20%D0%B6%D0%B8%D0%B2%D0%BE%D1%82%D0%BD%D1%83%20%D1%81%D1%80%D0%B5%D0%B4%D0%B8%D0%BD%D1%83_301977197.pdf

- Rulebook on the content and manner of keeping the register of issued environmental permits (OG RS 108/13)[122]
- Rulebook on Criteria for Deciding on the Need to Conduct a Strategic Environmental Assessment (OG RS 28/13)[123]
- Rulebook on the content of the report on strategic environmental impact assessment ("Official Gazette of the Republic of Srpska", No. 28/13)

Law on Environment Protection in BD (Official gazette of BD 24/04, 01/05, 19/07, 09/09)[124]

- Rulebook on facilities and plants for which EIA is mandatory and on facilities and plants that can be built and put into operation only if they have an environmental permit OG BD 30/06[125]
- Rulebook on deadlines for submitting applications for the issuance of environmental permits for plants and devices that have issued permits before the entry into force of the Law on Environmental Protection
- Rulebook on the content of the environmental impact assessment (OG BD 2/07)[126];
- Rulebook on conditions for submitting applications for the issuance of environmental permits for plants and facilities that have issued permits before the entry into force of the Law on Environmental Protection (OG BD 2/07)[127].

2) Law on Nature Protection

This law with its bylaws is focused on the conservation of natural ecosystems and biodiversity, this law emphasizes protected areas, protection of endangered species, and sustainable use of natural resources. As mentioned this law is also implemented on entity and BD BiH level as follows:

1. Law on Nature Protection in FBiH (OG FBiH 66/13)[128]
2. Law on Nature Protection in RS (OG FBiH 49/24)[129]
3. Law on Nature Protection in BD BiH (OG FBiH 16/24)[130]

[122] https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/10-108-13%20Pr%20o%20sadrz%20i%20nacinu%20vodj%20reg%20izdatih%20eko%20dozv.pdf

[123] http://www.podaci.net/_gBiH/propis/Pravilnik_o_kriterijumima/P-kopssp03v1328.html

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[127] http://www.podaci.net/_gBiH/propis/Pravilnik_o_uslovima/P-upzied05v0702.html

[128] https://www.fmoit.gov.ba/upload/file/okolis/Zakon%20o%20za%C5%A1titi%20prirode%20Sl.%20nov%20F%20BIH%2066-13.pdf

[129] https://advokat-prnjavorac.com/zakoni/Zakon-o-zastiti-prirode-Republike-Srpske.pdf

[130] https://advokat-prnjavorac.com/zakoni/Zakon-o-zastiti-prirode-Brcko-distrikt-BiH.pdf

3) National Biodiversity Strategy and Action Plan (NBSAP)

Aligned with the Convention on Biological Diversity, the NBSAP is Bosnia and Herzegovina's strategic framework for protecting biodiversity and promoting sustainable use of biological resources. It includes targets for habitat conservation, species protection, and the sustainable management of natural resources.

BiH has not yet submitted its NBSAP but is working to finalize it within the set deadlines. At the COP16 biodiversity conference, BiH was the only Western Balkan country to present at least one goal, specifically related to biodiversity financing (Goal 19). This reflects country's efforts to align with the Kunming-Montreal Global Biodiversity Framework, aiming for sustainable biodiversity management.

4) Law on Forests and Forestry Policy

Forests are vital to Bosnia and Herzegovina's environment and economy, and this law sets out guidelines for sustainable forest management, including logging regulations, reforestation, and forest conservation practices. Forest certification initiatives are encouraged to ensure sustainability and access to international markets.

At the FBiH level, a Forestry Law has not been adopted, leaving cantonal laws as the governing framework for forestry in the region. Current legislation includes various forestry laws across Republika Srpska (RS), FBiH cantons, and Brčko District (BD BiH) as follows:

1. Forestry Law of RS (OG RS 75/2008, 60/2013, 70/2020, 49/2022)[131]
2. Forestry Law of BD BiH (OG BD BiH 14/10, 26/16)[132]
3. specific laws for cantons like Central Bosnia (OG SBK 5/14)[133], Zenica-Doboj (OG ZDK 8/13)[134], Tuzla (OG TK 3/21)[135], etc.

5) Air Quality

Air pollution is a major concern, particularly in urban areas. Legislation on air quality sets standards for emissions, particularly from industrial sources, and aligns with EU standards.

Air emissions are regulated by several laws and on an entity level:

[131] https://www.scribd.com/document/683271319/Zakon-o-%C5%A1umama-RS
[132] https://skupstinabd.ba/index.php/ba/zakon.html?lang=ba&id=/Zakon%20o%20s--umama%20Brc--ko%20distrikta%20BiH
[133] https://pravnapomoc.upfbih.ba/udocs/Zakon20o20C5A1umama202B52B20142020SBK.pdf
[134] https://www.spdzdk.ba/sadrzaj/Zakon%20o%20%C5%A1umama%20ZDK_1.pdf
[135] https://pravnapomoc.upfbih.ba/udocs/Zakon20o20izmjeni20i20dopunama20Zakona20o20C5A1umama20TK2032021.pdf

1. Law on air protection of FBiH (OG 33/03 and 4/10)[136],
2. Law on air protection of RS (OG 124/11[137], 46/17[138]) and
3. Law on air protection of in BD BiH (25/04, 01/05, 19/07, 09/09)[139].

In FBIH there are several bylaws regulating air emissions as follows:

- Regulation on Air Quality Monitoring (OG FBiH 12/05)[140]
- Rulebook on Conditions for Measurement and Control of Sulfur Content in Fuel (OG FBiH 6/08)[141]
- Rulebook on monitoring of air quality and defining types of pollutants, limit values and other air quality standards OG FBiH 1/12[142], 50/19[143] i 3/21[144])
- Decree on the types, content and quality of biofuels in motor fuels (OG FBiH 29/08)[145]

In RS there are several bylaws regulating air emissions ans some of the most important are as follows:

- Rulebook on air quality limit values and Rulebook on VOC emissions (OG RS 39/05)[146]
- Decree on conditions for air quality monitoring and Decree on Air Quality Values (OG RS 124/12)[147]
- Rulebook on conditions for issuing permits for air quality monitoring (OG RS 3/18, 57/18)
- Rulebook on Measures for Prevention and Reduction of Air Pollution and Improvement of Air Quality (OG RS 3/15[148], 51/15[149], 47/16[150], 16/19[151])

136 https://www.fmoit.gov.ba/upload/file/2020/1_Zakon%20o%20za%C5%A1titi%20zraka%20(Slu%C5%BEbene%20novine%20Federacije%20BiH%2C%20broj%2033_03).pdf

137 https://rhmzrs.com/wp-content/uploads/2019/01/zakonm-o-zastiti-vazduha.pdf

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147 https://rhmzrs.com/wp-content/uploads/2019/01/uredba-o-uslovima-za-monitoring-kvaliteta-zraka.pdf

148 https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/12-3-15%20Pr%20o%20mjer%20za%20sprec%20i%20smanjenje%20zag%20vazd.pdf

149 https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/12-51-15%20Pr%20o%20mjer%20za%20sprec%20i%20smanjenje%20zagadj%20vazduha.pdf

150 https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/12-47-16%20Pr%20o%20mjer%20za%20smanjenje%20zagadj%20vazduha.pdf

151 https://rzsm.org/images/stories/RZSM/Propisi/MPUGE/Zastita%20zivotne%20sredine/MPUGE_Zzs_Vazeci/12-16-19%20Pravilnik%20o%20izmjenama%20i%20dopunama%20prav%20o%20mjerama%20za%20sprjecavanje%20zagadjivanja%20vazduha.pdf

- Decree on the treatment of ozone-depleting substances and substitute substances (OG 66/20)
- Rulebook on conditions for issuing permits for air quality monitoring (OG RS 3/18, 57/18)
- Decree on the Establishment of the Republic Network of Measuring Stations and Metering Points and the Decree on Conditions for Air Quality Monitoring (OG RS 124/12)[152]
- Rulebook on Measures for Prevention and Reduction of Air Pollution and Improvement of Air Quality ("Official Gazette of the Republic of Srpska", No. 3/15[153], 51/15)

In Brčko district the bylaws regarding air quality are:

- Rulebook on limit values for the emission of pollutants into the air (OG BD 30/06)[154]
- Law on air protection (25/04, 01/05, 19/07, 09/09)[155]
- Rulebook on VOC emissions (OG BD 30/06)[156]
- Rulebook on limit values for the emission of pollutants into the air (OG BD 30/06) [157]
- Rulebook on air quality monitoring (OG BD 30/06)[158]

In the entity Laws on the on the Environmental Protection Fund (OG FBiH 33/03)[159] and 90/16)[160] there are several bylaws treating special environmental fees for the registration of motor vehicles and types of fees and criteria for calculation of fees for air pollutants.

6) Water Protection Laws

Water management is crucial due to Bosnia and Herzegovina's extensive river systems. This law regulates water use, pollution prevention, and watershed protection. It requires permits for water usage and discharge, aiming to reduce pollution and protect freshwater ecosystems. The laws on entity and BD BiH level are:

- Water Law in FBiH (OG FBiH 70/06) [161]

152 https://rhmzrs.com/wp-content/uploads/2019/01/uredba-o-uspostavljanju-republicke-mreze-mjernih-stanica.pdf

153 https://rhmzrs.com/wp-content/uploads/2019/01/pravilnik-o-mjerama-za-sprecavanja-i-smanjenje-zagadjivanja-vazduha-i-poboljsanje-kvalitete-vazduha.pdf

154 http://ppipo.bdcentral.net/content/DownloadAttachment/?id=219f052c-c9eb-46c2-b3a5-4c4cbc4e6c7c&langTag=bs

155 https://skupstinabd.ba/ba/zakon.html?lang=ba&id=/Zakon%20o%20zas--titi%20vazduha

156 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwja_4S00Yn1AhUC3KQKHTs4A-EQFnoECAgQAQ&url=http%3A%2F%2Fppipo.bdcentral.net%2Fcontent%2FDownloadAttachment%2F%3Fid%3D7d17f76b-f12a-4e96-8089-46225e9fb12f%26langTag%3Dbs&usg=AOvVaw2Snichv17hoaCFBUiqguCl&cshid=1640802589688427

157 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjSko_Bppj1AhVHgv0HHVPPB1MQFnoECB4QAQ&url=http%3A%2F%2Fppipo.bdcentral.net%2Fcontent%2FDownloadAttachment%2F%3Fid%3Dd576bdd4-035b-4b99-ba21-6f47c7487de0%26langTag%3Dbs&usg=AOvVaw2r9Qk6a19PwECW4-RRRPu5

158 http://ppipo.bdcentral.net/content/DownloadAttachment/?id=26497158-3559-4327-b47e-06a220689e37&langTag=bs

159 https://www.fmoit.gov.ba/upload/file/2020/0_Zakon%20o%20Fondu%20za%20za%C5%A1titu%20okoli%C5%A1a%20(Slu%C5%BEbene%20novine%20Federacije%20BiH%2C%20broj%2033_03).pdf

160 https://ekofondrs.org/sadrzaj/dokumenti/zakonski_okvir/izmjene_i_dopune_zakona_o_fondu_sg_90_2016.pdf

161 https://www.fmoit.gov.ba/upload/file/2020/0_Zakon%20o%20vodama%20Sl.%20novine%20br.%20FBiH%2070%2006.pdf

- Water Law in RS (OG RS 92/09, 121/12, 74/17) [162]
- Law on water protection (OG BD 25/04, 1/05, 19/07)[163]

7. Waste Management Law

Focused on reducing waste, promoting recycling, and minimizing landfills, this law sets regulations for waste collection, treatment, and disposal. It promotes the development of waste management systems in both rural and urban areas to minimize environmental impact. Following is the overview of the entity and BD BIH waste management laws:

- Waste management Law in FBiH (OG FBIH33/03[164], 72/09[165], 92/17[166])
- Law on waste management in RS (OG RS 111/13[167], 106/15[168], 16/18[169], 70/20[170], 63/21[171])
- Law on waste management in BD BiH (OG BD 25/04, 1/05, 19/07, 2/08, 9/09)[172].

7) Environmental Strategy and Action Plan in BiH (ESAP 2030+)

162 http://www.voders.org/wp-content/uploads/2023/12/izmjene.pdf

163 https://skupstinabd.ba/ba/zakon.html?lang=ba&id=/Zakon%20o%20zas--titi%20voda

164 https://www.fmoit.gov.ba/upload/file/Zakon%20o%20upravljanju%20otpadom%2033%2003_.pdf

165 https://www.fmoit.gov.ba/upload/file/okolis/z%20o%20upr%20otpad%2072-09-1-2-Copy.pdf

166 https://www.fmoit.gov.ba/upload/file/2020/92_17-1-5.pdf

167 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%20%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D1%99%D0%B0%D1%9A%D1%83%20%D0%BE%D1%82%D0%BF%D0%B0%D0%B4%D0%BE%D0%BC_028820936.pdf

168 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%20%D0%B8%D0%B7%D0%BC%D1%98%D0%B5%D0%BD%D0%B0%D0%BC%20%D0%B8%20%D0%B4%D0%BE%D0%BF%D1%83%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%D0%B0%20%D0%BE%20%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D1%99%D0%B0%D1%9A%D1%83%20%D0%BE%D1%82%D0%BF%D0%B0%D0%B4%D0%BE%D0%BC_599553858.pdf

169 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%20%D0%B8%D0%B7%D0%BC%D1%98%D0%B5%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%B8%20%D0%B4%D0%BE%D0%BF%D1%83%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%D0%B0%20%D0%BE%20%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D1%99%D0%B0%D1%9A%D1%83%20%D0%BE%D1%82%D0%BF%D0%B0%D0%B4%D0%BE%D0%BC_476445614.pdf

170 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%20%D0%B8%D0%B7%D0%BC%D1%98%D0%B5%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%B8%20%D0%B4%D0%BE%D0%BF%D1%83%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%D0%B0%20%D0%BE%20%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D1%99%D0%B0%D1%9A%D1%83%20%D0%BE%D1%82%D0%BF%D0%B0%D0%B4%D0%BE%D0%BC%20_153035987.pdf

171 https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%20%D0%B8%D0%B7%D0%BC%D1%98%D0%B5%D0%BD%D0%B0%D0%BC%D0%B0%20%D0%B8%20%D0%B4%D0%BE%D0%BF%D1%83%D0%BD%D0%B8%20%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%D0%B0%20%D0%BE%20%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D1%99%D0%B0%D1%9A%D1%83%20%D0%BE%D1%82%D0%BF%D0%B0%D0%B4%D0%BE%D0%BC%20_264786424.pdf

172 https://skupstinabd.ba/3-zakon/hr/Zakon%20o%20upravljanju%20otpadom/06H22-18%20Zakon%20o%20upravljanju%20otpadom,%20proc--is--c-eni%20tekst.pdf

The BiH ESAP 2030+ is a comprehensive initiative aiming to guide environmental policy and action across all levels of governance in BiH (state, FBiH, RS, and BD BiH). It addresses key environmental challenges and aligns policies with EU standards and the UN's Agenda 2030.

This initiative reflects a collaborative effort involving national and entity governments, international partners, and stakeholders to address pressing environmental challenges and drive sustainable development in BiH.

Following is the overview by governance levels:

1. The **state-level** framework focuses on harmonizing environmental policy and governance across entities. It supports EU accession efforts by aligning national policies with the EU acquis in areas like climate change, biodiversity, water, and waste management. Coordination mechanisms between the state and entities are integral to its success
2. The strategy for **FBiH** emphasizes improving air quality, biodiversity conservation, and waste management. It builds upon existing environmental governance and aims to enhance public understanding of the environment as a key development resource
3. **RS**'s action plan includes ambitious goals like fostering a circular economy, decarbonization, and sustainable resource use. It also emphasizes integrating environmental priorities into economic planning and leveraging international financial resources for environmental improvements
4. The **BD BiH** plan addresses specific local challenges while ensuring alignment with national and EU frameworks. Focus areas include sustainable waste management, protection of water resources, and air quality improvements

The thematic areas treated in the ESAP document are: Water, waste, biodiversity, air quality, climate and energy, chemical safety and noise, and resource management.

The strategic goals are:

- Sustainable resource use,
- reduction of pollution,
- ecosystem protection,
- climate adaptation, and
- stronger governance.

8) Energy Efficiency and Renewable Energy Initiatives

Bosnia and Herzegovina is working to increase energy efficiency and promote renewable energy through both legislative measures and specific programs. The Energy Efficiency Action Plan outlines targets and measures for improving efficiency in industries, residential buildings, and public institutions. Support for renewable energy sources, like hydro and solar, is growing, encouraged by policies and subsidies. The EU Energy Support Package allocates €70 million to Bosnia and Herzegovina, with €50 million aiding vulnerable households and €20 million supporting energy efficiency projects. Representatives from the Federation of BiH, Republika Srpska, and Brčko District outlined distribution plans through local ministries and environmental funds. The EU provides technical support and audits to ensure effective implementation, emphasizing the package's role in aiding citizens and setting benchmarks for future EU support[173].

Strategy for adaptation to climate changes and low-emission development of Bosnia and Herzegovina for the period 2020-2030 is still in draft. It addresses:

1. Climate policy in Bosnia and Herzegovina and international context.
2. Impacts of observed and projected climate changes on sectors like agriculture, water, forestry, biodiversity, health, and tourism.
3. Greenhouse gas emissions and reduction options.
4. Vision, goals, and sector-specific adaptation measures.
5. Low-emission development plans, including energy efficiency, renewable energy, and sectoral emission reduction.
6. Implementation through capacity building, education, public engagement, governance, and funding.

There is no law on state level that regulates energy efficiency.

In FBiH energy efficiency is regulated by

The Law on Energy Efficiency in the FBiH (OG FBiH, 22/17)[174] and several bylaws as follows:

- Rulebook on Minimum Energy Performance of Buildings (OG FBiH 81/19)[175]

[173] https://webalkans.eu/en/news/the-federation-of-bosnia-and-herzegovina-republika-srpska-and-brcko-district-institutions-have-revealed-their-plans-to-implement-the-eu-energy-support-package/

[174] https://fmpu.gov.ba/wp-content/uploads/2020/07/Zakon-o-energijskoj-efikasnosti-u-Federaciji-BiH-SNFBiH-broj-22-17.pdf

[175] http://www.ee-infos.ba/Content/docs/PRAVILNIK_O_MINIMALNIM_ZAHTJEVIMA.pdf

- Rulebook on the Energy Efficiency Information System (OG FBiH 2/19)[176]
- Decree on energy audits and energy certificates (OG FBiH 87/18)[177]

The Federal Ministry of Physical Planning is the government institution under whose jurisdiction is energy efficiency. There are several initiatives and projects[178] that are being implemented:

1. Energy Efficiency Projects in Public Buildings: Focused on improving energy use in schools, hospitals, and administrative buildings through retrofitting, insulation, and modernization.
2. Green Economic Development (GED) Program: This program, implemented with UNDP, supports energy audits, retrofits, and energy-efficient technology applications for improving building performance.
3. EU Support for Energy Efficiency in Buildings: A project aimed at reducing energy consumption in public buildings through better energy management practices and retrofitting efforts.
4. Partnerships with KfW and GIZ: Targeting renewable energy integration and supporting capacity-building activities for energy efficiency management.

The key laws and bylaws regulating energy efficiency in RS include:

1. Law on Energy Efficiency (OG RS 59/13, 1/18)[179]
2. Law on Renewable Energy Sources and Efficient Cogeneration (OG RS 39/13, 108/13, 79/15)[180]
3. Regulation on minimum energy performance requirements for buildings (OG RS 30/15)[181]
4. Rulebook on Energy Audits and Certification (OG RS 30/15)[182]

176 http://www.ee-infos.ba/Content/docs/PravilnikIS_02_19.pdf
177 http://www.ee-infos.ba/Content/docs/Uredba_o_provodenju_energijskih_audita.pdf
178 https://fmpu.gov.ba/energetska-efikasnost/projekti/
179 https://vladars.rs/eng/vlada/ministries/MIEM/Documents/RS%20Law%20on%20Energy%20Efficiency_410834436_389051602.pdf
180 https://vladars.rs/eng/vlada/ministries/MIEM/res/Pages/default.aspx
181 https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/Regulation%20on%20minimum%20energy%20performance%20requirements%20for%20buildings_182815649.pdf
182 https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/mgr/Documents/Regulation%20on%20energy%20certification_211266302.pdf

In RS several energy efficiency projects and initiatives are being implemented in collaboration with international organizations like UNDP, national funds, and municipal partners, as follows:

1. **Green Economic Development (GED) Project**[183]: the initiative targets energy efficiency upgrades in public buildings, including schools and hospitals, to enhance energy savings and occupant comfort. Notably, over 70 public buildings in Republika Srpska, such as the "Dositej Obradović" Primary School in Blatnica, have been retrofitted, achieving significant environmental and energy performance improvements
2. **Capacity Building Initiative for Transparency (CBIT) and partnerships with UND**[184]**:** this program supports energy efficiency, renewable energy, and environmental protection initiatives. It focuses on improving transparency and building capacity for climate-related actions.
3. **Municipal and Sector-Specific Projects**: modernizing street lighting systems with LED technology

In Brčko district there are 2 laws regarding the topic of energy efficiency as follows:

1. Law on Energy Efficiency in BD BiH (OG BD BiH 25/22)[185]
2. Law on Renewable Energy Sources and Efficient Cogeneration (OG BD BiH 22/22)[186]

In BD BiH there are several initiatives/plans related to energy efficiency as follows:

1. Sustainable Energy and Climate Action Plan (SECAP)[187]:
2. Green Cities Action Plan (GCAP)[188]:

9) Protected Areas Initiatives

Bosnia and Herzegovina (BiH) has an extensive network of protected areas, including national parks, nature reserves, and landscapes, with initiatives like Natura 2000 aligning its conservation efforts to EU standards. These initiatives aim to protect habitats, support ecotourism, and raise awareness about the country's rich natural heritage.

183 https://www.undp.org/bosnia-herzegovina/news/ged-project-thanks-energy-retrofit-indoor-comfort-has-been-improved-280-pupils-and-teachers-dositej-obradovic-school-blatnica

184 https://www.undp.org/bosnia-herzegovina/news/undp-and-rs-fund-environmental-protection-and-energy-efficiency-signed-memorandum-understanding

185 https://advokat-prnjavorac.com/zakoni/Zakon-o-energetskoj-efikasnosti-u-Brcko-distriktu-BiH.pdf

186 https://skupstinabd.ba/index.php/ba/zakon.html?lang=ba&id=/Zakon%20o%20obnovljivim%20izvorima%20energije%20i%20efikasnoj%20kogeneraciji%20Brc--ko%20distrikta%20BiH

187 http://ppipo.bdbih.gov.ba/Content/Read/SECAP_ap?lang=en

188 https://www.ebrdgreencities.com/our-cities/cities/brcko-district/

In RS, there are 33 protected areas covering 73,023.33 hectares, which constitute 2.96% of the entity's total territory[189]. These include two strict nature reserves, three national parks, 16 natural monuments, three protected habitats, five nature parks, and three areas for sustainable resource use. RS also has three areas designated under international agreements: the Ramsar-listed Bardača Wetlands, the Perućica Primeval Forest recognized as a UNESCO World Natural Heritage Site, and the Janj Forest, part of the UNESCO-listed "Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe."

In FBiH, protected areas span 103,875.74 hectares, or 3.98% of the territory, comprising one national park, four natural monuments, two nature parks, and five protected landscapes. The most recently designated area is the Vjetrenica-Popovo Polje Protected Landscape, covering 4,712.19 hectares. Additionally, FBiH includes two Ramsar-designated wetlands of international importance, Hutovo Blato and Livanjsko Polje. Protected areas are governed by the Federation's Nature Protection Law, with responsibilities distributed between federal and cantonal authorities. Funding comes from federal and cantonal budgets, environmental protection funds, and alternative sources like donations [190].

In the Brčko District (BD), the Nature Protection Law outlines four categories of protected areas. National parks and natural protected areas are established through legislative acts by the BD Assembly, while natural monuments and protected landscapes can be designated through regulations issued by the mayor. This legal and administrative framework ensures that BiH's diverse protected areas are managed effectively, promoting conservation and sustainable use in alignment with both domestic and international standards[191].

Recent initiatives include projects supported by international organizations like UNEP and the Global Environment Facility (GEF) to designate and effectively manage new protected areas. For example, planned expansions could add up to 26,000 hectares to the protected area system[192].

10) Public Awareness and Education Initiatives

NGOs, local governments, and educational institutions play an active role in promoting environmental awareness and sustainable practices. Campaigns often focus on waste reduction,

189 ESAP 2030+ RS
190 ESAP 2030+ FBIH
191 ESAP BD BiH
192 https://www.unep.org/regions/europe/our-projects/paving-new-paths-biodiversity-conservation

energy conservation, and biodiversity protection, aiming to engage the public in environmental stewardship.

These laws and initiatives reflect Bosnia and Herzegovina's growing commitment to environmental protection, balancing economic development with sustainable use of its natural resources, and aligning progressively with European and international environmental standards.

18. THE INSTITUTION´S LONG-TERM DEVELOPMENT PLAN REGARDINT ON SUSTAINABILITY

The University of Sarajevo Development Strategy (2019–2023) addresses sustainability and energy efficiency primarily through its environmental and infrastructure goals. Key focuses include improving energy efficiency in university facilities, integrating sustainable practices into academic programs, and adopting new technologies to support green initiatives. The strategy highlights the need for investment in energy-efficient infrastructure, reducing operational costs, and promoting awareness about sustainable development within its academic community[193]. The new Strategy is still in draft and has not been adopted yet.

[193] https://www.unsa.ba/o-univerzitetu/kvalitet-na-unsa/strategija-razvoja-unsa

19.EDUCATION PROGRAMS AND SUSTAINABILITY INTEGRATION

At the University in Sarajevo there are a few faculties that have either study programs or projects implemented that deal with sustainability.

Faculty of agriculture and food sciences emphasizes a second-cycle study program titled **Sustainable Food Production Systems (STEPS)**, developed as a result of an Erasmus+ project. This program includes numerous courses linked to the green transition as follows:

- Consumer Science and Sustainable Consumption
- Food Ethics
- Sustainable Technology of Wine, Beer, and Spirit Drinks
- Sustainable Land Management
- Low Input Agriculture
- Sustainable Technology of Fruit and Vegetable Processed Products
- Sustainable Technology of Cereals, Flour, and Bakery Products

Other courses are:

First Cycle:

- Short Food Value Chains
- Quality Management
- Management in the Food Industry
- Public Policy
- Food Policy

Second Cycle:

- Sustainable Food Value Chain Management
- Total Quality Management in the Agri-food Sector
- Marketing of Sustainable Agri-food Products
- Innovation and Entrepreneurship for Sustainable Food Production
- Managerial Tools for Quality Assurance

Faculty of Traffic and Communications implemented the PELMOB project (Promotion of Electric Mobility in Western Balkans Countries). The project focuses on modernizing higher education in the Western Balkans to support the adoption and promotion of electric mobility

(EM). It aims to address the challenges of climate change and transportation emissions through the initiatives:

Curriculum Development: The project enhances undergraduate and master's programs by introducing courses in electric mobility, covering topics such as sustainable transport, hybrid technology, energy storage systems, and intelligent vehicle technologies. Ten new or improved EM curricula will be implemented across WB partner countries.

Laboratory Establishment: New EM laboratories will be equipped in universities to provide practical training. Ten labs are planned, allowing students hands-on experience with technologies related to electric mobility.

Awareness and Community Engagement: EM associations will be formed, involving stakeholders from education, government, private sectors, and local communities. Activities include workshops, public demonstrations, and Green Weeks to promote awareness of EM benefits and encourage behavioral change.

Green Transition Support: The project aligns with EU policies, such as the European Green Deal, aiming for a significant reduction in transport-related greenhouse gas emissions and transitioning to sustainable energy solutions in the transport sector.

The Faculty of Mechanical Engineering has a few subjects on the first and second cycle of study as follows:

Renewable Energy Sources – First cycle (Bachelor's degree), third year

- **Subject Goal:** To familiarize students with various renewable energy sources, methods for calculating their potential, and the barriers and trends in their usage in Bosnia and Herzegovina and globally. It also covers state instruments to encourage renewable energy

Economics of energy and process systems – Second cycle (Master's degree), Second year

- **Subject Goal:** To understand the interplay between economic growth, social development, and energy consumption. The course introduces global energy trends, energy market dynamics, investment project assessments, and risk analysis in energy systems

Technologies of Renewable Energy Sources – Second cycle (Master's degree), Second year

- **Subject Goal:** To understand the historical, current, and future trends in renewable energy technologies, including designing plants for energy production from renewables and calculating production costs

The Faculty of Forestry has several subject related to the analysed topic as follows within the Master study program named **Sustainable Forest Ecosystem Management.**

20.RESEARCH AND PROJECTS IN SUSTAINABILITY

In Bosnia and Herzegovina, several funding opportunities are available to support green initiatives aimed at promoting sustainability, renewable energy, and environmental protection.

One such initiative is the **SME Go Green Programme**, launched by the European Bank for Reconstruction and Development (EBRD) and the Western Balkans Investment Framework (WBIF). This program provides loans and grants to small and medium-sized enterprises (SMEs) for investments in green technologies. [194] The €7 million credit line is available to SMEs in Bosnia and Herzegovina to help reduce their carbon footprint, with a focus on energy efficiency, renewable energy, and climate-smart solutions. The EU contributes €25 million in grants to scale up green economy investments.[195]

Additionally, the **Regional Energy Efficiency Programme (REEP)** and the **EU's Instrument for Pre-accession Assistance (IPA)** provide further funding for environmental and energy efficiency projects. These programs aim to assist both private and public entities in adopting sustainable practices, with a particular focus on the energy sector[196].

[194] Funds for NGOs
[195] EU and Western Balkans
[196] EU and Western Balkans

21. GREEN ACTIVITIES AT THE UNIVERSITY OF SARAJEVO

We don’t have anything in writing, and decisions regarding projects are primarily driven by the individual environmental awareness of stakeholders and/or the requirements set by financiers, especially in the context of sustainable development and climate adaptation initiatives.

The University of Sarajevo's Faculty of Engineering has made notable strides in integrating renewable energy through projects involving solar power. A key initiative involved the installation of solar panels on the roof of the Faculty of Electrical Engineering, supported by Luxor Solar. These panels were donated for educational purposes, enabling students to gain hands-on experience with photovoltaic systems. This initiative allows future engineers to monitor and optimize energy production as part of their curriculum[197].

Additionally, the Faculty of Mechanical Engineering is also involved in a project that includes the construction of a solar power plant on its building's flat roof. This project, announced in September 2023, aims to further promote sustainable energy practices at the university[198]

These efforts highlight the university's commitment to sustainability and renewable energy education, providing students with valuable experience in energy production and system optimization.

21.1. STUDENT AND COMMUNITY ENGAGEMENT IN SUSTAINABILITY

Every year, students from the Faculty of Forestry participate in tree planting activities to celebrate **Forest Day**. These events aim to raise awareness about the importance of forests and environmental sustainability. The actions also serve to contribute to reforestation efforts and promote environmental stewardship among future forestry professionals. It is part of a broader effort to engage the community in preserving and improving forest ecosystems.

22. REFERENCES

See the list of links above.

[197] Balkan Green Energy News
[198] Global Tenders

SITUATION ANALYSIS ON THE STATUS QUO OF UNIVERSITIES AS GREEN INSTITUTIONS

Organisation: Masaryk University

Closing manuscript:

Name and position of the lector: Mgr. Richard Hubl, Ph.D. – head of Bursar´s Office

23. GREEN LAWS AND INITIATIVES IN THE CZECH REPUBLIC

Since 2017, the Czech Republic has its sustainability strategy, covering the relevant aspects – it is available here https://www.cr2030.cz/strategie/wp-content/uploads/sites/2/2018/05/Strategic_Framework_CZ2030_graphic2.compressed.pdf

Environmental /sustainability legislation is very extensive and harmonized with the EU. Here is the list of the most important:

- Act No. 100/2001 Coll., on Environmental Impact Assessment and on Amendments to Certain Related Acts (Environmental Impact Assessment Act), of 20 February 2001.
- Act No 106/1999 Coll., on free access to information, as amended, of 11 May 1999.
- Act No 111/2009 Coll., on the Basic Registers, as amended, of 26 March 2009.
- Act No 118/2010 Coll., on the Regional Referendum and on Amendments to Certain Acts (Regional Referendum), of 9 March 2010.
- Act No 121/2000 Coll., on copyright, on rights related to copyright and on amendments to certain acts (Copyright Act), as amended, of 7 April 2000.
- Act No 128/2000 Coll., on Municipalities (Municipal Establishment), of 12 April 2000.
- Act No. 134/2016 Coll., on public procurement, of 19 April 2016.
- Act No. 198/2009 Coll., on Equal Treatment and Legal Means of Protection against Discrimination and on Amendments to Certain Acts (Anti-Discrimination Act), of 23 April 2008.
- Act No. 22/2004 Coll. on Local Referendum and on Amendments to Certain Acts (Local Referendum), of 11 December 2003.
- Act No. 222/2015 Coll. amending Act No. 106/1999 Coll. on free access to information.
- Act No. 222/2016 Coll., on the Collection of Laws and International Treaties and on the Production of Legislation Announced in the Collection of Laws and International Treaties (Act on the Collection of Laws and International Treaties), as amended, of 15 June 2016.
- Act No. 298/2016 Coll., amending certain acts in connection with the adoption of the Act on trust services for electronic transactions, of 24 August 2016.
- Act No. 302/2016 Coll. amending Act No. 424/1991 Coll. on association in political parties and political movements, as amended, of 24 August 2016.

- Act No. 322/2016 Coll. amending the electoral laws and other related laws, of 6 September 2016.
- Act No. 340/2015 Coll. on the special conditions for the effectiveness of certain contracts, of 24 November 2015.

24. THE INSTITUTION´S LONG-TERM DEVELOPMENT PLAN REGARDING SUSTAINABILITY

Masaryk University in accordance with its Strategic Plan for 2021-2028 created Sustainable Development Strategy. In 2025, its individual faculties and institutes will follow.

24.1. MASARYK UNIVERSITY STRATEGIC PLAN FOR 2021–2028

The strategic plan of Masaryk University for the years 2021–2028 is a fundamental conceptual development document determining the direction of the University in the long term in education, research, social role, and in its infrastructure development.

The final form of MUNI's strategic plan is the result of an intensive university-wide debate, defining the University's core mission as contributing to scientific activities, educating students, and social contribution to the quality and healthy life of all generations and a free, cohesive, and secure society.

Concerning sustainability, it includes mission, values, vision and a graduate profile. he mission of Masaryk University is to contribute through its scientific activities, student education and social activities to the high quality and healthy life of all generations, and to a free, cohesive and secure society. The basis (values) of the internal culture of Masaryk University is **respect, freedom, and responsibility.** Through the lens of the responsible functioning of the University, respect represents the foundation of internal culture, solidarity, and partnership in all negotiations, namely respect for principles establishing equality of opportunities and transparency. Freedom is the responsible choice of one's study path. Responsibility emphasizes the University's role as a co-founder of public opinion, a solver of local and social topics. Also, it represents the individual responsibility of students and staff.

Concerning a vision for 2028, by successfully implementing the MUNI strategic plan, the University will be an **inspiring community** in 2028 that fully respects and fulfills social responsibility principles and contributes to the SDGs. It is an example of a **responsible and demanding employer** acting according to the principles of transparency, equality, and non-discrimination.

Every graduate of MUNI perceives trends and problems in society, can think about them and formulate their attitudes, is not indifferent to the surrounding events, understands social responsibility issues and sustainable development, and is interested in being an active citizen seeking positive effect in society.

Full text of the MU Strategic plan is available here - https://www.muni.cz/media/3326734/strategic_plan_mu_2021_2028.pdf

24.2. SUSTAINABLE MASARYK UNIVERSITY 2025-2028 STRATEGY

In accordance with its Strategic Plan 2021-2028 and with the support of a project from the National Renewal Plan, Masaryk University dveloped its comprehensive strategy for sustainable development. The strategy is divided into 4 pillars - Teaching and Education; Research and Doctoral Studies; Internal Culture and Social Contribution Activities; and Sustainable Institution. In 2025, this will be followed by the creation of sub-strategies for the sustainability of individual MU faculties and institutes. Its motto is "SUSTAINABILITY AS THE THEME AND THE PRINCIPLE".

The four pillars are:

1. **Sustainable teaching and education** - Delivering educational excellence for a sustainable future and removing barriers to education.
2. **Sustainable research and doctoral studies** - To develop cutting-edge research whose results have a positive impact on society, the economy and the environment. To provide high quality and future-relevant DSP that will enhance the University's prestige and long-term sustainability.
3. **Sustainability in internal culture and social action** - Together create the conditions and opportunities for a cohesive and inspiring university community sharing common values in sustainability. To form an exemplary community in sustainability, actively using its expertise to make a society-wide impact.
4. **Sustainable institution** - A safe, fair, open and motivating environment for all. Streamline the operation of the University through computerization and optimization of processes while maintaining a high level of information systems security. To develop and implement sub-strategies for responsible operation and management of resources, and to ensure the establishment of sustainability principles in other areas of the institution.

For full detail see dedicated webpages https://sustain.muni.cz/en/about-us/strategies-and-goals/sustainability-strategy

25.EDUCATION PROGRAMS AND SUSTAINABILITY INTEGRATION

In the context of sustainability, Masaryk University, through its educational portfolio, aims to **provide conditions and create opportunities for using the university environment as a laboratory for sustainable development**, which, through **close integration of university roles**, interdisciplinarity and **equal access, including the removal of barriers**, will help contribute to the achievement of the UN Sustainable Development Goals.

In this regard, Masaryk University will also support **further strengthening of sustainability in learning opportunities, including lifelong learning**, in order to **increase the sustainability literacy of students in line with the desired graduate profile and to facilitate the choice of relevant programmes**, courses and activities dedicated to sustainability **by clearly identifying and making them visible**.

Since its founding, **Masaryk University has always respected** and professed **the democratic values of a Free Republic**. To this day these values have formed the basis of its internal culture and are widely shared by the university's academic community. **These values are:** Respect**, Freedom** and Responsibility**. Freedom**, respected and defended as a social imperative. Also, freedom as a principle of internal organisation of the university in the form of academic freedom of teaching and research or freedom of choice of students' own curriculum profile, but also as a principle of institutional autonomy of the university vis-à-vis the state. As stated above, and in line with MU´ s values, sustainability is an integral part of education. Therefore, it is incorporated in MU´s Strategic plan and Sustainability strategy.

We can divide integration of sustainability to education into four pillars:

1. **Responsible curriculum** - the theme of sustainable development and social responsibility permeates a significant number of study programmes, including interdisciplinary ones, and is also reflected in the common university curriculum. The issue of responsible curriculum has been discussed at the meetings of the Masaryk University Sustainable Development Council in accordance with the University's commitment in the MU Strategic Plan 2021-2028. In the academic year 2023/2024 Masaryk University offered 2662 **courses/subjects related to sustainability**.

2. **Lifelong Learning, Summer Schools, Specialized Programmes** - by 2028, Masaryk University aims for a systematised new offer of all possibilities of lifelong learning available on the university website structured according to the typical needs of potential

applicants (combined and distance degree programmes for studying while employed, short career-oriented programmes for changes in qualifications, online courses for acquiring specific skills, etc.)

3. **Inclusion in Education -** One of MU's core values is respect. Respect as the basis of internal culture, mutual respect, solidarity and partnership in all dealings. Respect for the principles of equality of opportunity and transparency.

4. **Competence development (to students/staff)** - Masaryk University has long been striving to develop the quality of teaching and education. One of the tools used for this purpose is the Pedagogical Competence Development Centre (CERPEK). CERPEK aims to systematically raise the level of pedagogical competences, especially of beginning university teachers.

For more information see our **dedicated webpages**:

https://sustain.muni.cz/en/areas-of-sustainability/education

https://sustain.muni.cz/en/about-us/strategies-and-goals/sustainability-strategy/sustainable-teaching-and-education

26.RESEARCH AND PROJECTS IN SUSTAINABILITY

From the perspective of sustainability, Masaryk University wants to **contribute** through its research portfolio **to address global and local challenges** based on the health, social, technological, environmental and economic needs of society, thereby helping to **contribute to the achievement of the UN Sustainable Development Goals**. The aim is not only to develop excellent research, but also to ensure that its results have a practical and positive impact on society, the economy and the environment and enhance their resilience.

Masaryk University will support the **strengthening of doctoral study programmes** so that they are of high quality, relevant for the future and contribute to the prestige and long-term sustainability of the university and society**.**

In the current strategic plan, Masaryk University directly aims to contribute to solving global and local challenges through basic and applied research and the application of the results in society in the areas of health and quality of life, education, historical and cultural heritage, sustainable development, technological progress, security, rights and equality in society. Selected key results:

- Successful implementation of a strategic development project in the field of innovations for a healthy and secure society.
- Established high-quality university facilities connecting basic and clinical research in the field of human health and full use of the research potential of the MU Faculty of Pharmacy.
- Targeted development of strategic research priorities based on the health, social, technical and economic challenges of society, especially in the fields of biomedicine, pharmacy, safety, health and quality of life, environment and sustainable development, with the support of artificial intelligence and synergies across the university.

We can divide integration of sustainability in research into four pillars:

1. Society in Change

Masaryk University scientists are involved in dozens of European and national research projects with a direct impact on the quality of life of people not only in the South Moravian

region. They cooperate with companies and state administration on many of them. These projects are open to students of all MU faculties, but also to various groups of citizens.

2. Sustainable Environment

One of the most important tasks before us is to maintain a healthy environment that supports the quality of life of individuals and the long-term prosperity of society. Issues such as climate change, biodiversity, the availability of natural resources including food or the chemicalization of the indoor and outdoor environment are increasingly resonating in society.

3. Digitalisation and Security

The development of information technology, digitalisation and cybersecurity, which cut across all research and education topics, is an essential part of the long-term development of a healthy and sustainable society.

4. Health & Quality of Life

Our focus is on the human being, his physical and mental health and quality of life. New knowledge, methods and technologies are contributing to the development of the concept of personalised and precision medicine, increasing the quality and accessibility of healthcare, as well as improving the prevention and protection of the health of individual population groups and the population as a whole.

Our projects

See what research projects implemented at MU since 2022 are contributing to the UN Sustainable Development Goals (SDGs) at https://sustain.muni.cz/en/areas-of-sustainability/science-and-research

Key projects and cooperation

Living Lab (RECETOX)

Masaryk University prides itself on its good integration into the regional ecosystem of universities, research institutes, technology companies, industrial enterprises, as well as citizens

and state administration. We are interested in families, children, adults and the elderly and their concerns. We want to be a facilitator for the effective sharing and use of all knowledge for the benefit of the lives of citizens. Find out more: https://www.recetox.muni.cz/en

Technology transfer

In its strategic plan, Masaryk University ranks among the key measures to be implemented by 2028 increasing the application of research results by developing related services for cooperation with partners from the application sphere (i.e. industry, state administration, local government, etc.) and supporting technology and knowledge transfer, Proof of Concept projects and the establishment of spinoff companies.

The rapid transfer of knowledge into application practice has long been supported by the MU Centre for Technology Transfer. Masaryk University also takes care of the transfer of relevant knowledge into legislation and public administration, both at national and regional level.

MUNI BioPharma Hub - Top research infrastructure for the Faculty of Pharmacy of Masaryk University

The MUNI BioPharma Hub represents a unique combination of modern teaching facilities for the Faculty of Pharmacy and top-quality research infrastructure of the Pre-clinical centre and the Centre for Molecular Medicine for the Faculty of Medicine and Faculty of Science of Masaryk University.

The building will also include the necessary server facilities of the Institute of Computer Science. Besides teaching and research facilities, the building will provide infrastructure for scientific training in biomedical research and will contribute to increasing the resilience of Czech society to expected (prevention, diagnosis and treatment of chronic diseases) and unexpected threats.

For more information see - https://biopharmahub.muni.cz/en

Johann Gregor Mendel Czech Antarctic Station

Masaryk University is the only university in the world to sponsor the national research programme in Antarctica. Since 2007, it has owned and operated the research station on Ross Island, near the northernmost tip of the Antarctic Peninsula. Thanks to its technologies, the station is a modern complex considerate of the Antarctic environment. The main living quarters are located in the centre, surrounded by eleven containers that serve as storage and technical facilities. The station boasts unique technologies: a passive air heating system, its own water treatment plant and waste incinerator.

For more information see - https://mendel200.muni.cz/en/j-g-mendel-czech-antarctic-station

For more information see our **dedicated webpages**:

https://sustain.muni.cz/en/areas-of-sustainability/science-and-research

https://sustain.muni.cz/en/about-us/strategies-and-goals/sustainability-strategy/sustainable-research-and-doctoral-studies

27.GREEN ACTIVITIES ON MASARYK UNIVERSITY

To sustainably and responsibly manage the renovation, development and construction of the university infrastructure and the acquisition of related technologies and equipment in order to ensure adequate functional facilities for excellent research and quality teaching as well as a pleasant environment for students and staff is one of the strategic goals of MU for the period 2021-2028. Similarly, it is also a strategic goal to manage energy resources, water and waste in accordance with the principles of sustainable development and to strengthen the informed management of the university's operations to enable efficient use of the facilities and property management. Masaryk University runs a dedicated website to inform on its sustainability activities – available here - https://sustain.muni.cz/en .

27.1. OFFICE

Masaryk University will strengthen its position as a leader of computerization not only in the academic environment, move towards a paperless institution, be a strategic partner in the field of **cybersecurity** and actively participate in **the development of the information society** – see https://sustain.muni.cz/en/about-us/strategies-and-goals/sustainability-strategy/sustainable-institution/information-systems

The Masaryk University also runs its **Sustainable Development Council** - an advisory, initiating and coordinating body of the Rector in matters of social responsibility and sustainable development of Masaryk University.

What the Council discusses

- suggestions submitted to it by the Rector or the Chair of the Council;
- MU Annual Sustainability Report;
- discusses and, through the Chair, submits to the MU Rector for approval the University's sub-strategies in the field of sustainable development and social responsibility, including any communication of these strategies outside the MU environment;
- medium and long-term priorities for MU's development in the field of sustainable development and social responsibility.

For more information see MU Sustainable Development Council | Sustainability at Masaryk University

27.2. PROJECT PROMOTION AND GIFTS

Creating and following a set of rules for sustainable organization of MU´s events and emphasizing the sustainability of promotional items will be part of the implementation of the recent Sustainability strategy – see

https://sustain.muni.cz/en/about-us/strategies-and-goals/sustainability-strategy/sustainability-in-internal-culture-and-social-contribution-activities/internal-culture

27.3. WASTE MANAGEMENT

Masaryk University is aware of the negative impacts of the waste generated and therefore strives to follow the global tendency **to ensure circularity and life cycle tracking of all goods**, not least **by minimizing waste production itself and increasing the share of recycled waste**.

One of the objectives of the MU Strategic Plan is to manage waste in accordance with the principles of sustainable development. The implementing measures include the development and implementation of a waste management strategy and the introduction of systemic measures to reduce the volume of non-recyclable waste produced. The strategy was approved by MU management on 3 January 2023.

The theoretical basis of the **MU Strategy for Sustainable Waste Management and Waste Prevention** is the concept of "**zero waste**". In accordance with this concept, Masaryk University will strive for the most effective waste prevention, reuse, maximum waste sorting and recycling, other ways of using potential waste (composting, etc.) and minimisation of landfill waste in the period 2023-2028. In order to achieve this ambition, an **effective link to the MU Responsible Purchasing Strategy** and the **active participation of the whole academic community** will be crucial.

Goals and measures:

1. Minimising waste including prevention (REFUSE - ROT) - reduction

Goal: To create conditions for a gradual reduction in the consumption of primary resources and the production of hazardous and unusable waste.

Measures:

1.1 In accordance with the Responsible Purchasing Strategy, **take into account the life cycle of the goods purchased**.

1.2 Promote the **introduction of efficient, environmentally friendly and innovative solutions** at Masaryk University that save input materials and gradually optimize related processes.

1.3 Reduce the amount of solid and hazardous waste generated, including waste from food service operations and from cleaning chemicals.

1.4 Increase student and staff awareness of opportunities to minimise waste, including awareness of legal obligations in waste management.

2. Maximising waste sorting and reuse (REUSE - RECYCLE - REPURPOSE) - strengthening

Goal: Strive to increase the proportion of recycled and composted waste and to maximise the reuse of university assets while respecting socio-economic aspects.

Measures:

2.1 When selecting contractors to deal with waste management at Masaryk University, give **preference to contractors guaranteeing both maximum reuse of waste**, while ensuring its efficient and measurable collection, **and enabling the purchase of waste.**

2.2 Create conditions for **effective sharing and reuse of university assets**, especially furniture, ICT and selected laboratory and scientific equipment, both within and outside the university, for example by using a dedicated application, a virtual marketplace or an open system using a detailed list of relevant assets while respecting the primary places of origin and the stage of the investment process.

2.3 Analyse and further **improve the accessibility and visibility of separated waste bins and composters**, taking into account their availability both in terms of the expected place of generation and in the design and technical evaluation of infrastructure.

2.4 Significantly **increase the awareness and motivation of students and staff on the possibilities of waste sorting, recycling, composting and reuse**, including the promotion of a participatory approach.

See https://sustain.muni.cz/en/areas-of-sustainability/university-environment/waste-and-recycling

27.4. EVENTS

In line with its values, **Masaryk University decided to participate again in the so-called European Week for Sustainable Development** (ESDW) **together with other public universities associated with the UNILEAD project**. During the annual ESDW, a number of events and activities are held to raise awareness about sustainable development and our sustainable future. For more information see https://sustain.muni.cz/en/news/european-sustainable-development-week-esdw

Approximately **50 events on sustainability are annually** taking place at Masaryk University.

27.5. FOOD, DRINKS AND CATERING

The area of university catering is a section with great potential for the implementation of sustainable initiatives. **Masaryk University places great emphasis on a varied and balanced range of quality food, including vegan and gluten-free options, as well as on the locality of the ingredients used. Waste minimisation and reuse is already a matter of course.**

- MU´s rectorate has a new facility – Veggie Bar - that prepares only vegetarian, vegan and RAW dishes
- Each refectory offers vegetarian or vegan dishes in its dining rooms every day according to its capability
- Since May 2023, at least one vegan dish has been included in the menu of each refectory
- we prefer to buy Czech/local food
- we order food, preferably in packaging with less packaging, but at the same time in such a way that we keep the date of expiration and do not waste food
- we sort waste
- we put food in lightweight plastic packaging that is recyclable, we also offer organic packaging, but we prefer to carry food in our own clean, washable, reusable boxes
- we prefer an ordering system - In 2020, a new mobile and web application MobilKredit / WebKredit was launched, through which you can flexibly order or cancel meals in the university canteens. The purpose of the introduction of the

ordering system is not only to improve the quality of the food ordered, but also to reduce waste and prevent unnecessary waste.

- we do not waste energy and water - all employees have been instructed
- we are gradually replacing old energy-intensive technology with new, less energy-intensive technology

Orientation of canteens towards local suppliers

Sustainable procurement should be prioritised over exclusive price considerations, taking into account localism, seasonality and other environmental aspects. SKM purchases food in the normal course of business through a centralised FirstBuySale system (except for selected ingredients where separate tenders are used - e.g. potatoes). The university canteens make use of f-regions purchases, which provides support for the supply of regional food to catering clients. Regional food options are regularly included on menus. The environmental preference of choosing a supplier may mean a higher purchase price of raw material, but it turns out that the orientation towards local suppliers is in some cases also economically more advantageous (for example, in the case of purchasing meat from regional processors or oil, where transport significantly increases the cost of purchase).

Further use of waste

Biological waste from the MU canteens is taken by our drivers to the Vinařská canteen, where it is stored in containers for collecting kitchen waste in the designated cooling room. Once a week, it is taken by the company Kaiser servis, spol. s.r.o., which transports it to EFG Vyškov BPS, where it is converted into biogas and organic-mineral fertiliser. The used rapeseed oil is bought from us by Kobylka s.r.o. and sold to Münzer Bioindustrie GmbH in Vienna, which produces various chemicals from it, mainly fatty acid methyl esters.

However, the best waste is that which is not produced, and that food is simply best eaten. Students are encouraged to ask for a smaller portion if you suspect you won't eat the whole portion.

For details see: **https://sustain.muni.cz/en/areas-of-sustainability/university-environment/catering**

https://www.skm.muni.cz/en/sustainability/uskm

27.6. TRANSPORTATION

The buildings of Masaryk University are spread in larger or smaller clusters over almost the entire territory of Brno, which places increased demands on the mobility of students and staff. The University has long **supported low-carbon transport options**, including the use of a **functional public transport system**, and has put pressure on **reducing the number of cars** on its land.

A large part of the university buildings, including the Rector's Office itself, is **located in the city centre**, so it is possible **to walk or cycle to lectures or work**. There is limited parking available at selected buildings, including parking for disadvantaged people. The number of parked cars is monitored through the building management system.

MUNI supported the construction of a **tramway line to connect the university campus in Bohunice with the city centre** (in 2019, a contract was signed by the Mayor of Brno with representatives of the Brno Transport Company and representatives of the project contractors in the presence of the Rector of Masaryk University). The aim of the project is to facilitate travel for more than 40 thousand people to the University campus area for work and education. A follow-up project is the construction of a cable car to UKB, which is currently undergoing approval processes.

To promote sustainable travel, MUNI supports the following measures:

- Restricted car parking except for visitors with permits and disabilities
- Development with consideration of proximity to cycleways and pedestrian areas
- Availability of public transport
- Building free bike racks (or showers) on university campuses
- Support for the Bike to Work initiative

For further details see: https://sustain.muni.cz/en/areas-of-sustainability/university-environment/transportation¨

27.7. ACCOMODATION

Sustainable Accomodation and Catering Services

University catering, together with student accommodation in the dormitories, is an area of care for our students that is under the auspices of the **MU Accommodation and Catering Services** (ACS). The functioning of the dormitories and canteens is a major contributor to the overall water, energy and waste consumption of the university, so it is essential to approach this area in a very responsible and comprehensive manner. It is also essential to follow responsible purchasing principles when purchasing goods and energy for ACS.

The Accomodation and Catering Services (ACS) has created a dedicated website on the topic of sustainable catering at Masaryk University. To navigate to the ACS Sustainability website (SACS), follow the link below.

https://www.skm.muni.cz/en/sustainability/uskm

27.8. CAMPUS INFRASTRUCTURE AND GREEN INITIATIVES

ENERGY MANAGEMENT

In accordance with the principles of sustainable development, Masaryk University manages energy resources, strengthens the informed management of operations and strives to further improve the efficiency of the use of premises and property management. It uses sustainable energy sources, optimises consumption, uses computer systems for building management and raises awareness of energy savings among users.

Selected Facts:

- In 2021, MUNI was one of the first large entities to **purchase "green electricity"** with a guarantee of origin from renewable sources.
- We produce **"solar" electricity at the Faculty of Education**, other sites are in the pipeline (FoEA, FoA and others).
- MU uses robust **BMS system**, air conditioning with heat recovery technology, LED lighting expansion, A+ and better appliances and other sustainable technologies to manage energy consumption.

- Based on data drawn from the University's management and information systems, **non-investment optimization adjustments** are continuously implemented to efficiently operate the energy management of buildings and individual facilities.
- The **CAFM system** for efficient asset management enables tracking and planning of building operating costs, reporting and management reports.
- In December 2023 MU has commissioned an **energy audit** in accordance with Act No. 406/2000 Coll. and is working intensively with its results to reduce the energy consumption of its operations.

The #MUNIsaves campaign and energy optimisation

The #MUNISAVES campaign, which aimed for Masaryk University to optimize its energy consumption and achieve more efficient operations, and at the same time the energy-saving measures that were introduced during the academic year are having positive results!

For further details see here: https://sustain.muni.cz/en/news/munisaves

Masaryk University Strategy for Sustainable Energy Management 2024-2028

Significant institutional energy consumption together with the need to reduce carbon emissions have made sustainable energy management one of the priorities of Masaryk University (MU). The development of a comprehensive strategy aimed at the most efficient and effective energy consumption, energy savings, and the production of its own electricity from renewable sources can help MU to reduce the environmental impact of the institution's operations in accordance with the MU Strategic Plan 2021-2028, and at the same time achieve long-term cost savings with due care, which is inseparably linked to the responsibility of each member of the university community. This strategy proposes a systematic approach to the development and implementation of sustainable energy management, as well as continuing the positive trends established at MU.

The Strategy for Sustainable Energy Management elaborates on Strategic Goal 6.3 of the MU Strategic Plan 2021-2028 "**To manage energy resources, water and waste in accordance with the principles of sustainable development and to strengthen the informed**

management of the University's operations to enable efficient use of built facilities and property management". Specifically, the following measures:

- Use of **Building Information Modelling** (BIM) data to optimise complex facilities management.
- **Extension and optimisation of the CAFM system** (Computer Aided Facility Management) for the needs of efficient operation of university buildings, including space management.
- Implementation of **active energy management of infrastructure** to enhance its efficient use.
- Implementation and development of MU's **Building Management System** (BMS) and related methodologies in the context of capital construction and repair works in university buildings.
- Development and **implementation of an energy management strategy**.
- Implementation of systemic measures to **increase the share of RES use**.
- Developing c**lear principles for efficient and responsible energy management** and motivating students and staff to comply with them.
- **Reducing the energy consumption of buildings** and upgrading related technological equipment.

Objectives and measures of the Masaryk University Strategy for Sustainable Energy Management 2024-2028

Objective 1 Energy management

1.1 Extend energy consumption monitoring to individual MU campus facilities

1.2 Integration of energy management outputs into CAFM

1.3 Regular evaluation of comparable consumption at the level of individual buildings with regard to current climatic conditions

Objective 2 Energy audit and assessment

2.1 Conduct and regularly update an energy audit of University buildings and facilities to identify areas of high energy consumption and opportunities for improvement

Objective 3 Increase energy efficiency

3.1. Lighting

3.2. Heating, ventilation and air conditioning systems

3.3. Insulation

3.4. New construction

Objective 4 Use of renewable energy sources

4.1. Solar energy

4.2. Purchase of electricity from renewable sources

4.3. Partnerships with the public and academia

Objective 5 Energy awareness and education

5.1 Promote energy conservation measures and the principle of sustainability among the university community. Information and education of students and staff, communication of the implementation of energy audits in student residences or the implementation of energy saving projects on campus.

For further details see here: https://sustain.muni.cz/en/areas-of-sustainability/university-environment/energy-management

WATER AND BIODIVERSITY

Long-term drought and water scarcity in the landscape is a major threat to us. **Masaryk University is therefore planning and taking measures to responsibly manage this precious resource.**

Use of rainwater on the campus of the Masaryk University

Drainage of the Bohunice University Campus (UKB) complex and subsequent use of rainfall solves the problem of accelerated surface runoff and overloading of the existing sewer system during heavy rainfall. **The soakage culverts achieve approximately 51 % reduction of rainfall discharged to the sewer**.

The amount of stormwater that falls on the site during the growing season is sufficient to provide irrigation for existing trees and grasses as well as road maintenance. The rainfall

potential is up to 6 700 m^3 from roofs and 5 200m^3 from paved areas. This is equivalent to 4 filled Olympic swimming pools. **The underground tank with capacity of 76 m^3 has been implemented to capture rainwater from the large arched roofs of the B09 pavilion.** As a result, this captured water from the underground tank can be used by UKB for supplementary irrigation of the greenery and possibly road maintenance.

The other pavilions have green roofs that capture and evaporate the water themselves, with the remainder flowing into adjacent retention tanks where further evaporation occurs, resulting in the fact that less than half of the rainfall and other wastewater **is discharged to the sewer**.

Use of rainwater in the botanical garden of the Faculty of Science

The Botanical Garden of the Faculty of Science of Masaryk University, located in the middle of the city in the Art Nouveau district of Veveří, entered the E.ON Energy Globe competition with the project Ecological measures in the Botanical Garden, which included five different measures. One of them was the construction of an underground reservoir to collect rainwater.

When the botanical garden's greenhouses were built in 1995, a tank was constructed**, which can hold about 18m^3 of water**. The temperature of the water should ideally be the same as the air temperature. Measurements have shown that on average 1,000 l of water per day is used for watering the greenhouses. An **underground tank of 30 m^3 was built in 2020** outside under the pergola and is **connected to the original indoor tank,** giving us space to capture 48m^3 of rainwater. **The entire water transfer system is automatic and controlled by a central control panel** the size of an electrical box. The return on investment has been estimated at 7.5 years, with 85% of the cost paid for by the Operational Programme Environment.

Savings measures under the #MUNIsaves campaign

Data from savings studies:

- A **full-flow battery consumes up to 8 litres per minute more** than when used economically.

- With a **two-level flush**, consumption is up to **6 litres less** drinking water per flush on economy.
- In the extreme case of a malfunction, over 600 litres of drinking water per hour will flow through the toilet.

Organisational recommendation:

- **Do not run taps at full flow** unless necessary.
- **Check for leakage** when the tap is turned off.
- **Use economy** on dual flush toilets.
- In the event of a **leaking toilet or urinal, report** the fault to the operations staff immediately.

Lokni filtered water dispensers

Filtered water dispensers by Lokni are now available at five faculties of Masaryk University. They provide an easy and environmentally friendly way to access clean water, with options for both still and sparkling variants. Activation of the dispenser is possible through a QR code in the accompanying app, which also offers consumption summaries and tracks the number of saved plastic bottles. Lokni dispensers are currently available at the Faculty of Economics and Administration, the Faculty of Education, the Faculty of Arts, the Faculty of Social Studies, and newly at the University Campus in Bohunice.

For further details see here: https://sustain.muni.cz/en/areas-of-sustainability/university-environment/water

GREEN CONSTRUCTION

Masaryk University works purposefully on sustainable and responsible management of the development, construction and renovation of its infrastructure, which includes both historic listed buildings in the city centre and modern new buildings on the University campus in Brno-Bohunice. The University's specific requirements for excellent study and research facilities, which also create a pleasant environment for students and staff, need to be reconciled with the principles of responsible public procurement and the demands for sensitive and long-term development of the area linked to the proposed concepts and the local context.

Building sustainably – BioPharma Hub

To sustainably and responsibly manage the renewal, development and construction of university infrastructure as well as the acquisition of related technologies and equipment in order to provide adequate functional facilities for excellent research and quality teaching as well as a welcoming environment for students and staff. An example of such an approach is the BioPharma Hub (BPH), which represents a unique combination of modern teaching facilities for the Faculty of Pharmacy and cutting-edge research infrastructure of the Preclinical Centre and the Centre for Molecular Medicine for the Faculty of Medicine and the Faculty of Science. The building also includes the necessary server facilities for the Institute of Computer Technology. Examples of **the green elements of the construction** are the use of **waste heat** from the data centre, **geothermal boreholes, photovoltaic panels**, **skylights**, rational articulation of the façade, **a storage tank with a volume of 245m^3** (see picture), **green roofs** and pre-set slats with vegetation. More also at https://biopharmahub.muni.cz/en

In future years, the University's goal is to further increase the proportion of green areas on the University's campuses, as well as the proportion of SMART buildings, reduce the energy consumption of buildings and modernise related technological equipment.

MUNI Green Building Principles

- Green roofs at UKB, further expansion of greenery;
- plans to apply for BREAM IN USE certification for new buildings in the UKB area;
- construction implementation - requirements for noise and dust reduction taken into account from the PD, waste material disposal plan, reuse of topsoil, possible decontamination of land ensured, high requirements for the qualification of the general contractor;
- own system of building and technological passporting centrally for the entire Masaryk University;
- thermal insulation of facades and fillings in accordance with the standards as recommended values, passive standard values are designed for new buildings;
- for suitable buildings, avoiding heat islands by using nets with climbing plants in front of the façade;

- air conditioning and cooling uses heat recovery units for heat recovery, CO2 is measured and treated in classrooms;
- heat exchangers in piles are implemented in selected buildings to provide a heat source for winter mode and are subsidised with heat to cool the building in summer mode;
- heat pumps are newly applied to the replacement of heating and cooling sources in UKB buildings;
- installation of solar panels as a source of domestic hot water for selected upcoming buildings and photovoltaic panels for advertising and information boards to save energy from the grid.

For further details see here: https://sustain.muni.cz/en/areas-of-sustainability/university-environment/green-construction

27.9. STUDENT AND COMMUNITY ENGAGEMENT IN SUSTAINABILITY

Social Responsibility is one of the four pillars of sustainability at MU. **Responsibility**, as one of MU´s values emphasise the role of the university as a co-creator of public opinion, a solver of local and society-wide issues and a provider of a public service open to all. Also, the individual responsibility of students and staff reflected in respect for university rules and belonging to the university.

Our Main Topics

Partnerships, Memberships & Awards

Masaryk University sees the establishment of new partnerships, cooperation on responsible projects and mutual sharing of good practice as beneficial not only for the entities directly involved in the cooperation, but also for the sustainable future of the whole society.

Regional Partnerships Memberships and Awards

Care for employees, support for disadvantaged groups and equal opportunities

Part of MUNI's vision for 2028 is that MUNI will be a university that is an example of a responsible and demanding employer acting according to the principles of transparency,

equality and non-discrimination, supporting the achievement of professional goals and at the same time providing employees with a work-life balance. Find out more

Counselling

In order to strengthen cohesion and build the university community, Masaryk University is committed to providing information, counselling and other services for students, alumni and staff through career counselling, specialised services and advice for people with specific needs or disadvantages, services for parents of students and staff, etc. - Find out more

Healthy University

As part of a responsible internal culture and social action, Masaryk University emphasizes the promotion of activities and initiatives that enhance knowledge and skills that contribute to the personal development of individuals and society (e.g. IT skills, financial and legal literacy, health care and prevention, etc.). - Find out more

For further details see here: https://sustain.muni.cz/en/areas-of-sustainability/responsibility-and-inner-culture

STUDENT CLUBS AND ASSOCIATIONS AT MASARYK UNIVERSITY

Masaryk University has a number of associations with a relationship to sustainability and CSR, below are medallions of selected ones. A complete list of associations can be found here. - https://www.muni.cz/en/students/student-clubs-associations

Medallions of selected clubs and associations

Masaryk Student Union (MUNIE)	The Masaryk Student Union was founded in 2012. The main activity of the union is the organization of a wide range of cultural, sporting, social, educational and charitable events for students of Masaryk University.
Mission of Hope	Mission of Hope was founded in 2014 with the aim of enabling as many people as possible to help wherever there is a need. It is dedicated to helping those who cannot help themselves. These are mainly children, seniors, people with disabilities or animals. Therefore, Mission of Hope's projects include Creative Activities for Children in Hospitals, Helping People with Autism,

	Tutoring Children from Children's Homes and Visits to Homes for the Elderly.
Otevřeno Brno	Otevřeno Brno (Brno is Open) is a student association operating at the Faculty of Education at MUNI, organizing lectures, discussions, workshops and other events mainly with educational content, but it mainly tries to draw attention to positive innovations in education and engage students in the debate about the form and necessary changes in teacher training. In 2000, for example, a course was introduced to enable tutoring of children from socially disadvantaged backgrounds.
Beautification Association of the Department of Environmental Studies	The Beautification Association is an informal association of students, alumni and friends of the Department of Environmental Studies at the Faculty of Environmental Studies of MUNI. It was founded at the end of 1999, its activities have environmental and charitable subtext (e.g. it organizes planting of flowers and bushes, etc.).
Zvol si info	We are interested in the media, social networks, and together we educate in areas such as disinformation, critical thinking and cyber security. We create workshops on these topics for elementary school students, high school students and their parents and teachers.
Fakescape	Through games we develop individual competences of media literacy - critical thinking and information verification. The graduates of our workshops are aware of the media pitfalls that await them (not only) in the online environment. At the same time, we provide teachers with a simple tool to make media education more attractive.
Security Outlines	Student portal about security", originally "Sekuritaci.cz - student portal (not) only about security" is an original project of students of security and strategic studies at the MUNI FSS. The portal has been running since 2007. The primary goal of this project is to bring security issues closer to the general public and contribute to the professional debate on current security issues and public awareness in this area, which is a source of frequent misinterpretations.

COMMUNITY FUND – STUDENT SUSTAINABLE PROJECTS

The aim of the internal competition ComMUNIty fund is to transparently support the implementation of sustainable and socially responsible projects that fulfil and promote the social role of Masaryk University, are internally and externally transferable and support cooperation between students and employees.

Information on the projects supported in the 1st year of the ComMUNIty Fund can be found **HERE**.

Examples of projects:

- Universities and the fossil business: rules or the end of cooperation?
- Sign language dictionary (not only) for Ukrainian deaf refugees
- EnvironMUsica: Education through music for sustainability
- Educating seniors on disinformation, fake news and cyber security
- Improvement of the accompanying cycling infrastructure on the Bohunice University Campus
- Festival of Inclusive Culture
- Youth education in the e-sport environment

For further details see here: https://sustain.muni.cz/en/get-involved/community-fund

27.10. OTHER - SUSTAINABLE PURCHASING

At Masaryk University we are looking for sustainable and socially responsible solutions. One of them is **responsible public procurement (RPP)**. Masaryk University is a public contracting authority and since 2009 has been awarding public contracts electronically. With 123 own buildings and managed assets worth over CZK 16 billion, there is considerable scope for t**aking social and environmental aspects into account** in the spirit of RPP. In 2016, the university signed a memorandum of cooperation with the Ministry of Labour and Social Affairs, thereby subscribing to the principles of socially responsible public procurement.

Our objectives

In its long-term strategic plan for 2021-2028, Masaryk University commits to responsible purchasing with the following goals and measures.

1. **Sustainably and responsibly manage the renewal, development and construction of the university infrastructure as well as the acquisition of related technologies and equipment to ensure adequate functional facilities for excellent research and quality teaching as well as a pleasant environment for students and staff**
    - Creation and implementation of a **responsible public procurement strategy taking into account economic, environmental and social concerns,** including the application of qualitative criteria
2. **Establishing a training system for employees and students for the efficient and environmentally responsible operation of the university**
    - Producing clear **principles of efficient and responsible management of energy** and water and motivation of students and employees to comply with them

MASARYK UNIVERSITY RESPONSIBLE PUBLIC PURCHASING STRATEGY FOR 2023-2028

This strategy has been developed to ensure that all employees involved in the preparation and implementation of public purchases of goods, services and works within Masaryk University (hereafter referred to as "public purchases") routinely consider how we can contribute through our purchasing decisions to the quality and health of life for all generations, to the protection of the environment and to a free, cohesive and safe society.

Responsible purchasing is the acquisition of goods, services or works that:

- meets the needs of users,
- delivers long-term value for money,
- maximises social and economic benefits,
- minimises negative impacts on society, the environment and human health.

Goals and Measures

Goal 1 Communication and cooperation

1.1 Promote collaboration between MU internal teams, communication with suppliers and partner organisations aimed at raising awareness of sustainability, especially in the area of public purchasing.

1.2 Encourage forms of cooperation with suppliers prior to the launch of tenders, such as pre-market consultations and presentation of purchasing plans.

1.3 Encourage collaboration with experts in sub-areas of purchases being made or planned.

Goal 2 Reducing the administrative burden of purchasing

2.1 Promote the use of standardised terms of reference. Promote the use of contractual standards.

2.2 Promote digitisation and automation.

Goal 3 Promoting decent and fair conditions in the supply chain

3.1 Require compliance with the conditions of legal employment.

3.2 Require strict compliance with the prohibition of child and forced labour.

3.3 Demand safe and decent working conditions throughout the supply chain.

3.4 Demand decent and equal pay for work.

3.5 Encourage the purchase of Fairtrade, TCO or similarly certified products.

3.6 Promote access for social enterprises, micro, small and medium-sized enterprises.

3.7 Support suppliers of local products.

3.8 Demand fair treatment of subcontractors, including timely payments.

Goal 4 Preference for environmentally friendly solutions

4.1 Promote an orientation towards a circular economy (in particular the durability and recyclability of products, the use of secondary raw materials).

4.2 Encourage the reduction of packaging associated with the products purchased.

4.3 Promote waste reduction and efficient waste management in the supply chain.

4.4 Promote the application of sustainable building principles in the planning and implementation of university infrastructure.

4.5 Promote the acquisition of energy efficient equipment

4.6 Promote the measurement and reduction of the carbon footprint.

Goal 5 Quality-focused shopping

5.1 Promote the use of qualitative evaluation criteria and the consideration of life cycle costs.

5.2 Promote the use of advanced purchasing methods and innovative approaches to public procurement.

For more Information see: https://sustain.muni.cz/en/areas-of-sustainability/university-environment/sustainable-purchasing/purchasing-strategy

28. REFERENCES

See the links in the text above.

SITUATION ANALYSIS ON THE STATUS QUO OF UNIVERSITIES AS GREEN INSTITUTIONS

Organisation: Jagiellonian University in Kraków

Authors: Weronika Krupa (MA) & Krzysztof Stefan (BA)

29. POLISH LEGISLATION AND INITIATIVES IN REGARD TO GREEN TRANSITION AND HEIS

Poland has established a legal and strategic framework to promote the green transition of higher education institutions (HEIs), aligning with European Union climate goals and Sustainable Development Goals (SDGs). This framework includes national legislation, strategic initiatives, and collaborative networks that support HEIs in adopting sustainable practices and contributing to environmental stewardship.

29.1. NATIONAL LEGISLATIONS

- **Environmental Protection Act** (2001, Dz.U.2021.1973; 1718 and 2269): This foundational act for evironmental protection in Poland lays down comprehensive guidelines to ensure the protection of the environment, prevent pollution, and promote the sustainable use of natural resources. The Act emphasizes the need for a balanced approach to economic development, safeguarding ecological systems while addressing societal needs.

  Higher Education Institutions have a specific obligation under this legislation to integrate these principles into their operational practices, research activities, and campus management. This includes implementing measures to reduce environmental impact, such as minimizing waste, conserving energy, and promoting eco-friendly technologies. Additionally, the Act encourages HEIs to lead by example in fostering environmental awareness and sustainable practices among students and staff. It also necessitates compliance with environmental standards in laboratory research and other projects that may have ecological implications.

- **Energy Efficiency Act** (2016, Dz.U.2016.831): This act mandates the adoption of energy-efficient practices across public institutions, including universities, to reduce energy consumption and enhance sustainability. Under this legislation, universities are encouraged to conduct regular energy audits to identify inefficiencies and opportunities for improvement in their energy usage. These audits serve as a foundation for implementing effective strategies to optimize energy consumption and reduce operational costs. Furthermore, the Act promotes

the integration of renewable energy technologies, such as solar panels or geothermal systems, within institutional infrastructure to decrease reliance on non-renewable energy sources. By fostering a culture of energy conservation and innovation, this legislation not only aims to mitigate environmental impact but also encourages public institutions to take a leading role in advancing sustainable energy solutions.

- **Waste Management Act** (2012, Dz.U.2013.21): This act provides a comprehensive framework for the segregation, recycling, and proper disposal of waste, promoting sustainable practices aligned with a circular economy. This legislation requires institutions, including universities, to implement systematic waste management strategies to minimize environmental impact and maximize resource recovery. Universities are obligated to facilitate waste segregation at the source, ensuring that materials such as paper, plastics, glass, and organic waste are correctly sorted to enable effective recycling. Moreover, the Act emphasizes the reduction of waste generation through measures such as promoting reusable materials, reducing single-use items, and encouraging sustainable procurement practices. By integrating these principles into campus operations, universities not only comply with legal requirements but also contribute to fostering environmental awareness and sustainable behaviour among students, staff, and the broader academic community. Through these efforts, the Act supports the transition to a circular economy where resources are reused, recycled, and reintegrated into production processes, reducing the strain on natural systems.
- **Energy Policy of Poland until 2040** (EPP2040): This strategy forms a central pillar of the country's long-term energy and environmental strategy, focusing on the transition toward a sustainable and low-carbon economy. It emphasizes the expansion of renewable energy sources, the reduction of greenhouse gas emissions, and the development of green infrastructure to address climate challenges effectively. For HEIs, EPP2040 serves as both a framework and a call to action, encouraging the integration of climate-resilient practices into their operational and developmental strategies. Universities are incentivized to adopt renewable energy technologies, such as wind, solar, and biomass, to power their campuses while reducing reliance on fossil fuels. The policy also underscores the importance of energy efficiency and sustainable construction practices, prompting institutions to

invest in eco-friendly buildings and infrastructure that align with climate neutrality goals. Furthermore, HEIs are encouraged to play a leading role in fostering innovation, research, and education on climate change and sustainability, thus equipping future generations with the knowledge and skills necessary to drive the green transformation. By aligning their activities with EPP2040, universities contribute to Poland's broader objectives of achieving energy independence, reducing environmental impact, and enhancing resilience to climate change.

29.2. NATIONAL INITIATIVES

- The **Strategic Action Plan for Environmental Education** is an initiative designed to integrate environmental awareness and sustainability principles into educational systems at all levels, including higher education. This strategy underscores the importance of equipping future generations with the knowledge and skills necessary to address pressing ecological challenges and promote sustainable development. For universities, it provides a framework, tools, and resources to incorporate environmental education into curricula, research, and campus activities. The strategy encourages the inclusion of topics such as climate change, biodiversity, waste management, and energy conservation in academic programmes, fostering a multidisciplinary approach to sustainability. Moreover, it supports the creation of partnerships between universities, governmental bodies, and non-governmental organizations to promote hands-on learning experiences, such as ecological workshops, field studies, and community engagement projects. By aligning with the National Environmental Education Strategy, universities not only fulfill their role as knowledge centers but also actively contribute to building a society that values and practices sustainability in everyday life. This initiative positions higher education institutions as leaders in cultivating environmental stewardship and advancing the green transformation in Poland.
- Poland's application of the EU Green Deal in relation to HEIs is centered around integrating sustainability and climate objectives into educational strategies and infrastructure. HEIs are encouraged to adopt energy-efficient practices, invest in green campuses, and implement curriculum changes that align with the Green Deal's focus on carbon neutrality, renewable energy adoption, and circular economies. Funding mechanisms, such as those provided by the National Recovery

and Resilience Plan and European Union initiatives like NextGenerationEU, play a crucial role in supporting these transitions, especially for infrastructure and research projects that advance sustainability goals.

Additionally, the EU Green Deal emphasizes cross-sector collaboration, including education, as a driver of sustainable innovation. Poland leverages these frameworks to foster a green transformation in HEIs through targeted grants and performance-based funding incentives that align institutional practices with national and EU-level climate policies. These measures ensure that HEIs not only meet environmental benchmarks but also serve as exemplars of sustainability for broader societal adoption.
Information from: https://eugreenalliance.eu/ & https://www.eua.eu/downloads/publications/gaf%20greening_final.pdf

- The **BIOSTRATEG programme**, managed by the National Centre for Research and Development (NCBiR), plays a significant role in advancing the Green Transformation within higher education institutions by providing targeted funding for research and innovation in sustainability. This programme focuses on strategic areas such as biodiversity, sustainable agriculture, climate adaptation, and the development of eco-friendly technologies. By offering financial support for interdisciplinary research projects, BIOSTRATEG enables universities to drive progress in environmental science, contribute to the development of green technologies, and implement sustainable practices on their campuses. The programme not only strengthens the capacity of higher education institutions to address ecological challenges but also fosters collaboration between academia, industry, and governmental bodies, further accelerating the transition towards a sustainable and climate-resilient economy. Through its funding mechanisms, BIOSTRATEG empowers universities to be at the forefront of the Green Transformation, aligning their research and innovation agendas with national and global sustainability goals.

29.3. COLLABORATIVE NETWORKS

- The **Declaration of Social Responsibility of Universities** is a key initiative promoting sustainable development and ethical practices within higher education

institutions in Poland. By signing this declaration, universities, including the Jagiellonian University, commit to integrating principles of social responsibility into their operations, research, and educational activities. This includes fostering environmental sustainability, reducing carbon footprints, and promoting ecological awareness among students and staff. The declaration also emphasizes collaboration with local communities and industry to advance SDGs through innovative projects and socially responsible practices. As one of the 160 signatories, the Jagiellonian University actively participates in this transformative effort, aligning its mission with global and national sustainability priorities and serving as a role model for other academic institutions.

- The **UNA Europa alliance,** with its Sustainability and Climate Protection Strategy, serves as a platform for European universities to collaborate on innovative approaches and sustainable practices aimed at addressing global challenges, particularly those related to the Green Transformation. Through this initiative, universities, including the Jagiellonian University, are committed to integrating sustainability into their academic and operational strategies. UNA Europa's Sustainability and Climate Strategy emphasizes the development of green policies, research on sustainable development, and the promotion of eco-friendly practices on campuses across member institutions. The alliance encourages cross-border collaboration, facilitating the exchange of knowledge, resources, and best practices in sustainability, thereby enabling universities to effectively address climate change and environmental challenges. By participating in UNA Europa, the Jagiellonian University aligns itself with a broader network of institutions dedicated to advancing sustainability and supporting the transition towards a more resilient and sustainable future for Europe and beyond.
- Collaboration between Polish universities and local governments is an emerging trend supporting the green transition. Universities contribute research and innovative solutions, while local governments provide opportunities for implementation through municipal projects. For instance, the *Krajowy Plan Odbudowy* (National Recovery and Resilience Plan) allocates significant funding for initiatives like renewable energy development, urban greenery, and sustainable water management. Public universities are eligible for these funds, which

encourage partnerships with local governments to address both regional and institutional sustainability goals

Examples include projects in Kraków, such as creating pocket parks and revitalizing urban spaces, where universities could collaborate to assess environmental impacts and improve resource efficiency. Moreover, local authorities often invite academic experts to contribute to strategic planning for ecological resilience and urban sustainability. Such collaborations are essential to scaling green innovations from theory to practice.

29.4. INTERNATIONAL ALIGNMENT

Various polish HEIs actively align with European and global strategies to drive sustainability. The European Green Deal serves as a foundational policy, integrating green transformation priorities into research, education, and innovation across universities. Programmes such as Horizon Europe play an important role by providing Polish universities with funding opportunities for sustainability-focused projects, including those addressing climate change, renewable energy, and circular economies.

Erasmus+ further enhances international cooperation by promoting eco-friendly practices and fostering collaboration between universities and other organizations, both within Poland and across Europe. This alignment not only supports the ecological transition but also positions Polish HEIs as integral contributors to achieving EU climate neutrality goals by 2050.

More about polish HEIs in “European Universities” Erasmus+ Initiatives:
https://www.gov.pl/web/nauka/kolejne-polskie-uczelnie-w-gronie-uniwersytetow-europejskich

30. THE JAGIELLONIAN UNIVERSITY'S CORE VALUES AND MISSION

30.1. CORE VALUES

The Jagiellonian University (UJ), as one of Europe's oldest and most prestigious academic institutions, is deeply committed to advancing knowledge and fostering societal well-being. Its core values and mission are aligned with contemporary global challenges, including sustainability and the green transition, positioning the University as a leader in creating a sustainable future.

The core values of UJ are divided into three sections:

Universal Values:

- Truth;
- Good;
- Beauty.

Academic Values:

- University autonomy;
- Freedom of research and education;
- Integrity of research and education;
- Responsibility in the sphere of research and education;

Social Values:

- Plus Ratio Quam Vis
- Dialogue
- Openness
- Activity
- Cooperation
- Solidarity
- Accessibility

The Universal Values outline the most basic principles on which the UJ mission is laid on. As a truly versatile institution, with experts in fields such as social sciences, law, biology,

chemistry, astronomy, art, music and many more, UJ proves itself to be a university dedicated to upholding truth, good and beauty in the academic context.

Meanwhile, the Academic Values refer to the strong sense of autonomy and independence of the university. In a country such as Poland, with a complex history and background, establishing a firm and independent ground or research is a crucial matter. Knowing its place in the Polish and global context, UJ utilises its position as a renowed institution to advocate for academic excellence and qualitty of research. That is why UJ dedicates its Academic Values to ideals such as freedom, responsibility and integrity.

Lastly, the Social Values of the university, with its "Plus Ratio Quam Vis" ("Reason before force") motto, focus mostly on dialogue, openness and cooperation. These values adhere directly to the institution's commitment to international cooperation. With a high awareness of its importance in Poland, Europe and the rest of the academic world, UJ is aware of its responsibility to conduct high-quality research and to create a safe environment for cross-national cooperation with other institutions and units. Hence, its involvement in initiatives such as the "Accelerating and Enhancing Green Transition: collaboration of universities in climate adaptation" project is a direct and clear example of UJ's dedication to its core social values such as openness, cooperation, dialogue and solidarity.

More on UJ's values can be found in the "AKADEMICKI KODEKS WARTOŚCI" (2003).

30.2. MISSION

The mission of the Jagiellonian University is to contribute to the advancement of knowledge, foster critical thinking, and prepare socially responsible leaders. In light of its sustainability commitments, the University has redefined its mission to include:

- Driving the Green Transition: UJ seeks to be a catalyst for sustainable development through education, research, and operational practices. By embedding the principles of the United Nations Sustainable Development Goals into its strategies, the University actively supports global climate and environmental objectives.
- Promoting Climate Literacy: UJ's mission includes equipping students with the skills and knowledge to address complex environmental issues. This is achieved through interdisciplinary curricula that incorporate climate science, renewable energy, and ecological economics.

- Inspiring Change Through Research: UJ fosters groundbreaking research that drives innovation in sustainability and environmental technologies. Collaborative projects with industry and government institutions aim to create scalable solutions for climate resilience. One of the most prominent examples of climate and sustainability-focused projects is the "SOIL Lab: Soil hazards and challenges in the Anthropocene" initiative, which focuses on the environmental changes arising from the Anthropocene such as land use changes and soil erosion processes.
- Setting a Sustainability Benchmark: As a model institution, UJ aims to inspire other universities and organizations by demonstrating best practices in waste reduction, energy efficiency, and green infrastructure.

Through its adherence to these values and its mission, the Jagiellonian University serves as a beacon of academic excellence and ecological responsibility. Its ongoing commitment to the green transition not only enhances its institutional impact but also empowers the academic community and broader society to contribute to a sustainable future.

31. SUSTAINABILITY EDUCATION AND RESEARCH PROJECTS AT JAGIELLONIAN UNIVERSITY

31.1. SUSTAINABILITY EDUCATION AT JAGIELLONIAN UNIVERSITY

31.1.1. INSTITUTE OF ENVIRONMENTAL SCIENCES

The Jagiellonian University's Institute of Environmental Sciences (IES) is a research and teaching unit at UJ's Faculty of Biology, focused on addressing pressing environmental challenges through interdisciplinary approaches. IES in its research and educational endeavours connects ecological research with the needs of societies. Its study programmes and research heavily underlines the importance of various issues like biodiversity, ecosystem services, and the sustainable management of natural resources.

There are a few research groups within IES, including those studying socio-environmental dynamics, adaptation to environmental change, terrestrial and aquatic ecosystems, and evolutionary biology. Those teams are involved in different projects and initiatives, within which they often collaborate with other universities, NGOs, and other international institutions, in order to advance knowledge in areas like ecological conservation, ecotoxicology, environmental education etc. Additionally, IES is also committed to organising various workshops and open lectures on topics related with sustainability and ecology, and also to outreach its activities so as to promote sustainability awareness to the broader public.

31.1.2. SOCIO-ENVIRONMENTAL RESEARCH TEAM

The Socio-Environmental Research Team at IES is an interdisciplinary group focusing on the intersection of natural conservation, social sciences, and environmental education, working within the IES mentioned above. Their work aims to integrate research, education, and science communication, aiming to combat modern environmental challenges and engage with diverse groups – academics, students, NGOs, etc.

The team's research topics are diverse, including various areas like the circular economy of single-use plastics, human-nature interactions influencing good practices and behaviours for

sustainability, transformation of socio-natural heritage, and governance models in biodiversity conservation. The team is also involved in various projects that address environmental conflicts and issues regarding resource management, such as analysing public perception of large mammal conservation strategies.

Regarding education, the group supervises master's theses on topics regarding sustainability and environmental protection, like species conservation and plastic use perception, reflecting its commitment to bridging academic work with practical applications. They actively engage in science discussions and public education by for example organizing campaigns, workshops, and citizen focused initiatives to raise environmental awareness and strengthen green transition policy dialogues.

31.1.3. ENVIRONMENTAL PROTECTION AND MANAGEMENT STUDY PROGRAMME

The Environmental Protection and Management study programme at UJ's Faculty of Biology focuses on an interdisciplinary understanding of ecological systems and effective management strategies for the most important natural resources. The curriculum involves disciplines like biology, ecology, and environmental science with practical training in conservation, biodiversity protection, and sustainable resource management. Key subjects included in the programme are: ecosystem dynamics, environmental impact assessment, and management practices for protected areas.

The programme also emphasizes applied learning through for example field courses, internships, and research projects, enabling students to develop practical skills as well as scientific expertise. Graduates have skills necessary for various careers in environmental consultancy, government agencies, and conservation organizations or may choose to pursue advanced research in environmental sciences.

31.1.4. ENVIRONMENTAL CHEMISTRY CENTRE

The Environmental Chemistry Centre at the Jagiellonian University specializes in studying and developing sustainable environmental processes and technologies. Key research areas include catalytic reactions with environmental significance, such as methane decomposition, NOx reduction, and soot degradation. The team is also focused on CO_2 valorization, structural and

functional characterization of catalytic oxide systems, and air pollution monitoring. Additionally, they investigate transport dynamics at solid-liquid phase boundaries and explore environmentally friendly industrial applications.

Further research in the department delves into the analysis of heavy metal contamination, water quality assessments, and the effects of chemical remediation on heavily polluted sites. The group is at the forefront of exploring the environmental impacts of microplastics and organic pollutants on soil microorganisms and developing eco-friendly solutions, such as natural cosmetic preservatives, sustainable pesticides, and inhibitors for soil enzymes used in agriculture.

31.1.5. ENVIRONMENTAL PROTECTION STUDY PROGRAMME

The Environmental Protection study programme at the Faculty of Chemistry, Jagiellonian University, offers a comprehensive education focused on the chemical and scientific aspects of environmental sustainability. It equips students with knowledge of environmental monitoring, pollution control, and sustainable development practices. Core subjects include chemistry, ecology, and environmental management, ensuring an interdisciplinary approach to tackling environmental challenges.

The programme emphasizes practical skills through laboratory classes, fieldwork, and collaborative projects with industry and research institutions. Graduates are well-prepared for careers in environmental consulting, public administration, and industry, as well as for further academic pursuits in the field of environmental sciences.

31.1.6. SUSTEULAW PROJECT

The SustEuLaw project at Jagiellonian University is a Jean Monnet Module course that focuses on the intersection of sustainability and climate change within the framework of EU law. This course is designed to provide students with a comprehensive understanding of the EU's regulatory framework related to sustainability, including its constitutional foundations and the specific legal instruments addressing climate change. It covers areas such as green transition, decarbonisation, and the challenges related to legal protection in the context of climate change. The course, taught jointly by experts from the Department of EU Law and the Environmental Law Centre at UJ, highlights both theoretical and practical aspects of EU law as they pertain to environmental issues.

The project involves a series of lectures, seminars, and online discussions, allowing students to engage deeply with topics such as the role of the EU in global climate governance, the implementation of the European Green Deal, and the legal mechanisms for enforcing climate action within the EU. By participating in this course, students gain insights into how EU laws can drive sustainability practices across sectors, from industry to public administration. The initiative not only enhances students' knowledge but also supports the university's broader objectives in fostering a sustainable future through education and research.

31.2. SUSTAINABILITY RESEARCH & REASEARCH PROJECTS AT JAGIELLONIAN UNIVERSITY

Below are the main examples of the projects regarding sustainability and green transition at Jagiellonian University. There is more examples of research projects in regard to this topic at UJ, but the ones listed below are the latest and presumably the ones of the biggest scale.

31.2.1. FLAGSHIP PROJECT - CENTRE FOR ADVANCED SUSTAINABILITY STUDIES

The Centre for Advanced Sustainability Studies (CASS) at Jagiellonian University is a strategic initiative designed to advance sustainability through interdisciplinary research, education, and collaboration. CASS acts as a sustainability accelerator by creating synergies between activities undertaken at various levels, particularly within the European university network UNA Europa and other academic networks. Its main goals include fostering a global research ecosystem around environmental governance, rights of nature, and sustainable development. CASS also supports the development of innovative educational programmes, such as the "Una Europa Joint Bachelor in Sustainability", which combines academic coursework with practical training to prepare students for careers in sustainability.

CASS organizes numerous initiatives that integrate research, education, and outreach activities. These initiatives include the development of new educational methodologies and tools to embed sustainability into curricula across disciplines. For example, CASS has been involved in designing learning environments that incorporate eco-friendly architectural solutions, such as green roofs and sustainable water management systems, which serve as living laboratories for students to study environmental sustainability in action. This practical approach not only enhances students' understanding of complex environmental issues but also fosters skills in eco-innovation and sustainable resource management.

Moreover, CASS collaborates closely with external stakeholders, including government bodies, industry partners, and other universities, to advance research and education in sustainability. These partnerships facilitate the translation of academic knowledge into practical applications, such as the development of green technologies and the implementation of sustainable development projects. Through these collaborations, CASS plays a crucial role in promoting sustainable practices in both academic and societal contexts, helping Jagiellonian University to act as a model institution for sustainability in higher education. This network of cooperation also allows for the sharing of best practices and the development of joint initiatives that enhance the university's impact on environmental policy and practice at the local, national, and international levels.

By focusing on sustainability as a core component of its mission, CASS ensures that Jagiellonian University remains at the forefront of addressing global environmental challenges. Through research, education, and partnerships, the Centre supports the university's broader strategic objectives, such as reducing carbon emissions, enhancing biodiversity, and promoting climate literacy among students, staff, and the community. CASS not only contributes to the green transition at UJ but also serves as a hub for innovative solutions and knowledge exchange, positioning the university as a leader in sustainability within the academic landscape.

31.2.2. GREEN TRANSITION AND ECONOMIC POLARIZATION IN EUROPE: A MULTI-LEVEL ASSESSMENT WITH GERMANY AND POLAND AS CASE STUDIES

The Green Transition and Economic Polarization in Europe: A Multi-Level Assessment with Germany and Poland as Case Studies project at Jagiellonian University aims to explore how the European Union's sustainability reforms might differently impact various regions within the EU, with a focus on Germany and Poland. The project looks at the EU's ambitious goals—such as reducing greenhouse gas emissions by at least 40% by 2030, increasing the share of renewable energy to at least 32%, and improving energy efficiency by at least 32.5%. By studying these changes, the project seeks to understand whether they could lead to socio-economic polarization across the EU, potentially making it harder for some regions to keep up economically. It also proposes policy measures that can help prevent such polarization, ensuring that the green transition benefits everyone across the EU.

The project is structured around four main research phases. The first phase focuses on the national level, mapping out the strengths and vulnerabilities of EU economies in adopting green

practices. It identifies the determinants for international competitiveness in environmentally sustainable production and applies macroeconomic and input-output modeling to understand these dynamics. The second phase shifts to the regional level, with a detailed analysis of coal regions in Germany and Poland, assessing how they can transition to green energy. This includes using spatial-econometric methods to understand regional preconditions for this transition. The third phase involves a comparative analysis of the Konin region in Poland and Lusatia in Germany, looking at the specific challenges faced by these lignite regions as they move away from fossil fuels. This phase employs mixed methods and qualitative comparative analysis to explore factors influencing the success of a 'just transition'. The final phase synthesizes findings from the first three phases, drawing together policy recommendations that can help ensure the green transition is fair and inclusive across the EU. This approach aims to prevent increasing inequality and secure broad political support for the necessary reforms.

31.2.3. RONSUS PROJECT - "RIGHTS OF NATURE – A VEHICLE FOR SUSTAINABLE DEVELOPMENT? OPERATIONALISATION AND CRITIQUE FROM AN INTERNATIONAL AND COMPARATIVE LAW PERSPECTIVE".

The RONSUS project at Jagiellonian University examines the concept of 'Rights of Nature' (RoN) in the context of environmental protection and sustainable development. Although RoN can offer hope for the preservation of natural heritage, combating climate change and accelerating the green transition in general, the ambiguity around its implementation is growing. Critics argue that RoN, despite their potential benefits, may require significant adjustments to legal systems - from definitions to procedures - making them a costly and potentially problematic experiment. The main task of the project is to assess whether RoN are an adequate, necessary, and proportional means for achieving sustainable development goals. It explores whether RoN, as a legally foreign concept, can effectively address environmental needs without undermining existing legal systems or generating undesirable effects.

The RONSUS project takes a multidisciplinary approach, integrating insights from law, philosophy, political science, sociology, and other disciplines to analyse RoN's viability across different legal cultures and at the supranational level. The project aims to separate RoN from related concepts such as animal rights, highlighting their distinct legal and ethical implications. By focusing on the international and comparative law perspectives, the project seeks to understand how RoN can be adapted or replaced by more practical and less controversial methods that align with the UN 2030 Agenda's Sustainable Development Goals. The project's

research includes conducting interviews with experts and indigenous representatives to gather a wide range of insights, and it will produce publications, including monographs and academic papers in English, to disseminate its findings to researchers, policymakers, and the broader public.

32. STRATEGIC OBJECTIVES OF THE JAGIELLONIAN UNIVERSITY

32.1. CLIMATE-ECOLOGICAL STRATEGY 2030

The University's strategic objectives are rooted in its commitment to societal responsibility, environmental stewardship, and academic excellence. By integrating sustainability into its educational, research, and operational frameworks, the University aims to become a leading institution in addressing global challenges like climate change, biodiversity loss, and sustainable development. The most important example of the university's commitment to establishing clear strategic objectives in climate action is its "Climate-ecological strategy 2030", published in April 2024.

The Climate-Ecological Strategy 2030 of the Jagiellonian University outlines a comprehensive approach to addressing climate change and promoting sustainability. Rooted in global and national challenges, the strategy integrates environmental responsibility into the University's mission, focusing on education, research, and operational practices.

The Climate-Ecological Strategy 2030 outlines four key goals of addressing the issues of sustainability and green transition:

1. A Sustainable, Active, and Safe University

- Minimizing Environmental Impact: UJ implements measures to reduce energy and resource consumption, including transitioning to paperless systems and optimizing energy usage in operations.
- Climate and Nature Plan: A dynamic action plan, updated through community dialogue, establishes clear targets, milestones, and accountability mechanisms.
- Climate Adaptation: The University enhances resilience against climate change impacts, such as extreme weather, by improving infrastructure security and adopting adaptive practices.

2. Eco-Friendly and Low-Emission Infrastructure

- Energy Efficiency: UJ conducts energy audits and increases the use of renewable energy sources like solar and geothermal, aiming to reduce emissions.

- Low-Emission Mobility: Encouraging sustainable transport, UJ collaborates with the City of Kraków to improve public transit and cycling infrastructure while supporting electric vehicle use.
- Green and Blue Infrastructure: The University expands urban biodiversity through tree planting, green roofs, and water retention systems to manage stormwater and mitigate heat island effects.

3. Responsible Everyday Practices

- Sustainable Food: UJ promotes plant-based diets and locally sourced, seasonal ingredients in its catering facilities while implementing measures to reduce food waste.
- Green Procurement: Procurement policies prioritize environmentally friendly and energy-efficient products, reducing the use of single-use plastics and encouraging reuse.
- Circular Resource Use: The University fosters a culture of resource sharing and waste segregation while supporting sustainable consumption practices.

4. Open and Accessible Climate Knowledge

- Climate Education: UJ provides online courses, workshops, and tailored academic programmes to enhance climate literacy within its community.
- Public Awareness: The University actively shares scientific insights on climate issues with the broader public through events, training, and partnerships.
- Global and Local Partnerships: UJ collaborates with academic, governmental, and civic organizations to advance climate policies and promote green technologies.

The Strategy reflects UJ’s commitment to the SDGs, particularly in areas of climate action and biodiversity. By integrating sustainability into its academic and operational frameworks, UJ sets a benchmark for higher education institutions while fostering a culture of ecological awareness and innovation among students, staff, and the wider community.

This Strategy underscores the Jagiellonian University's role as a leader in driving sustainable transformation within and beyond academia.

The Strategy is not the only climate-related initiative of the Jagiellonian University. During a meeting of the UJ Climate Council on January 19th, 2024, Michał Świętosławski,, Ph.D., from the Department of Chemistry, displayed a proposal for an energy transformation of the Jagiellonian University based on renewable energy sources. According to Mr Świętosławski, "using commercially available technologies, it is possible to create an energy system based entirely on renewable energy sources". Mr Świętosławski's commitment to proposing a comprehensive plan for green transition visualises the University's existing dedication to the matter as well as the importance of community-building and dialogue in climate action.

The full presentation of Mr Świętosławski's proposal is available here.

32.2. RESEARCH AND INNOVATION

According to the Climate-Ecological Strategy 2030 of the Jagiellonian University, the university aims to be a hub for cutting-edge research addressing global environmental and social challenges:

- Establishing research centres dedicated to climate resilience, biodiversity preservation, and clean energy innovation.
- Strengthening collaborative networks with universities, research institutions, and industries globally.
- Promoting the development and transfer of technologies supporting low-carbon economies and resource efficiency.
- Aligning research priorities with EU Green Deal objectives, ensuring relevance and societal impact.

32.3. COMMUNITY ENGAGEMENT AND PARTNERSHIPS

The University is committed to building a resilient and sustainable future, which requires collective effort in:

- Engaging the local community through awareness campaigns, public lectures, and participatory projects.

- Partnering with governmental and non-governmental organizations to advance sustainable policies and practices.
- Encouraging student-led initiatives to foster environmental citizenship and leadership.
- Collaborating with international organizations to share knowledge and best practices in sustainability.

The University is committed to organising lectures, conferences and events dedicated to the issue of climate action. The full list of events can be found on the website of the UJ Climate Council.

32.4. CONCLUSION

By committing to the strategic objectives outlined in the UJ "Climate-Ecological Strategy 2030", the University aims to lead by example in promoting sustainability and contributing to global efforts to tackle environmental and social challenges. Through education, research, and community engagement, it strives to create a legacy of positive impact for future generations.

33. SUSTAINABILITY ACTIVITIES AND RESULTS OF JAGIELLONIAN UNIVERSITY

The Jagiellonian University is among Poland's leading academic institutions actively addressing climate change and environmental sustainability. Through the implementation of green regulations, innovative measures, and robust awareness-raising campaigns, the University aligns its operations with sustainability goals, including the European Green Deal and national climate strategies.

33.1. ENVIRONMENTAL RESPONSIBILITY RESULTS

33.1.1. INFRASTRUCTURE, GREEN AREAS DEVELOPMENT

Green Building Standards

UJ has adopted the principle of sustainable campus infrastructure, integrating eco-friendly designs into its new and renovated buildings.

- Green Roofs and Walls: Facilities like the Faculty of Biology and Earth Sciences incorporate green roofs and walls, which improve insulation, reduce heat island effects, and provide habitats for pollinators. In total, 10,000 square meters of green roofs have been established across campus.

Development of Green Areas

The University prioritizes the expansion and conservation of green spaces as part of its ecological strategy:

- Tree Planting Initiatives: UJ has planted over 2,000 native trees and shrubs, contributing to carbon sequestration and mitigating urban heat.

Integration with Local Ecosystems

- UJ collaborates with the city of Kraków to align its green initiatives with broader urban sustainability goals. The University's green areas are connected to municipal parks and pathways, enhancing their ecological value.

33.1.2. ENERGY, CLIMATE CHANGE

Renewable Energy Adoption

UJ has made significant strides in adopting renewable energy sources:

- Solar Panels: Solar panels installed on buildings like the Małopolska Centre of Biotechnology generate 20% of the University's electricity, with plans to double this figure by 2030.

Energy Efficiency Measures

- Smart Energy Systems: UJ has implemented smart metering and automated lighting systems, which have reduced energy waste.

Climate Action Goals

The University's Climate and Ecological Strategy (2030) includes:

- A 50% reduction in carbon emissions from operations by 2030.
- Investment in research projects addressing climate resilience, renewable energy, and environmental technologies.

Awareness Campaigns

UJ hosts seminars, workshops, and online campaigns targeting climate literacy among staff and students. Events like the "UJ Earth Day" engage the academic community in sustainability discussions and actions.

33.1.3. WASTE MANAGEMENT

Zero Waste Approach

UJ aims to transition to a zero-waste model through effective waste reduction, recycling, and education:

- Recycling Programmes: Recycling stations across the campus handle paper, plastic, glass, and e-waste. One of the examples includes the Collegium Medicum Ecology Unit's announcement on recycling systems.
- Digital Transformation: Administrative processes have been digitized, reducing paper consumption. The UJ digital resources include the university library, online library, repositorium, curricula and other educational materials.

Food Waste Reduction

The University is committed to ensuring limited food waste. A project titled "HOW TO USE LOCAL INITIATIVES TO ENVISION EFFECTIVE AND RESILIENT LOCAL FOOD SYSTEMS IN THE SILESIA REGION?" has been established at the university, aiming to identify the key stakeholders and connections within the sustainable food system of the Upper Silesian-Zagłębie Metropolis, including food producers, distribution processes, food sources, origins of food waste, potential redistribution methods, and the interconnected networks involved.

Circular Economy Practices

UJ has implemented programmes to reuse items like furniture, lab equipment, and IT assets, reducing landfill waste and encouraging sustainability within its operations.

33.1.4. WATER MANAGEMENT

The University is investing in systems to capture and reuse rainwater. Moreover, various events, conferences, discussions and project are centred around the issue of water management, notably:

- The "Workshop on Sustainable water resources management in high mountains in the Baltic Sea Region" was organised in June 2019.
- The "National scientific and technical conference Water - a key factor in the development of civilization" was held at the Institute of Geography and Spatial Management of the Jagiellonian University.

33.1.5. TRANSPORTATION

Green Mobility Infrastructure

UJ supports sustainable transportation by promoting low-carbon commuting options:

- **Cycling Facilities:** The campus is equipped with bike racks and repair stations. Partnerships with Kraków's bike-sharing programme provide discounted access for students and staff. On October 3rd, the University Sports and Recreation Center was opened at the Jagiellonian University in Krakow. This innovative sport facility includes running paths, bike paths, rest areas, bike stations and an outdoor gym.
- **Electric Vehicles:** UJ is committed to promoting the use of electric vehicles (EVs) for example by implementing a project working on creating the "Plug&Chill"

application, which will support and facilitate charging electric vehicles. In May 2024, the app was awarded by the International Jury of E-NNOVATE: International Innovation & Invention Show. The team from UJ received a silver medal for this innovative solution displaying great contribution to green transformation.

Public Transport Integration

Collaboration with the city of Kraków ensures improved public transit routes serving University areas, with a number of the academic community relying on public transport. The University advocates for discounted transit passes and accessible transport options for its community.

33.1.6. CONCLUSION

The Jagiellonian University in Kraków demonstrates a comprehensive commitment to sustainability by embedding green practices into its operations, research, and educational programmes. Through innovative infrastructure development, energy efficiency, waste and water management, and sustainable mobility, UJ is setting a benchmark for ecological responsibility in higher education. By integrating awareness-raising campaigns and fostering collaborations, the University not only meets its ecological goals but also inspires its academic community and the wider public to adopt sustainable practices.

33.2. SOCIAL RESPONSIBILITY RESULTS

The Jagiellonian University exemplifies a strong commitment to social responsibility within the framework of sustainability and green transition. Through its educational, research, and operational initiatives, the University not only addresses global environmental challenges but also fosters a culture of ecological awareness and civic engagement within its academic community and beyond.

33.2.1. EDUCATIONAL CONTRIBUTIONS

UJ integrates sustainability into its educational mission by offering over 50 courses and programmes focusing on climate change, renewable energy, and sustainable development, examples of which can be found in chapter 3. Its interdisciplinary approach equips students with the knowledge and skills to address complex environmental issues. Through workshops, summer schools, and public lectures, UJ has engaged more than 15,000 participants annually, promoting climate literacy and ecological awareness.

The Jagiellonian University is not only an international cooperation hub, where numerous climate-related projects and initiatives take place, but also a host of various climate-related conferences and events. Notably, the E-Know 2024 Congress, which took place at UJ's Auditorium Maximum in November 2024, addressing issues such as climate change, sustainability or even AI and space ecology. The Jagiellonian University has organised the E-Know Congress for the third year in a row, proving its commitment to establishing a firm ground for social and academic cooperation and dialogue within the topic of green transition and climate studies.

Moreover, UJ has hosted numerous open lectures (such as the "What is being done for the climate outside Europe?" Open Lecture by Dr. Michal Pałasz) and conferences (such as the "Activism for climate justice: can the world be changed without breaking the rules?" online conference) on the topic of sustainability and green transition, opening the discussion to students, staff and the broader public.

33.2.2. RESEARCH IMPACT

UJ is a hub for sustainability-related research, leading numerous projects addressing global challenges such as biodiversity loss, renewable energy, and climate adaptation. Research centres like the Małopolska Centre of Biotechnology contribute groundbreaking solutions to sustainability issues, positioning UJ as a leader in Poland's ecological research landscape.

The most prominent examples of the university's commitment to research and education in the context of climate studies and green transition is the establishment of its Climate Council in May 2021. The tasks of the UJ Climate Council include:

- developing a climate strategy for Jagiellonian University (published in April 2024);

- developing a strategy for popularizing knowledge about the climate-environmental crisis at the Jagiellonian University and in the social environment;
- promoting knowledge of the climate-environmental crisis and its risks among the Jagiellonian University community;
- shaping the climate policy of Jagiellonian University, taking into account its impact on the actions of the authorities of Krakow, the Małopolska region and Poland;
- cooperation with Polish and foreign universities on good practices responding to the challenges of the climate-environmental crisis;
- giving opinions and recommending to the authorities of Jagiellonian University actions aimed at counteracting the climate-environmental crisis and adapting to its consequences, in particular in terms of protecting biodiversity, striving for closed-loop municipal waste management and zero-carbon.

The UJ Climate Council is dedicated to not only spreading awareness on climate-related issues, but also offers comprehensive policy recommendations for staff, students and more. Notably, the Council has released a statement on the Polish-Belarussian border blockade, which "does not address the problem of climate refugees in the long term and threatens the maintenance of biodiversity, while generating gigantic economic costs". Finally, the abovementioned Climate Council of the Jagiellonian University was an active partner in establishing the Kraków Centre for Climate Education in 2023.

The UJ Climate Council continues to work on the matter of sustainability, green transition and climate education. More information about the Climate Council can be found on its website.

33.2.3. GLOBAL RESPONSIBILITY

As a member of UNA Europa, UJ collaborates on projects addressing the United Nations SDGs, contributing to solutions with global relevance. These efforts align the University's mission with broader global initiatives like the European Green Deal.

33.2.4. CONCLUSION

By prioritizing sustainability in its operations, education, and community engagement, the Jagiellonian University demonstrates a profound commitment to social responsibility. It stands as a model for institutions seeking to balance academic excellence with ecological and societal impact, inspiring future generations to take an active role in shaping a sustainable world.

33.3. ECONOMIC RESPONSIBILITY RESULTS

The Jagiellonian University strives to apply economic responsibility by integrating sustainability principles into its financial practices, resource management, and strategic investments. These efforts support a sustainable green transition while ensuring the efficient and responsible use of resources, contributing to both institutional resilience and societal benefit.

33.3.1. RESEARCH AND FUNDING CONTRIBUTIONS

UJ's focus on sustainability research contributes to economic growth by attracting significant funding and fostering innovation:

- Research Projects: UJ leads numerous sustainability-focused research initiatives, as well as conducts courses, lectures and events related to the topic. Within the Una Europa framework, UJ also established the "Una Europa Joint Bachelor in Sustainability". This initiative is linked to the development of the Una Europa Focus Area Sustainability.
- Economic Innovation: Collaborative projects with industry partners drive innovation in renewable energy and green technologies, contributing to local and national economic development. Notably, the Centre for Advanced Sustainability Studies mentioned before that operates within the UJ structures, serving as a catalyst for sustainability at the Jagiellonian University, fostering synergies across initiatives at multiple levels, particularly within the Una Europa European University alliance and other academic networks.

33.3.2. FINANCIAL SUPPORT FOR GREEN TRANSITION

UJ actively invests in fostering a sustainable academic environment:

- Subsidized public transport passes and cycling infrastructure encourage cost-effective and low-carbon commuting for students and staff.
- Green procurement policies prioritize local and sustainable suppliers, supporting regional economies while reducing environmental impact.

33.3.3. MULTIPLIER EFFECTS

By embedding sustainability into its economic strategy, UJ reduces costs and also generates long-term value for the community in general.

33.3.4. CONCLUSION

In fulfilling its economic responsibility, the Jagiellonian University sets a precedent for balancing cost-efficiency with environmental stewardship, ensuring that investments in sustainability contribute to both institutional excellence and societal progress. These efforts solidify UJ's role as a leader in the green transition, demonstrating that economic responsibility is a cornerstone of sustainable development.

34. SUMMARY

This situation analysis focusing on Jagiellonian University tries to provide an overview of UJ's sustainability efforts and plans which align well with both national and international environmental policies. Poland's legislative framework, particularly the Energy Efficiency Act and Waste Management Act, sets the necessary foundation for green practices at HEIs in Poland including UJ. This includes i.a. conducting energy audits, implementing renewable energy technologies, and promoting sustainable campus management. The university also adheres to its Climate-Ecological Strategy 2030, focusing on reducing carbon emissions, enhancing eco-friendly infrastructure, and integrating renewable energy sources such as solar and geothermal.

The Jagiellonian University integrates sustainability deeply into its educational and research initiatives. Through interdisciplinary study programmes, such as Environmental Protection and Management at the Faculty of Biology and Environmental Protection at the Faculty of Chemistry, the university fosters a thorough approach to environmental and sustainability problems. Its research spans from socio-environmental dynamics to sustainable chemical processes, involving various specialized teams and projects. This integration of education and research not only equips students with practical skills but also positions the university as an important institution in regard to sustainability, contributing solutions to various environmental challenges. The university also actively engages in international collaborations, fostering knowledge exchange and contributing to international initiatives like the ones represented within UNA Europa network. Through these partnerships, UJ enhances its capacity to implement effective sustainability practices and plays a pivotal role in addressing the environmental challenges of the 21st century.

35.REFERENCES

See the links in the text above.

SITUATION ANALYSIS ON THE STATUS QUO OF UNIVERSITIES AS GREEN INSTITUTIONS

Organisation: J. Selye University

Closing manuscript:

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36. GREEN LAWS AND INITIATIVES IN SLOVAKIA (J. SELYE UNIVERSITY)

In Slovakia, sustainability and environmental protection have gained increasing attention in recent years, leading to the introduction of a number of laws and initiatives that directly or indirectly affect higher education institutions. Universities play a key role in promoting sustainable practices, not only as educational centers, but also as large institutions with significant environmental impact. Below, we review the key legislation and green initiatives affecting universities in Slovakia. (Ministerstvo životného prostredia, 2019).

36.1. LEGISLATION FOR UNIVERSITIES THAT PROMOTE SUSTAINABILITY

The first piece of legislation worth mentioning is the Waste Management Act (Act No. 79/2015). This law prioritizes waste reduction, recycling and the promotion of a circular economy. Universities, as large producers of waste, are required to establish waste sorting systems and ensure that recycling rates are met. For example, institutions are required to collect paper, plastic, glass and organic waste separately, and to encourage students and staff to avoid single-use products. (ASPI, 2024) The next important piece of legislation is the so-called Environmental Impact Assessment (EIA) Act (Act 24/2006). The law requires that infrastructure developments planned by universities, such as new buildings or energy systems, must undergo an environmental impact assessment. This ensures that new construction uses sustainable materials and energy-efficient design. The law indirectly encourages the promotion of green architecture and renewable energy sources. (EPI, 2024). The importance of the Energy Efficiency Act (Act No. 321/2014) cannot be ignored. This legislation obliges public institutions, including universities, to implement energy efficiency measures. As part of this, many universities have modernized their heating systems, installed solar panels, or introduced energy-saving LED lighting. The implementation of the law is monitored through energy audits. (EPI, 2024). Finally, it is important to mention the Act on the Protection of Clean Air (Act 137/2010). This law aims to reduce air pollution and supports initiatives such as cleaner transport. Universities are encouraged to minimise their carbon footprint by establishing low-emission zones, supporting public transport and setting up bike-sharing programmes (EPI, 2024).

36.2. INTERNATIONAL INITIATIVES AFFECTING UNIVERSITIES

In terms of international initiatives, the first initiative worth mentioning is the so-called Green University Program. This program provides funding and guidance to universities to integrate sustainability into their operations and educational programs. This initiative encourages institutions to create green campuses, reduce energy consumption, and develop environmental science courses. (Green Policy Platform, 2024) In addition, through programmes funded by the European Union, Slovak universities can submit applications for the installation of renewable energy sources, such as solar panels or biomass-based heating systems. The aim of these projects is to reduce dependence on non-renewable energy sources and reduce greenhouse gas emissions. Although traditionally aimed at primary and secondary schools, the Eco-Schools framework has recently been extended to universities. Participating institutions develop projects to improve campus sustainability, such as waste reduction campaigns or water conservation measures. Finally, the government supports the integration of climate change education into university curricula. Many institutions have developed specific courses on renewable energy, environmental management and the Sustainable Development Goals (SDGs). Universities are also encouraged to organise workshops and seminars in cooperation with international organisations to promote climate action (European Comission, 2024).

36.3. CHALLENGES AND OPPORTUNITIES

Greening universities in Slovakia offers many benefits, but significant obstacles also hinder its full implementation. One of the biggest obstacles for universities is financing sustainability investments. Installing renewable energy sources, increasing the energy efficiency of buildings and creating green infrastructure come with significant costs. Most Slovak universities rely on state support, which is often insufficient to implement green projects. Although European Union funding programs alleviate this problem, obtaining funding is often time-consuming and administratively challenging. Many Slovak universities have old buildings that were built before energy efficiency standards were introduced. These buildings have high energy consumption and poor insulation, which require significant modernization. Such transformations are not only costly, but also pose additional complications in the case of monument protection regulations. Compliance with environmental laws and regulations, such as energy efficiency standards and waste management requirements, can place a significant

administrative burden on universities. Frequent changes in regulations further complicate long-term planning and project implementation. Finally, universities often lack the technological background or expertise to implement sustainability projects. For example, the design and operation of energy-efficient systems or the transition to renewable energy sources require specialized knowledge and experience (Abo-Khalil, 2024).

However, alongside the challenges, there are also many opportunities for higher education institutions. For Slovakia, the European Union offers several support programmes specifically aimed at financing sustainability projects. The Recovery and Resilience Instrument and the Horizon Europe programme provide funding opportunities to help universities deploy renewable energy sources, improve energy efficiency and promote sustainable innovations. International cooperation between universities, such as the Erasmus+ programme or research consortia, create additional opportunities to share good practices and learn from experience in the field of sustainability. Such partnerships can also offer new sources of funding and technological solutions. Going forward, the rapid development of innovation also makes it easier for universities to adopt new sustainable technologies. The availability of energy storage systems, smart building management solutions and low-cost solar panels can significantly reduce the costs of sustainability investments. Finally, the commitment of university students to sustainability opens up new opportunities. Community projects such as waste reduction campaigns, green innovation competitions or local environmental actions can increase the activity of the university community. Involving students not only improves the sustainability of institutions, but also raises a more environmentally conscious generation in the long term. Although the implementation of sustainability in Slovak universities is not without challenges, the increasing social and political support gives hope for progress. Through new technologies, EU funding and community cooperation, universities can become more sustainable, setting an example for the wider society. These efforts of institutions not only support the achievement of environmental goals, but also improve the competitiveness of universities in the long term (Abo-Khalil, 2024).

37. THE INSTITUTION´S LONG-TERM DEVELOPMENT PLAN REGARDING ON SUSTAINABILITY

In the 21st century, the topic of sustainability and resilience of society is not a short-term modern trend that will be forgotten in a few years, quite the opposite. The negative consequences of climate change are already irreversible at this moment and we will feel them more and more intensely in the coming years. Support for sustainable initiatives should be supported by institutions, especially when it comes to the university environment, sustainability itself resonates at all foreign universities, where dealing with the given issue is an absolutely self-evident phenomenon. J. Selye University is trying to transform itself into an institution within which the issue of sustainability is dealt with at all its levels.

Within the long-term development plan of the J. Selye University, of course, it has set goals and actions, thanks to the implementation of which it will be able to rank among the universities with the maximum level of sustainability in the future.

1. in the field of education, for example, we organize and will organize lectures on topics such as climate, reducing consumption or animal welfare as part of the summer school every year,

2. we highlight and appreciate and will continue to appreciate interesting diploma theses on sustainability topics,

3. we also strive to make the university environment sustainable, we have 'greened' the surroundings around the student dormitory "Čajka" and we cooperate on ecological green management plans,

4. we support students in organizing sustainable events or university components in increasing the sustainability of their operations,

5. we are working on creating recycling points.

J. Selye University plans to integrate sustainability issues into its curricula as part of its program harmonization efforts, which can contribute to a better understanding of various global issues related to sustainable development, such as: extreme poverty, human rights, globalization, equality issues, professional ethics, and environmental challenges. Such education, however, requires innovative teaching methods that will help students better respond to the real world

and its problems, better understand their role as global citizens, and their global social responsibility.

Other plans in terms of sustainability include:

1. Use of renewable energy sources, support of activities aimed at carbon neutrality - construction of a facility for the use of renewable energy sources on the Dormitory “Čajka” building

2. Support of green university activities, implementation of technical and technological measures to optimize and reduce the energy intensity of JSU buildings - construction of a photovoltaic power plant on the Dormitory “Čajka” with a capacity of 72.8kWp and a photovoltaic power plant on the Faculty of Economics and Informatics (FEI) building with a capacity of 15kWp

3. Treatment of JSU green areas - Green areas owned by the university are regularly maintained and adequately cared for - absolute revitalization of the green area at the FEI building

4. Development of a strategy for the reconstruction of buildings into Green buildings - Sustainable buildings

5. Support of carbon-free student travel between JSU buildings

6. Construction of charging stations for electric cars and other electric vehicles and storage/storage areas near JSU buildings.

38.EDUCATION PROGRAMS AND SUSTAINABILITY INTEGRATION

When compiling the offer of study programs at the Faculty of Economics and Informatics of J. Selye University, we have strived to satisfy current needs to the greatest extent possible. Working together with entrepreneurial practice and taking into account current market trends, we pay great attention to environmental protection, sustainability, and corporate social responsibility.

Within the Bachelor's degree program, the Corporate Economics and Management study program covers environmental protection, sustainability, and corporate social responsibility within the following subjects:

• Business Economics (compulsory course) – within the topics of human resource management and corporate strategies, CSR activities and sustainability in relation to corporate operations are presented in more detail, and their short- and long-term impact on corporate competitiveness;

• Fundamentals of Personal Management (compulsory elective course) – within the topics of corporate culture, recognition of motivational factors in candidates, conflicts and workplace violence, preparation and management of educational projects, individual areas of CSR are discussed;

• Environmental protection (elective course) – within the framework of the subject, various issues of environmental protection are discussed: green production, green sales, green services, and green transportation by road, rail, sea and air. The colleagues also deal with the ecologically economical use of real estate, the ecologically economical use of movable assets, and current environmental trends within the framework of the subject.

Within the framework of the Applied Informatics basic study program, within the framework of the Marketing subject, which is included among the mandatory elective subjects, students can learn about sustainability approaches applied in marketing, brands and brand building, product policy, and packaging technology, among others.

In the Master's degree program Business Economics and Management, topics of sustainability, environmental protection, and CSR are also included in several subjects:

- International Management and International Ventures (compulsory course) – the differences between countries (culture, politics and economy) and international

corporate strategies present the identified corporate differences in the field of sustainability and CSR activities, as well as international trends, practices and good examples.

- Logistics (compulsory course) – the application of environmentally friendly solutions is discussed for each form of transportation. The environmental protection solutions applicable during urban logistics are presented in the city logistics topic. The green supply chain is highlighted in connection with environmental protection rules and trends in the supply chain topic.
- Business Etiquette and Protocol (compulsory elective course) – the relevant areas of CSR are discussed within the framework of the subject, including the presentation of personal and moral responsibility within the organization, moral decisions within the decision-making process, and moral risk.
- Green marketing (elective course) – the subject is entirely designed and/or deals with applied green marketing. It discusses the causes of environmental problems, global problems and the human world crisis. It covers changes in consumer behaviour and attitudes, the ecological footprint, as well as sustainable development and its characteristics. In addition to the development, tools and forms of eco-marketing, students of the subject can learn about green product policy, pricing policy, sales policy and advertising policy.

Within the framework of the Applied Informatics master's degree program, within the framework of the Logistics subject, which is included among the mandatory elective subjects, students can learn about, among other things, modern, environmentally friendly options for all forms of transportation. In the city logistics topic, environmental protection solutions applicable in urban logistics are presented. In the supply chain topic, the green supply chain is highlighted in connection with environmental protection rules and trends.

39.RESEARCH AND PROJECTS IN SUSTAINABILITY

In the spirit of sustainability, J. Selye University is working on building state-of-the-art research centers in line with the challenges and expectations of the times.

The J. Selye University (JSU) is dedicated to enhancing the educational experience through continuous improvements in its information and communication technology (ICT) infrastructure. The JSU IT Service Centre is responsible for managing, integrating, and developing the university's electronic communication infrastructure to provide seamless access to information for all members of the academic community.

One of the key components of the university's ICT infrastructure is its unified communication system, which allows for the transmission of data, including audio and video. This enables more dynamic and interactive communication within the academic environment. Furthermore, JSU benefits from its membership in the Slovak Academic Data Network (SANET), providing the university with a high-speed internet connection (10 Gbps), which ensures fast and reliable connectivity for both academic and administrative purposes.

To support efficient communication and data exchange, inter-organizational data transfer is facilitated by a dedicated optical network that links various university buildings. Additionally, the university has established a wireless network available across the campus and in the surrounding area, providing easy internet access for students, faculty, and staff.

For enhanced communication and information dissemination, large LCD TV screens are installed throughout the university buildings, displaying real-time updates on university events, news, and important announcements. This ensures that all members of the university community stay informed about the latest developments.

Thanks to these advanced technological resources, J. Selye University provides optimal conditions for both students and staff, ensuring high standards of academic success and work efficiency across the university.

Data mining, Big Data

J. Selye University is actively engaging in cutting-edge research and development through the utilization of advanced computing and data capacity provided by data centers. These resources are being leveraged for testing the effectiveness of distributed semantic web queries, a crucial area of study aimed at improving the efficiency and scalability of knowledge sharing across the web. The university's research in this field contributes to the evolving landscape of

the Semantic Web, focusing on the integration and management of data across diverse sources. Additionally, the university is exploring cloud system vulnerabilities, examining how cloud-based environments can be exposed to security risks. This includes investigating security solutions designed to address these vulnerabilities, ensuring the protection of sensitive data and the integrity of cloud platforms. Another key area of research is focused on data science algorithms, where the university evaluates their performance, efficiency, and potential weaknesses, contributing to advancements in machine learning, big data processing, and predictive analytics. In the field of bioinformatics, the university is also at the forefront of research, particularly in the context of DNA sequencing. By presenting results from bioinformatics algorithms, JSU contributes to the broader scientific community's understanding of how computational methods can be applied to biological data. These algorithms play a critical role in processing and analyzing genetic data, advancing the fields of genomics, personalized medicine, and biotechnology. Through these diverse research initiatives, J. Selye University is not only contributing to technological and scientific advancements but is also preparing students and staff to engage in the rapidly evolving fields of cloud computing, data science, and bioinformatics.

Robotics

The Intelligent Robot Centre at J. Selye University is dedicated to advancing research in the field of robotics, focusing on several key areas such as sorting algorithms, geometric shapes and lines, intelligent space creation, and their various applications. The primary goal of the Centre is to develop an intelligent space where robots and sensors are not limited to merely capturing data. Instead, these systems will be capable of interpreting the data they collect and, based on this information, making judgments that lead to appropriate interventions within their environment. This approach enhances the autonomy and decision-making capabilities of robotic systems, moving beyond passive data collection. As part of this initiative, the university has begun the development of a control framework for intelligent space in its laboratory setting. This framework is built around several sophisticated components, including the OptiTrack camera system, the Pioneer 3-DX robot, and the Nexus robot. The OptiTrack system plays a crucial role in the development of visual-servoing automated robot control, which is a method that enables robots to navigate and interact with their environment based on visual feedback. Using image-based information, the robots can make real-time adjustments to their movements, improving their ability to perform tasks such as object manipulation, sorting, and spatial awareness. To ensure the effectiveness of this system, the university has developed new

procedures for image synthesis, enhancing the ability of robots to process visual data and execute complex tasks in dynamic environments. These innovations contribute to the creation of more autonomous, intelligent robotic systems that can adapt and respond to changes in real-time, making them applicable for a wide range of applications, from industrial automation to smart environments. Through this cutting-edge research, the Intelligent Robot Centre at J. Selye University is pushing the boundaries of robotic intelligence, laying the groundwork for future advancements in autonomous systems, machine learning, and robotics applications in intelligent spaces.

Image Processing

At the Intelligent Robot Centre of J. Selye University, research in image processing is making significant contributions to the field of cultural heritage preservation. A key focus area is the creation of colour 3D models of artistic objects and historic buildings, which not only serve as accurate digital representations but also play an essential role in safeguarding cultural heritage. These colour 3D models are designed to offer much more than just visual presentations of objects or structures. They allow for detailed measurements with a high level of precision (within 0.5-1 cm), which is often difficult or impossible to achieve through traditional physical methods. For example, researchers can use these models to measure complex aspects such as the wall thickness of a historical church, providing valuable data for restoration, conservation, and analysis without physically disturbing the structure. To create these models, the university has developed a sophisticated 3D modeling process that integrates high-resolution images with detailed 3D photographs captured using a LiDAR scanner. LiDAR (Light Detection and Ranging) technology provides highly accurate spatial data, allowing the creation of detailed 3D representations of objects and structures. The combination of LiDAR data with high-resolution imagery ensures that the final 3D model is both geometrically precise and visually accurate. The colour 3D models are generated using a MATLAB programme developed by researchers at JSU. MATLAB, a powerful computing environment, is used for processing and combining the various image and sensor data to produce a comprehensive model that incorporates both colour information and structural data. This research has significant applications in the field of cultural heritage protection, as it enables detailed virtual documentation of important historical and artistic works. Additionally, these models can be used for future restoration projects, where the 3D data can guide accurate rebuilding or preservation efforts without risking damage to the original structures. Through these innovative efforts, the Intelligent Robot Centre at J. Selye University is contributing to the preservation of cultural heritage by merging cutting-edge

technology with the arts and humanities, ensuring that important objects and buildings are documented and protected for future generations.

Nanochemical and Supramolecular Laboratory

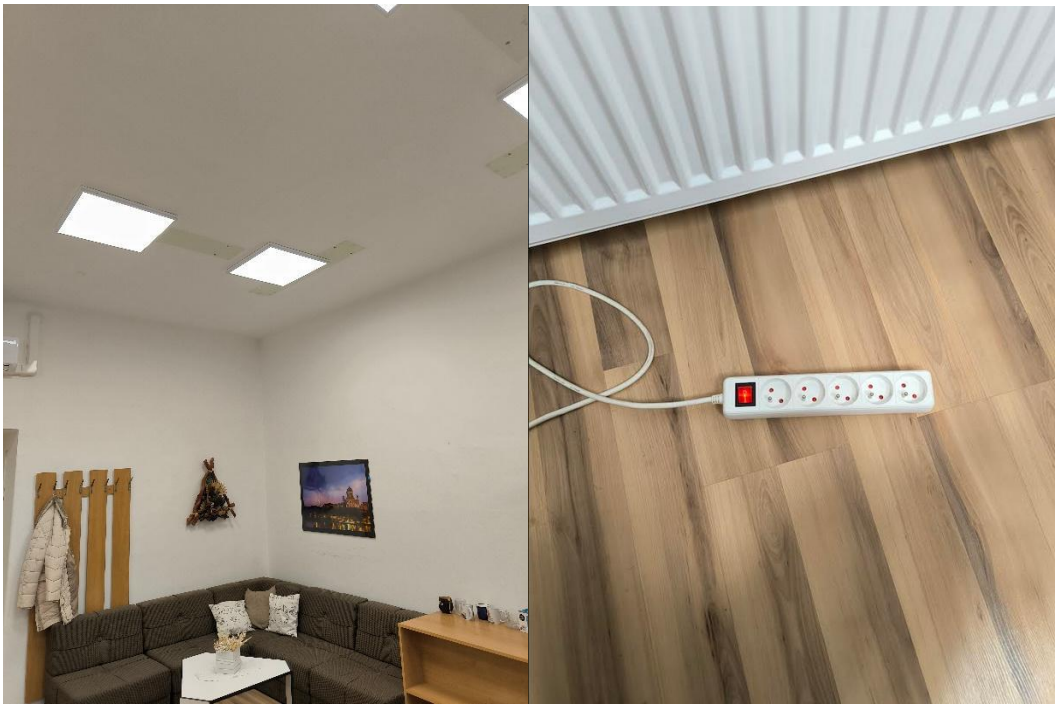
The Department of Chemistry at J. Selye University is engaged in cutting-edge research and development, largely driven by the resources and capabilities of the Nanochemical and Supramolecular Laboratory, established in 2015. This laboratory plays a crucial role in advancing the university's research in nanochemistry and supramolecular chemistry, applying the latest and most precise measurement technologies to explore and analyze nanoscale structures and systems. One of the key areas of research at the laboratory is the examination of the charge variability and distribution in nanosystems. Understanding how electrical charge behaves at the nanoscale is vital for the development of new materials and technologies, particularly in fields like electronics, energy storage, and drug delivery. In addition, the laboratory focuses on understanding the newly created supramolecular architectures, which are complex structures formed by non-covalent interactions between molecules. These architectures have significant potential in areas like materials science, catalysis, and molecular sensing. The laboratory also conducts in-depth studies to determine the charge, size, and chemical composition of nanosystems. By accurately characterizing these properties, the research team is able to gain insights into the behavior of nanomaterials, which are often distinct from their bulk counterparts due to their small size and unique surface properties. Another important area of focus is the examination of the rheological properties of nanosystems. Rheology, which involves the study of the flow and deformation of materials, is especially important in the development of materials with specific viscosity or fluidity characteristics. This research is particularly relevant for industrial applications, such as the development of nanofluids, coatings, and other materials used in manufacturing processes. The findings and outcomes of these research activities have been shared with the global scientific community, with the university's results being published in reputable scientific journals and presented at international scientific conferences. This not only demonstrates the high quality and impact of the research but also establishes J. Selye University as a key player in the field of nanochemistry and supramolecular chemistry. Through the ongoing research at the Nanochemical and Supramolecular Laboratory, J. Selye University is making significant contributions to the understanding and application of nanosystems, paving the way for innovations in a variety of industrial and technological sectors.

40.GREEN ACTIVITIES AT J. SELYE UNIVERSITY

We examined the greening efforts implemented within the university's premises from various perspectives.

40.1. OFFICE

We may rightly ask ourselves what we, as employers and employees, can do to protect our environment during the hours we spend at work? What can make the workplace more sustainable and how? How can we reduce the ecological footprint of our office? Below are examples of steps being taken at J. Selye University. During the month of October 2024, the old neon lights in our offices were replaced with new, energy-saving LED lamps, which were even equipped with motion sensors in the corridors for energy-saving reasons.



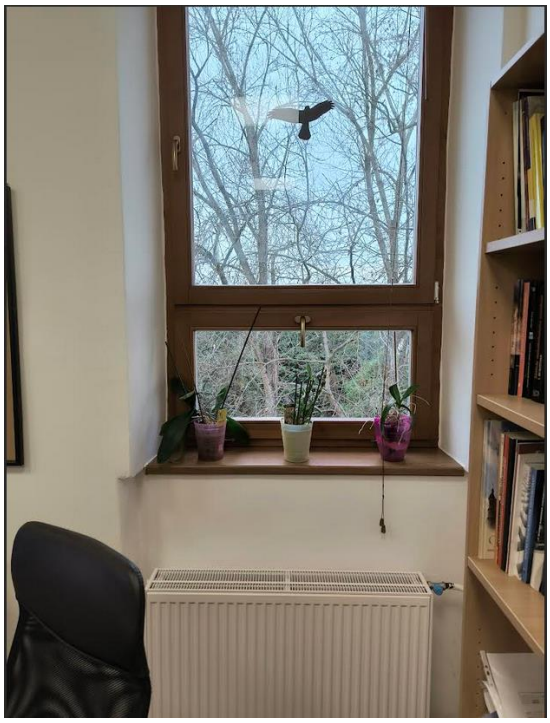
Picture 1: Solutions in the office

We turn off our computers after work or put them in energy-saving mode, and the same goes for office lights, which we turn off when no one is in the office.

In our email system, we set the “do not print” text in green under our signatures. We try to reduce our environmental footprint by using less environmentally friendly office supplies. Paperless working is becoming increasingly popular at our university. Digital document management systems, online storage, and cloud-based services can significantly reduce paper usage.

Before printing, think about ENVIRONMENTAL responsibility

Office plants not only improve air quality, but also promote employee well-being. Maximizing natural light and ensuring adequate ventilation also contribute to a healthier work environment. Ergonomic and environmentally friendly furniture, such as height-adjustable desks and comfortable chairs made from recycled materials, also play an important role.

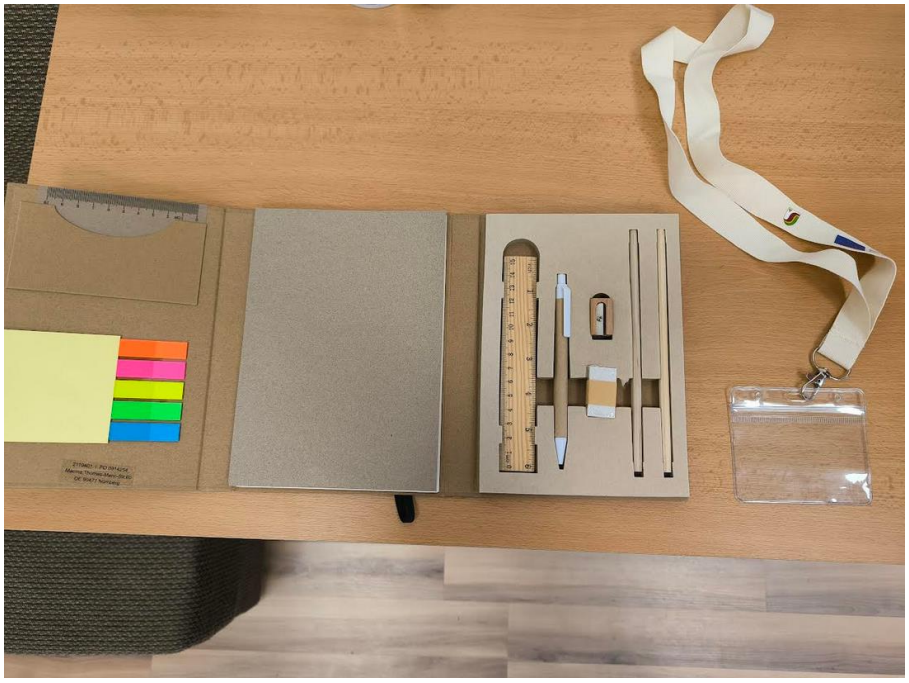


Picture 2: Plants in the office

40.2. PROJECT PROMOTION AND GIFT

We minimize the number of materials to be distributed at the event, and what we do distribute is printed on environmentally friendly paper and double-sided, if possible, in reduced size.

We reuse plastic name badges multiple times.



Picture 3: Solutions within project promotion and gifts

40.3. WASTE MANAGEMENT

Reducing waste is clearly one of the most effective ways to reduce the environmental impact of our university. Waste separation is already a given for many organizations. However, more and more people are trying to reduce the generation of plastic or aluminium waste by eliminating the use of coffee capsules, disposable plastic eating utensils or cleaning products in plastic packaging. At J. Selye University, we also collect waste selectively, in accordance with the local waste collection system, about which we have also placed information boards on the bulletin boards.

Picture 4: Solutions in waste management

Our paper waste can be reduced by double-sided printing, and we collect separately paper that has only been used on one side and pieces of paper that are still suitable for taking notes and use them when the opportunity arises.

40.4. EVENTS

Our university organizes numerous domestic and scientific events both domestically and internationally during the academic year. In order to generate the smallest possible carbon footprint by the participants of the events, we always try to choose the central building of the university as the venue, which is easily accessible by both private and public transport. The choice of the venue for the events is further influenced by the buildings operating in an environmentally friendly manner and provided with natural lighting (large windows, bright spaces).

Picture 5: Solutions within events

During our events, we also take into account the origin of the food and drinks consumed. We primarily provide meals from local catering and hospitality providers.

Another very important green practice of events is the number of printed posters, publications and invitations, and supporting documents related to the event. In order to reduce waste and optimize paper use, we make the marketing materials of the events and the publications of scientific conferences and workshops available to the participants primarily electronically or through various data carriers.

The gift packages intended for the participants and invited speakers at the event contain products from local producers and souvenirs related to sustainable food consumption (mugs, water bottles, etc.).

40.5. FOOD, DRINKS AND CATERING

For our events, we choose local small business owners to provide catering, where possible, who source their ingredients from local small producers and strive to operate waste-free. We optimize the quantities ordered based on the number of participants registered for the events, thereby contributing to reducing food waste.

We reuse plates, cutlery and glasses used for food and drink consumption from event to event, where possible, thus eliminating the use of single-use cutlery, glasses and plates. During the events, we also serve drinks in large bottles to reduce the waste generated by smaller bottles.

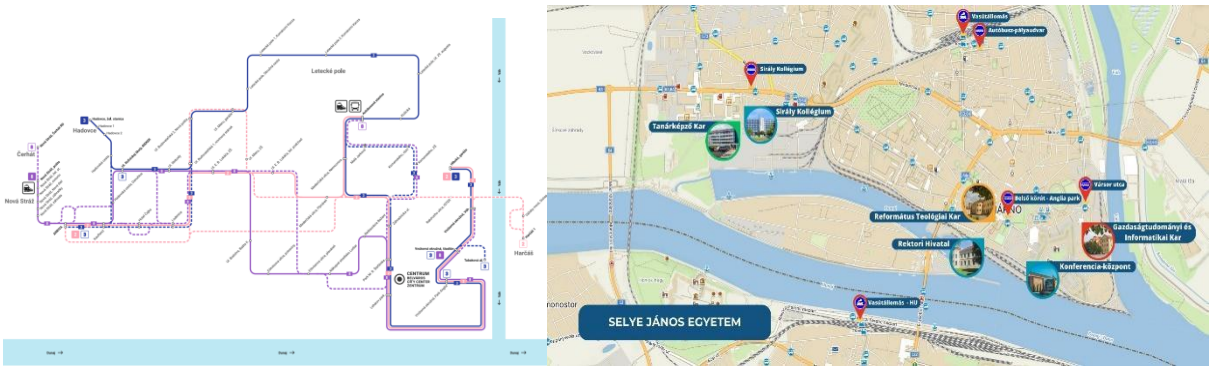
Picture 6: Solutions within catering

Our institution also pays attention to environmental awareness during everyday catering outside of events. Food is either served on site in the dining room, where reusable cups, plates and cutlery are used, or employees and students have the option of taking the ordered food with them in their own lunch box.

40.6. TRANSPORTATION

One of the significant factors influencing the carbon footprint is the type of transport chosen by employees and students. It is very important to consciously choose the means of transport that has the lowest possible negative emissions and environmental pollution when travelling domestically and internationally and representing the university. To this end, our university rewards the use of various green travel options and the choice of sustainable solutions for everyday transport during all official missions (whether it is participation in scientific events, representing our institution, or various mobility trips). This includes, first and foremost, the use of public transport – choosing a train, bus, or car, and car sharing.

An important mission of our institution is to inspire an environmentally conscious lifestyle, which provides additional options for students and employees in terms of transportation. In cooperation with the local public transportation company, a permanent free bus service is provided between all university buildings and dormitories. To this end, the network of city bus stops has also been optimized to encourage those concerned to choose environmentally conscious transportation.



Picture 7: Solution within transportation

In addition to the university buildings, bicycle storage facilities are also available to those concerned.

40.7. ACCOMODATION

The university also provides accommodation for students. The dormitory provides accommodation for the university's students and employees on 6 floors. In recent years, the building has undergone continuous renovation work, which was carried out in the spirit of sustainability. The management has strived and is currently striving to make the building as energy-efficient as possible. As a result, the old windows and doors have been replaced with 3-layer window panes. The building's heating system has been modernized, and it can currently be heated and cooled using a heat pump. The building has been insulated with 10 cm of insulation, which further reduces heat loss. 160 solar panels have been installed on the roof of the dormitory, which can generate electricity and support the work of the heat pump. With the development of this system, the building can become self-sustaining in terms of energy needs.

Picture 8: Solutions within accommodations

40.8. CAMPUS INFRASTRUCTURE AND GREEN INITIATIVES

The buildings owned by the university are undergoing continuous improvements. In the past, the windows and doors in the building of the Information Technology Service Center were replaced and the attic was lined with glass wool.

In the building of the Faculty of Economics and Informatics, the heating system was converted to a heat pump heating system and part of the building was equipped with solar panels, which help generate electricity. Energy-saving lighting fixtures were installed in the corridors, classrooms and offices, as well as sensors that optimize the operation of these lighting fixtures.

Picture 9: Solutions within campus infrastructure

A beautiful, landscaped area awaits those arriving in front of the dormitory. The multifunctional field next to the dormitory provides an excellent opportunity for sports and spending leisure time pleasantly.

Picture 10: Green initiatives near the Dormitory "Čajka"

Future plans include the external insulation of the building of Faculty of Education, the replacement of windows and doors, and the installation of additional solar panels on this building and on the roof of the sports center building.

40.9. STUDENT AND COMMUNITY ENGAGEMENT IN SUSTAINABILITY

In relation to the issue of sustainability, special importance should be given to educational and teaching work, which mainly takes place through the expansion of students' knowledge in this direction. Our students regularly organize garbage collection in the student government's organization in order to make their environment cleaner, which most often takes place around the student dormitory.

Picture 11: Student engagement in sustainability

In addition, during the academic year, our students can participate in professional lectures on sustainability and environmental awareness within the framework of the Komárom University Days and the Week of Science and Technology.

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