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Waste management practices at Corvinus University of Budapest

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Abstract. The best practices of a university waste management considering innovation, impact, and future direction of sustainable universities involve a comprehensive approach that considers not only the environmental impact of waste but also the social and economic dimensions of sustainability. This is especially true for higher education institutions that are meant to educate most future business and social leaders of a country or a region, as is the case at Corvinus University of Budapest. The first step in waste management is to minimize the amount of waste generated. Corvinus achieve this by promoting a culture of sustainability on campus and encouraging students, faculty, and staff to adopt eco-friendly habits, such as using reusable bags, bottles, and containers, and minimizing the use of single-use items and encouraging the use of digital documents instead of paper. After reducing waste generation, the next step is to reuse and recycle as much as possible. Corvinus set up recycling stations that accept a wide range of materials, such as plastics, paper, and electronics. Additionally, Corvinus works with local organizations to donate gently used items, such as furniture and IT, instead of sending them to landfills.

Corvinus track their waste generation and disposal to identify areas for improvement and evaluate the effectiveness of their waste management programs. By regularly monitoring and reporting on their waste

management practices, Corvinus set goals for improvement and demonstrate their commitment to sustainability.

Corvinus collaborate with industry, government, and community groups to find new and innovative solutions for waste management. This include partnering with local waste management organizations to develop sustainable waste management practices, as well as working with local businesses to reduce waste generation. Overall, a successful waste management program at a sustainable university requires a multifaceted approach that incorporates education, outreach, partnerships, technology, and monitoring. By implementing these best practices, universities can reduce their environmental impact, engage students, and staff in sustainable practices, and demonstrate their commitment to creating a more sustainable future.

Keyword:

1. Introduction

The Corvinus University of Budapest is Hungary's leading university for economics and social sciences. It was founded in 1920, its predecessor, the Economics Faculty of the Royal Hungarian University of Science. More than 10,000 students from over 100 countries around the world are studying for a bachelor's, master's, or doctoral degree at the university (1).

In Eduniversal's 2019 ranking (2), Corvinus Business School is the best business school in Eastern Europe, in addition the Master in International Management offered in co-operation with CEMS was chosen the twelfth such programme by the university rankings by Quacquarelli Symonds (QS) 2023 Masters in Management (3). Among Hungarian universities, only Corvinus has two international institutional accreditations (AMBA, AACSB).

In 2022, Corvinus has been named the most sustainably improved university in the world by UI GreenMetric ranking (4) which confirmed the university's commitment to more sustainable operations. The University's new campus on Ménesi road which will be completed in 2023 will meet Leed Gold's stringent sustainability certification criteria, as well as AA+, the highest energy efficiency rating, for the first time in a higher education investment in Hungary (5).

As the WUR Strategic Plan 2019-2024 (6) underlines, universities can have an impact on society, which is both a responsibility and an opportunity. This is especially true for higher education institutions that are meant to educate most future business and social leaders of a country or a region.
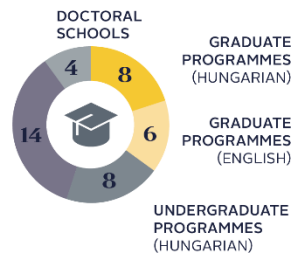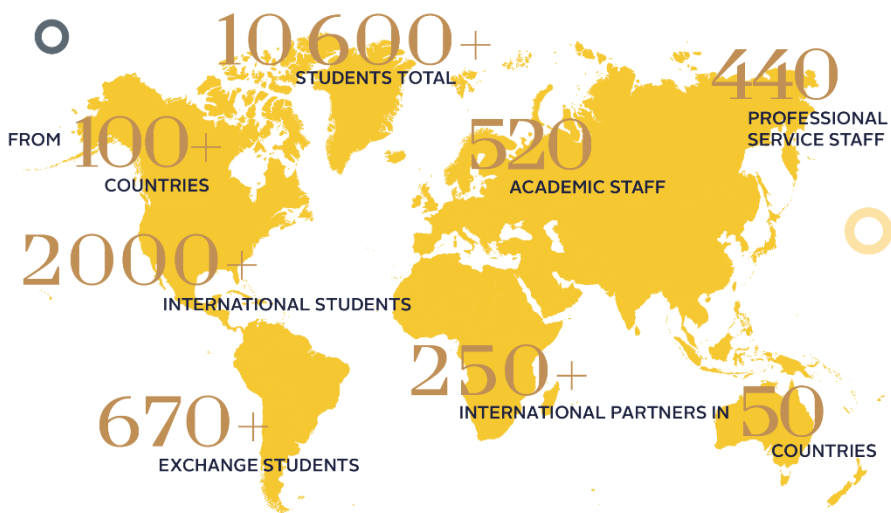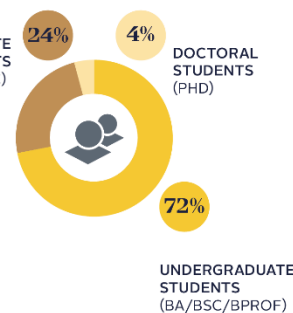
Figure 1. Key facts and figures about Corvinus

According to Velazquez et al (7), sustainability strategies in higher education institutions are driven by two important goals: to enhance the awareness of sustainability issues and the use of technology that permits reduction of the environmental burden at the local or global level. In the case of Corvinus University of Budapest, the issue of involvement and raising awareness was also crucial, as the primary objective was to involve the entire stakeholder group in the sustainability project.

The first commitment to a more sustainable existence was to join the UI Green Metrics

Programme at the end of 2021 (8). At that time, Corvinus were ranked 869th out of 956 universities in eighty countries, and the intention was that we should choose a greener and more sustainable path. The first step towards change was the planning phase, which resulted in the Sustainability Action Plan for 2022, which was presented by Chancellor Domahidi Ákos to the Presidential Board in early 2022.

The Corvinus Green project was set up under the ERS Hub's umbrella brand. The ERS Hub (Ethics, Responsibility and Sustainability) of Corvinus University was established in 2021 was to coordinate projects and initiatives in the three thematic areas at the university level, and to provide an open platform for their wide dissemination, and for the involvement of volunteers and supporters (9).

Within the framework of this study, we will present some of the key elements of our waste management practices.

2. Waste management practices

As described in the narrative review by Balwan et al. (10) the well-known 3 Rs (Reduce, Reuse, Recycle) waste recycling model can be complemented by the dimensions (Refuse, Reduce, Reuse, Recycle and Repupose) linked to the zero-waste lifestyle. The first step in promoting this model was the Green July campaign, when to ensure widespread awareness, 5R-related content was shared on the new Corvinus Green subpage (11). During this campaign period a questionnaire allowed the university community to share what possible sustainability steps could be incorporated into operations. Some examples of the types of responses: reducing printing, more colorful biodiversity, selective waste collection, optimizing water, electricity, and air conditioning for energy efficiency. Once the data had been processed, the plans were translated into actions, incorporating feedback from the university community.

2.1. Minimize the amount of waste generated - how can we refuse?

Approximately fifty thousand bottles of plastic waste were generated at Corvinus every year, solely from plastic water bottles (12). To reduce this output, departments that join the Corvinus Green programme could voluntarily agree not to order bottled water, cylinders, and plastic cups in exchange for a sufficient number of glass cups and jugs.

The success of the programme is shown by the fact that the entire university staff has now joined the ban on plastic bottles and refillable jugs are used instead. The Corvinus Green project works on the principle of voluntary participation. Extending this joint commitment, water is served in jugs in meeting rooms and at events too. In the meantime, 41 water points have been installed in university buildings where staff and students alike can fill up their bottles with good quality drinking water.

Figure 2. Water points at Corvinus

2.2. Reduce - Saving energy and increasing efficiency

Corvinus University of Budapest has implemented energy saving measures that have resulted in significant reductions in energy consumption.

Our gas consumption decreased by 45.21% compared to 2021. This represents a saving of approximately 318 000 cubic metres of gas. This result was possible because of the three-week winter break, by setting the heating of the buildings at 20 degrees, by keeping the main building's gate just in one side open and by optimising the timetable according to heating possibilities.

To reduce the use of electrical energy, new desk lamps with energy-saving light bulbs were installed for Corvinus staff (13). The operating time of air handling units was reduced, the library's humidification equipment was completely switched off and motion-sensing lights were installed in the corridors and common areas of the main building. All these steps have resulted in savings of more than 323 000 KwH, a reduction in energy use of almost 15% compared to 2021.

We have reduced the amount of water flowing from 15-20 litres to 5-7 litres per minute at the campus taps by using perlators to reduce water consumption (14).

Some digitalization solutions have been implemented to reduce paper consumption in our processes. We have introduced a QR code-based complaint handling system to replace the previous paper-based system. This initiative has evolved from a pilot project that was first implemented in our dormitories, then the whole campus.

In order to further digitize administrative processes, we digitized the paper-based leave registration system in 2022 and the optimization of IT tools and the centralization of printers also contribute to reducing electricity and paper consumption.

Table 1. Actions to reduce energy and paper consumption on campus at Corvinus

1. Gas	2. Electricity	3. Water	4. Paper

Reducing gas consumption:	Reducing electricity consumption:	Reducing water consumption:	Reducing paper consumption:
- Three-week winter break. - Heating of buildings set at 20 degrees. - Keeping only the south gate open in the main building. - The timetable is optimized according to the heating possibilities	- New desk lamps with energy-saving bulbs for Corvinus staff - Reduced operating times for air handling equipment - The lighting in the front of one of University's building has been switched off - Library humidification equipment was also shut down - In the main building, motion detectors have been installed in the corridor and common areas	- Perlators installed on the taps	- QR code-based complaint handling system - Digitized leave registration system - Optimization of IT tools - Centralisation of printers

2.3. Reuse – Unused IT equipment in good condition for community partners and staff

Colleagues can return unused IT devices to our IT centre every day of the year, but as part of the Corvinus Green project, we launched a campaign to ensure that departments keep only the necessary devices. We donated 61 desktop computers and 21 monitors to three community partners (15). In addition, Corvinus works with local organisations to donate gently used items such as furniture and IT equipment instead of sending them to landfills.

2.4. Repurpose – European Zero Waste Week in 2022

In connection with the European Zero Waste Week in 2022, we held a "Educate for Sustainability" project exhibition, a literature recommendation, a book browse and a charity clothing sale in the university library in partnership with the Gardrobe Story project team.

2.5. Recycle - Selective waste collection islands

The University is currently under contract with the local utility company. Our partner transports the waste selectively while ensure the proper recycle flow as well. The selective waste collection is handled via selective waste islands that are placed in the University's buildings. During 2023 Corvinus University increased the number of available selective waste collection islands by 500%. Also, the people of Corvinus will have a chance to join Green Office Award where they terminate the office communal waste bin and use the nearby waste islands. We believe that in this way, people can be more aware of what they throw away, thus we can promote environmentally conscious thinking. In addition, the latter makes waste sorting way faster.

Inorganic waste and toxic waste like printer toners, neon gas lightning tubes and all sort of e-waste collected via mobile collection containers. Also overused or scrapped electrical tools are collected back to storage or for selective destruction. The recollected batteries are professionally treated and disposed. A separate telephone collection point is also available in the community area of our building.

3. Concluding remarks

In addition to the aforementioned actions, Corvinus University of Budapest has identified monitoring and rethinking as an important lesson to be learned. We are integrating sustainability into our processes, both in academia and in the service sector. On the academic side, we already monitor whether there is sustainability related activity, it is marked in research and looked at in the courses. In the field of campus services, we are committed to acting in accordance with our commitment to sustainability in our investments and decisions.

Overall, a successful waste management programme at a sustainable university requires a multi-faceted approach that includes education, awareness, partnerships, technology, and monitoring. By implementing these best practices, universities can reduce their environmental impact, engage students, and staff in sustainable practices, and demonstrate that their commitment to creating a more sustainable future.

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