SUSTAINABILITY REPORT

2023

UNIVERSITY OF JYVÄSKYLÄ

Towards planetary well-being

UNIVERSITY OF JYVÄSKYLÄ

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1. Sustainability and responsibility at JYU – organisation, principles, and commitments

At the University of Jyväskylä (JYU), sustainability is incorporated into research, teaching, societal interaction and campus management. We are committed to promoting the Finnish association of universities UNIFI's theses on sustainable development and responsibility. The UNIFI theses are based on the UN's Sustainable Development Goals, the Finnish Society's Commitment to Sustainability (Sitoumus 2050), the Convention on Biological Diversity, and the Paris Climate Accords.

Universities guide change in society. Research provides new knowledge, solutions and innovations for sustainability challenges. Our experts participate and lead scientific panels that advise and dialogue with decision-makers. We enhance sustainability in our curricula to provide the necessary skills for future specialists. The university is in the position to set an example of a sustainable organisation, of how to be a resource-smart, inclusive, and safe workspace for all. JYU has set a target to reach carbon neutrality and be a nature positive organisation by 2030.

JYU has held the WWF Green Office Certificate since 2013. The Green Office certificate indicates that JYU's environmental management system is implemented in compliance with external criteria, and that JYU is committed to continuously improving its activities. The next audit is set for 2025. JYU is also a founding member of the Nature Positive Universities network.

In 2023 JYU had three internal development groups to promote sustainable development within the university: (1) Sustainable and Responsible JYU, (2) Planetary well-being for JYU and (3) the Development group for equality, non-discrimination and accessibility. In addition, three multidisciplinary communities operate at JYU: JYU.Wisdom, JYU.Well and JYU.Edu.

Sustainability can be seen and felt on the JYU campuses. JYU's Seminaarinmäki Campus holds the European Heritage Label for providing a foundation for a democratic European social system that prevents social exclusion and promotes diversity and the peaceful coexistence of people. The Jyväskylä University Botanical Garden consists of a park of nearly 36 hectares, including the green spaces of all three JYU campuses. In 2023, JYU also joined the Alvar Aalto Routes network.

2. Planetary well-being

UNIFI's theses on sustainable development and responsibility:

6. Universities' management, administration and campus activities are in line with the sustainable development goals.

7. Universities follow the principles of a carbon neutral circular economy in their activities and take concrete measures to foster biodiversity.

2.1. Roadmap to planetary well-being

The roadmap to planetary well-being has been approved by the University Board of the University of Jyväskylä on 10 June 2022 as an environmental programme that guides the operations of the University of Jyväskylä. A separate action plan approved by the Rector implements the roadmap. The roadmap sets the vision, objective, and goals for JYU. Its implementation is monitored by the Planetary well-being for JYU development group.

The roadmap to planetary well-being guides the University of Jyväskylä in implementing the United Nations Sustainable Development Goals (SDG) 12 (Responsible Consumption and Production), 13 (Climate Action), 14 (Life Below Water) and 15 (Life on Land). The eight goals of the roadmap are selected so that their combined effect on the well-being of humans and non-human nature is as substantial as possible. The roadmap and its action plan have been prepared by experts from the University of Jyväskylä. The actions presented in the roadmap are largely based on the recommendations presented in JYU.Wisdom's report on the Sustainability for JYU project.

VISION

From 2030, the University of Jyväskylä is a carbon-negative and nature-positive higher education institution that works actively to promote planetary well-being on local, national, and international levels.

OBJECTIVE

The University of Jyväskylä invests in reducing its biodiversity and climate impacts and develops the impact calculation methods and an offsetting model. By 2030, the University has reduced measurable biodiversity and climate impacts by at least 60% from the level of 2019 and offsets the impacts as part of its compensation responsibility.

To measure if JYU has reached its objective we calculate annually our carbon footprint (CO2ekv) and the biodiversity footprint of the university's procurement. As indicators we also use the consumer habits of our staff and students as measured by the WWF consumer habits questionnaire and our ranking in the Time Higher Education Impact Ranking (SDGs 12–15).

2.2. JYU's carbon and biodiversity footprint 2023

2.2.1. Methodology

JYU has assessed its total carbon footprint and biodiversity footprint of procurement since 2019. The methodology was developed by researchers of Wisdom. The original methodology has been described in reports from 2019 and 2020 (in Finnish).

Methodology and results 2019 Refined methodology and results 2020

Since 2020 the methods have been refined and the results from previous years have also been updated by JYU's Biodiversity Footprint Team, which is a multidisciplinary research group that develops metrics and methods for assessing the carbon and biodiversity footprints of organisations, together with pilot organisations. The group develops methods for assessment

of carbon and biodiversity footprints of organisations, procurement, investments, and more broadly consumption and production.

The biodiversity footprint unit used in the previous reports was *potentially disappeared fraction of species* (PDF), which accounts for the fraction of species richness that may be potentially lost due to the environmental impact of JYU's procurement. This year we have expanded the methodology to include the impact not only on terrestrial ecosystems but to aquatic ecosystems as well, and refer to the indicator as nano biodiversity equivalent (nBDe) instead of PDF, as suggested by El Geneidy et al. (2023). We will update the indicators of the roadmap and refine our biodiversity footprint reporting accordingly in 2025.

2.2.2. JYU's carbon footprint 2023

The biggest sources of JYU's CO2 emissions in 2023 were investments (10.380 tCO2), procurement (7.773 tCO2) and properties and energy (2.136 tCO2). The carbon footprint of work-related travel was 1.474 tCO2, of which 82% came from air travel. JYU's only direct (scope 1) emissions were our own vehicles (23 tCO2). Scope 1 emissions comprise only 0.1% of JYU's total emissions. The total carbon footprint 2023 was 21.786 tonnes of CO2. Compared to 2019, JYU's total carbon footprint decreased by 40% (Table 1).

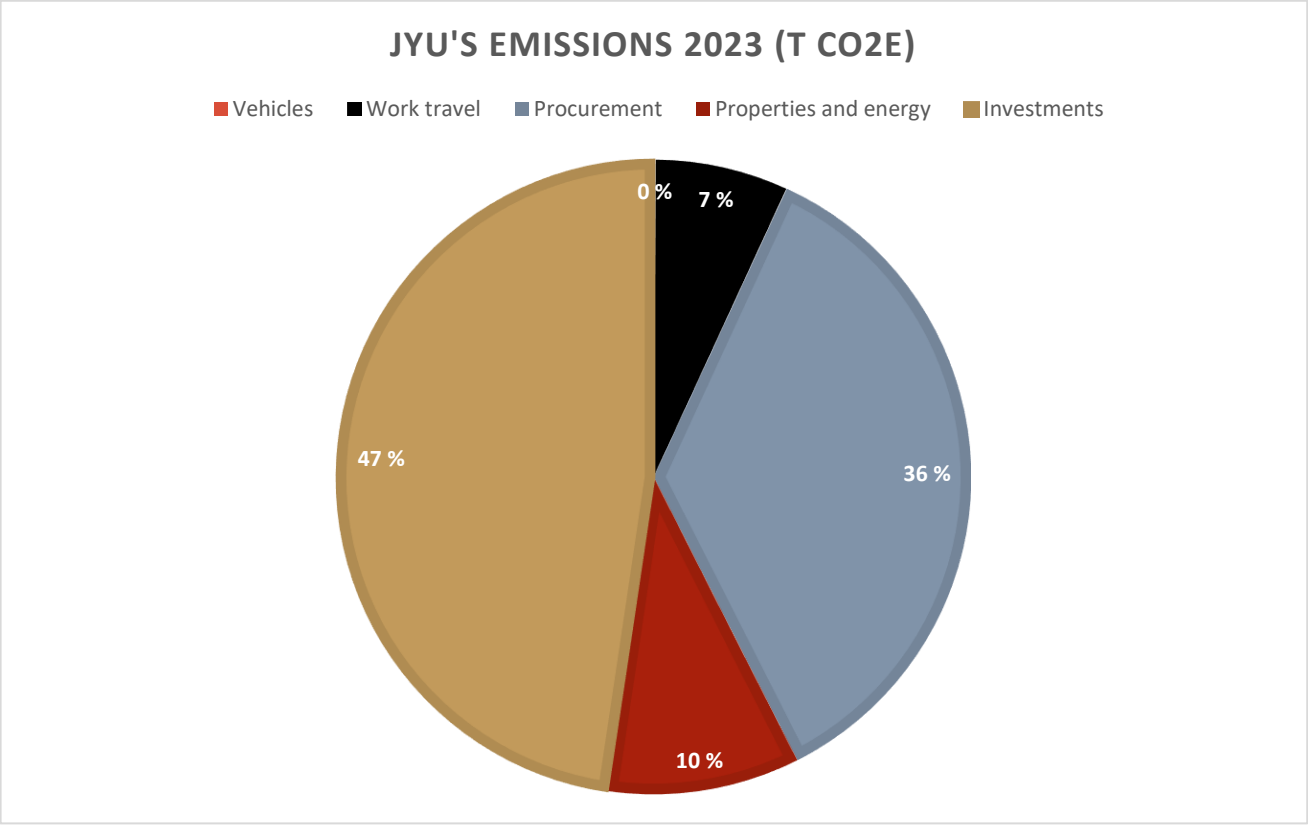

Figure 1. JYU's 2023 CO2 emissions

Table 1. JYU 2023 carbon footprint by category, comparison to 2019 baseline and emissions reduction goals 2025 and 2030.

Category	Emissions 2023 (t CO2e)	Comparison to 2019 (%)	Reduction goal 2025	Reduction goal 2030
Vehicles	23	-44%	-	-100%
Work travel	1.474	-27%	-	-50% (all travel)
Procurement	7.773	-5%	-20%	-30%
Properties and energy	2.136	-63%		(several depending on the category)
Investments	10.380	-42%	-30%	-70%
Total	21.786	-39%	**-**	**-60%**

2.2.3. Carbon and biodiversity footprint of procurement

The carbon and biodiversity footprints of JYU's procurement were calculated retrospectively by applying refined methods (Figures 2 and 3). Table 2 presents the carbon and biodiversity footprints of procurement for 2023 and for 2019 by category. The biodiversity footprint of JYU's procurement has grown compared to 2019.

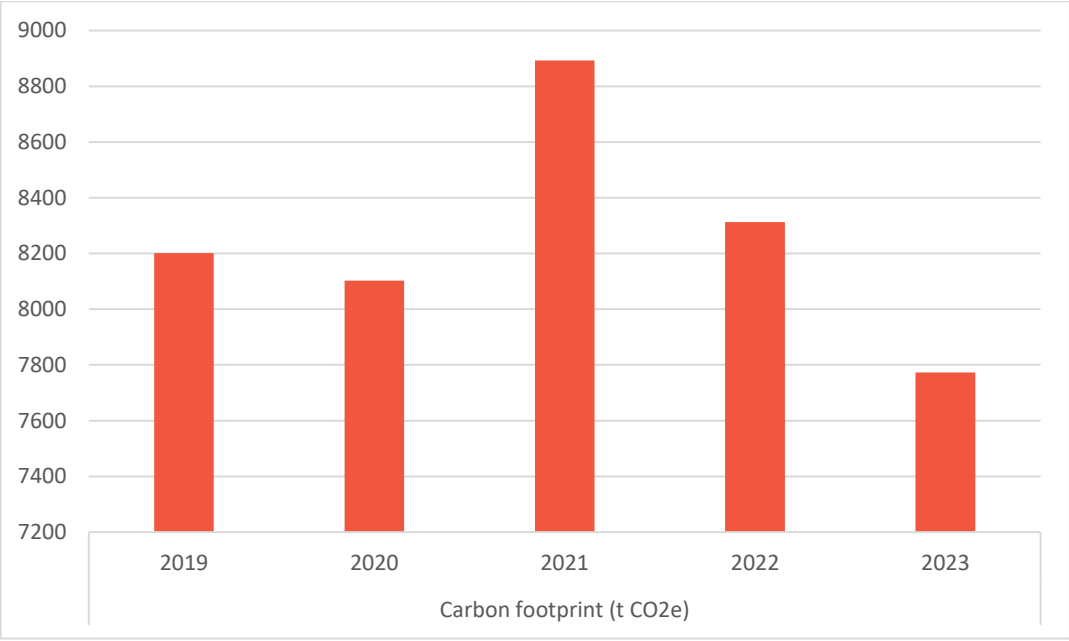

Figure 2. Carbon footprint of JYU's procurement 2019–2023

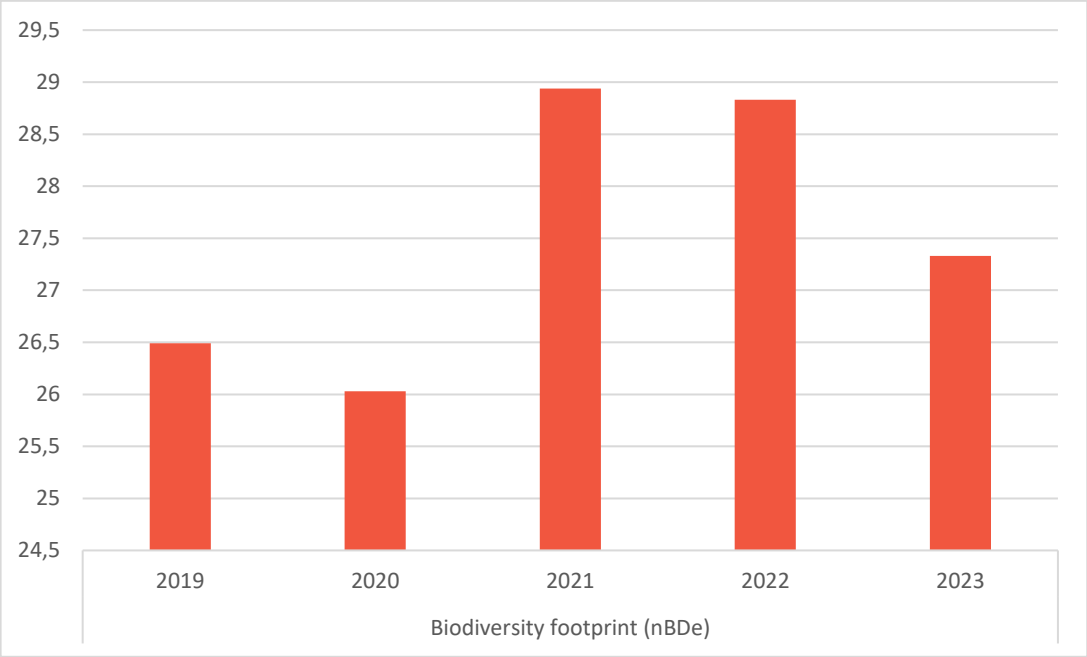

Figure 3. Biodiversity footprint of JYU's procurement 2019–2023

Table 2. Carbon and biodiversity footprints of procurement 2023 and 2019 by category

	Carbon footprint (t CO2e)		Biodiversity footprint (nBDe)	
Category	**2023**	**2019**	**2023**	**2019**
IT supplies, licences and services	2139	1987	6.72	6.33
Machines and other supplies	1329	1772	4.15	4.17
Laboratory equipment and services	536	452	1.78	1.78
Travel and transport services	69	133	0.19	0.12
Other services	657	811	2.24	3.25
Paper and marketing	233	266	0.6	1.96
Fuel and chemicals	626	506	2.03	0.48
Foods and services	725	858	4.35	2.15
Health, insurance and banking	167	214	0.62	2.78
Unknown products and services	223	45	0.78	0.13
Innovation, education and development services	772	775	3.03	0.98
Building and maintenance	298	384	0.85	2.38
TOTAL	**7773**	**8201**	**27.33**	**26.49**

2.3. Consumer habits

JYU uses the WWF Green Office consumer habits questionnaire to monitor the change in the consumer culture of the JYU community. JYU students have been included in the questionnaire since 2022. Previously, the questionnaire was directed to staff only and the response rate was low. Now the results serve as a university-wide indicator of consumer habits. The results show that we still have a lot of work ahead of us to improve the motivation of staff and students. We should encourage our staff and students to make environmentally friendly choices. Our average score 2023 was 78.96/100 (100 being the top score). Figures 4–6 also show results from 2024 since the results were published already by the time of writing this report.

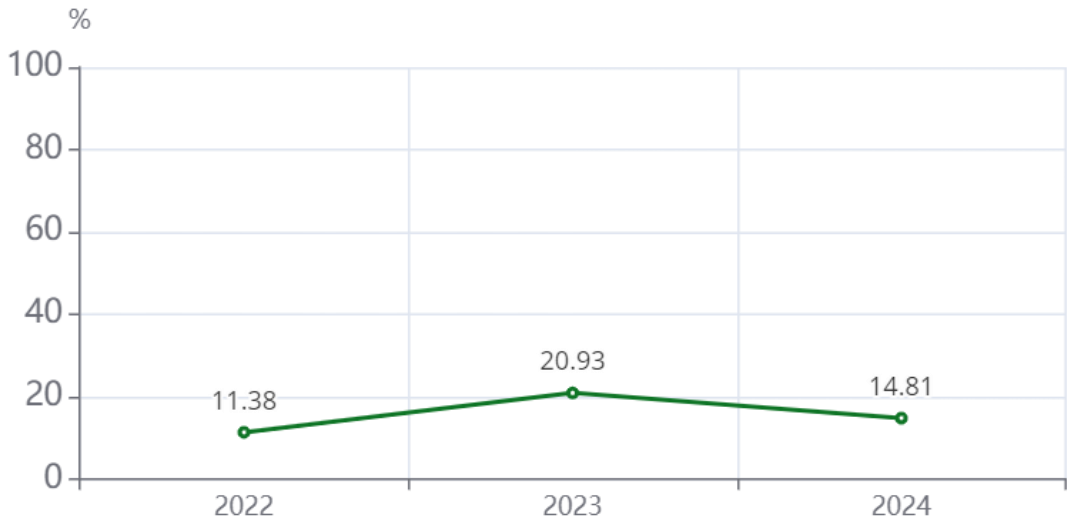

Figure 4. Consumer habits questionnaire response rate 2022–2024

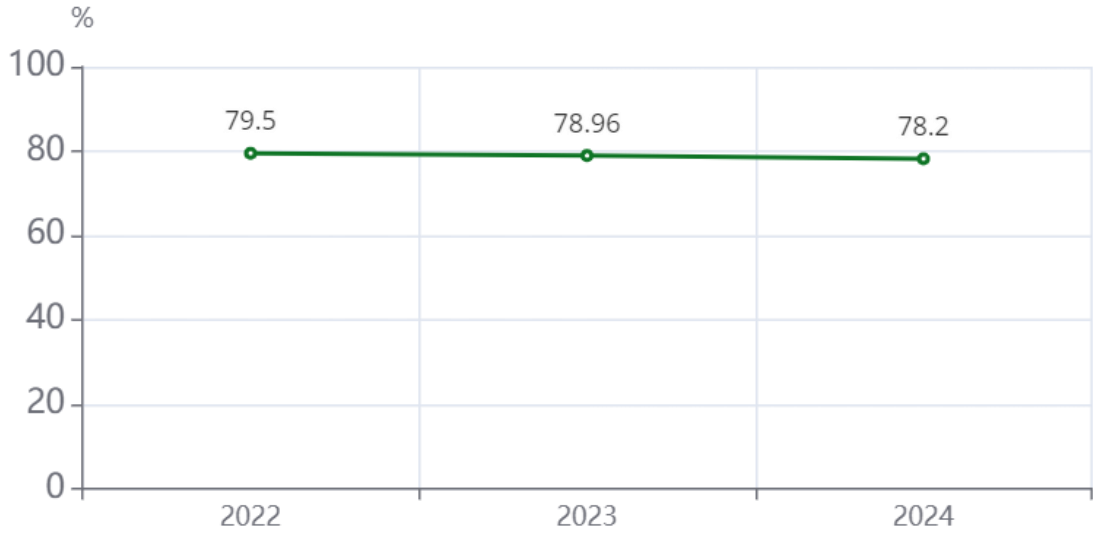

Figure 5. Consumer habits JYU score average 2022–2024

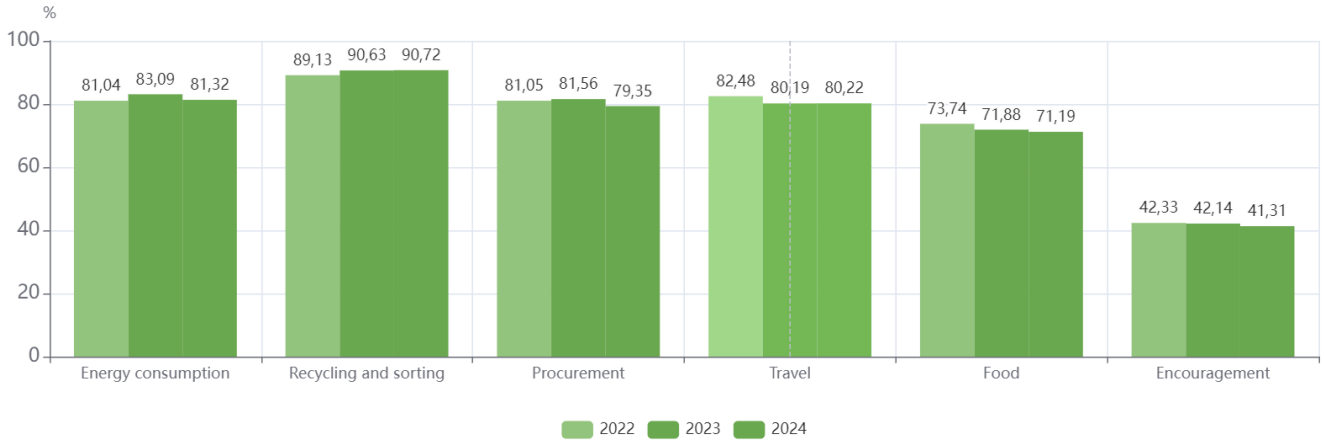

Figure 6. JYU consumer habits percentages of maximum points by themes 2022–2024

2.4. Times Higher Education Impact Ranking

JYU ranked 301–400 in the Times Higher Education Impact Ranking, which is the same as in the previous year. The number of participating universities rose from 1,591 to 2,152.

JYU received its best scores in the environmental SDGs, but ranked lower than it did in the previous year.

Table 3. JYU's ranking in Times Higher Educations SDGs 12–15

SDG	JYU RANK	JYU RANK PREVIOUS YEAR
12: Responsible Consumption and Production	101–200	84
13: Climate Action	101–200	54
14: Life below Water	101–200	82
15: Life on Land	101–200	72

2.5. Monitoring the goals

The roadmap to planetary well-being includes eight goals. Each goal has its own indicators and set of actions identified in the action plan. The following table summarises the situation at the end of 2023 and gives suggestions for the coming years.

Goal	Situation 2023	Actions 2023	Observations and suggestions
GOAL 1: Changing consumption habits: 1.1. Procurement: The biodiversity and climate impacts of goods and services procured by the University of Jyväskylä are reduced by at least 20% by 2025 in comparison to the baseline of 2019. By 2030, the impacts continue to be reduced at least by 10% more.	CO2ekv -5% **BDe +3%** (2019→ 2023) Rise is mainly due to IT-licence fees.	A code of conduct (procurement sustainability criteria) was introduced to JYU's procurement that surpass the EU or national threshold value.	The impact of the code of conduct should be evaluated and based on the evaluation, a decision should be made whether the same criteria should apply also to lesser value procurement. The category of procurement in the footprint calculations include all purchases. An R&D project is recommended to increase the sustainability of all purchases.
GOAL 1: Changing consumption habits: 1.2 Energy – electricity and heat By 2030, electricity used by the University is carbon dioxide free and the biodiversity impacts of heating have been reduced by half.	CO2ekv energy + properties -63% 2019→ 2023	University Properties of Finland Ltd (SYK) and JYU took measures to reduce energy consumption. SYK-owned properties use only wood-based heating (ALVA district heating).	Biodiversity footprint calculation methods for energy (including heating) have been further developed. Indicators of goal 1.2. need to be revised and the energy footprint calculated also retrospectively.
GOAL 1: Changing consumption habits: 1.3 Other consumption and recycling The amount of mixed waste at the University of Jyväskylä is reduced by at least 25% by 2025 in comparison to the level of 2019. By 2030, the amount of mixed waste will be at the most 50% of the level of 2019.	Amount of mixed waste was reduced by 28% compared to 2019.	Staff and students have been encouraged to recycle more to reduce energy consumption. Recycling facilities are evaluated on a yearly basis.	The amount of mixed waste is decreasing at a good pace. However, after the pandemic, more consumption is probably done at home and less at the university.
GOAL 1: Changing consumption habits: 1.4 Water The University of Jyväskylä reduces its water consumption by 25% from the level of 2019 by 2030. The university operates actively with its partners to improve the condition of water ecosystems and drainage basins.	Water consumption was reduced by 28% compared to 2019	-	The water consumption reduction goal was reached already in 2022 and should be revised. The reduction of consumption is probably partly due to the increase in remote work after the pandemic. Actions to improve the condition of water ecosystems and drainage basins should be added to the action plan.

			Future focus should be on laboratory water consumption as well as other use.
GOAL 1: Changing consumption habits: 1.5 Food The University of Jyväskylä promotes the planetary health diet through research and communication and by example. By increasing the share of plant-based food, greenhouse gas emissions will decrease by at least 50% from the level of 2019 by 2030.	The carbon footprint of the "food and services" category of JYU procureme nt was reduced by 16% from 2019.	University campus restaurants have taken several measures to increase the use of climate-friendly foods and reduce food waste. Compass Group publishes their own sustainability report (in Finnish).	The university catering is included in the procurement category of the footprint. The CO2 emissions of staff and student lunches were not calculated for 2023 and not included in the university's carbon footprint. The carbon footprint of lunch food should be calculated by 2025 at the latest. The biodiversity footprint of the campus restaurants should be calculated and monitored. Indicators for this goal should be set together with campus restaurants.
GOAL 2: Sustainability of ownership and investments The CO2 emissions of the University of Jyväskylä's investments have been reduced by 70% from the level of 2019 by 2030. By the end of 2023, indicators have been selected and goals have been set for mitigating biodiversity impacts	CO2ekv of investment s was reduced by 42% 2019→ 2023	JYU researchers, specialists and asset managers have cooperated throughout the year to improve the methods and to direct JYU's portfolio to the correct path. Biodiversity targets (qualitative) were set.	Methods of calculating the CO2 footprint have changed and become more accurate, so the comparison to 2019 may not indicate the real change in emissions. A set of quantitative biodiversity indicators is needed in the future.
GOAL 3: Change in travelling behaviour Greenhouse gas emissions resulting from travel are reduced by 50% from the level of 2019 by 2030.	CO2ekv of work travel reduced by 27% 2019 → 2023	Facilities for online meetings were improved.	The footprint of commuting from home to university was not calculated 2023.
GOAL 4: Sustainable construction The university's renovation and construction projects aim to improve energy efficiency and general resource wisdom**.**	-	The planning of the Ylistö campus renovation has included CO2 (energy) and impacts on biodiversity.	Action 4.2 should be revised (ecological compensation might not be the right term to use).
GOAL 5: Compensating the remaining environmental impacts By 2030, the University of Jyväskylä has a functional model for offsetting biodiversity and climate impacts. The offsetting responsibilities have been agreed so that they are compatible with other Finnish universities. From 2030, the University of Jyväskylä compensates all biodiversity and climate impacts tha**t** belong to its offsetting responsibility.	SYK has compensa-ted its entire carbon footprint (JYU's share 1428.50 tCO2ekv)	Cooperation and discussions about offsetting responsibility with other HEIs is active within FinnARMA and other networks. Research on offsetting models is ongoing and JYU serves as a living lab.	Discussions about offsetting the biodiversity footprint should be started with other members of the Nature Positive Universities network.

GOAL 6: Campus development Actions that improve biodiversity are made on the campus every year. Research related to planetary well-being is visible on the campus.	See the botanical garden website	Invasive species were removed and a BSc thesis was published to evaluate the risk of spreading of invasive species at the Ylistönrinne campus. More deadwood was introduced. Tours and environmental education were organised. Campus green area policy was updated so that 4900 m^2 will be left in a natural state or meadow (995 m^2 new meadow). Fertilisers will all be organic and the amount was reduced.	Planning of many further activities was started. We will see the results in the coming years. There were also several more activities not included in this report. For more information, see the website of the botanical garden.
GOAL 7: Connecting planetary well-being to policy planning at JYU By 2025, planetary well-being is an integral part of the university's current operating model and development activities. From 2025 onwards, the university's climate and biodiversity impacts are included in the annual report and financial statement.	See the annual report.	The 2023 annual report (*vuosikertomus*) and the annual financial report (*toimintakertomus*). both included a chapter on sustainability.	
GOAL 8: JYU as a pioneer By 2030, JYU is known at the national and international level as a solver of global environmental challenges and an implementer of resource wisdom and sustainability transformation. All who graduate from JYU have an understanding of planetary well-being.	JYU placed 301–400 in the latest THE Impact Ranking; JYU's Biodiversity Footprint Team, developed new methods for assessing the carbon and biodiversity footprints of organisations,.	New curricula integrates sustainability in all studies of the university. A course on planetary well-being will be mandatory for all bachelor's level students. New sustainability MOOC courses were launched, and sustainability education networks developed. An assistant (tenure) professor in sustainability transitions was hired.	The action plan should be revised now that further recourses have been allocated to sustainability education and research.

3. JYU.Wisdom and JYU.Well

The School of Resource Wisdom, JYU.Wisdom, is a unique cross-faculty and inter- and transdisciplinary community of JYU researchers, teachers, students, and specialists promoting *planetary well-being*. The School of Wellbeing, JYU.Well, is an interdisciplinary community of wellbeing researchers and a profiling area at the University of Jyväskylä.

Wisdom published two Wisdom Letters 2023. Wisdom Letters is an interdisciplinary, peer-reviewed and open online journal publishing articles based on high-quality scientific research on a range of issues related to sustainable development, the sustainability transition and planetary well-being. Wisdom Letters provides policy recommendations that can be used in policymaking, education and civil society. The book Interdisciplinary Perspectives on Planetary Well-Being was published by Routledge.

Wisdom produced new online courses. Nature Under Threat can be studied online free-of-charge with the JYU Open University. Courses offer insight into species and nature endangerment and the surrounding ecological and social phenomena.

As a part of the university's strategic priority in 2023, JYU.Well actively strengthened research cooperation and developed a roadmap for cooperation with the wellbeing services county of Central Finland. A strategic partnership agreement was formed (signed in early 2024). In addition to the three health-related joint professorships, established together with the medical care sector of the wellbeing services county, three new joint professorships were agreed on for totally new disciplinary areas.

JYU.Well and Wisdom bring together researchers, scholars, educators, and students interested in planetary and human well-being and health by organizing and contributing to interdisciplinary public events. The communities have contributed to several scientific events and increased the visibility and interdisciplinarity of those events. JYU.Well, Wisdom and JYU.Edu organised an academic speaking programme for the Jyväskylä Festival.

4. An inclusive and accessible university

UNIFI's theses on sustainable development and responsibility:

5. Universities promote the accessibility of higher education and a safe research and teaching environment.

8. Universities work actively to promote equality, equity and well-being.

The JYU code of conduct states: "*Our university is a socially and culturally safe environment in which harassment, inappropriate treatment, discrimination, bullying, hate speech or other inappropriate conduct is not tolerated in any encounter. As a community, we dismantle discriminating and restricting structures and standards.*"

JYU promotes equality and non-discrimination in our university community in accordance with the strategy and legislation as well as the aims set jointly with the university community. The principles guiding equality and accessibility and development measures are described in strategy development programmes and the Equality and Accessibility plans.

JYU has already had a non-smoking policy in place, but since October 2022 JYU has also been declared a scent-free working and studying environment. This is also taken into consideration at JYU events, thereby improving accessibility.

JYU has a development group for equality, non-discrimination and accessibility. Language campus also has its own Equity Team and Centre for Multilingual Academic Communication – Movi has a Diversity & Inclusion-unit.

JYU units have developed operating models that have been implemented in the university and more widely in the Finnish higher education sector. Examples include Moving Mindsets, KnowHau campus dogs and JYU.INTEGRA. In the spring 2023 an open call for starting the studies of the Finnish language was directed to applicants receiving temporary asylum in Finland.

A UNESCO Professorship was awarded for the years 2023 to 2027. The new UNESCO Professorship promotes literacy around the world through educational games.

5. A Fair Trade University

JYU, the Student Union JYY, and the student restaurants on campus are committed to promoting Fair Trade practices and using Fair Trade products. JYU was awarded the Fair Trade University label for the first time in 2014 and has retained it through the most recent checkpoint in 2023.

JYU promoted Fair Trade in its social media channels, with a focus on practical Fair Trade actions that all university community members can perform in their daily lives. Campus restaurants, faculties and student organisations use Fair Trade products (fruit, juice, sugar, honey, coffee, tea and chocolate). The JYU SOPPI shops and outlets sell fair trade cotton clothes.

Promoting Fair Trade at the university was integrated into an annual project course in the Master's Degree Programme in Corporate Environmental Management (CEM). In this course, CEM students are assigned a project, one of which is promoting Fair Trade at JYU. The first group completed their project in spring 2023. The students arranged two different events in collaboration with JYY, JYU and Fair Trade Finland: (1) A banana for your thoughts and (2) Wine and Roses. The survey “A banana for your thoughts” was conducted at Agora’s main entrance, as well as the university library’s main entrance, in March and April 2023. During the event, students and personnel of JYU answered an online questionnaire about their knowledge of JYU as a Fair Trade University. The second event, “Wine and Roses”, was a Fair Trade wine tasting event with presentations about Fair Trade.

SDG highlights of JYU 2023

SDG 1 (No poverty)

Applying Sustainability Transition Research in Social Work tackling Major Societal Challenge of Social Inclusion - ASTRA paves the way for a radically new approach to tackle the major societal challenges faced in the practice of social work. This is done by combining transdisciplinary sustainability transition research, policies and practices in social work. Several articles were published in 2023 (see the outputs of ASTRA).

SDG 2 (Zero hunger)

The food system studies research group of JYU explores and assesses the sustainability and resilience of food system activities. The research group utilises a post-disciplinary approach which connects social policy, economics and business management, environmental social science and philosophy. The interests of the research group embrace a diverse range of problems related to food security, food system vulnerabilities, climate change adaptation, food poverty, food ethics, food policy, and food supply chain management. The group has published three articles 2023 including Justice in Finnish Food Policies.

SDG 3 (Good health and well-being)

The Multidisciplinary Rehabilitation Network (MOKUVE) is a university network coordinated by the Faculty of Sports Sciences of the University of Jyväskylä. There are currently 11 universities from Finland. Its mission is to promote and strengthen the national preparation of rehabilitation-related research and education, as well as promote national cooperation and networking among higher education institutions. In 2023, a separate doctoral working group was established. In addition to the members of the university network, an open invitation was also presented to the doctoral working group for other people interested in developing further education in rehabilitation. Through the open call procedure, the Doctoral Working Group formed a multidisciplinary group of experts with representatives from universities as well as from applied science universities. The objective of the Doctoral Working Group is to develop policies and solutions to increase the amount of multidisciplinary rehabilitation continuing education studies and to respond to the challenges identified. The objective of the measures is, among other things, to support networking opportunities for researchers and their instructors who do their dissertations on rehabilitation subjects.

SDG 4 (Quality education)

The Centre of Excellence for Learning Dynamics and Intervention Research (InterLearn) investigates the links between children's learning and mental health, and the factors that explain the effectiveness of learning support interventions. Longitudinal and intervention studies carried out in the Centre of Excellence aim to gain new insights into the characteristics of individuals or growth and learning environments that predispose them to difficulties in psychosocial development and learning. In addition to risk factors for development and learning, the Centre also aims to identify factors that protect and promote development and learning. The knowledge generated will be applied to develop more effective and personalised ways of supporting learning and well-being. Four articles were published 2023.

SDG 5 (Gender equality)

The gender research network “Kantti” is an interdisciplinary network uniting researchers who are interested in gender as a historical, cultural or social concept, construction, and phenomenon. The network’s aim is to improve interdisciplinary discussion and communication at the University of Jyväskylä and beyond and to improve the awareness of gender research in different disciplines. The research interests are various and involve widely different cultural and social themes. In the network, gender is understood as a social structure, a category, an identity, a concept, a narrative, a representation and a form of agency. In 2023, publications include a journal article Mapping the research on gender, LGBTQI minorities and heritage across the social sciences and humanities.

SDG 6 (Clean water and sanitation)

Wisdom’s PATH 2.0 project to strengthen sustainability expertise in Central Finland through continuous learning ended 2023. The project produced informative and educational material on sustainable water use, clean water and sanitation. The material is in Finnish.

SDG 7 (Affordable and clean energy)

The three-year research project Next level process integration in microalgae biotechnology with digital applications (MIDAS) was started 2023. The project will support the transition to carbon neutrality in production of energy by improving the competitiveness of microalgae-based applications. The project aims to resolve the challenges of large-scale exploitation of microalgae biotechnology by developing integration of the microalgae-based processes with the help of

selected sensorics and computational methods. The consortium will focus on carbon capture and nutrient removal utilising microalgae cultivation in industrial and aquaculture wastewaters, and the downstream processing of the cultivations, including harvesting microalgae biomass for experimental hydrogen production via biophotolysis.

SDG 8 (Decent work and economic growth)

The Jyväskylä University School of Business and Economics (JSBE) is an AACSB-accredited business school and one of the six faculties of the University of Jyväskylä. JSBE has received a good score (3/5) in a 2023 international indicator of positive impact. The Positive Impact Rating is an assessment by students of how well their business school is implementing sustainability in its activities. JSBE is a member of RRBM (Responsible Research in Business & Management) and committed to RRBM principles. JSBE's Master's Degree Programme in Corporate Environmental Management gives students the know-how in the field of corporate sustainability, with a special focus on environmental issues.

SDG 9 (Industry, innovation and infrastructure)

Enabling better decision-making in the presence of conflicting objectives inspires the Multiobjective Optimization Group of the University of Jyväskylä. The group is particularly known for developing interactive methods and software for multiobjective optimization. The group applies them in diverse areas of life such as healthcare, engineering, logistics, and sustainable forest management. The aim of project UTOPIA is to develop methods to support stakeholders in implementing climate smart forestry, which advances carbon neutrality but also considers financial objectives and adapts to the uncertain and continuously changing world.

SDG 10 (Reduced inequalities)

Social Sustainability for Children and Families (SOSUS) is one of the research profiling actions of the University of Jyväskylä. SOSUS focuses on the promoting of the competence and well-being of children and families, in which three key issues of social sustainability are essential – equity, well-being and participation. It addresses the urgent need for critical analysis and societally relevant understanding of the key processes and structures contributing to social sustainability, which will ultimately promote equity, well-being and the participation of children and their families.

SDG 11 (Sustainable cities and communities)

Wisdom Letters is an interdisciplinary, peer-reviewed and open online journal publishing articles based on high quality scientific research on a range of issues related to sustainable development, sustainability transition and planetary well-being. Wisdom Letters provides policy recommendations that can be used in policymaking, education and civil society. The first Wisdom Letter of 2023 (in Finnish) gives recommendations to support planetary well-being in the political program work including the built environment, city development and fossil free transport.

SDG 12 (Responsible consumption and production)

The Master's Degree Programme in Chemistry and Analytics for Circular Economy (CACE) was established 2023. CACE provides students with a strong theoretical background in chemistry related to the recovery and reuse of valuable raw materials as well as hands-on experience in organic and inorganic analytics. It is a two-year (120 ECTS) full-time programme given in English as on-site teaching at the University of Jyväskylä. The aim of the programme is to produce experts in chemistry of the circular economy. The curriculum of CACE is unique both nationally and internationally, combining the basics of circular economy as well as the recovery and upcycling of both metals and bio-based materials, with a strong focus on analytical chemistry.

SDG 13 (Climate action)

Researchers in the project FireMan: Unmanned aerial systems based solutions for real-time management of wildfires are developing methods for the early detection of wildfires, suitable for drone remote sensing, focusing on large areas beyond visual line of sight (BVLOS) techniques and high-altitude and large area coverages. Wildfires are one of the major global environmental threats posed by climate change. The objective of the FireMan consortium is to develop novel, disruptive AI-based technology for the fast-paced detection of wildfires and for creating situational awareness during wildfire events using autonomous unmanned aerial systems (UAS, drones). The research objectives are related to two major areas: “Autonomous flying” and “Situational awareness and decision support.”

SDG 14 (Life below water)

JYU’s Konnevesi Research Station is an active field centre of multidisciplinary research that includes a large aquatic research hall. Konnevesi also serves as a temporary home for endangered freshwater pearl mussel (FPM), a species researched actively at JYU. A total of five

doctoral dissertations have been made, or are in progress, at the University of Jyväskylä on the freshwater pearl mussel and its conservation. Research has advanced the protection of the species considerably. In conditions where the reproduction of FPM is not possible, the FPM's reproduction is helped in laboratory conditions. The animated character "Maggie" tells the story of the freshwater pearl mussel's life and the LIFE Revives project in a video published in 2023.

SDG 15 (Life on land)

Several projects of the Department of Biological and Environmental Sciences support conservation efforts of land ecosystems and biodiversity. For example, the BOOST for biodiversity offsets project facilitates the mainstreaming and enabling of a just transition towards the adoption of biodiversity offsets in Finland and globally. In biodiversity offsetting (ecological compensation), biodiversity losses due to ecologically harmful human activity are compensated by producing biodiversity gains elsewhere with concrete actions in nature. A project started in 2023, Forests in systemic transition – balancing efficiency with fairness and resilience (ForTran), will co-create business, technological, governance and societal innovations for leveraging the forest system (i.e., the ensemble composed of the forest ecosystems and the human socioeconomic systems dependent on forest goods and services) to a state of high sustainability and resilience.

Muuttolintujen Kevät (Migration Birds Spring) is a mobile application developed at the University of Jyväskylä, enabling users to record bird songs and make bird observations using state-of-the-art artificial intelligence.

SDG 16 (Peace, justice and strong institutions)

The Cognitive Security Research Group (CSRG) of University of Jyväskylä is an interdisciplinary research collective, dedicated to advancing our understanding of comprehensive cognitive security in the digital world and the evolving complexities of security and safety research focuses on information warfare, cognitive influence, and resilience.

SDG 17 (Partnerships for the goals)

Global Innovation Network for Teaching and Learning (GINTL) India is a network in which Finnish higher education institutions together with partners from India co-create research-based solutions to global educational challenges and collaborate in research and education. The GINTL India network comprises ten Finnish higher education institutions as interested participants and is being coordinated by University of Jyväskylä, Faculty of Education and Psychology.

More information: www.jyu.fi/sustainability
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