



UNIVERSITÄT  
BAYREUTH

# The University of Bayreuth's Sustainability Strategy

Our path to a Green Campus

*Stand: 28.01.2021*



# Foreword



Dear Readers,

Climate protection is one of the great global challenges, perhaps even the greatest at the moment. Since the beginning of industrialization, the emission of greenhouse gases, and in particular carbon dioxide (CO<sub>2</sub>), into the earth's atmosphere has risen constantly. Only if we succeed in significantly limiting these emissions and thus the increase in the average temperature of the earth can the biological adaptability of the planet and the livelihoods of billions of people be preserved. Swift and decisive action is called for!

As research and educational institutions, universities play a central role in this. The University of Bayreuth is taking on this task and facing up to the associated challenges.

The University of Bayreuth's Sustainability Strategy adopted by the University Governing Board, the University Council and the Senate not only focuses on the goal of climate neutrality by 2030, which is binding for all Bavarian universities, but understands sustainability much more broadly and describes our path to a "green campus". It is important to note that our sustainability strategy makes us one of the first universities in Bavaria to commit ourselves to clear, verifiable goals. And we are creating structures that will enable us to actually achieve these goals.

My sincere thanks go to all those who have actively and enthusiastically contributed to the creation of this Sustainability Strategy, in particular to the members of the Sustainability Committee coming from all status groups of the University who, despite Corona, have worked on the present text in countless zoom and face-to-face meetings over the course of 2020. An equally heartfelt thank you goes to our GreenCampus team and the Sustainability Working Group, who prepared and coordinated the entire process with heart and soul. Here, once again, Bayreuth's spirit showed was apparent.

I wish you a stimulating read and encourage you to become actively involved in our Green Campus and our environment as a whole. Only in this way will we as a university be able to fulfil our responsibility for present and future generations.

Yours faithfully,

A handwritten signature in blue ink, which appears to be 'S. Leible'. The signature is fluid and cursive, written over a light blue horizontal line.

Professor Dr. Stefan Leible  
*President University of Bayreuth*

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# Preamble

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (translated from German)  
Brundtland Report, definition (1987)

The sustainable development of our society is one of the most important tasks of our time. Universities have a central role to play here because of their educational and research mandate. The University of Bayreuth is taking on this task and the associated challenges. Sustainable action is a central component of our guidelines. Especially now, we would like to live up to our responsibility for present and future generations by implementing the university's own sustainability strategy.

We want to implement this on a social, technological, and ecological level. That is why we create spaces for discovering, developing, and sharpening new ideas that emerge from the most diverse disciplines in dialogue. We aim to make our research and teaching activities themselves as sustainable as possible, while making responsible use of the resources available to us. We have three strengths that are of great importance for our path to sustainable transformation:

- We **research** sustainable solutions for the challenges of the next generations. Our tradition of transdisciplinary and interdisciplinary research is a decisive factor for success.
- We **train** people who will shape society in the future. We want to teach students about sustainability as a cross-cutting issue so that they develop the ability to think in a far-sighted and rational way, both regionally and globally, and to act responsibly.
- We **cooperate** with political decision-makers, non-governmental organizations, and companies in order to disseminate the knowledge gained into society and to take up impulses on our part.

## Preamble

We want to shape processes and coexistence on campus and beyond the campus boundaries in a sustainable and responsible manner with the involvement of all status groups.

**We, the University of Bayreuth, as an institution with an educational and research mandate, understand sustainable development as a process of change for society as a whole – a process in which we are actively involved. That's why we are**

- shaping processes at the University of Bayreuth with the involvement of all status groups on campus according to the principles of sustainable development,
- Integrating sustainable development issues centrally into teaching and research,
- increasing the sustainability knowledge and awareness of members of the University,
- shaping sustainable development in the sense of the third mission with society,
- implementing and maintaining an environmental management system,
- continuously reviewing, transparently presenting and further developing our sustainable development goals and measures,
- striving to become as climate neutral as we can as fast as possible.

# Governance

## I. Objectives

We want to design the organizational structure of the University of Bayreuth in such a way that it promotes sustainable development with the involvement of all status groups in the fields of action research, teaching, third mission, and infrastructure, strengthens the awareness of all university members for sustainable development and ensures the transparent communication of all sustainability activities internally and externally. To achieve these goals, we have set the following sub-goals:

- Development of innovative overall concepts and design of own processes in terms of sustainability
- Involvement of all status groups on campus in the long-term anchoring of sustainability
- Increasing the sustainability knowledge and awareness of members of the university
- Achieving a social pioneering role in the field of sustainability
- Implementation and maintenance of an environmental management system
- Establishment of an internal university sustainability fund

## II. Measures to be taken

### **1. Use of the creative potential of the University of Bayreuth for the development of sustainability-promoting measures**

Our campus is a creative, interdisciplinary organism. We want to use the potential available here to drive sustainability forward - including on the technical side. We will develop new systems, initiatives, and platforms and use existing ones (e.g. idea management) to make the collection of ideas and data on the road to sustainability as efficient as possible.

### **2. Implementation of awareness-raising measures for behaviour conducive to sustainability**

Through interactive communication processes, we will continuously develop and implement measures to raise awareness of sustainability-promoting behaviour (e.g. workshops on environmentally friendly behaviour). In addition, we would like to specifically strengthen both bottom-up (starting from initiatives or students and employees) and top-down (starting from central university bodies) processes at the University of Bayreuth in order to increase sustainability awareness among all university members.

### **3. Introduction of an environmental management system at the University of Bayreuth**

The University of Bayreuth aims to introduce an environmental management system based on the Eco Management and Audit Scheme (EMAS). By establishing such a certified environmental management system, we are creating structures that have already proven themselves elsewhere in order to reduce negative environmental impacts and improve the University of Bayreuth's sustainability performance. Specifically, this means:

- transparent presentation of consumption (material and energy flows)
- intelligent use of short-term, medium-term, and long-term cost reduction potentials

## Governance

- clear structuring of responsibilities for environmental requirements
- improvement of sustainability-related discussion processes involving all university members

The introduction of an environmental management system will initially be given priority in the field of infrastructure. We will take into account the targets, measures, and indicators defined in the other fields of action as part of our sustainability reporting, as they form the basis for a possible future extension of certification.

The University Governing Board will be strategically responsible for the introduction and maintenance of the environmental management system. In order to emphasize the commitment and importance of the project for the entire campus, the University of Bayreuth is expanding the field of activity of the Vice President for Digitization & Innovation to include the area of sustainability and is establishing a corresponding presidential advisory board. The Vice President for Digitization, Innovation & Sustainability is responsible for the development, maintenance, and expansion of the environmental management system. He/she maintains close communication with both the presidential advisory board and the Green Campus team.

### **4. Continuation and expansion of the Green Campus team to bundle the sustainability activities of the University of Bayreuth**

We are strengthening the Green Campus platform established by the University Governing Board. It is the central point of contact for all university members on sustainability issues - and thus an important component in achieving climate neutrality. In the future, the Green Campus team will continue to promote the continuous and joint development and implementation of new ideas in the field of sustainability in constant interaction with all university members. Green Campus uses and generates targeted synergy effects through networking with sustainability-relevant stakeholders and initiatives at a regional and supra-regional level.

The budget made available to Green Campus is used specifically to develop and implement new projects with added sustainability value for the campus.

We are expanding the Green Campus team with a Campus Sustainability Manager (CNM), based in the Central University Administration. In this way, we are building a bridge between the Green Campus members working at the science/teaching interface and the administration.

The responsibility of the CNM as part of the Green Campus team is to implement and coordinate the individual measures of the sustainability strategy in consultation with the team and the responsible vice president. This includes in particular the introduction, implementation, and maintenance of the environmental management system. A corresponding qualification of the CNM in the field of environmental management or similar is therefore necessary.

### **5. Establishment of a presidential advisory committee with representatives of all status groups**

A key criterion for success on the path to a sustainable university is not only concrete measures, transparency, and communication, but also the continuous involvement of all status groups on campus<sup>2</sup>. We are therefore establishing a Presidential Advisory Board for Sustainability to deal with

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<sup>2</sup> Members of the presidential advisory committee are as follows: representatives of professors, other academic staff members, non-academic staff members, students; representatives of Green Campus as permanent guests.

## Governance

strategic issues of sustainability at the University of Bayreuth. It advises on proposals and develops measures to implement the sustainability strategy. The presidential advisory committee is chaired by the Vice President for Digitization, Innovation & Sustainability.

### **6. Regular information on progress with regard to sustainability**

We will inform everyone on campus about the sustainability progress in order to make important developments toward a climate-neutral university transparent both internally and externally. To this end, we publish an annual "Sustainability Update", which we publish both in printed form and on our website; at least every three years, we will also publish a comprehensive environmental report. The CNM is responsible for collecting and processing the necessary information. In retrieving the data, he/she follows a structured and automated procedure that relieves members of the University of additional tasks.

### **7. Establishment of an internal university sustainability fund**

We are setting up an internal sustainability fund in the form of an account (Kostenstelle) into which members of the University can voluntarily pay funds to finance sustainability measures on campus from unrestricted third-party funds (donations without earmarking) or profits from business activities and industrial revenues. In addition, we are establishing a sub-fund within the sustainability fund to allow payments from title group 73. The money collected in the sub-fund is earmarked exclusively for research and teaching, e.g. for sustainability research or a teaching assignment on the topic of sustainability.

In addition, members of the University should be given the opportunity to contribute private, non-earmarked funds to a sub-fund of the Universitätsverein to fund non-teaching or research-related sustainability projects on campus.

The funds flow into sustainability-related projects including CO<sub>2</sub> offsetting. The Presidential Advisory Board for Sustainability proposes research and teaching projects to be funded to the University Governing Board in accordance with TG 73, as well as sustainability measures within the framework of the new fund to be set up by the Universitätsverein. By naming specific sustainability projects that we finance from the sustainability fund, we ensure transparency regarding the use of the money. In doing so, we are promoting campus-wide acceptance of these new measures.

## III. Indicators

### **1. Use of the creative potential of the University of Bayreuth for the development of sustainability-promoting measures**

We will hold the next Create Your Campus ideas competition on the topic of sustainability or introduce a special annual category there on the topic of sustainability. We are establishing idea management for the collection and use of ideas related to sustainability. The Office of Press, Marketing & Communications advertises the use of idea management campus-wide and on a semi-annual basis.

### **2. Implementation of awareness-raising measures for behaviour conducive to sustainability**

Once a year, we offer a workshop open to all university staff to raise awareness about behaviour conducive to sustainability. Green Campus is responsible for the organization.

### **3. Introduction of an environmental management system at the University of Bayreuth**

We will introduce an environmental management system based on EMAS by the end of 2023. The scope of the Vice President for Digitization & Innovation will be extended to include sustainability by the end of 2021.

### **4. Continuation and expansion of the Green Campus team to bundle the sustainability activities of the University of Bayreuth**

By the end of 2021 at the latest, we will expand the Green Campus team by adding a Campus Sustainability Manager (CNM).

### **5. Establishment of a presidential advisory committee with representatives of all status groups**

We will establish a Presidential Advisory Committee for Sustainability by the end of 2021 at the latest. The committee meets at least once per semester.

### **6. Regular information on progress with regard to sustainability**

We issue an annual "Sustainability Update", which is published both in printed form and on the homepage by the Office of Press, Marketing & Communications. We publish a comprehensive environmental report in a cycle of at least three years.

### **7. Establishment of an internal university sustainability fund**

We are creating an internal sustainability fund including sub-funds by the end of 2021.

The sustainability projects supported by the sustainability fund are reviewed every six months to ensure that they are fit for purpose. Sustainability measures financed from the money collected in the sub-fund are subject to an approval procedure to determine their legality and appropriateness before they are implemented.

A subfund of the Universitätsverein will also be established by the end of 2021. The money collected in the sub-fund is spent on a one-off basis on application for sustainability projects. The Universitätsverein reviews the appropriateness of the sustainability projects at the time of application.

The University Governing Board of the University of Bayreuth is responsible for measuring the achievement of objectives on the basis of the defined indicators.

The sustainability strategy is reviewed and updated every six years. The Vice President for Sustainability is responsible for this.

# Infrastructure

The University of Bayreuth intends to shape processes and coexistence on campus and beyond the campus boundaries in a sustainable and responsible manner.

The University of Bayreuth is creating long-term framework conditions in the field of action Infrastructure in order to fulfil its role model function for sustainability-oriented action both towards students and employees as well as towards the public. In this context, the resource-conserving and socially responsible technical operation of the University (for example, of buildings, vehicles, energy systems, laboratories, pilot plants, etc.), as well as the related administrative processes and campus management, are of essential importance. The University of Bayreuth strives for a leading role especially in the fields of energy efficiency, water management, and biodiversity. The University of Bayreuth's Botanical Garden, one of the largest in Bavaria, plays an outstanding role in this. This offers unique opportunities for the development and optimization of exemplary strategies, e.g. with regard to water management and biodiversity.

In addition, the best possible design of teaching and research is assumed, i.e. these two main tasks of a university may not be restricted in their quality and free design. The evaluation of sustainability-relevant measures in the field of action infrastructure also takes into account the available resources of money and working time (cost-benefit analysis) as well as social acceptance. To this end, qualitative and quantitative targets are regularly set for the reduction of resource consumption, the reduction of environmentally harmful greenhouse gas emissions and the increase of resource efficiency, the sustainable use of ecosystem services, and the use of renewable energies.

The objectives, measures, and indicators in the area of infrastructure were drawn up on the basis of EMAS. Accordingly, they always cover the key areas specified by EMAS (energy efficiency, material consumption, water consumption, waste generation, biodiversity, and emissions). In addition, the University of Bayreuth intends to become active in other key areas of infrastructure.

## I. Objectives

**As an overarching goal, the University of Bayreuth wants to reduce the consumption of finite resources and avoid environmentally harmful emissions as much as possible (cf. StEP 2025).**

The following key areas and objectives are defined: <sup>2</sup>

### **Energy efficiency**

We intend to reduce specific energy consumption (electricity, heating, cooling) and optimize heating energy demand per heated floor space and the use of renewable energies.

### **Material consumption (paper)**

We intend to reduce specific paper consumption and increase the recycling rate (=recyclable/total waste).

### **Water consumption**

Specific water consumption is to be reduced.

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<sup>2</sup> The specific (usually annual) consumptions refer to all members of the University of Bayreuth, i.e. employees and students.

## Infrastructure

### Waste generation

The total amount of waste generated by the University should be reduced.

### Biodiversity

We intend to establish a monitoring system for biodiversity and promote it further, in particular by optimizing the proportion of near-natural and renaturalized areas on the entire campus.

### Emissions (mobility/transportation)

We are working to promote public transportation and cycling infrastructure with a view to sustainable mobility. The CO<sub>2</sub> intensity of the vehicle fleet is to be reduced. We want to set positive incentives for reducing CO<sub>2</sub> emissions from business travel and introduce monitoring of this.

### Awareness & Communication

The perception of sustainability is to be sharpened through environmentally relevant training and events.

### Procurement

Sustainability is to be anchored in the specifications for procurement.

### Cooperation

We want to deepen our cooperation with regional and local stakeholders (e.g. Studentenwerk Oberfranken, Stadtwerke Bayreuth), especially considering the aspects of greenhouse gas emissions, use of ecosystem services, and health.

## II. Measures to be taken

**The objectives in the above key areas are to be achieved through the implementation of the following measures. In principle, the financing of the measures is subject to budgetary constraints. Measures that lead to an increase in costs must be coordinated in advance with Accounting (Unit II).**

### Energy efficiency

- Expansion of energy supply (electricity/heat) through efficient combined heat and power plants as well as from renewable energies in combination with storage systems.
- Prioritization of sustainability aspects in all new and existing buildings.
- Optimization and expansion of the photovoltaic roof surfaces at the University of Bayreuth as well as the self-use of the electricity thus generated.
- Further reduction of electricity consumption for lighting, e.g. by switching to energy-saving light sources and installing motion/presence detectors.
- Optimization of energy requirements for heating and ventilation, e.g. by installing performance-optimized fans, replacing outdated heating and cold water pumps with high-efficiency pumps, as well as by presence-dependent switching of ventilation systems in seminar rooms and lecture theatres and installing electronically controllable radiator valves (in conjunction with window opening).
- Energy refurbishment of the buildings, e.g. replacement of old glazing.

## Infrastructure

### Material consumption (paper)

- Increasing digitization of the University's administrative processes (procurement, travel, accounts, invitations, etc.).
- Use of waste paper/misprints for internal printouts, etc.
- Use of paper with as high a recycled content as possible.
- Increase awareness of efficient printing.

### Water consumption

- Optimize the use of rainwater storage and additional rainwater use in the ÖBG and possibly in other areas of the campus.
- Improved drinking water management, e.g. by installing infrared water taps and further installation of economy flushes in the toilets.

### Waste generation

- Installation of additional three-part waste bins (non-recyclable waste, paper, plastic).
- Expansion and increased promotion of equipment exchange(s) both on campus and state-wide. If no internal or state-wide further use is achieved, passing on still usable devices over a flea market or an auction.
- Further optimization of the proportion of waste recycled or the recycling rate, if necessary by procuring products with a high recycling content.

### Biodiversity

- Institutionalization and expansion of already established biodiversity areas on campus to increase biodiversity (management is carried out in consultation with the ÖBG by Buildings & Grounds Maintenance).
- Maintenance, expansion, and care of further area-independent measures to improve biodiversity on campus (e.g. bat boxes, bird nesting boxes, insect nesting aids, etc.).
- Specifications for the execution of green roofs in new buildings and renovations.
- Foster educational and experiential opportunities regarding biodiversity on campus.

### Emissions (mobility/transportation)

- Further development and expansion of the bicycle infrastructure (e.g. through parking spaces, e-bike charging infrastructure, and university bicycles or e-bikes).
- In cooperation with the thematic field "Third Mission", political exchange of the University of Bayreuth with regional stakeholders for a more bicycle-friendly city and district as well as increasing the attractiveness of sustainable modes of transportation (e.g. "Uni Tickets" for staff members)
- Widening of the home office option for employees with office work within the scope of operational possibilities.
- Perspective replacement of the current vehicle fleet (where appropriate) with vehicles with alternative, efficient drive systems.

### Awareness & Communication

- Inclusion of all status groups equally in sustainability processes in coordination with the field of action "Governance", especially inclusion of affected status groups in infrastructure projects
- Increased consideration of the possibility of a virtual meeting for (project) meetings and increasing the technical possibilities for video conferencing.
- Expansion of cooperation with regional stakeholders (e.g. in a mobility strategy).

## Infrastructure

- Identify and train contacts in the buildings who can pay attention to “sustainability” and give feedback to research groups/ institutes.
- Consideration of sustainability aspects when holding events: Development of a strategy for waste prevention/refuse system/energy and water saving as a condition for approval.

### Procurement

- Consideration of regional offers and fairtrade within the framework of public procurement law.
- Consideration of the life cycle as an optional specification feature for products.
- Procurement of sustainably produced clothing available in the university shop in addition to working clothes (e.g. GOTS-certified).

### On-campus dining (in close coordination with the Association for Student Affairs)

- Expansion of reusable systems on campus (e.g. reusable coffee cups).
- Reduce plastic waste (e.g. by using less disposable plastic packaging for takeaway food, and eliminating plastic tableware and drinks in disposable bottles).
- Consideration of regionality and seasonality of products while maintaining a high diversity in the assortment. Purchase of regional products (as far as possible).
- Establish transparency on CO<sub>2</sub> emissions of the canteen food.
- Installation of further drinking water dispensers (also in buildings outside the cafeteria).

## III. Indicators

### Direct indicators

Direct indicators or direct emissions are directly caused by university operations. On the energy side, these include electricity, cooling, and heating.

A complete list of indicators to be measured, drawn up in accordance with EMAS, is given in the Annex. In addition to the core indicators that must be recorded under EMAS, the University is committed to recording further indicators in order to better shape its sustainable development.

### Indirect indicators

In addition to the aforementioned indicators, the University of Bayreuth records further, so-called indirect indicators. This represents emissions that do not occur directly on campus but are related to its operations. These include, for example, emissions from the daily journey from home to the university, from business trips, the shares of the various modes of transport in business trips or means of transport used by employees to travel to work, etc. These parameters, which are very important both socially and for planning the sustainable development of the University of Bayreuth, are currently largely unknown. Therefore, in coordination with the field of action “Research”, a solid data basis for the development of concrete measures is to be created within the context of a research project.

# Research

We are **researching** sustainable solutions for the challenges of the next generations. Our tradition of transdisciplinary and interdisciplinary research is a decisive factor for success.

We aim to make our research and teaching activities themselves as sustainable as possible, while making responsible use of the resources available to us. The freedom of research must always be preserved in this endeavour.

Sustainability in research is a challenge to be treated as a cross-cutting issue, which we address in a disciplinary, interdisciplinary, and transdisciplinary manner.

In the sustainability strategy in the area of research, a distinction is made between two fields of action:

- sustainability research, i.e. research on topics related to sustainability, and
- sustainability in the context of research, i.e. concerning the responsible use of resources in the context of research activities.

## I. Objectives

### 1. Sustainability research

In the course of the sustainability strategy, we want to further promote the awareness of all university members for sustainability-related research.

We are striving to achieve the following goals:

- Record research work related to sustainability
- Promote and strengthen disciplinary as well as inter- and transdisciplinary cooperation Sustainability research
- effectively present our sustainability research to the public
- Implementation of research projects on the topic "How sustainable is our campus?" to survey sustainability-relevant factors

### 2. Sustainability in the context of research

Sustainable action in all research activities is a central concern of the University of Bayreuth. The overarching goal here is to create an awareness of the responsible and sustainable use of resources.

## II. Measures to be taken

### 1. Sustainability research

#### Recording of research work related to sustainability

Information about ongoing research projects and research findings from projects in the field of sustainability are important for networking researchers in this field at the University of Bayreuth. At present, information structures are often lacking. Therefore, in the future, the University intends to continuously record the research work being carried out with reference to sustainability. This will serve as a basis for taking further measures for networking on campus and for presenting sustainability research to the public.

As a first measure, the focus area spokespersons are to be surveyed, and a questionnaire is to be developed that requires little time and is to be sent to all researchers at the University of Bayreuth. This step is to be repeated every three years in order to record development in the long term.

#### Promote and strengthen disciplinary as well as inter- and transdisciplinary cooperation in the field of sustainability

An intensive exchange of experience and information between researchers within the University of Bayreuth but also with scientists from other universities, research centres, or companies, especially across disciplinary boundaries, is essential in order to develop innovative research approaches. The disciplinary, interdisciplinary, and transdisciplinary synergy effects are to be used to initiate new collaborative projects in the field of sustainability research.

A "Sustainability Conference" is to be held every two years to intensify specialist and interdisciplinary research on campus. The aim is to identify previously unknown intersections in sustainability research at the University of Bayreuth and to initiate corresponding collaborations between researchers.

This should lead to a sustainability platform that makes it easier to find contacts on a disciplinary, interdisciplinary, transdisciplinary, and international level.

In addition, sustainability should be mentioned as a cross-cutting topic in professorship vacancies.

Participation in the nationwide "HochN" network for networking with researchers at other locations is also being sought. In addition, contact to national and international funding agencies and networks is to be intensified in close cooperation with the Office of Research Funding, so that scholars of the University of Bayreuth can increasingly contribute to supra-regional research networks in the field of sustainability. If the annual survey of collaborative projects determines that the incentive to expand them is not great enough, a Sustainability Faculty Club will be established to foster collaboration among the various faculties.

#### Presenting sustainability research to the public

Global environmental problems such as climate change, environmental pollution, and loss of biodiversity are strongly in the focus of public interest. Our research on climate protection, prevention of pollution, loss of biodiversity, Germany's energy transition, renewable energies, and resource efficiency is making an important contribution to this social debate. Research requires social trust. Dialogue and communication with society, politics, and stakeholders are therefore of immense importance.

## Research

Research topics related to sustainability should be presented at events such as a Climate Day, Campus Day, Innotruck, City Talks, the Long Night of Science, and similar formats. Media representatives will also be invited to attend. Likewise, the results of research work related to sustainability are to be increasingly disseminated via social media; in this context, a YouTube channel dedicated to sustainability research at the University of Bayreuth is to be created.

Further measures would be roundtable discussion events with representatives from politics, the business world, and environmental associations at the University of Bayreuth on current sustainability issues. In this way, we aim above all to identify new sustainability issues so that we can respond to them at an early stage.

In addition, following the survey of sustainability research at the University of Bayreuth, an issue of *Spektrum* is to be published that exclusively presents current research topics related to sustainability.

### Research "How Sustainable Is Our Campus?" – Survey of indirect and direct CO<sub>2</sub> consumption and resource use on campus

One particular concern of the University of Bayreuth is ensuring sustainable operations. In order to be able to implement the most effective measures at the University in a targeted and timely manner, active research is to be carried out directly on campus, and an up-to-date and scientifically sound database is to be created. This data should be collected, for example, in the context of doctoral studies. Subsequently, research findings are to be implemented directly into university operations.

## 2. Sustainability in the context of research

### Resource efficiency in the laboratories

Laboratories are among the most resource-intensive infrastructures for reasons of occupational health and safety alone (e.g. need for permanent air exchange, cooling water requirements, etc.). However, the sum of many small improvements in the process can make an important contribution to sustainable development. Last but not least, an improvement in sustainability often also serves to improve occupational safety, for example by reducing the use of substances that are harmful to the environment and health.

Training materials on sustainability within research operations should therefore become part of the laboratory guidelines, and appropriate signs about the points to be observed in the laboratory should be displayed in the laboratories (e.g. correct waste separation, safe disposal of problematic waste, replacement of reagents that are harmful to health, reduction in the use of raw materials, etc.).

In order to increase resource efficiency in laboratories, research will be carried out to evaluate the extent to which, for example, the use of disposable items can be reduced (e.g. glassware instead of plastic) in order to reduce the volume of waste. On the basis of the resulting findings, new recommendations for action for the sustainable operation of research infrastructures are to be derived, if necessary.

When procuring equipment for research work, the scientific and technical specifications determine the type of equipment and its performance class. Wherever possible, new equipment should be procured from manufacturers with sustainable life cycle management (or an adequate sustainability concept from the manufacturer).

### Expansion of the Key Lab strategy

Key infrastructures such as key labs and their equipment with large-scale research facilities are crucial for progress in science. Therefore, the Key Lab strategy the University of Bayreuth should be further expanded in order to avoid duplication of equipment that is not highly utilized in individual areas, but in particular to provide access to state-of-the-art methods for all researchers on campus. For the sustainable and resource-saving operation of the equipment (in particular minimization of repairs and idle times while ensuring maximum performance), long-term technical and/or scientific staff is indispensable. Operating such devices with temporary staff, e.g. doctoral students, is not efficient. Therefore, adequate staffing to ensure sustainable research operations should be taken into account when installing and operating the relevant research infrastructure.

### Sustainable handling of research data

The sustainable handling of the collected research data plays an increasingly important role in science. Data has a high intrinsic value, it is costly, collecting it is time-consuming, and it must be stored securely. Therefore, data must be well-organized and accessible. Likewise, reproducibility of results and reusability of data are cornerstones of good scientific practice. For this reason, structured research data management (FDM) is increasingly required by funding bodies. The University of Bayreuth will therefore increasingly support and advise its researchers in FDM.

(<https://www.fdm.uni-bayreuth.de/en>)

### Expansion of digital conference rooms

Digital meeting room infrastructure creates the opportunity to eliminate non-essential travel. In this context, researchers at the University of Bayreuth should strive to conduct business trips as sustainably as possible. Within the scope of our possibilities, we would like to set positive incentives for this, among other things, by expanding the aforementioned infrastructure.

## III. Indicators

### for 1.) Sustainability research

- Number of publications with a strong reference to sustainability (assessed on the basis of a keyword list) with the aim of steadily increasing this number
- Number of sustainability-related individual and collaborative projects. A distinction should be made between internal, national, and international projects
- Number of applications for the Sustainability Award. If number should decrease, marketing measures are recommended
- Number of junior research groups on the topic of sustainability
- Number of events at the University of Bayreuth with a strong sustainability reference (assessment based on a keyword list)
- Number of media reports on sustainability-related research at the University
- Reach of the self-organized media appearances
- Number of research papers "How sustainable is our campus?". A distinction should be made between the different types of research.
- Assess the outcome implementation of the research "How sustainable is our campus?" in a traffic light system in the area of infrastructure and governance

## Research

### for 2.) Sustainability in the context of research

- Training documents on the subject of recommendations for action on resource efficiency have been prepared and integrated into laboratory guidelines (number of areas of responsibility)
- Key figures on the energy balance of various buildings are recorded and, in particular, energy-efficient buildings are compared directly with energy-inefficient buildings
- Equipping the Key Labs with long-term technical and/or scientific personnel (total number of long-term technical and/or scientific personnel) in order to increase sustainability
- Support in the FDM further expanded (expansion of the offer (in relation to the reporting period); number of scientists who make use of it)
- Investment in technical and organizational development of suitable structures and databases for analysing and linking research data (including Open Science) Infrastructure of the past four years [Euro]
- Number and utilization of digital conference rooms with appropriate equipment
- Share of digital meetings in all meetings [%]

# Teaching

We **train** people who will shape society in the future. We want to teach students about sustainability as a cross-cutting issue so that they develop the ability to think in a far-sighted and rational way, both regionally and globally, and to act responsibly.

**We enable our students to think and act sustainably.**

In order to convey the concept of sustainability in its disciplinary and also historical and cultural diversity, we provide our students with the necessary tools. They are put in a position to deal with the topic of sustainability and its societal challenges in a subject-specific and interdisciplinary manner. In this way, our students learn to recognize challenges in their lives and professional environments and to develop innovative and creative approaches to solving them. For this reason, we are committed to the professional and methodological training of our students, which in particular includes aspects of “sustainable development”.

**We enable our students to think in a way that is critical--reflexive and systematic--networked and to learn interculturally.**

Teaching involves judgement as well as design and transformation skills, and also supports ideas of lifelong learning. For us, education for sustainable development (ESD) means teaching and practicing skills for critical reflection. At the same time, we must always be able to change our perspective in order to develop and promote an understanding of the views of other sciences and cultures. The University therefore sees itself as a multiplier and takes an active social pioneering role in sustainability. We try to open up courses, where possible, to a wide audience outside the University.

## I. Objectives

**We offer our students a broad range of courses with a sustainability focus.**

Sustainability is a central subject in disciplinary, interdisciplinary, and transdisciplinary courses. To make this accessible, we take care to create offerings and choices that are equally suitable for students with different levels of prior knowledge and interests. Education for sustainable development - understood as an educational concept - opens up new perspectives on subject content in many disciplines and is at the same time an impulse for the methodological development of teaching.

Our sustainability-related teaching is based on concepts that link research and teaching. In this way, we guarantee both topicality and future viability. By taking advantage of the diverse offerings, our students expand their analytical skills, broaden their knowledge base, and reflect on their social and academic actions.

In order to achieve this, the concept of “sustainability in teaching” at the University of Bayreuth comprises four levels:

## Teaching

### 1. Sustainability in the disciplines

Include the dimension of sustainability in as many degree programmes as possible.

### 2. Interdisciplinary sustainability

Including courses on sustainability from other disciplines in one's own degree programme, e.g. via a subject certificate or Studium Generale.

### 3. Supplementary studies in sustainability

Introduction of a more advanced, cross-disciplinary study programme at the interface of sustainability.

### 4. Study programmes with a strong link to sustainability

Development and expansion of innovative degree programmes with a strong link to sustainability.

## II. Measures to be taken

Integration of sustainability into teaching:

### 1. Sustainability in the disciplines

All degree programmes are encouraged to offer courses and modules with sustainability topics.

### 2. Interdisciplinary sustainability

The thematic focus on sustainability in Studium Generale and subject-specific certificates on sustainability yield a range of courses that enables the integration of courses from other disciplines into one's own degree programme.

Studium Generale, which comprises 10 to 15 ECTS points, is strengthened by the thematic focus on sustainability. This is open to all students of the University of Bayreuth and should also be made accessible to external students. All programme coordinators are encouraged to allow for a broad credit transfer of the credits earned in Studium Generale. Otherwise, students can take Studium Generale additionally and receive a corresponding certificate.

All subject disciplines are encouraged to create the possibility of a subject certificate on sustainability within their degree programmes; this can be obtained by taking disciplinary and interdisciplinary courses and should comprise approx. 20 ECTS points.

### 3. Supplementary studies in sustainability

In order to offer students the additional opportunity to further their education on the topic of sustainability in a more comprehensive and interdisciplinary manner, the supplementary studies

programme Sustainability (30 ECTS points) is being introduced. This supplementary studies programme is open to all students of the University of Bayreuth. Students receive a graded certificate of completion after successful completion of the programme.

#### 4. Study programmes with a strong link to sustainability

In order to manifest the pioneering role in the area of teaching, existing programmes of study with a strong reference to sustainability are being expanded in a targeted manner and new innovative programmes of study are being developed.

### III. Indicators

The measures in the area of teaching are aimed at long-term and continuous further development and are therefore regularly measured by means of indicators.

#### 1. Sustainability in the disciplines

Number of courses with a strong sustainability reference in the individual study programmes (use of CampusOnline; use of data collection in the context of the supplementary studies programme in sustainability)

#### 2. Interdisciplinary sustainability

- Scope of the courses offered in the thematic area of sustainability in Studium Generale (number of courses)
- Number of successful graduates of Studium Generale (with a focus on sustainability)
- Number of degree programmes offering the integration of Studium Generale
- Number of degree programmes that offer a specialist certificate in sustainability within the degree programme
- Number of students earning a specialist certificate in sustainability

#### 3. Supplementary studies in sustainability

- Number of enrolled students and successful graduates of the supplementary studies programme Sustainability
- Number of elective courses offered within the supplementary studies programme Sustainability
- Student satisfaction (surveyed as part of quality assurance)

#### 4. Study programmes with a strong link to sustainability

- Number of degree programmes with a strong link to sustainability
- Number of enrolled students and successful graduates in degree programmes with a strong link to sustainability

# Third Mission

The University of Bayreuth understands Third Mission as the mutual, institutionalized, and continuous exchange (of knowledge, knowledge for action, etc.) between the University of Bayreuth and stakeholders in science, society, economy, culture, and politics, taking into account social, ecological, and economic factors for mutual benefit. This exchange makes it possible to ensure the mutual transfer of ideas and knowledge, as well as to work out and test innovative concepts for solving social problems.

We **cooperate** with political decision-makers, non-governmental organizations, and companies in order to disseminate the knowledge gained into society and to take up impulses on our part. Joint activities in the field of education for sustainable development are to be initiated and promoted.

Third Mission is not to be regarded as a third pillar alongside research and teaching, but rather as an integral component and cross-sectional task of academic activities. This finds expression in international, interdisciplinary, and transdisciplinary degree programmes and research associations. The University of Bayreuth structurally supports employees, students, and student initiatives as “agents of change” in their commitment to sustainability in the area of Third Mission and promotes their ideas and projects. As a result, this culture of commitment is valued and supported within the framework of appropriate programmes. In addition, the University promotes lifelong learning by offering continuing education at the University that is open to members of the public.

## I. Objectives

**We are striving to become a social pioneer in sustainability.**

The University of Bayreuth recognizes its special position and the accompanying responsibility in society.

As a research institution, its stakeholders produce scientific findings in the field of the social, ecological, and economic dimensions of sustainability. As an educational institution, it acts as a multiplier into society through the theoretical transmission of this knowledge. Impact and diffusion into society require that the University itself consistently implements this knowledge and its implications through attitude and action.

As a basis for this, we want to strengthen the topic of sustainable development on campus, promote and network existing sustainability initiatives, and support university stakeholders in their commitment to sustainability both ideally and financially. Beyond the university borders we strive for targeted cooperations and want to exchange theoretical and practical knowledge in order to learn from each other and to give and receive new impulses. In this way, we want to take on a pioneering role in society in the area of Third Mission and make our contribution to a society whose stakeholders strive together towards sustainable development on the basis of scientific knowledge.

## Third Mission

### **1. Enabling reciprocal transfer to all areas of society**

In order to enable sustainable development for society as a whole, theory and practice need to be interlinked. We intend to expand our university training opportunities for non-university actors in order to impart theoretical knowledge related to sustainability and at the same time to take up impulses, knowledge for action, and those social issues related to sustainable development in dialogue and to integrate them into our work. In this way, we want to find innovative and sustainable solutions that are not only theoretically sound, but can also be implemented in practice.

### **2. Networking and promotion of internal sustainability initiatives**

At the University of Bayreuth, initiatives are already active that are dedicated to the topic of sustainability and advocate for it beyond the boundaries of the University. We want to support these sustainability initiatives and make it easier for them to network with each other in order to organize joint projects and to enable synergy effects already within the university framework.

### **3. Intensification of the cooperation with stakeholders outside the University**

By means of intensified cooperation with other scientific institutions and research facilities in the region, as well as with actors from business and politics, we also want to facilitate synergy effects beyond our university borders. This refers both to joint research projects in the field of sustainability and to the joint planning and organisation of sustainability-related events.

### **4. Communicating scientific knowledge about sustainability to society**

Sustainable development for society as a whole presupposes that its relevance can be understood by all actors in society and that they have access to scientific knowledge accordingly. The University of Bayreuth actively aims at a generally understandable communication of scientific knowledge in order to enable all actors to have access to this knowledge and to actively counterbalance existing unscientific views and misconceptions regarding sustainability.

## II. Measures to be taken

### **1. Strengthen and expand existing activities**

We want to establish and expand Green Campus as an interface between university and non-university activities. To this end, Green Campus will act as a distributor and mediator between the University's internal initiatives, support cooperation with the university administration and generally act as a central point of contact on the topic of sustainability. In addition, we want to increase the promotion of university competitions (e.g. the sustainability prize or idea management) to promote sustainability-relevant projects and expand educational opportunities for non-university members. In order to ensure that established structures that have already been introduced are maintained, we are striving for the permanent provision of personnel resources in the area of sustainability, such as at Green Campus or in the area of Education for Sustainable Development in the ÖBG.

## Third Mission

### **2. Better networking of existing activities and communication of them internally and externally**

We will establish a communication platform that bundles, explains, and promotes all relevant content, initiatives, contact persons, and projects in their entirety across all communication channels. For this purpose, a central website will be set up on which the individual measures and projects listed in the context of the sustainability strategy of the University of Bayreuth will be described and linked. We will make greater use of the existing ideas competitions for the development of innovative concepts in all fields of action of the sustainability strategy. In addition, we will establish stronger communication at the working level with actors outside the University by identifying contact persons and establishing direct communication channels and other suitable formats. We are striving to make the University's sustainability events known in the region. Through closer cooperation, we also want to act as a contact and cooperation partner for schools and thus create a basis for project-related cooperation.

### **3. Develop and implement new activities**

New ideas and activities arise from the targeted exchange of ideas with many different participants, both within the University and in cooperation with external parties. With regard to financing Third Mission projects, we intend to expand our possibilities through start-up (partial) financing by the University as well as through additional third-party funding, sponsoring, and fund-raising activities. We are using the possibilities of Green Campus by bundling information on tenders, funding formats, funding sources, and generally as a central contact point.

## III. Indicators

### **1. Strengthen and expand existing activities**

- Number of educational offerings (with a sustainability focus) for non-university members
- Number of non-university participants in sustainability events at the University of Bayreuth
- Number of repeated implementations of sustainability-related activities

### **2. Better networking of existing activities and communication of them internally and externally**

- Number of initiatives with perceptible activities that participate in networking opportunities at the University of Bayreuth
- Number of activities involving cooperation with partners from the region
- Number of university employees in an advisory capacity for the topic of sustainability
- Number of media reports on the topic of Third Mission with reference to sustainability

### **3. Develop and implement new activities**

- Number of entries submitted to calls for proposals to promote sustainability-related projects
- Number of first implementations of sustainability-related activities

# Annex: Direct indicators

	Indicators	Calculation method / unit	Explanation
<b>Energy efficiency</b>			
En1	Energy consumption (*)	Electricity + gas + cooling + heat [MWh or GJ]	direct energy consumption at the University; broken down by electricity, gas, and cooling and by buildings
En2	Share of renewable energies (*)	$\frac{\text{(Energy from renewable energies)}}{\text{(Energy consumption)}} \left[ \frac{\text{MWh}}{\text{MWh}} \text{ or } \frac{\text{GJ}}{\text{GJ}} \right]$	(according to the definition of the supplier, e.g., keying of municipal utilities and German electricity mix as well as taking into account our own local generation)
En3	Self-generated energy	PV + combined heat and power plants + utilized waste heat [MWh or GJ]	Broken down by source
En4	PV roof surfaces	PV [m <sup>2</sup> ]	
En5	Heating energy per heated area	$\frac{\text{(Heat energy)}}{\text{(Heated area)}} \left[ \frac{\text{kWh}}{\text{m}^2} \right]$	
En6	Building renovation	Major investments in building refurbishment [€] and listing of the measures carried out	energy-related as well as safety-related (--> compliance with legal regulations for employee protection)
En7	Measures for new construction	List of concrete measures with environmental relevance for each new building [List]	
<b>Material consumption</b>			
M1	Mass flow of various input materials (*)	Paper consumption [t or kg] Recycled content of copying and toilet paper [%]	if applicable, structured according to areas (teaching, research, administration) Paper consumption incl. toilet paper and paper towels
<b>Water consumption</b>			
W1	Water consumption (*)	Total amount of water consumed [m <sup>3</sup> ]	
W2	Rainwater used	Rainwater collection area [m <sup>2</sup> ] and cistern capacity [m <sup>3</sup> ]	
W3	Waste water	Waste water [m <sup>3</sup> ]	
W4	Rainwater-seepage	Ratio of sealed area to non-sealed area [% or m <sup>2</sup> /m <sup>2</sup> ]	
<b>Waste generation</b>			
A1	Waste generation (*)	Total waste generation by type of waste [t or kg]	Breakdown by type of waste, in particular breakdown of hazardous waste obligatory
A2	Waste separation	Three-piece trash cans at the university [number]	
<b>Biodiversity</b>			
B1	Land consumption (*)	built-up area [m <sup>2</sup> ]	Also in relation to the total area
B2	Area for biodiversity	Area designated with biodiversity concept [m <sup>2</sup> ]	
B3	Renaturalized area	built-up area [m <sup>2</sup> ]	
B4	Trees on campus	Number of trees on campus [number]	
B5	Biodiversity monitoring	Number and frequency of selected species (groups) on campus	In close cooperation with the ÖBG

## Annex: Direct indicators

	Indicators	Calculation method / unit	Explanation
<b>Emissions (mobility/transportation)</b>			
Em1	Greenhouse gas emissions in CO <sub>2</sub> equivalents(*)	Greenhouse gas emissions from electricity and gas [t CO <sub>2</sub> -eqv.]	CO <sub>2</sub> equivalents as defined by the supplier and calculation of emissions based on the actual average greenhouse gases of the electricity mix and natural gas mix for the respective year of the Federal Republic of Germany; Separate billing of electricity exports from UBT's CHPs
Em2	Business travel	Business travel broken down by mode of transport [number, km, CO <sub>2</sub> -eqv] Flights under 500km [number]	The calculation of the CO <sub>2</sub> equivalence is based on the current average values for the respective modes of transport of the Federal Environment Agency
Em3	Annual greenhouse gas emissions saved from electricity and heat generation	Relative savings of the University of Bayreuth compared to the previous year Absolute savings compared to base year Relative savings of the federal government to the previous year	
Em4	Greenhouse gas emissions due to vehicle fleet	Specific fuel consumption [kg CO <sub>2</sub> -eqv/km]	Vehicle fleet includes campus vehicles (no business trips) total and specific For e-cars, emissions are calculated based on operation and actual emissions from the German electricity mix.
Em5	Share of e-vehicles and vehicles with other alternative drive systems in the vehicle fleet	$\frac{\text{(vehicles with alternative drive systems)}}{\text{(total number of campus vehicles)}} \quad \left[ \frac{\text{pcs}}{\text{pcs}} \right]$ List of vehicle types (including cargo bikes)	
Em6	Bicycle parking	Number of bicycle parking spaces at the University	
Em7	Investment in bicycle infrastructure at the University	Investment in measures to improve infrastructure at the University [€]	
<b>Awareness and communication</b>			
S1	Internal/external communication	Number of measures, participants in measures [number] Exemplary list of some selected measures [list]	Raise awareness for sustainability via e.g. campus screens, communication from the staff council, guided tours of the ÖBG, posters/actions in the cafeteria, ...
S2	Internal training	training seminars carried out [number] trained employees [number]	
S3	Self-commitments	Number and mention of signatures [number]	e.g. refrain (if possible) from air travel up to certain km
<b>Procurement</b>			
Be1	Certified products	Consideration of environmentally relevant criteria (e.g. certifications) in the procurement process	Reasonable quantitative design of the indicator together with the procurement department pending

## Annex: Direct indicators

	Indicators	Calculation method / unit	Explanation
Dining on campus			
V1	Vegetarian and vegan dishes	$\frac{\text{(number of veg.dishes per week)}}{\text{(total number of dishes per week)}} \quad \left[ \frac{\text{pcs}}{\text{pcs}} \right]$ At least one vegan dish per day [yes/no]	Vegetarian and vegan diets are more environmentally friendly due to e.g. less land consumption
V2	Nutritional values and CO <sub>2</sub> equivalents of the dishes on offer	The nutritional and CO <sub>2</sub> equivalents of the dishes on offer are calculated and made available to canteen guests [yes/no]	
Overall organization			
G1	EMAS certified partners / contractors	Orders / contracts with EMAS-certified partners / contractors [number]	e.g. SWO (regional suppliers), fair trade, cleaning service
G2	Measures to improve the use of resources	measures [number] and administrative expenses per employee [€ or h]	e.g. PC garage, recycling actions (such as reusable cup system), use of DaMaRiS database as chemical exchange, conversion to digital administration, ...

(\*) Core indicators according to EMAS. These must be included in an environmental statement in accordance with EMAS. Furthermore, EMAS requires the specific specification of indicators, i.e. they have to be related to a reference value. If the number of university staff members is the reference value for an indicator, students are included. The inclusion of our own additional indicators beyond the core indicators in an environmental statement according to EMAS is voluntary.

The EMAS core indicator "Total emissions to air (SO<sub>2</sub>, NO<sub>x</sub>, particulate matter)" is not listed because, according to current knowledge, it is not significant in the university context. Substantiation: SO<sub>2</sub> emissions do not occur at the University. Particulate matter and NO<sub>x</sub> are emitted on campus only by campus vehicles, but it is difficult to determine these emissions.



**UNIVERSITÄT  
BAYREUTH**

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