

Talk im Technikum on 9 October 2025

Prosperity at its limits – how can we save our resources?

Increasing resource consumption, loss of biodiversity, and the consequences of climate change pose enormous challenges for our society. With its 'Talk im Technikum' event on 9 October 2025, the bifa Environmental Institute in Augsburg invites you to discuss these issues together with high-ranking representatives from politics, business, science, and civil society.

After a welcome by Prof. Dr. Nadine Warkotsch, Thomas Weber and Gerald Guggenberger, Bavaria's Minister of State for the Environment and Consumer Protection, **Thorsten Glauber, MdL**, will open the event.

A special moment will be the farewell to **Prof. Dr.-Ing. Wolfgang Rommel**, the long-standing director of the bifa Environmental Institute. In his contribution, 'Prosperity at its limits: reality & challenges', he will also give a personal assessment based on his decades of experience.

Block 1

Prosperity at its limits: reality & challenges

The first block will focus on seemingly different and very specific perspectives from industry and the environment: **Dr Rüdiger Recknagel**, Head of Environmental Protection at AUDI AG and Managing Director of the Audi Environmental Foundation, will present the company's 'Mission: Zero'. **Laura Griestop**, expert on plastics and packaging at WWF Germany, who has just returned from



Registration 'Talk im Technikum'

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the negotiations at the UN Plastic Summit in Geneva, will shed light on global interrelationships from the perspective of one of the leading environmental NGOs.

Block 2

How can we save our resources? Approaches & visions

The second block is dedicated to visionary approaches for accelerating the resource transition. **Prof. Henning Wilts** from the Wuppertal Institute explains the political and economic conditions necessary to achieve this. **Prof. Alexander König** from the Technical >>

page 2: Participation in EU projects

Inclusion in European funding projects within the framework of the HORIZON EU programme



page 3: Heat planning – municipal control instrument

Shaping the future through regional heat supply



page 4: Biotests in ecotoxicology

Effects of substances on the environment



>> University of Munich shows how robotics and system intelligence can support circular economy systems. **Prof. Dr. Nadine Warkotsch**, Managing Director of the bifa Environmental Institute, follows up on this and presents interdisciplinary solutions that do justice to the increasingly complex resource cycles.

Despite many promising approaches, not all cycles can be completely closed and emissions reduced to zero. In areas such as cement and lime production or waste management, unavoidable residual emissions remain.

Dr Wolfram Dietz from bifa picks up on this thread and, in his contribution, highlights the potentials and limitations of CO₂ capture and utilisation (CCS/CCU) as possible building blocks on the path to net zero.

The programme will conclude with a **panel discussion** in which all speakers will bring together their different perspectives and engage in conversation with the audience. The discussion will be moderated by **Thomas Weber**, Managing Director of bifa.

With its 'Talk im Technikum' series, the bifa Environmental Institute has created a platform that brings together expertise from various fields and highlights concrete ways to conserve resources and achieve sustainability. Participants will have the opportunity to ask their own questions, make new contacts and take away ideas for their own actions.

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Participation in EU projects

Inclusion in European funding projects within the framework of the HORIZON EU programme

The bifa Environmental Institute is involved as a consortium partner in several European funding projects within the framework of the HORIZON EU programme. In recent years, bifa has increasingly contributed its technical and methodological expertise to EU funding projects, particularly in the fields of photovoltaics and critical materials.



Current EU projects involving bifa include SMART-LINE-PV, QUASAR, ICARUS and PHOTORAMA. bifa is also participating in project consortia for tenders that are currently still ongoing.

Our areas of expertise: life cycle assessment, materials analysis, circular economy and communication

As part of life cycle assessments (LCA), bifa documents project progress in terms of improved impacts on various environmental areas, such as the carbon footprint.

Chemical and biological material analysis carried out in bifa's laboratories contributes to improved transparency with regard to potentially hazardous constituents.

Circularity indicators, based on the Ellen McArthur Foundation's MCI (= Material Circularity Indicator) formulas and compliant with ISO 59040:2025 on the circular economy, describe improvements in circularity within the scope of the projects.



>> The course for a more sustainable design can already be set in the development phase of a new technology. For example, bifa develops eco-design-guidelines, i.e. design proposals that incorporate aspects such as improved recyclability, use of more environmentally friendly materials, easier disassembly for end-of-life recycling, and the reduction of critical materials in the early stages of product development.

The early involvement of the public and relevant decision-makers from politics, science and industry is becoming increasingly important for identifying potential risks in the later implementation of large-scale projects. The bifa communications team ensures successful project support and implementation by conducting specific

surveys and methodically structured stakeholder workshops.

In addition, economic evaluation, i.e. the preparation of business plans and techno-economic assessments of new and further developed processes, is also a task assigned to bifa within the framework of these projects funded by the European Commission.

The results compiled by bifa on the basis of structured and regular data collection from the project partners thus demonstrate and document the success of these extensive, multi-year projects.

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Heat planning – a municipal control instrument

Shaping the future through regional heat supply

Since 2024, the creation of a municipal heating plan has been a legal requirement, presenting a significant opportunity for municipalities to actively shape their energy future, set concrete climate targets and, at the same time, open up new economic prospects.

The federal government is supporting the states with financial resources to ease the burden on municipalities. In Bavaria, the State Office for Weights and Measures has been responsible for compensation payments since 2 January 2025.

The heating plans financed in this way are strategic planning instruments that specify climate targets and open up new economic prospects. They highlight opportunities for expanding and developing local heating networks, making more comprehensive use of renewable energies and waste heat, and achieving efficient energy savings. They describe comprehensive ways to shape the future of local heat supply, including for decentralised or individual building solutions. Moderated workshops

and expert discussions bring together administrators, politicians, business leaders, and members of civil society. This multiplies expertise and creates important impetus for broad commitment – the best foundation for sustainable measures.

Participation in energy companies

Participation in energy companies is particularly important for developing infrastructure, as it enables significant influence over local infrastructure development and important decisions regarding the future attractiveness of the location. The results of heat planning can inform this decision-making process. An informed approach gives local authorities the opportunity to use local energy sources, involve regional businesses and increase their own revenues through participation in energy companies. This creates jobs and added value in the region, while maintaining a stable municipal budget.

We support local authorities in all phases – from analysis and the successful involvement of relevant stakeholders to methodological design. With scientific expertise and practical experience in energy consulting and adaptation management, we make heat planning a relevant lever for climate protection, resilience and municipal sustainability.

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Deadlines for municipal heat plans

according to the Heat Planning Act:

2028 up to 100,000 inhabitants

2026 larger municipalities

Processing time 12–18 months

Biotests in ecotoxicology

Effects of substances on the environment

Biological tests are key instruments for assessing the effects of substances. Unlike chemical analyses, which measure individual substances, they measure the totality of biological effects.

They therefore provide the practical data required for risk assessment in accordance with the EU REACH Regulation and for classifying waste according to HP14.

Model organisms and endpoints in biotests show effects at ecological levels:

- Luminous bacteria (*Vibrio fischeri*): bioluminescence
- Green algae (*Scenedesmus subspicatus*): fluorescence and biomass changes
- Duckweed (*Lemna sp.*): growth
- Water fleas (*Daphnia magna*): mobility and reproduction
- Fish eggs (*Danio rerio*): development and mortality

Acute vs. chronic effects

Acute biotests show short-term effects such as mortality rates, while chronic tests reflect longer-term endpoints such as reproduction or growth. A key measure for toxicity assessment is the EC_{50} value: the concentration of a substance at which 50% of the maximum biological



Cress and mustard are used in biotests as further model organisms in ecotoxicology, with growth serving as the endpoint.

effect is achieved. It is determined using dose-response curves. The lower the EC_{50} value, the higher the toxicity.

Significance

Biotests make it possible to reveal real hazards that often remain hidden when assessed purely analytically. They combine laboratory results with ecological reality and provide a crucial basis for regulation and environmental management.

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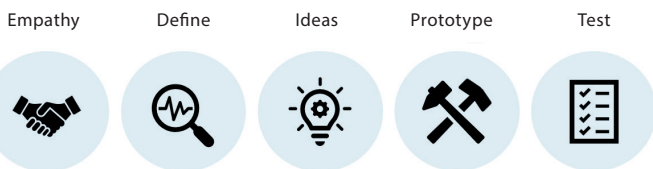
Creative and innovative – solution-oriented work with design thinking

Multifaceted interdisciplinarity at bifa

For over 15 years, interdisciplinary project work at bifa has been characterised by collaboration with social and communication scientists.

building prototypes, and testing. As part of the process, a wide variety of creativity and coaching tools are used for rapid idea generation, such as the Walt Disney method, the lotus flower technique or LEGO® Serious Play®. Through trial and error, feedback and further development of ideas, we obtain results that are practical, sustainable, and future-oriented.

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Particular emphasis is placed on the use of creativity-promoting and innovative methods that are tailored to specific workshop topics and content or developed specifically for this purpose. The methodological work is based on experience, a comprehensive repertoire of methods, and trained intuition. Design thinking is one example of the diverse range of methods available. It is a user-centred process that helps to develop innovative solutions through interactive phases: understanding, observing, defining a point of view, developing ideas,

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