



Sustainability Report  
2019/2020

## In brief: Sustainability at ETH Zurich

With almost 30,000 people studying, researching, teaching, and working at ETH Zurich, it is not only one of Switzerland's major universities, but also one of the biggest employers in the region. Founded in 1855, the Swiss Federal Institute of Technology in Zurich (ETH Zurich) is consistently ranked among the leading universities of the world. Aware of its responsibility towards students, employees, and society, the University integrates the principles of sustainable development in its core activities of research and education, as well as on campus and in dialogue with society.




### Sustainability Report 2019/2020

This report reviews the progress that ETH Zurich has made in contributing to sustainable development. Covering the reporting period 2019/2020, it also highlights the challenges the University is facing and monitors the status of sustainability goals. This is the sixth of ETH Zurich's biennial Sustainability Reports. The report has been prepared in accordance with the GRI Standards: Core option and the ISCN Sustainable Campus Charter. It targets internal as well as external audiences, including employees and students of ETH Zurich, but also the interested public and representatives of the political sphere, the public administration, civil society, and the corporate sector. The thematic focus of this report is determined in an exchange with internal and external stakeholders of ETH Zurich. A detailed description of this process can be found on [page 101](#) of this report. The report is available in English only.



### Annual Report 2020

The  **Annual Report** discloses details of the University's performance and services rendered. It consists of a status report, which summarizes key events and developments at the University, as well as a detailed annual financial statement in line with the International Public Sector Accounting Standards (IPSAS). The Annual Report briefly outlines the University's approach to sustainability, but leaves the details to the Sustainability Report. The Annual Report is available in English and German.



This reference icon appears in the Sustainability Report where more information on the respective topic is provided in the Annual Report 2020 (AR).



Use the navigation bar and the links for the best on-screen viewing experience.

Enjoy the read!

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# OVERVIEW

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## Welcome by the President

The memory of the year 2020 will remain with us for a long time to come. The global community has been severely tested by the COVID-19 crisis. For us as a university, too, the pandemic was a great challenge. We have done our best to protect the health of our students and employees while maintaining the University's core activities in teaching and research as far as possible.

In retrospect, I am proud of what the ETH community has achieved during this difficult time. Everybody pulled together. Numerous initiatives sprang into existence and aided the society-wide response to contain the virus. Among these contributions were 3-D-printed protective masks for healthcare personnel, the SwissCovid contact tracing app, the development of a low-cost ventilator, the helpfulETH initiative, and the more than 60 research projects related to COVID-19 that were initiated at short notice.

This demanding time has demonstrated how densely inter-linked our world is, and has exposed the global connections and dependencies that this entails. It has also made very clear to us that the solutions to these great challenges require strong societal cohesion and solidarity. Universities share the responsibility to foster development in a way that is compatible with the UN Sustainable Development Goals (SDGs) and to develop concrete solutions that serve the public good.

In some economic sectors, the global health crisis and the resulting slump in trade and consumption have led to less energy being used and less greenhouse gases being emitted. For instance, it has been noticeable how the pandemic affected mobility in the academic community. A return to a fully functioning global economy is in the interests of all of us. But we must seize the opportunity that the crisis offers for accelerating the transition to sustainable societies in the post-corona period.



This Sustainability Report is structured into four parts covering research, teaching, campus life, and dialogue with the public. The **➔ Research** chapter looks at how our researchers develop the technical and scientific expertise required to contribute to sustainable development. The chapter on **➔ Education** describes how we prepare future generations to meet the great challenges of our age as responsible members of society. In the third chapter, we show how we apply the principles of sustainability by «cleaning up our own act» in **➔ Campus** operations. In the fourth and final chapter on **➔ Dialogue**, we report on our efforts to engage with the University's stakeholder groups and to communicate the latest insights of our research.

In this report, some select examples of projects illustrate how the University is already contributing to the realisation of the **➔ UN's 2030 Agenda and the SDGs** today. The report was compiled according to the standards of the Global Reporting Initiative (GRI) and the ISCN Sustainable Campus Charter, ensuring that it covers a broad spectrum of sustainability-related topics overall. Ultimately, our own sustainability goals and the direct engagement with internal and external stakeholders help us to identify the areas in which we still need to improve.

We appreciate the generous support of the Federal Administration and the intrinsic motivation of all members of ETH Zurich as well as our many partners outside the University. All of you are invited to scrutinise our report critically. We are open to your suggestions. Only if we combine all of our efforts will we be able to make the world a more sustainable place.

Prof. Dr. Joël Mesot  
President of ETH Zurich



## Our approach to sustainability

Since its foundation in 1855, ETH Zurich has been a place where tradition and innovation are intrinsically linked. The University's lasting success can be attributed to a culture of empowerment fostered throughout its history and the ability to anticipate and adapt to new requirements. Sustainability has a long tradition at ETH Zurich, not only in research and education, but in all aspects of university life. The University's comprehensive approach to sustainability that encompasses environmental, social, and economic aspects has guided its strategic development throughout. ETH Zurich is convinced that universities have not only a great opportunity, but also a responsibility towards society to develop innovative solutions for the challenges facing mankind. They should support their implementation, and thereby help prepare the path towards sustainable development of present and future generations.

# Four fields of action for sustainable development

ETH Zurich is committed to sustainability in its core areas of Research, Education, Campus, and Dialogue with society. For each of these four areas, the University has defined a strategic field of action:

## 1 RESEARCH

With its research activities, ETH Zurich provides the scientific and technical expertise for the sustainable development of society. In order to strengthen this commitment, ETH Zurich has defined sustainability as a thematic focus in its strategic development plans. Besides the broad spectrum of cutting-edge research conducted in its departments, ETH Zurich can build on the inter- and transdisciplinary expertise of its various competence centres to address the grand challenges of society, such as energy supply, food security, risk, or climate change. By promoting the entrepreneurial activities of its researchers, ETH Zurich is strongly committed to knowledge transfer for the benefit of society.

## 2 EDUCATION

ETH Zurich trains the future generation of experts to incorporate aspects of sustainability in their professional lives. Over the course of the last decades, ETH Zurich has not only developed internationally recognised degree programmes, courses, and other teaching formats, but also founded new departments and institutes to impart sustainability-specific knowledge to its students. ETH Zurich further aims to instil intellectual agility in its students by giving them the tools to address socially and ethically relevant aspects with confidence during their student life, in their careers, and as proactive members of society.

## 3 CAMPUS

On campus, ETH Zurich lives and promotes the principles of sustainable development with respect to social, environmental, and economic aspects. As an employer, ETH Zurich aims to provide the best possible working conditions, including the maintenance of a participatory, respectful, and diverse environment. In its operations, the University is keen to serve as a “living lab” to develop, implement, and test pioneering solutions to preserve natural resources and reduce its environmental impact. Finally, as a publicly funded university, ETH Zurich places great value on transparent budgeting and controlling, financial accountability, and risk management.

## 4 DIALOGUE

ETH Zurich actively informs the wider public about the latest findings of its research. It contributes its expertise to public debates in matters concerning sustainable development. In accordance with its performance mandate, ETH Zurich has developed a range of dialogue formats and public outreach activities devoted to making research insights accessible in a comprehensible manner. The University also performs a series of services for the Federal Government, providing its expertise to inform decision-making based on scientific facts.

## Managing sustainability

The President together with the Board of ETH Zurich is responsible for the strategic orientation of sustainability at ETH Zurich. Management and implementation fall under the responsibility of the staff unit ETH Sustainability, the Safety, Security, Health and Environment (SSHE) department, and the Real Estate Management department. If not covered in this report, the respective activities and achievements are disclosed in complementary sources, such as the SSHE's annual report or the respective websites.

➔ **ETH Sustainability** is the University's sustainability office. It supports initiatives, projects, and individuals who contribute to enhancing sustainability at the University. In the organisational structure of ETH Zurich, ETH Sustainability is embedded as a unit in the Office of the President. The unit is supported by an internal Advisory Board, comprising the Associate Vice President for Sustainability (Chair), the Vice President for Research, and six ETH Zurich professors who conduct research in fields related to sustainability.

The ➔ **SSHE department** is responsible for safety and security as well as the health of the members of ETH Zurich. Reporting directly to the Vice President for Infrastructure, SSHE advises and trains members of ETH Zurich on how to deal with risks and hazards in order to protect people, infrastructure, and the environment and assists them in realising corresponding measures. The SSHE department also coordinates the ➔ **Environmental Commission** of ETH Zurich, which is responsible for environmental management at ETH Zurich.

The ➔ **Real Estate Management** department develops and manages the University's property portfolio, ensures that the value of the buildings is preserved on a long-term basis, and provides other infrastructural services. Through the sustainable development of the real estate portfolio, the Real Estate Management department provides an important prerequisite for high-quality teaching and research at ETH Zurich and covers the needs of owners, users, and operators.



**Prix Suisse de  
l’Ethique**  
Lauréat 2018 HEIG-VD

### **Sustainability reporting**

The University’s commitment to sustainability is also reflected in the evolution of its reporting tradition: In 2002, ETH Zurich published its first Energy Report. From 2005 onwards, the report was expanded into a more comprehensive Environmental Report. Since 2009/2010, ETH Zurich has covered all three dimensions of sustainable development in its biennial Sustainability Report. This is ETH Zurich’s sixth Sustainability Report, and it covers the reporting period 2019/2020. In 2018, ETH Zurich received the Swiss Ethics Award for its sustainability reporting.

### **Global engagement for sustainability**

ETH Zurich combines strong connections at the regional and national levels with a global outlook and network. To promote sustainable development in Switzerland and beyond, ETH Zurich maintains strong links with international partner institutions and actively contributes to the exchange in global alliances such as the International Alliance of Research Universities (🌐 **IARU**), the International Sustainable Campus Network (🌐 **ISCN**), or the Global University Leaders Forum (🌐 **GULF**) of the World Economic Forum (🌐 **WEF**).



## ETH Zurich and the Sustainable Development Goals

In a historic vote on 25 September 2015, all United Nations member states ratified the Agenda 2030. At its heart are the 17 Sustainable Development Goals (SDGs) and their 169 targets. Offering a global vision for a sustainable future, the SDGs represent an urgent call to action by all countries in a global partnership. They account for the economic, social, and ecological dimensions of sustainable development. With the rise of fake news and the emergence of conspiracy theories, objective knowledge and sound technical solutions are needed more urgently than ever. By providing knowledge, innovation, and science-based solutions, universities can contribute to the achievement of the SDGs. What is equally important is the role of universities in educating leaders who will later take responsibility for sustainable development.

With its comprehensive approach to sustainability, ETH Zurich is contributing in many ways to achieving the SDGs. The University presents an exemplary selection of its contributions in this report. In particular, the stakeholder perspectives as well as the Highlights and Insights compiled in this report illustrate the immediate link between ETH Zurich's various activities and the SDGs. Needless to say, the compilation does not claim to be complete. Rather, it illustrates the role of universities in the implementation of the SDGs. For a more comprehensive version of the overview, please refer to [ETH Zurich's 2030 Agenda website](#).

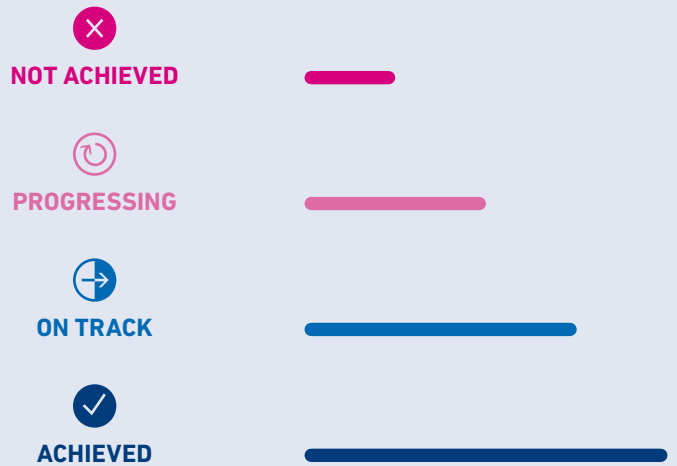


The sustainability challenges faced by our planet cannot be tackled and solved by one individual organization like ETH Zurich alone. For this reason, ETH Zurich and the members of its community maintain an extensive network and a broad range of partnerships at the regional, national, and international levels.

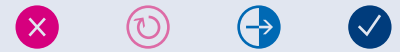
# Sustainability Goals at a glance

Specific and measurable goals are essential for benchmarking, monitoring, and progress. This report gives updates on goal achievements within the reporting period 2019/2020. It contains 46 goals in 15 categories, the bulk of which are environmental goals (e.g., energy, mobility, waste), which were identified by the University's Environmental Commission. All other goals were either derived from the Objective Agreement with the ETH Board or in coordination with the responsible units at ETH Zurich (i.e., diversity, talent retention, and development).

Please find the [detailed overview of all goals](#) in the back of this report pp. [93-99](#). A selected number of goals are visualized as infographics (see below).

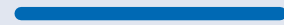


|   | NOT ACHIEVED | PROGRESSING | ON TRACK | ACHIEVED |
|---|--------------|-------------|----------|----------|
| <b>ETHICS</b>   |              |             |          |          |
| Conduct research in compliance with the "Guidelines for Research Integrity and Good Scientific Practice at ETH Zurich"  |              |             |          |          |
| Research involving animals:<br>Evaluate research projects for their compliance with legal and ethical norms   |              |             |          |          |
| Research involving human subjects:<br>Evaluate research projects for their compliance with legal and ethical norms<br><a href="#">➔ Infographic on p. 15</a>                  |              |             |          |          |
| <b>RESEARCH</b>   |              |             |          |          |
| Strengthen collaboration of engineering and natural science disciplines with the humanities and social and management sciences in fields relevant for sustainable development |              |             |          |          |
| <b>INTERNATIONAL PARTNERSHIP</b>  |              |             |          |          |
| Extend collaborations with peer institutions on the national and international levels<br><a href="#">➔ Infographic on p. 17</a>   |              |             |          |          |
| Maintain existing alliances and networks with first-rate partner universities abroad  |              |             |          |          |

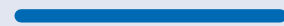


## EDUCATION

Promote the education of experts that are in high demand in science, business, and society

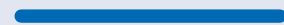


Continue recruitment measures for the best students nationally and internationally

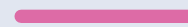


Support particularly gifted Master students by providing grants to incoming students

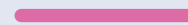
➔ **Infographic on p. 32**



Extend dual-mode teaching, i.e., the combination of in-classroom teaching and e-learning, as well as further methods of self-study

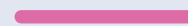


Increase in the number of online examinations through new infrastructure and projects



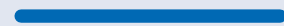
Improve mentoring relations through the appointment of additional assistant and full professorships

➔ **Infographic on p. 33**

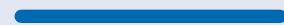


## SUSTAINABILITY EDUCATION

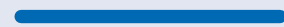
Offer a diverse summer and winter school programme on sustainable development at ETH Zurich



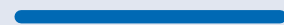
Improve the ability of doctoral students to interact with non-academic stakeholders and provide recommendations for research topics



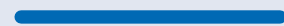
Provide a platform for students to tackle sustainability-specific questions with practice partners from the public and private sectors



Offer innovative activities and events for students and other members of ETH Zurich to learn about sustainability



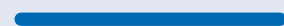
Develop an overview that describes cross-departmental sustainability and sustainability-related educational activities at ETH Zurich



## TALENT RETENTION AND DEVELOPMENT

Recruit and support the best scientists to ensure the highest quality of research and teaching

➔ **Infographic on p. 48**

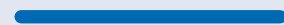


Support employee development through comprehensive personnel development measures

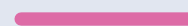


## DIVERSITY

Preserve diversity among students and staff of ETH Zurich



Increase gender balance on all levels of the academic career ladder



## BUILDING EFFICIENCY

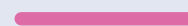
Implement MINERGIE®-ECO standard (or similar) in new buildings and MINERGIE® standard (or similar) for renovations



Increase the use of rainwater in building projects



By 2022, install (or retrofit) photovoltaics systems on new and existing buildings



By 2026, produce at least 1,210 MWh through photovoltaics

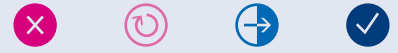


Optimize circularity in building projects



Implementation of an overall sustainability concept for Campus Höggerberg until 2022, integration of special building regulations



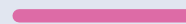


**ENERGY**

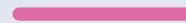
Reduce energy consumption at ETH Zurich  
➔ **Infographic on p.61**



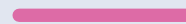
Continue to encourage energy-related dialogues with employees, students, and the public



For operation of the energy supply system at Campus Hönggerberg (Anergy Grid), ETH Zurich will use energy from sources that comply with high ecological standards



By 2025, 50 percent of the total heating requirements on Campus Zentrum (including external consumers) will be covered by waste heat

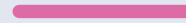


Implement first phase of "Masterplan Energy" at Campus Zentrum



**EMISSIONS**

Across ETH Zurich, reduce overall CO<sub>2</sub> emissions (direct and indirect) to contribute to the goals of the Paris climate agreement  
➔ **Infographic on p.63**

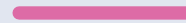


Reduce direct CO<sub>2</sub> emissions on Campus Hönggerberg by 50 percent by 2020 (4,900 t CO<sub>2</sub>eq per year) through the implementation of the "Energy Concept Campus Hönggerberg" based on geothermal storage systems (base year 2006)

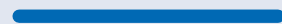


**MOBILITY**

Limit air travel and promote the use of alternatives for collaboration and international networking  
➔ **Infographic on p.67**



Increase number of students travelling between the two campus sites using non-motorised traffic



Optimise public transportation between Campus Zentrum and Campus Hönggerberg



Reduce fuel consumption at ETH Zurich



**PAPER CONSUMPTION**

Reduce paper consumption



Increase the proportion of recycled paper



**WASTE**

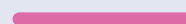
"Host Recycling Days" on campus



Direct 50 percent of total waste materials to a recycling stream  
➔ **Infographic on p.71**



Provide infrastructure for disposal of biogenic waste



**FOOD**

Development of recommendations for catering companies to reduce packaging and advance the substitution of disposable dishes with reusable dishes



**OUTREACH**

Maintain various channels of internal exchange and public dialogue  
➔ **Infographic on p.82**



Provide services for the benefit of the whole country by fulfilling diverse national tasks



# RESEARCH

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## Research environment

Autonomy and a culture of empowerment are among the cornerstones of ETH Zurich, especially in the field of research. The resulting freedom creates motivation and space for inspiration, allowing researchers to unleash their full potential. The active cultivation of this environment has characterized the University since its beginnings and has contributed significantly to its success, right up to the present day. Equally important aspects for a healthy and constructive research environment are trust, shared values, and ethical behaviour. Since excellence in research depends crucially on good relations with both the scientific community and society, ETH Zurich is attaching increasing priority to these issues.

Research at ETH Zurich provides the basis for future innovations and the development of our society. Thanks to its cutting-edge **research infrastructure**, flexible organisation, and its promotion of integrated and interdisciplinary thinking, ETH Zurich is able to conduct basic and applied research at the highest level and make advances in the strategic priority areas, including healthcare and sustainability. Technology platforms, centres of excellence, and a broad network of strategic alliances encourage collaboration; internal research funding initiatives create the conditions for outstanding performance. During the reporting period, ETH Zurich maintained its leading position in terms of securing internationally renowned research grants, in terms of its position in global university **rankings**, and in terms of the quality of scientific output produced by its researchers.

### Opportunities for inter- and transdisciplinary research

Complementing its disciplinary research focus, ETH Zurich promotes inter- and transdisciplinary research in ten **Competence Centres** that operate either within ETH Zurich or in collaboration with other universities and institutions (see table below). Competence Centres are networks accredited by ETH Zurich's Executive Board in which researchers from diverse fields coordinate their scientific work and their strategic goals, often in collaboration with external partners. In 2020, ETH Zurich's researchers were actively involved in ten National Centres of Competence in Research (**NCCRs**) of the Swiss National Science Foundation (SNSF) and all eight Swiss Competence Centers for Energy Research (**SCCER**). NCCRs promote long-term research projects in areas of vital strategic importance for the development of science in Switzerland, for the national economy, and for society. They improve the research landscape in Switzerland, promote research of outstanding and internationally recognised quality, enable knowledge and technology transfer, offer training, and foster the promotion of women in research. ETH Zurich acts as the Leading House for five NCCRs, and as a Co-Leading House for another five. The University also acts as the Leading House for three SCCERs (see table below).

## Competence Centres

### Competence Centres at ETH Zurich

Artificial intelligence:

🔗 **ETH AI Center**

Energy sciences:

🔗 **Energy Science Center (ESC)**

Rehabilitation sciences:

🔗 **Competence Center for Rehabilitation Engineering and Science (RESC)**

Integrative risk management:

🔗 **Risk Center**

Materials and processes:

🔗 **Competence Center for Materials and Processes (CC-MaP)**

World food system:

🔗 **World Food System Center**

### Competence Centres in collaboration with other universities and institutions

Climate modelling:

🔗 **Center for Climate Systems Modeling (C2SM)**

Imaging technologies:

🔗 **Center for EXperimental and Clinical Imaging TEchnologies (EXCITE) Zurich**

Citizen science:

🔗 **Competence Center Citizen Science (CC-CS)**

Plant science:

🔗 **Zurich-Basel Plant Science Center (PSC)**

## Leading roles of ETH Zurich to National Centres of Competence in Research (NCCR) and Swiss Competence Centers for Energy Research (SCCER)

### ETH Zurich as Leading House

Dependable Ubiquitous Automation 🔗 **NCCR Automation**

Sustainable chemical processes through catalysis 🔗 **NCCR Catalysis**

Digital Fabrication 🔗 **NCCR DFAB**

Molecular Ultrafast Science and Technology 🔗 **NCCR MUST**

Quantum Science and Technology 🔗 **NCCR QSIT**

Efficiency and Industrial Processes 🔗 **SCCER EIP**

Supply of Electricity 🔗 **SCCER SoE**

Efficient Technologies and Systems for Mobility 🔗 **SCCER Mobility**

### ETH Zurich as Co-Leading House

Microbiomes 🔗 **NCCR Microbiomes**

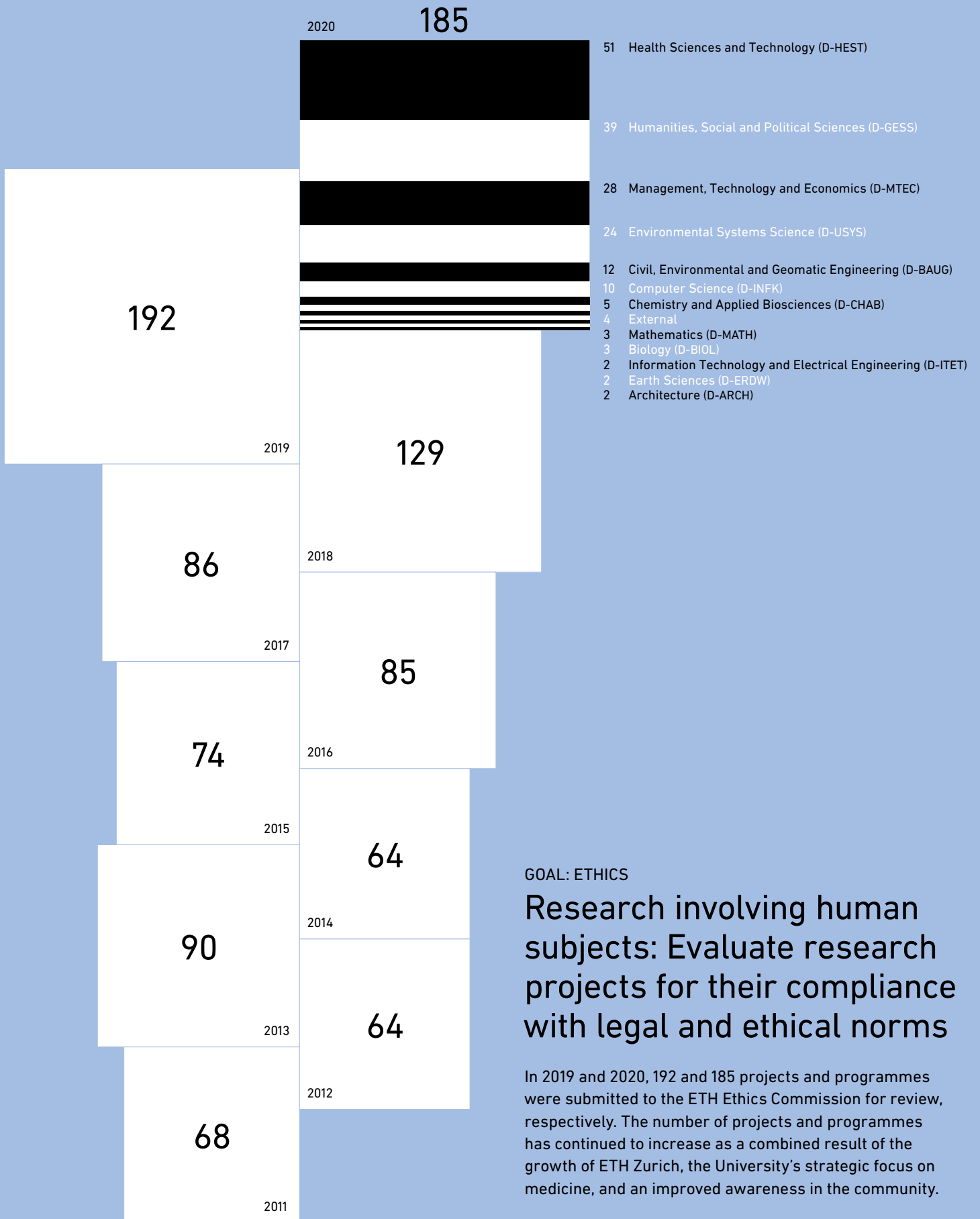
Molecular Systems Engineering 🔗 **NCCR MSE**

RNA & Disease 🔗 **NCCR RNA & Disease**

Robotics 🔗 **NCCR Robotics**

Mathematics of Physics 🔗 **NCCR Swiss MAP**





■ total research projects and programmes submitted to the ETH Ethics Commission

GOAL: ETHICS

## Research involving human subjects: Evaluate research projects for their compliance with legal and ethical norms

In 2019 and 2020, 192 and 185 projects and programmes were submitted to the ETH Ethics Commission for review, respectively. The number of projects and programmes has continued to increase as a combined result of the growth of ETH Zurich, the University's strategic focus on medicine, and an improved awareness in the community.

Please find the [detailed overview of all goals](#) in the back of this report.



### Building bridges with the “Open ETH” initiative

In 2017, the Executive Board of ETH Zurich launched the **Open ETH initiative** (formerly known as ETH+ initiative) with the aim of building capacities and opening up new fields of knowledge, particularly at the intersections between disciplines. Proposed projects would have to involve several researchers from at least two disciplines, preferably from different departments. This makes it possible to combine different lines of research, share skills, and develop new approaches. Nine projects were funded in the first round. The second and third calls for entries in this competition for ideas, in which all members of ETH Zurich could take part, were announced in 2019. In the second round, a total of 241 members of the ETH Community submitted 25 outlines of ideas, building numerous bridges across disciplinary and organisational boundaries. The goals of the five selected initiatives are highly ambitious: They range from turning ETH Zurich into a pioneer in the field of information security, developing it into a global centre for educational research, and creating revolutionary cardiovascular therapies to using technologies for sustainable development cooperation.

### Transparency and ethical conduct

Ethical conduct and research integrity are important pillars of the University’s identity. Managed by the Office of Research, ETH Zurich maintains an **Ethics Commission** that consists of 12 professors and senior scientists from various departments as well as external experts. Their main function is to evaluate proposals for human subject research projects at ETH Zurich with regard to ethics. Within the reporting period 2019/2020, the Ethics Commission evaluated a total of 377 projects. Since 2020, members of ETH Zurich who want to conduct research with human subjects have had to reflect the long-term political and societal risks of their research projects more strongly in their proposals and weigh these against the expected societal benefits.

In the area of human research, the number of studies has continued to rise as a combined result of the growth of ETH Zurich, the strategic focus on medical research, and improved awareness within the community. In order to make the evaluation process more efficient, a revision of the Ethics Commission’s regulations was initiated in 2019 and finalized in 2020. ETH Zurich has systematically expanded medical research in recent years: Half of all departments and one third of all professorships are involved in clinical or translational research. With the aim of supporting researchers and spin-offs in clinical trials, ETH Zurich founded a new technology platform called the digital Trial Intervention Platform (dTIP). With dTIP, a standardized platform is being created so that researchers can conduct translational and clinical studies in the future, either in a leading role or in cooperation with hospitals.

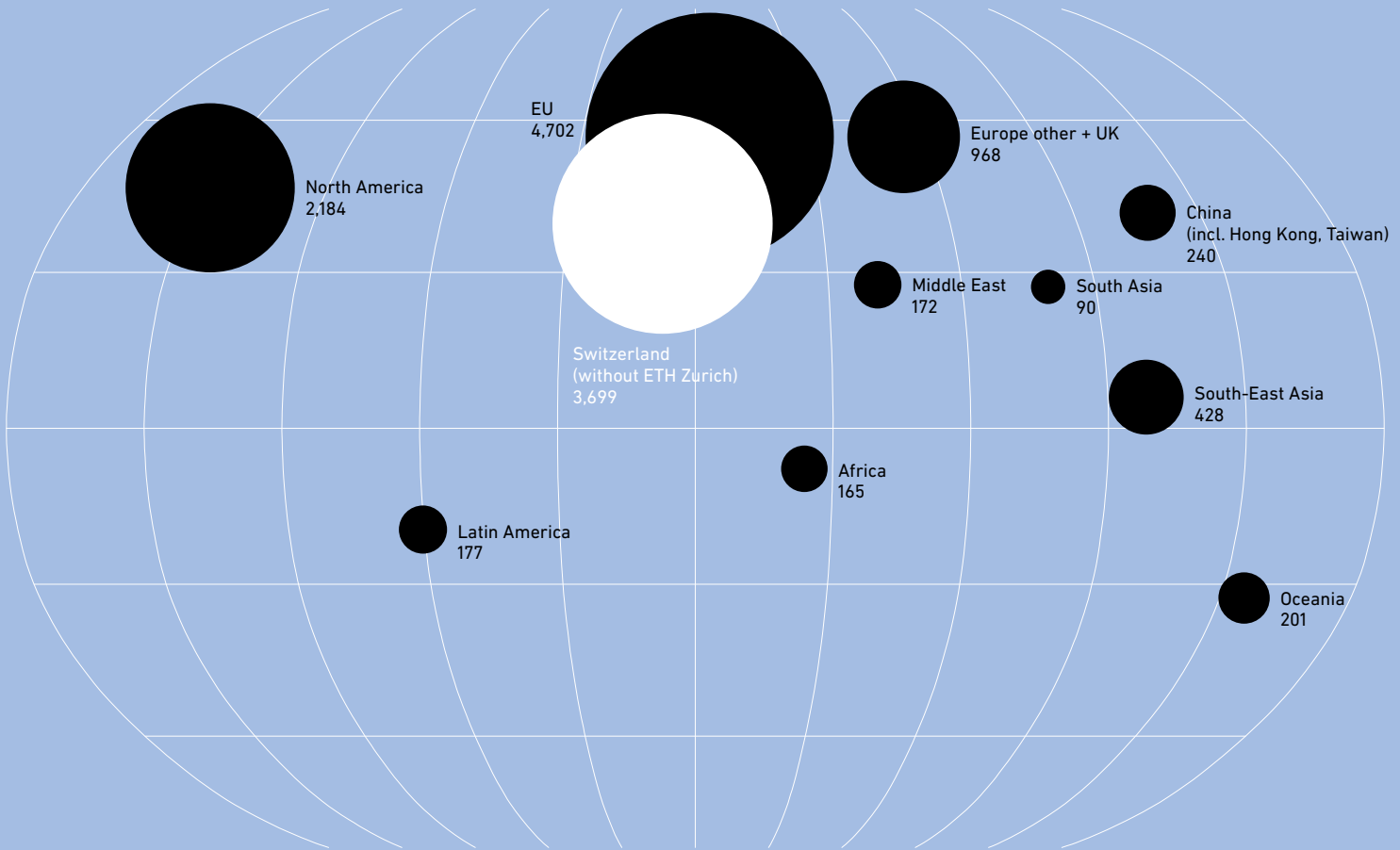


For additional information, please refer to the chapters **Research** and **Honours and awards** in the Annual Report 2020.

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#### FURTHER INFORMATION:

- Strategy and development plan**
  - Vision, Mission and Values of ETH Zurich**
  - Open ETH initiative**
  - ETH Grants and ETH+ Grants**
  - Commission on Good Scientific Practice**
  - Ethical questions**
-



🌐 collaborations in 2020



GOAL: INTERNATIONAL PARTNERSHIP

## Extend collaborations with peer institutions on the national and on the international level

Collaborations between professors of ETH Zurich and their partners abroad have steadily increased over the past years. In both 2019 and 2020, more than 9,000 international contacts were officially registered, which is about 50 percent more than in 2012 (all numbers based on self-declaration in the Annual Academic Achievement reporting). Even though

there has been a significant decrease in air travel due to the COVID-19 pandemic, the collaborations have still increased.

Please find the [detailed overview of all goals](#) in the back of this report.



## Research for sustainable development

Addressing the intricate challenges related to sustainable development calls for comprehensive research approaches and skills. ETH Zurich, where disciplinary expertise is combined with inter- and transdisciplinary experience under one roof, has the potential to be at the forefront of developing sustainable solutions to these challenges at the regional, national, and international levels. In order to tap this potential, ETH Zurich provides infrastructures and conditions that enable excellent research. This means not only well-equipped departments and institutes, but also the establishment of Competence Centres, the participation in national programmes, and other initiatives beyond the own institution.

Committed to focusing on the world's most urgent problems, ETH Zurich in its **🔗 Strategy and Development Plan** has defined core research themes of sustainable development, each of which are addressed both on the level of the departments as well as in the corresponding research centres: the Energy Science Center (**🔗 ESC**), the World Food System Center (**🔗 WFSC**), the Center for Climate Systems Modeling (**🔗 C2SM**), the Future Cities Laboratory (**🔗 FCL**), and the **🔗 ETH Risk Center**.

### Examples from the core research areas on sustainable development at ETH Zurich

#### Energy: Understanding future challenges

The integration of high shares of fluctuating renewable energy sources and the transformation of consumers into prosumers are significant challenges for future energy systems. To prevent or delay grid infrastructure upgrades and to improve system safety, stability, and power quality, a thorough understanding of the future energy system is crucial. The Energy Science Center's flagship project ReMaP addresses this problem by developing a flexible, hardware- and software-based research platform for assessing energy-system solutions for the neighbourhood of the future. ReMaP enables the testing, analysis, and optimization of multi-energy systems on the distribution level. Building on previous work of various partners, ReMaP is a collaborative project of ETH Zurich, Empa, the PSI, smart grid solutions, Adaptricity, Supercomputing Systems, and National Instruments. **🔗 Read more**

#### World Food System: Innovating rooibos management practices to sustain rural livelihoods

Rooibos, or red bush, is a red tea made from the leaves of a leguminous plant grown solely in the Cederberg mountains of the Western Cape of South Africa. Limited access to land and ongoing desertification threaten the sustainable production of organic rooibos tea production in the region. ETH Zurich researchers along with partners from Stellenbosch University and the Environmental Monitoring Group explored the potential of microbial root symbioses to assist rooibos nutrition and growth. By uncovering the large diversity of beneficial microbes present in rooibos roots, low-cost management practices to sustain rural livelihoods were identified. For example, locally available sheep dung promotes symbiotic microbial diversity when applied to rooibos seedling nurseries. **🔗 Read more**



**Martijn Sonneveld**  
Executive Director,  
World Food System Center

on Sustainable Development Goal 2  
Zero hunger

Zero global hunger remains an elusive goal. Nearly 10 percent of humanity will hunger in 2030 given current trends. We must strive to provide sufficient, safe, and healthy food for all, which requires sustainable, resilient, and productive food systems. The World Food System Center brings together diverse stakeholders to collaboratively find ways to transition to sustainable food systems.

#### **Climate systems: EXCLAIM - the next generation modeling and data platform**

The Center for Climate Systems Modeling (C2SM) is moving forward with its ambition in high-resolution modeling and high-performance computing: With the open ETH project EXCLAIM, approved by the Executive Board of ETH in November 2020 and funded primarily by ETH internal funds, an exascale computing and data platform for weather and climate modelling will be developed. This platform will be capable of simulating the ocean-sea-ice-atmosphere-land system at much higher resolution than hitherto possible. This change in resolution will permit the explicit modeling of many critical processes of weather and climate, thus reducing uncertainties in weather prediction and climate projections. Over the next six years, a team of software engineers and postdocs, guided by directors of science and of software, will develop this platform together with the Swiss National Supercomputing Centre (CSCS), the Swiss Data Science Center (SDSC), the Federal Office of Meteorology and Climatology (MeteoSwiss), and the Swiss Federal Laboratories for Materials Science and Technology (Empa). [🔗 Read more](#)

#### **Risk: Enabling dynamic earthquake risk assessment**

Earthquakes are the natural hazard with the highest risk profile, both in terms of human and financial losses as well as lingering effects on the society. Active seismic sequences, modifications within the exposed built environment, and the mobility of its population constitute the dynamic, time-evolving component of the earthquake risk "landscape". The ETH Risk Center cluster project "DynaRisk" brings together the interdisciplinary competences of three professorships from ETH towards one common goal: Enabling real-time, dynamic earthquake risk assessment by developing and integrating next-generation earthquake forecasting tools with data-driven exposure modelling, damage detection, and loss analysis. The project aims to introduce a paradigm shift in the way earthquake information is collected, processed, analysed, distributed, and used. [🔗 Read more](#)



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**Nicolas Gruber**

Professor of Environmental Physics,  
ETH Zurich

on Sustainable Development Goal 14  
Life below water

Life in rivers, lakes, and oceans is essential for humanity (food, protection, recuperation), but under pressure from multiple stressors including climate change, exploitation, and pollution, e.g., with plastic. These aquatic ecosystems can only be saved and preserved in the long run through a holistic attempt to record these stressors and develop integral solutions.

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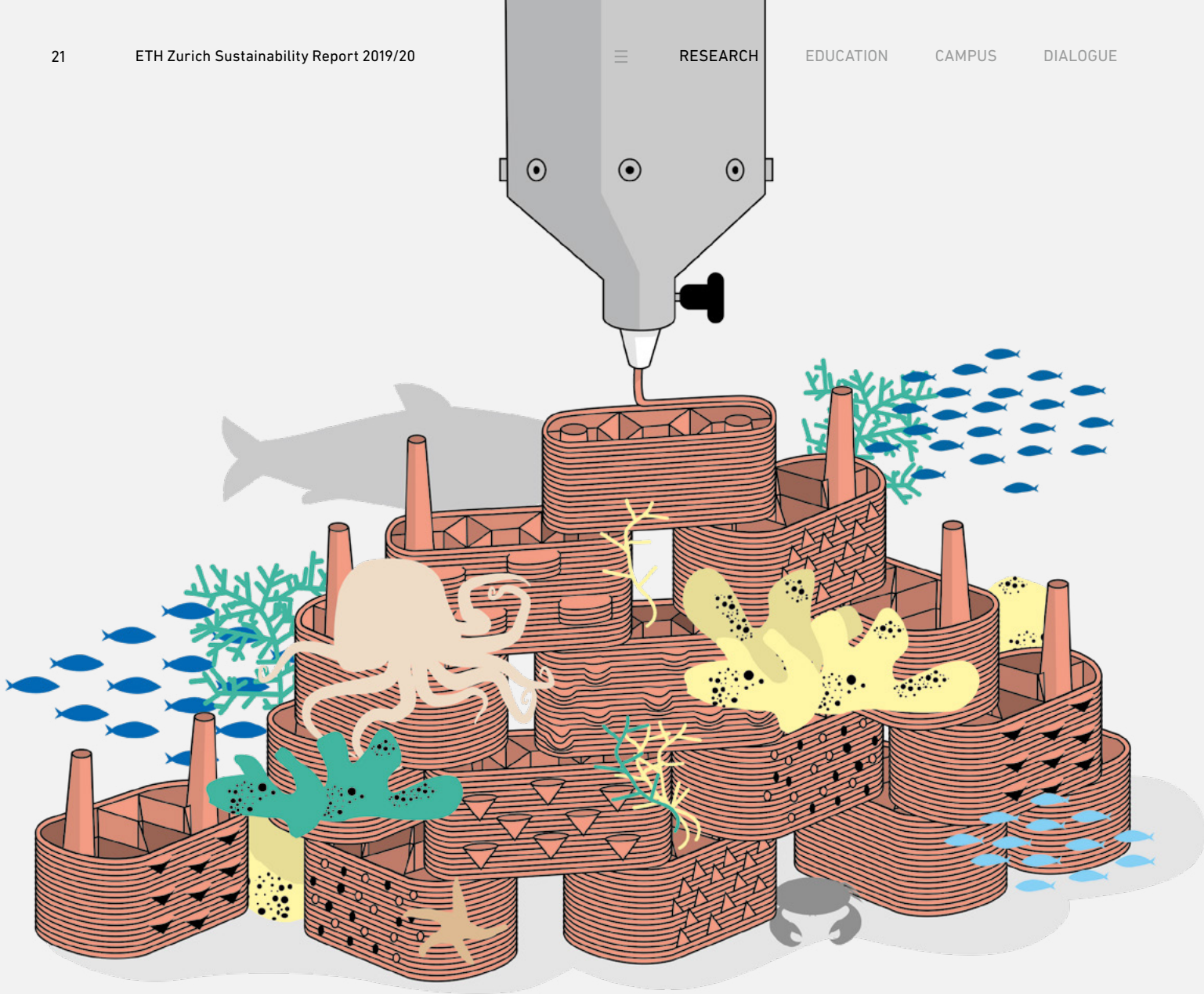
**Future Cities: Enhancing city-planning**

In close collaboration with partners from the University of Cambridge at CARES (the Cambridge Centre for Advanced Research and Education in Singapore), researchers at the Singapore-ETH Centre work on harnessing rapidly growing and diversifying data streams to improve the sustainable planning and design of cities. The team is developing a digital platform, known as the Cities Knowledge Graph (CKG), to combine data and share knowledge about cities and to inject new precision and responsiveness to static instruments of planning. The CKG emphasizes the legibility of different kinds of city-relevant data (building form, transport flows, underground infrastructure, humidity, or temperature) and investigates how to develop a semantic, extendable representation of the relationships between them. [🔗 Read more](#)

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**FURTHER INFORMATION:**

- [🔗 Research for sustainable development](#)
  - [🔗 Zukunftsblog: Blog posts on sustainability](#)
  - [🔗 ETH Zurich's Competence Centres](#)
  - [🔗 ETH4D Initiative](#)
-



HIGHLIGHT

Contributes to SDG [14](#) [17](#)

# Artificial reefs: Saving the rainforests of the oceans

As a land-dwelling animal, homo sapiens tends to ignore what is going on in the world's oceans. But the effects of climate change and warmer temperatures are just as devastating for life beneath the surface of the sea as on dry land. During her time at ETH Zurich, Ulrike Pfreundt studied the impact of these worrying trends on one of the planet's most diverse and ecologically important habitats – coral reefs, which are breeding grounds for at least one quarter of all the oceans' fish species.

As the average water temperatures rise, corals begin to shed the symbiotic algae that feed them and bleach out. The reefs are then overgrown with macroalgae, preventing baby corals from reaching the sheltered nooks and crannies

they need to latch onto and thrive. "Half of the Great Barrier Reef has already been lost," says Pfreundt. "At this rate, we may lose more than 90 percent of all coral reefs within a generation." And this could become a problem for humanity, too: "Losing the immense biodiversity of coral reefs could have disastrous effects on overall ocean health."

Her research looks at ways of creating artificial reefs where coral larvae can find shelter. These must be minutely shaped and calibrated to let the microorganisms interact optimally with the flow of water currents over and around them. The solution: 3-D printed reef structures with surfaces specifically designed to offer shelter to the next generation of corals. The idea has convinced international partners, including two tropical marine research stations and coral restoration NGOs in the Caribbean, the Maldives, in Kenya, and Cambodia to participate. Pfreundt now pursues the concept via her non-profit organization rreefs, which she founded together with the Swiss artist Marie Griesmar and the German marine biologist Hanna Kuhfuss.

**Max Maurer**

Professor for Urban Water Systems,  
ETH Zurich

on Sustainable Development Goal 6  
Clean water and sanitation

Overcoming the global sanitation crisis will require not just concrete and pipes, but also innovations, fresh ideas, and highly interdisciplinary approaches. However, for a successful implementation, we also need the support of industry. Together, we have the potential to provide a dignified life for a growing urban population and to create a more sustainable future for our own cities.

## Knowledge Transfer

Beyond education and research, knowledge transfer represents the third important building block of ETH Zurich's mandate. Being for the most part funded by the Federal Government, the University assumes this responsibility by translating generated findings into technologies for the benefit of society. Ensuring that the best ideas materialize and yield a positive impact for sustainable development, ETH Zurich maintains an ecosystem for discovery, innovation, and entrepreneurship.

In the reporting period 2019/2020, ETH Zurich gave rise to 64 spin-off companies and supported them through consulting and advice, infrastructure, and its dense network. The continuous increase in the number of new companies over the past two decades is solid proof that internal university support programmes pay off. Most of the companies founded during the reporting period were in the field of Information and Communications Technology (40 percent). Given the awareness of the major issues of sustainability, there has been an increase in spin-offs over the years that contribute specifically to solving challenges such as climate change, the world food supply, or resource scarcity.

🔗 **ETH transfer** is the University's technology transfer office. In 2019, the office was named "Technology Transfer Office of the Year" by Global University Venturing magazine. Particular mention was made of the financial success of the spin-offs, measured in terms of venture capital income, but also in terms of their longevity and the jobs they had created. ETH transfer facilitates a structured technology transfer and runs several programmes and facilities like the 🔗 **Pioneer Fellowship programme** and the Innovation & Entrepreneurship Lab (🔗 **ieLab**). The central aspects of this transfer are training of graduates, collaborations and partnerships with the private sector, securing and licensing of intellectual property rights (e.g., patents), and of course the creation of spin-off companies.

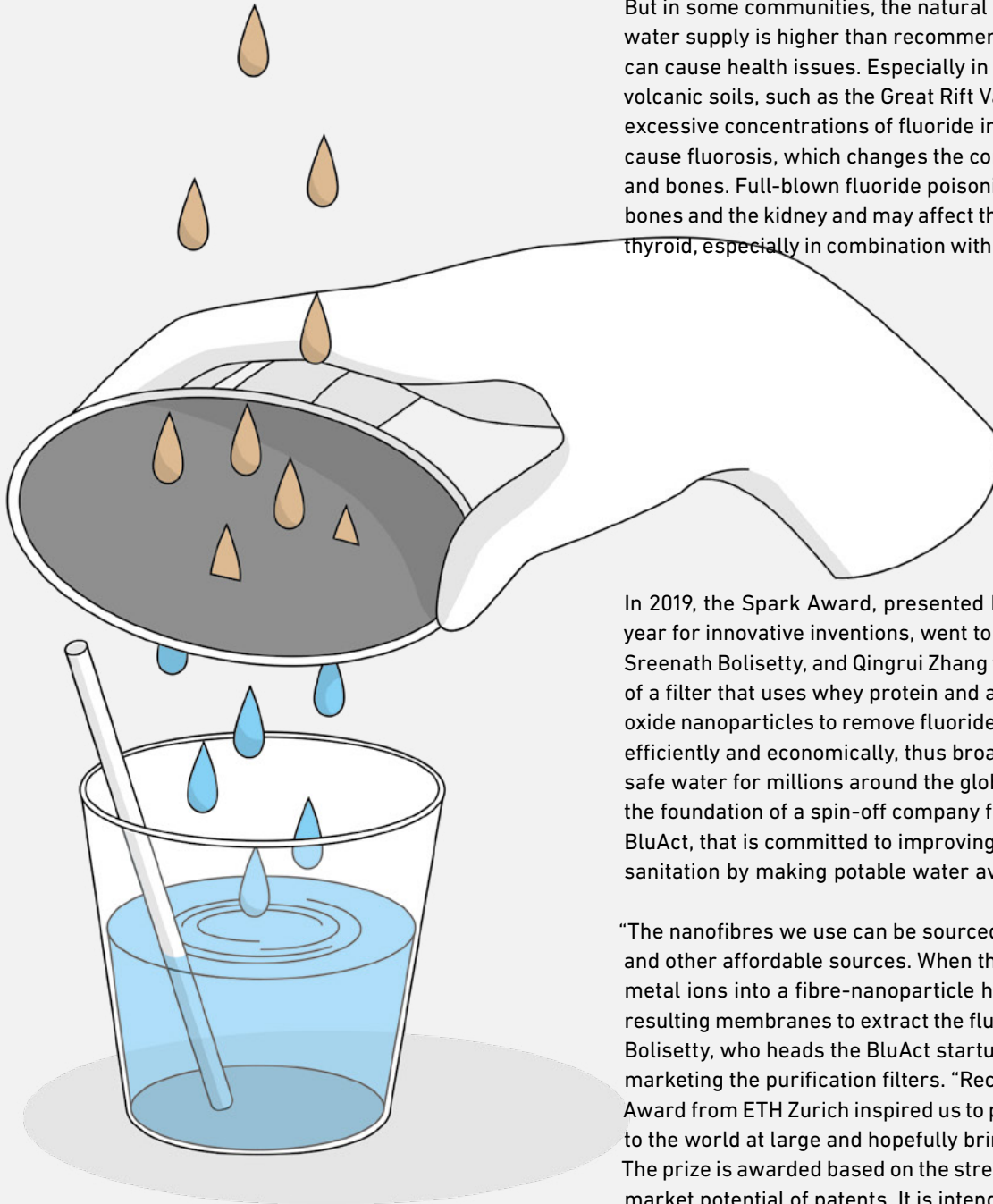


HIGHLIGHT

Contributes to SDG **3** **17**

## Fluoride filters for clean drinking water

In many parts of the world, fluoride is added to drinking water as protection against cavities and tooth decay. But in some communities, the natural fluoridation of the water supply is higher than recommended levels and can cause health issues. Especially in regions featuring volcanic soils, such as the Great Rift Valley in Africa, excessive concentrations of fluoride in potable water can cause fluorosis, which changes the consistency of teeth and bones. Full-blown fluoride poisoning can damage bones and the kidney and may affect the functioning of the thyroid, especially in combination with iodine deficiency.



In 2019, the Spark Award, presented by ETH Zurich every year for innovative inventions, went to Raffaele Mezzenga, Sreenath Bolisetty, and Qingrui Zhang for their development of a filter that uses whey protein and atoxic zirconium oxide nanoparticles to remove fluoride from drinking water efficiently and economically, thus broadening access to safe water for millions around the globe. Their work led to the foundation of a spin-off company for water purification, BluAct, that is committed to improving global health and sanitation by making potable water available to everyone.

“The nanofibres we use can be sourced from milk proteins and other affordable sources. When these combine with metal ions into a fibre-nanoparticle hybrid, we use the resulting membranes to extract the fluoride,” says Sreenath Bolisetty, who heads the BluAct startup company that is marketing the purification filters. “Receiving the Spark Award from ETH Zurich inspired us to present our invention to the world at large and hopefully bring real change.” The prize is awarded based on the strength, originality, and market potential of patents. It is intended to promote the transfer of good ideas into positive outcomes for society.



**Marjan Kraak**  
 Head of Spin-off group,  
 ETH transfer

on Sustainable Development Goal 9  
 Industry, innovation and infrastructure

Transferring research results into products has a long tradition at ETH Zurich. A very successful way to do so is by creating a spin-off. We are proud of our spin-off community with nearly 500 spin-offs, which has already resulted in great innovations and 4,500 new jobs. The pool of ideas is immense at ETH, and with more and earlier support in entrepreneurship, many more spin-offs can be created.

**Creating sustainable value for the Swiss economy**

With around 500 ETH spin-offs now in existence, these businesses play a key role in the Swiss economy. In order to estimate the performance and economic added value of these companies, the University of St. Gallen performed a detailed analysis in 2020 (for the third time after similar analyses in 2008 and 2015). According to the study, 95 percent of the spin-offs are still located in Switzerland, with the majority based in Zurich, thus enabling them to boost the country’s economy and capacity for innovation. The group of 145 ETH spin-offs analysed as part of the study was shown to have created around 4,500 full-time equivalent jobs. Each company provided about 30 positions on average, more than twice the average number for Swiss start-ups. ETH spin-offs are also much more likely to emerge unscathed from the “valley of death” than other start-ups: The study showed that 93 percent of ETH spin-offs survive beyond their five-year milestone.

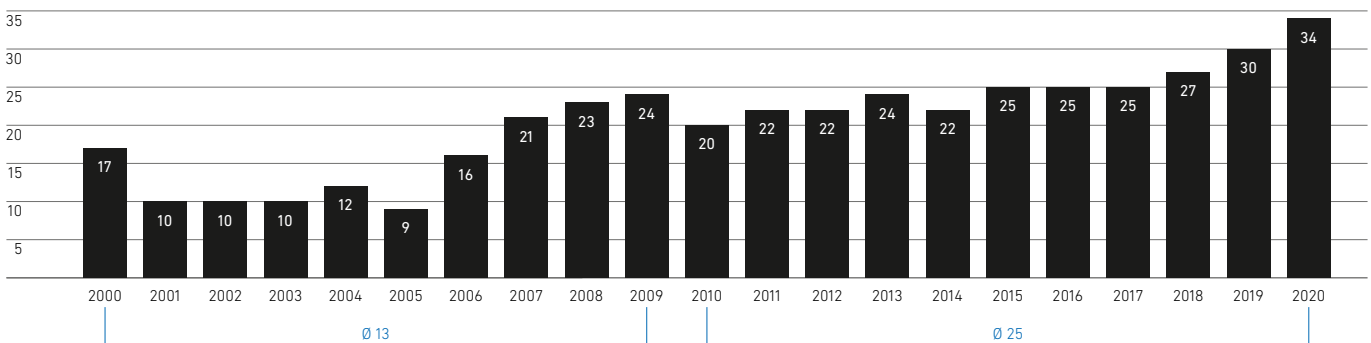


For additional information, please refer to the chapter **Industry and society** in the Annual Report 2020.

**FURTHER INFORMATION:**



- ➔ **List of ETH spin-offs**
- ➔ **Guidelines for spin-off companies at ETH Zurich**
- ➔ **Entrepreneurship opportunities at ETH Zurich**
- ➔ **Study: The Performance of Spin-Off Companies at ETH Zurich (August 2020)**

**Spin-off companies founded at ETH Zurich**



On average, 13 spin-offs per year were founded at ETH Zurich between 2000 and 2009, and 25 per year between 2010 and today.

## HIGHLIGHT

Contributes to SDG  

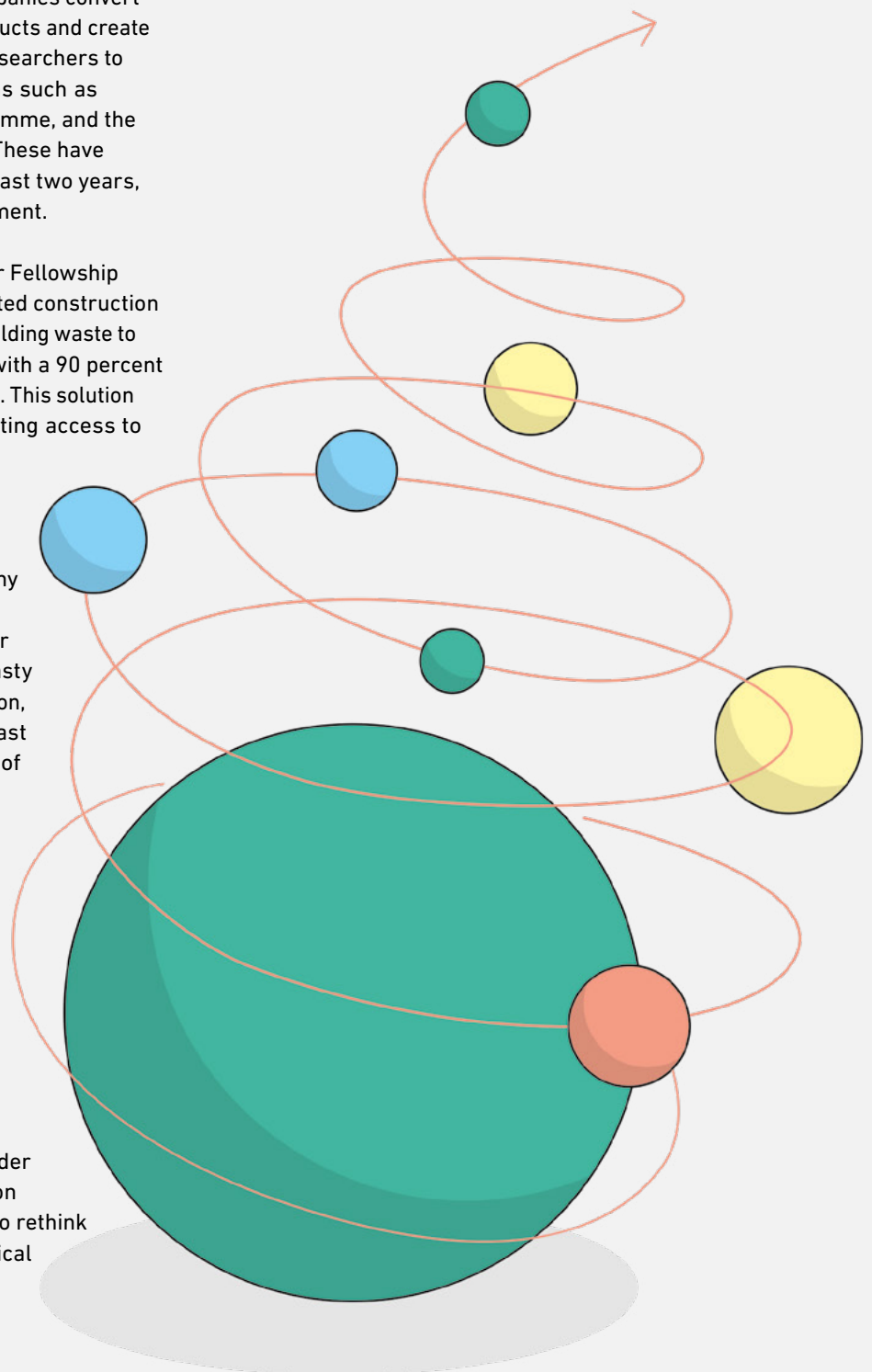
## Green ideas: Spin-offs bring concepts to fruition

Students at ETH Zurich are not only trained in their subjects; they are also encouraged to bring their ideas to fruition and their innovations to the market. Spin-off companies convert research achievements into marketable products and create qualified jobs. The University encourages researchers to commercialize their ideas through platforms such as ETH transfer, the Pioneer Fellowship Programme, and the Innovation & Entrepreneurship Lab (ieLab). These have brought forth numerous spin-offs over the past two years, including in the area of sustainable development.




Oxara, which emerged from the ETH Pioneer Fellowship Programme, facilitates the re-use of excavated construction material through an admixture that allows building waste to be transformed into cement-free concrete, with a 90 percent less CO<sub>2</sub> and costs than conventional concrete. This solution helps mitigate climate change while promoting access to affordable housing.

Planted Foods makes meat-free chicken, pulled pork, and kebab dishes made from vegetable proteins, offering green and healthy alternatives to slaughtered meat. Founded in the summer of 2019, the spin-off is another product of an ETH Pioneer Fellowship. Its tasty products contribute to environmental protection, animal welfare, and consumer health, not least by reducing the devastating consequences of livestock farming.

Vertical farming is a concept for reducing the spatial footprint of food production through stacked layers of indoor cultivation. YASAI, supported by the ieLab, delivers turnkey solutions for “vertical farming as a service”, which allows cities and regions with limited space and resources to build up circular food production systems. “At YASAI, we regard Planet Earth as the spaceship of humanity,” says ETH graduate Mark Zahran, YASAI’s co-founder and CEO. “To sustain life on Earth for 10 billion people and other species by 2050, we need to rethink the current food system and integrate technical innovations to grow more with less for the health of people, plants, and planet.”



INSIGHT

Contributes to SDG   

# Solar fuels: Energy from thin air

An innovative process developed by ETH researchers makes it possible to extract CO<sub>2</sub> and water directly from ambient air and transform them into carbon-neutral transportation fuels. A solar mini-refinery mounted on the roof of ETH Machine Laboratory demonstrates the technology, which can particularly contribute to sustainable aviation.

The successful operation of the solar demonstration plant represents a crucial milestone towards the production of carbon-neutral synthetic fuels.



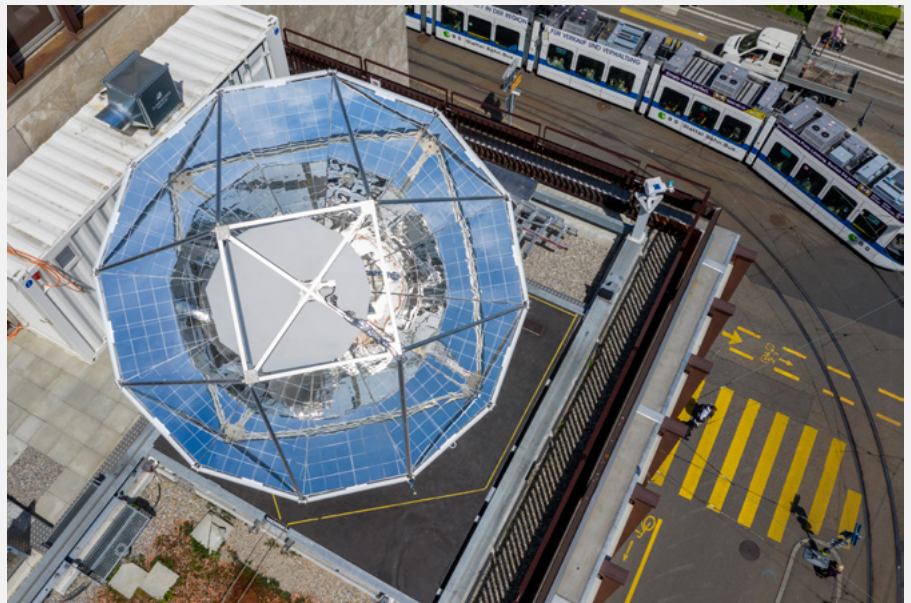
The research plant is located on the roof of the ETH building on Sonneggstrasse

On a sunny day and if they are lucky, passers-by might notice what looks like a large satellite dish unfolding on the roof of the ETH Machine Laboratory. What they are seeing, in fact, is a small refinery that is able to produce liquid hydrocarbon fuels from two ingredients: sunlight and ambient air. Although this demonstrator produces only small quantities, it serves as a technological proof and represents a crucial milestone towards large-scale production of sustainable fuels.

Hydrocarbon fuels burn in an exothermic reaction with oxygen, releasing heat and discharging CO<sub>2</sub> and water vapour into the atmosphere. "Our process literally reverses the combustion process by capturing both discharged elements from air and using solar heat to convert them back into hydrocarbon fuels," says Prof. Aldo Steinfeld, Head of the Professorship of Renewable Energy Carriers. "These are carbon-neutral fuels because their combustion releases only as much CO<sub>2</sub> as was removed from the air for their production."

#### Process chain to solar fuels

The thermochemical process chain involves three stages. Firstly, CO<sub>2</sub> and water are extracted from ambient air in an adsorption-desorption process. Secondly, both components are then fed into a solar reactor at the focus of a high-flux solar concentrator, which delivers concentrated sunlight at a radiative flux intensity of 3,000 suns and creates heat at temperatures of 1,500 °C. At the heart of the solar reactor is a porous ceramic structure made from ceria (CeO<sub>2</sub>) that enables an oxidation-reduction (redox) cycle. Ceria is firstly reduced, releasing oxygen, and then re-oxidized with CO<sub>2</sub> and water, forming syngas – a specific mixture of H<sub>2</sub> and CO<sub>2</sub>. The initial state of ceria is restored, and the cycle can begin again. Finally, in the third stage of the process chain, syngas is processed into a number of



conventional transportation fuels such as kerosene (jet fuel), gasoline, methanol, and other liquid hydrocarbon fuels.

Though this mini-refinery only produces about 0.1 litres of liquid fuel per day, it demonstrates the feasibility of the technology under real intermittent field conditions, even under the local solar radiation in Zurich. The scope of this project is far broader, however, as the ETH engineers operate within the framework of the SUN-to-LIQUID project, supported by the EU's Horizon 2020 research and innovation programme as well as the Swiss Office of Energy and the Swiss State Secretariat for Education, Research and Innovation. Steinfeld's team has scaled up the solar reactor system and tested it in the solar tower facility of IMDEA Energy near Madrid, thereby advancing the technology readiness level beyond the laboratory.

#### Drop-in solutions

Though the idea of using renewable energy to make fuels may seem counterintuitive, this approach offers a viable solution for those transportation sectors (e.g., aviation and maritime shipping) that depend strongly on liquid hydrocarbons and for which alternative power sources such as batteries are currently not feasible. Here, the synthetic fuels produced 'from thin air' by the solar-driven refinery, such as carbon-neutral gasoline and kerosene,

can continue to use the existing worldwide infrastructures for their storage, distribution, and utilization.

The strong interest from industry in the commercial application of the innovative solar fuels concept can be seen in the success of Climeworks and Synhelion, the two spin-off companies that originated in Steinfeld's research group. Climeworks, founded in 2010, commercializes the technology for CO<sub>2</sub> capture from air, while Synhelion, founded in 2016, commercializes the solar technology for the conversion of CO<sub>2</sub> into fuels. "A future industrial solar fuel plant spanning an area of one square kilometre could be able to yield 20,000 litres of kerosene a day," said Philipp Furler, CTO of Synhelion and a former doctoral student in Steinfeld's group. Partnerships with global players, such as with the energy company ENI and the cement manufacturer Cemex, as well as with the Lufthansa Group and Zurich Airport, have been created to accelerate implementation of the first generation of commercial-scale production plants. "Sustainability is not for free, it comes at a price. Personally, I see it as a long-term investment that is being repaid to our children as an environmentally friendly solar fuel supply system," says Steinfeld.

#### 🎯 Fuels from Sunlight and Air

# EDUCATION

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Partnership for success 38

## Educational environment


One of the top priorities for higher education institutions is to create and maintain an inspiring environment for studying. Only when the surrounding conditions are favourable can students excel and achieve their full potential. Therefore, a substantial share of ETH Zurich's efforts is dedicated to critical reflection on educational programmes, curriculum development, and to promoting and supporting innovative teaching methods. The growing number of enrolled students at all levels of education shows that ETH Zurich is highly attractive for Bachelor, Master, and doctoral students. At the same time, extensive student feedback, graduate surveys, and other forms of evaluations feed into the further development of the educational environment. Within the framework of a differentiated system of quality assurance, ETH Zurich periodically reviews curricula, individual courses, and performance assessments and makes adjustments where necessary. The University has also issued a series of teaching policies dealing with topics such as curriculum development or quality criteria for teaching.

### A vibrant student body

The student numbers at ETH Zurich have doubled since the year 2000. The challenges of this development aside, the increase indicates that ETH Zurich has continuously attracted talented students to join its vibrant community. With 20,607 students enrolled in Bachelor, Master, and doctoral programmes in 2017, the number of students at ETH Zurich topped the 20,000 mark for the first time. In 2019 and 2020, the numbers rose further, to 22,193 and 23,422, respectively. The student body consists of individuals from more than 120 countries. More than 90 percent of all Bachelor degree graduates continue their studies with a Master's degree programme at ETH Zurich, emphasizing the degree of satisfaction among Bachelor students. They also perform just as well, in terms of marks, as the cohorts of new entries to the highly competitive Masters' programmes.

### Degrees

| Headcount                          | 2000         | 2017         | 2018         | 2019         | 2020         |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|
| <b>Bachelor degrees</b>            |              | <b>1,606</b> | <b>1,678</b> | <b>1,758</b> | <b>1,843</b> |
| Architecture and Building Sciences | -            | 373          | 281          | 307          | 377          |
| Engineering Sciences               | -            | 537          | 607          | 592          | 613          |
| Natural Sciences and Mathematics   | -            | 365          | 425          | 442          | 353          |
| System-oriented Natural Sciences   | -            | 318          | 349          | 397          | 492          |
| Management and Social Sciences     | -            | 13           | 16           | 20           | 8            |
| <b>Master degrees and diplomas</b> | <b>1,341</b> | <b>2,072</b> | <b>2,196</b> | <b>2,335</b> | <b>2,260</b> |
| Architecture and Building Sciences | 322          | 381          | 410          | 421          | 439          |
| Engineering Sciences               | 258          | 733          | 786          | 890          | 784          |
| Natural Sciences and Mathematics   | 317          | 506          | 559          | 565          | 568          |
| System-oriented Natural Sciences   | 231          | 355          | 359          | 361          | 385          |
| Management and Social Sciences     | 213          | 97           | 82           | 98           | 84           |
| <b>Doctorates</b>                  | <b>523</b>   | <b>827</b>   | <b>802</b>   | <b>866</b>   | <b>781</b>   |

Contributes to SDG 


## Response and responsibility: Dealing with COVID-19

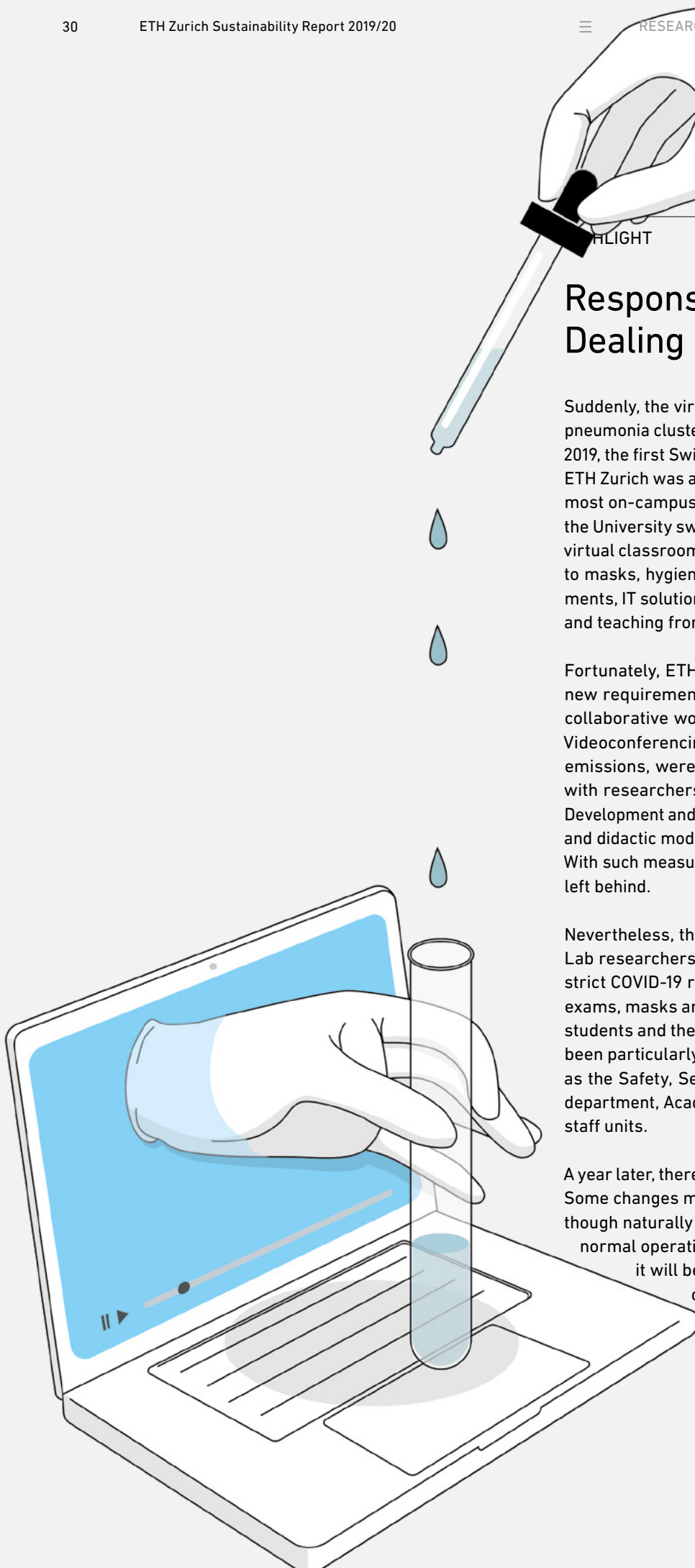
Suddenly, the virus had arrived. Just eight weeks after a pneumonia cluster was reported in Wuhan on December 31, 2019, the first Swiss case was registered. The response by ETH Zurich was as swift as it was drastic: By March 16, 2020, most on-campus classes had been suspended. Overnight, the University switched 1,060 lectures to online formats and virtual classrooms to protect students and staff. In addition to masks, hygiene measures, and social distancing requirements, IT solutions were implemented to facilitate learning and teaching from home.

Fortunately, ETH Zurich was able to accommodate these new requirements with tools such as Zoom meetings, collaborative work environments, or new VPN channels. Videoconferencing facilities, developed to avoid air travel emissions, were now scaled up for risk-free encounters with researchers in other countries. The Educational Development and Technology department supported technical and didactic modifications to maintain quality education. With such measures, ETH Zurich ensured that no one was left behind.

Nevertheless, the “new normal” is still far from normal. Lab researchers must postpone experiments or observe strict COVID-19 rules in the workplace. During in-person exams, masks and plexiglass dividers protected the 12,000 students and their supervisors at all times. The crisis has been particularly challenging for administrative areas such as the Safety, Security, Health and Environment (SSHE) department, Academic Services, Student Services, and other staff units.

A year later, there are 90 percent fewer students on campus. Some changes may become long-term or permanent, though naturally everyone is hoping for a resumption of normal operations. But while the pandemic lasts, it will be up to students and staff to protect their own health and that of others.

 **COVID-19 task force**







**Andreas Vaterlaus**  
 Professor for Physics and  
 Education and Vice Rector for  
 Curriculum Development

on Sustainable Development Goal 4  
 Quality education

In its teaching policy, ETH Zurich notes: “The range of courses at ETH is subject to ongoing critical examination and development. ETH’s degree programme portfolio is oriented towards the long-term requirements of science, society and the economy.” In my function, I see that ETH Zurich lives up to this claim. It nurtures an inclusive educational culture and contributes to solutions for global sustainability challenges.

#### Student Satisfaction Survey #howsETHgoing

The Association of Students at ETH Zurich (VSETH) conducted a survey among students in Bachelor’s and Master’s degree programmes at ETH in the Spring Semester of 2019. Around 6,400 students took part in the “#howsETHgoing?” online survey, answering questions about their academic situation, mental health, and experiences of discrimination or unequal treatment. The results paint a positive picture in many respects. However, many students find it difficult to deal with the heavy workload. Twenty percent of students responded that they were not coping well with the academic pressure. The Rectorate is aware of this problem and pays particular attention to the workload when reviewing degree programmes.

#### Innovation for teaching and learning

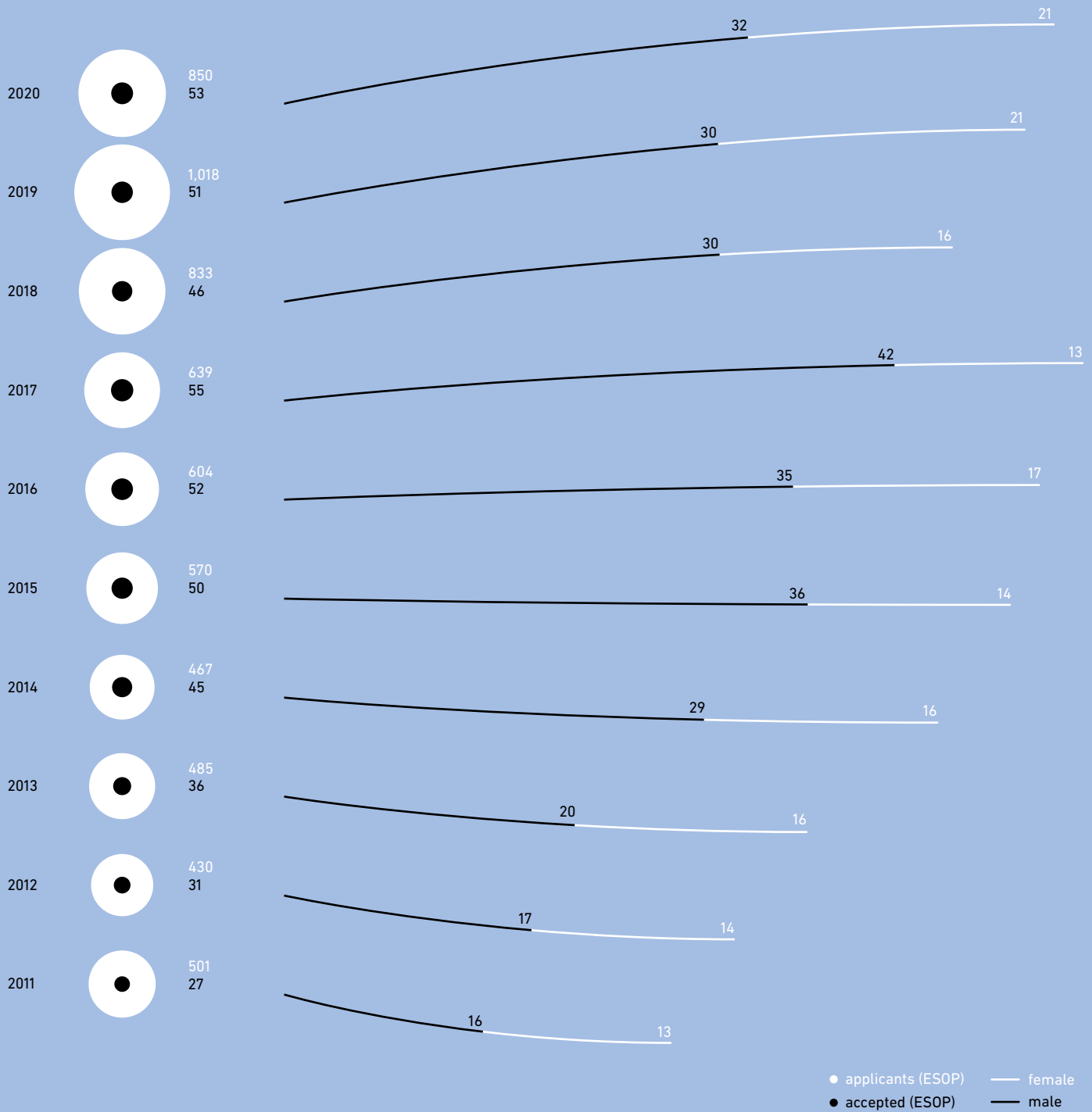
As a leading institution of higher education for technology, ETH Zurich has a vested interest in being at the forefront of educational innovation, especially where it can generate significant added value for the development of students’ professional skills. Offering a wide range of information and services, the administrative department Educational Development and Technology (LET) promotes excellence and advancements in ETH teaching. LET also engages in systematic planning and promotes new themes in the areas of teaching and teaching technology. The educational development portfolio of LET includes ad-hoc coaching; didactic continuing education; guidance in issues related to examination design, administration, or grading; curriculum development and monitoring; and a broad range of documents comprising introductory reading, handouts, and checklists.



For additional information, please refer to the chapter [Teaching](#) in the Annual Report 2020.

#### FURTHER INFORMATION:

- [🔗 Organisation of the Rectorate](#)
- [🔗 Brochure: “Innovative Teaching”](#)
- [🔗 ETH Talent Project](#)
- [🔗 Academic Services](#)
- [🔗 Educational Development and Technology unit \(LET\)](#)
- [🔗 Network of Educational Developers](#)
- [🔗 Innovedum fund](#)
- [🔗 KITE Award](#)
- [🔗 LET Blog](#)
- [🔗 Student services](#)
- [🔗 ETH unterwegs](#)
- [🔗 Mental Health](#)



GOAL: EDUCATION

## Support particularly gifted Master students by providing grants to incoming students

Fully funded through the ETH Foundation, the Excellence Scholarship and Opportunity Programme (ESOP) is awarded to outstanding students that receive group based training and interaction with the donors for the duration of their studies and a grant (CHF 24,000) that covers the costs of studies and living during their Master degree programme (104 students during the reporting period). With the ETH-Departmental (ETH-D) Scholarship Programme (formerly MSP), students receive a grant for the duration of their studies, as well as the opportunity to

work as assistants (73 students during the reporting period). The ETH-D scholarship has been enhanced in value so that any student from any country will not need to find additional funds to guarantee access to studying at ETH Zurich. Accepted students receive up to CHF 21,000, with CHF 15,000 coming from the Rector's funds and CHF 6,000 from the department through either a scholarship or an assistantship.

Please find the [detailed overview of all goals](#) in the back of this report.



GOAL: EDUCATIONAL DEVELOPMENT

## Improve mentoring relations through the appointment of additional assistant and full professorships

The ratio of students to faculty at ETH Zurich is much higher than at other leading universities. Although ETH Zurich has established many new professorships and assistant professorships, the ratio is driven to a large extent by the increasing student numbers. As a result, the situation is deteriorating, with a ratio of 1:44 in 2020 (1:32 in 2000 and 1:40 in 2010). More and more experienced scientists are taking on mentoring roles, which is not reflected in this ratio.

In addition, ETH Zurich is increasing its teaching capacity in terms of infrastructure and faculty and is developing new teaching formats and techniques to make teaching more efficient without compromising on quality, despite growing student numbers.

Please find the [detailed overview of all goals](#) in the back of this report.

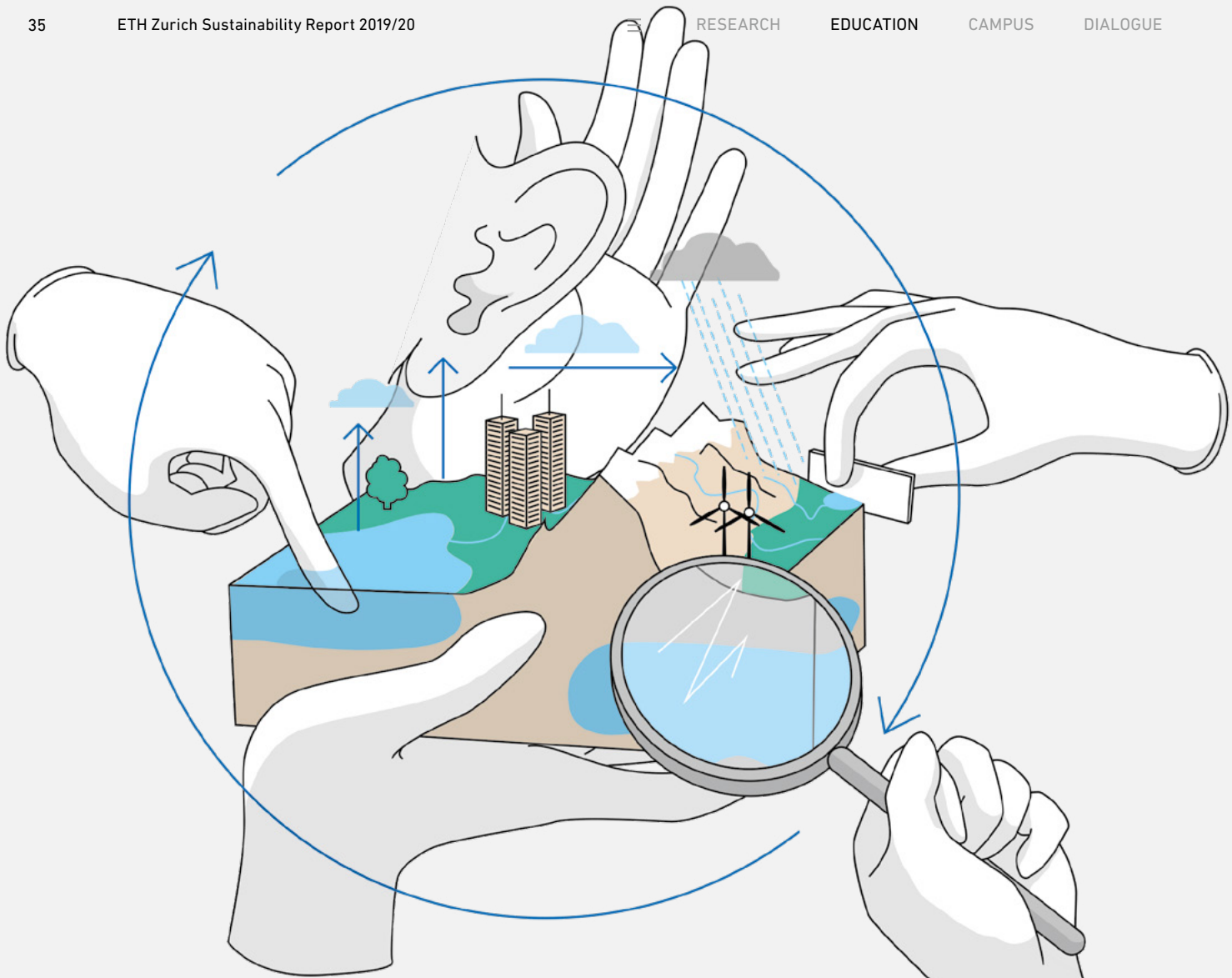
## Education for sustainable development

Graduates of ETH Zurich take on key positions in various segments of society. Hence, it is of utmost importance that the education of this generation of future leaders should look beyond their specialist expertise. In most of its educational offerings, ETH Zurich stresses the capacity for system-oriented, independent, and critical thinking. Teaching at ETH Zurich is increasingly becoming project-based and interactive, which is also reflected in infrastructural developments (i.e., new classrooms, learning spaces, or equipment). The University aims to instil intellectual agility, a responsible approach to taking action, and the ability to address socially relevant aspects guided by ethics and the principles of sustainable development.



In addition to the diverse offerings at the level of the departments and competence centres, ETH Zurich is continuously developing innovative formats to make education for sustainable development accessible to all members of its community. The student-organised **🌱 Sustainability Week** is a prime example of a grassroots initiative that has been designed to raise visibility and awareness for sustainability, which complements the institutional efforts. Initiated by students of ETH Zurich and the neighbouring University of Zurich, the format is now a country-wide success story.

### Preparing students for tomorrow

The increasingly volatile, uncertain, complex, and ambiguous nature of our world is creating new demands for university education. Based on these developments and the feedback from graduate surveys, which highlighted an increased need for social and personal competencies, the Rector of ETH Zurich, Sarah M. Springman, has responded by initiating the ETH Talent project. The project aims to promote employment and career opportunities for ETH graduates, as well as to assist them with their personal growth and further their engagement in society. ETH Talent integrates cross-disciplinary competencies into the curricular offering through a holistic set of competencies. One central milestone of this project has been the development of the **🌱 ETH Competence Framework**. It contains 20 competencies, organised into four domains. These competencies may be content-specific ones that are unique to each programme of study; or general methods; or they may relate to students' interactions with others or their own self-management skills. The compilation was developed in close collaboration with Swiss employers from different economic sectors and with educational and career experts. The Competence Framework is a roadmap for ETH Zurich members to guide and inspire their work, and for personal and professional development.



## HIGHLIGHT

Contributes to SDG  

## KITE Award for transdisciplinary teamwork


The Transdisciplinarity Lab (TdLab) at the Department of Environmental Systems Science (USYS) reflects the variety of scholarship that informs our understanding of the environment. It includes psychologists, philosophers, geographers, and anthropologists as well as environmental scientists from all over the globe. This broad perspective is also applied in the teaching activities for about 150 first-year students, designed to instil in them a practical understanding of the intricacy of issues involved and teach them proven methods and approaches.

In 2020, the ETH Lecturers' Conference awarded a team led by USYS lecturer Christian Pohl the KITE Award in recognition of their contribution to excellence in teaching for the course "Tackling Environmental Problems". From the first semester onwards, this course, which

combines systems and design thinking, equips students to comprehend complex environmental problems and develop methodologically sound research approaches on sustainability-related topics. They learn how to approach these in a transdisciplinary manner and work in groups to answer specific research questions in a scientific report.

In the next phase, measures are developed for dealing with concrete problems in a holistic perspective, based on each student's unique and specific contribution. The last case study dealt with water management in the Upper Engadin region of Switzerland with respect to climate change. "The participants had a valuable opportunity to work with local stakeholders on actual sustainability projects and test measures in the field for their real-life value," says Pohl. With the KITE Award, ETH Zurich encourages lecturers to inspire their students and spark their interest in the issues that will shape our future. The award for 2020 acknowledges this innovative teaching concept in the field of sustainable development.

 **USYS TdLab**

 **KITE Award**



**Adina Rom**  
Executive Director of ETH4D

on Sustainable Development Goal 1  
No poverty

Despite unprecedented progress in combating global poverty, one in ten humans still live in extreme poverty. By developing and testing new technologies and methods, ETH Zurich can contribute significantly to poverty reduction. Moreover, ETH Zurich equips students with skills and tools for tackling global challenges. With ETH for Development (ETH4D), a network of 37 research groups, we want to further strengthen this engagement.

#### **Departments and degree programmes offering education for sustainable development**

The University's traditional commitment to sustainability has catalysed institutional developments as well as the development of courses and programmes. One prominent example is the Department of Environmental System Sciences (🔗 **D-USYS**), which can boast a world-class track record in offering system-oriented education programmes in Environmental Sciences and Agricultural Sciences that have fostered sustainable development for over 30 years. Six specialisations, including "Atmosphere and Climate", "Environmental Systems and Policy", or "Human Health, Nutrition and Environment", form the Master's programme in Environmental Sciences. The Master's programme in Agricultural Sciences, in turn, offers three majors, in "Agricultural Economics", "Animal Sciences", and "Plant Sciences". Other examples include the Bachelor in Earth and Climate Sciences at the Department of Earth Sciences (🔗 **D-ERDW**), the Bachelor in Food Science at the Department of Health Sciences and Technology, the Master in Atmospheric and Climate Science at the Department of Earth Sciences (D-ERDW), the Master of Science in Energy Science and Technology (🔗 **MEST**) at the Department of Information Technology and Electrical Engineering (🔗 **D-ITET**), the Master of Science in Environmental Engineering (🔗 **D-BAUG**), the Master's programmes at the Institute of Science, Technology and Policy (🔗 **ISTP**), or the multi-departmental Master of Science in Integrated Building Systems (🔗 **D-ARCH**).

ETH Zurich also offers a broad range of extracurricular 🔗 **summer and winter school programmes** dealing with topics related to climate change, energy supply, or aspects of the world food system. The topic of sustainability is also becoming increasingly important in the area of continuing education. The 🔗 **School for Continuing Education** offers a number of MAS, DAS, and CAS programmes, which have increased by 50 percent since the School's formation, including in areas such as Development Cooperation, Future Transport Systems, Sustainable Water Resources, and Nutrition and Health.



A total of 575 keywords were applied to the comprehensive course catalogue, searching within the title, description, and learning objectives of a course.

### **Sustainability Course Catalogue**



The Sustainable Development Goals have been given a notably higher profile, since 2020, through a new **🎯 course catalogue**, in addition to the traditional one. Keywords from the 2030 Agenda were identified and applied as a filter to the existing course catalogue. Both a selection as well as the full list are available online, grouped by the 17 SDGs. The list will be updated each year. In future, it will be possible to attach the SDGs to each course in the next iteration of the course management software.

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#### **FURTHER INFORMATION:**

- 🎯 **Science in Perspective**
  - 🎯 **Sustainability Summer and Winter Schools**
  - 🎯 **Sustainability Course Catalogue**
  - 🎯 **NADEL**
  - 🎯 **ETH4D**
-

INSIGHT

Contributes to SDG  

# Ashesi-ETH Master programme: Partnership for success

ETH Zurich and Ashesi University in Ghana have teamed up with Swiss industry partners to develop a graduate programme in mechatronics, one of the first on the African continent, that will train “Engineers from Africa for Africa” and equip them to become leaders of sustainable industrial development.

Based on the university's own expansion plans and a survey of key stakeholder interests in the region, the curriculum for the university's first Master's programme was developed in collaboration between all partners.







Shown here are Dr. Johann van der Merwe, Prof. Angela Owusu-Ansah, Dr. Wilfred Elegba, Dr. Andrea Carron, and Dr. Nathan Amanquah during a visit to Ashesi University in January 2020.

Ashesi University, one of Africa's newest institutes of higher learning, is situated just outside Ghana's capital, Accra. Its name means "Beginning" in the Fante language of Ghana – a hopeful designation for a university that in 2018 received its charter as a private, not-for-profit institution with its own degree program. In collaboration with ETH Zurich and Swiss industry partners, it will soon become one of the first universities in Africa to offer a graduate course in mechatronics engineering. As part of this ETH for Development (ETH4D) initiative, lecturers and professors from Ghana and Switzerland will work in tandem to train students as engineers and as future ethical leaders who can support Africa's industrial development in a sustainable manner.

"The Ashesi-ETH Master programme is the flagship for ETH4D and a pilot for developing a new model of collaboration in tertiary education between ETH Zurich and universities in Africa," says ETH4D programme manager Johann van der Merwe. Academically, the programme is organized between ETH Zurich and Ashesi University, but it is further supported by Swiss companies in the automation and production sector that have a presence in Sub-Saharan Africa and are interested in employing mechatronics engineers in their local operations. These include ABB, Barry Callebaut, Bühler, LafargeHolcim, Nestlé, and Tetra Pak.

The curriculum for the university's first Master's programme was developed in collaboration between all partners, based on the university's own expansion plans and a survey of key stakeholder interests in the region. The result is a study programme at the intersection of mechanical and electronic engineering. "Mechatronics engineering is becoming more and more relevant globally," explains van der Merwe. "Some African universities already offer undergraduate programmes in mechatronics engineering, but very few offer such a programme on a graduate level. Ashesi will be one of the first universities in west Africa to offer a Master's programme in this important field."

As the motto "Engineers from Africa for Africa" suggests, the programme is rooted in the local environment. Students will earn two degrees, an MSc or MPhil from Ashesi University and an MAS from ETH Zurich. It is hoped that when the cooperation ends after it has been presented to five cohorts, Ashesi will have an established programme and sufficient teaching capacity to sustainably present the programme beyond the current collaboration. "With the involvement of our industry partners, we want to train engineers needed for Africa, on the African continent, and to tailor the curriculum to make it relevant to the local context, thereby also supporting the long-term sustainability of the programme," says van der Merwe.

Given the demographic growth that Africa will see over the coming decades, sustainable industrial development will be crucial. While the course focuses on the needs of local economies, Ashesi University's experience in including subjects such as ethics, leadership skills, and sustainability issues in their existing curriculums is sure to prepare graduates for their roles as advocates of sustainable development in the region. That's why courses such as sustainable engineering, reducing environmental footprints, corporate responsibility, and development economics will be included in the programme curriculum.

In addition to giving practical input for this curriculum, the Swiss industry partners have made donations to get the programme started and to fund scholarships, as well as in-kind contributions including onboarding sessions, mentoring, and industry internship opportunities in the final semester with a view to future recruitment and employment in the students' respective home countries. ETH Rector Sarah Springman acknowledges the value of this partnership for quality education: "We want this Master to have a real impact on sustainable development. We're drawing here on the different skills and perspectives of the project parties – ETH, Ashesi, and partners from industry – as we all want to learn from each other to build a better and more integrated educational offering that can flourish independently in the future."

- ETH4D
- Department of Mechanical and Process Engineering
- E4D Continuing Education Scholarship

# CAMPUS

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## CAMPUS

## PEOPLE

## Participation

Active encouragement of the expression of opinions is part of ETH Zurich's institutional identity and a key factor for the high level of motivation among all members of the University. ETH Zurich values this exchange – not only because gaining experience in the active representation of their interests will serve students and trainees in their later professional lives, but also because a fundamental disposition towards dialogue can help with identifying emerging problems and challenges within the ETH community and address them in a systematic and timely manner. With a commitment to cultivating a transparent environment, ETH Zurich fosters a variety of boards, university groups, and commissions to act as bodies to discuss, elaborate, and represent the matters and concerns of students and employees at ETH Zurich in a participatory environment.

### University Assembly: Representation and participation

Based on the principle of equal representation, the University Assembly (🔗 **HV**) is made up of representatives of the Lecturers' Conference (🔗 **KdL**), the Academic Association of Scientific Staff (🔗 **AVETH**), the Association of ETH Students (🔗 **VSETH**), the Staff Commission (🔗 **PeKo**), and a number of (permanent) guests, for example from the Corporate Communications department of ETH Zurich, the ETH Board, or the Equal! office. The University Assembly is composed of one president, one vice president, at least 20 members, and one secretary.

### Commissions, advisory groups, and student participation



Besides the representative bodies mentioned above, a total of ten 🔗 **permanent commissions** act as advisory bodies to the Executive Board of ETH Zurich: the Strategy Commission, the Teaching Commission, the Research Commission, the ICT Commission, the Risk Management Commission, the Investment Commission, the Ethics Commission, the Commission for Good Scientific Practice, the Environmental Commission, and the Catering Commission.

On the student side, the Association of ETH Students (VSETH) is the main body for representation and participation. Within the VSETH, the Student Sustainability Commission (🔗 **SSC**) represents students' interests for a more sustainable University vis-à-vis the Executive Board and other bodies.

For a comprehensive overview of internal and external stakeholder dialogue channels, please refer to 🔗 **pages 84-86** of this report.

Various other groups and committees address a variety of issues of importance to the University. For instance, the Global Advisory Board (GAB) consults the President of ETH Zurich in matters regarding its international strategy. The ITEK (IT expert commission) is a board of experts at ETH Zurich dealing with issues relating to IT. Two boards, one for departments and one for central units, are working on continuously improving and raising awareness of information security at ETH Zurich. The Pensioners' Association of ETH Zurich (PVETH) was founded in 1976 by a group of retired ETH employees. Its aim is to foster inter-personal relations among the retired employees of ETH Zurich by organizing social and cultural events.

## HIGHLIGHT

Contributes to SDG  

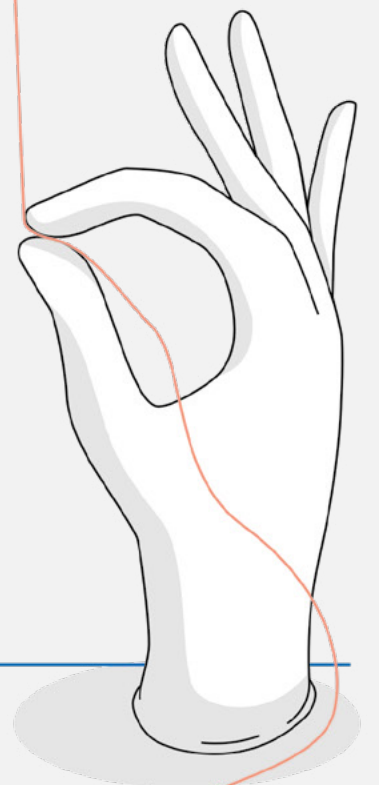
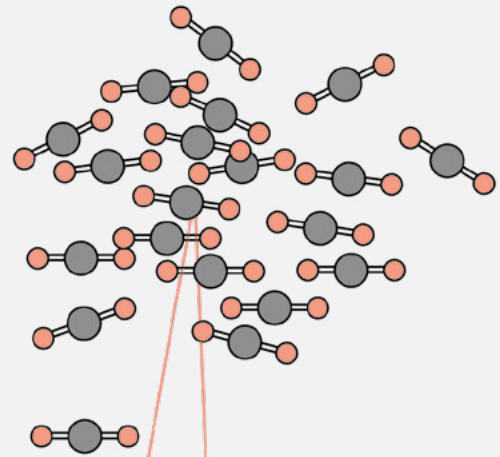
## 'We are part of the very nature we try to understand'

In 2018, all ETH departments reviewed their air travel miles to determine the potential for emissions reduction. The Department of Physics (D-PHYS) duly set itself the goal of reducing its carbon footprint by 20 percent between 2019 and 2025. The scientists quickly came to understand, however, that this was nowhere near enough: Additional, more consequential changes would be required sooner rather than later. Rather than waste time on half-measures, D-PHYS formed the CO<sub>2</sub> Working Group to assess the climate impact of its operations, propose measures to reduce CO<sub>2</sub> equivalent (CO<sub>2</sub>eq) emissions, and report on its results.

That report, compiled by the Working Group throughout 2020, was presented to the D-PHYS Department Conference in October that year, where it received a vote of endorsement and support. It proposes numerous actions, guidelines, and ideas for placing the department's scientific work on a path towards emissions reduction. These include shifting more activities to online participation, replacing air travel with sustainable modes of transport, or accrediting sustainability-related coursework towards study degrees in physics.

"As researchers, we understand that we are part of the very nature that we try to understand on a fundamental level," says Professor Niklas Beisert of the Institute for Theoretical Physics, who chairs the CO<sub>2</sub> Working Group. "All of our observations, experiments, and theoretical knowledge tell us that we must use our limited resources wisely." One of the next steps will be to gather more data on greenhouse gas emissions at D-PHYS while continuing to uphold the department's standards in teaching and research, Beisert says: "We aim to show that high-quality research and education are compatible with climate neutrality, and we're confident that the D-PHYS initiative will pave some roads towards sustainability across all of ETH Zurich."

### CO<sub>2</sub> Working Group




**Marie-Claire Graf**

Vice President Swiss Youth for Climate


on Sustainable Development Goal 16  
Peace, justice and strong institutions

We live in turbulent times, forced to manage several existential crises within only a few years in order to achieve the SDG16 and world peace. This requires an unprecedented transformation. To remain a relevant, leading and strong institution, ETH Zurich must communicate and exemplify knowledge as well as the courage to implement such a societal transformation itself.

### Ombudspersons and confidants



For critical issues that are not covered by the participatory mechanisms listed above, the Executive Board of ETH Zurich appoints  **ombudspersons and confidants**. Ombudspersons are a general point of contact for conflicts that cannot be solved by direct communication and for reporting suspected illegal actions. The confidants can help with issues concerning research integrity and scientific misconduct. Both are independent and treat all information they receive confidentially. They will only involve further persons or units if the case requires it, and with full confidentiality. While they cannot issue instructions, they may point out solutions, establish contacts, and initiate processes. In 2019, 116 inquiries were handled by the ombudsperson's office. In 2020, the number of requests stood at 88. In previous years, inquiries seem to have been evenly distributed throughout the year; in 2020, the ombudsperson's office received fewer inquiries during the months of COVID-19 related emergency operations. Broken down by status, gender, or language, considerable differences can be found, but no long-term trends could be seen so far. Three quarters of the inquiries were handled with a few consultations and clarifications, while in 20 cases, the effort was considerable. However, only in four cases was the situation assessed as critical.

### rETHink: Participation is key

In a major effort to reflect on the organizational structure in place and to make the University ready for the future, President Joël Mesot launched the  **rETHink** project in 2019. rETHink seeks to take a participatory approach to addressing the key issues facing the University. Organized along six workstreams, the project aims (1) to further strengthen individual responsibility at all levels – the professorships, academic departments, Executive Board, and central administrative units; (2) to establish excellent professional structures throughout the University for student support and personnel leadership; (3) to strengthen strategic and operational leadership at all levels; and (4) to foster and further develop collaboration and core values in order to promote a sense of belonging among all members of the ETH community. The actual project implementation will involve close collaboration with the professors, academic departments, and relevant participating bodies.

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#### FURTHER INFORMATION:

-  [Organisation of ETH Zurich](#)
  -  [rETHink](#)
-

## Employee retention and turnover

Excellent employees are indispensable for the University to fulfil its mandate and achieve its strategic goals. In 2020, ETH Zurich counted a total of 12,855 employment contracts. Historically, and all the more so today, the University has been a hub for people from all over the world. Since this diversity remains a central factor of its continuous success, ETH Zurich must ensure that working conditions are commensurate to needs and requirements on all levels of employment. These vary depending on the stage of the career, and according to whether people are working in research, administration, or technical fields. As research innovation needs constant influx, momentum, and steady development, it is not unusual for universities to experience high levels of employee fluctuation. Especially at the early stages of an academic career, researcher mobility is common. At ETH Zurich, a significant share of mid-career researchers are therefore employed in temporary positions (up to six years) related to a specific stage of their academic path or a research grant. Young talents are supported and prepared for the global stage in academia and beyond. Technical and IT or laboratory staff, in turn, may unfold their full potential in the longer term, growing in experience and institution-specific expertise. For them, ETH Zurich offers a wide range of development possibilities, including advanced training or internal mobility.

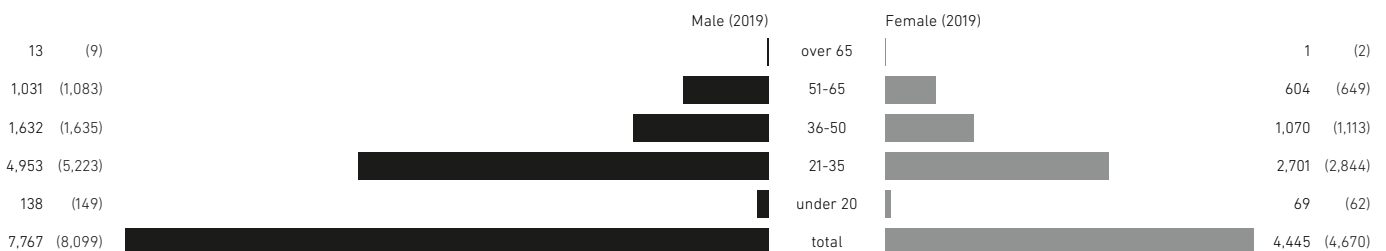
### Retention and turnover

Looking at all employees of ETH Zurich, turnover rates have ranged between roughly 5 and 7 percent over the course of the last five reporting periods (since 2011), with 5.6 percent in 2019 and 5.9 percent in 2020. In both 2019 and 2020, retention rates were highest among professors and assistant professors. In the same period, retention rates were lowest among postdocs and senior assistants. For female employees, the retention rates were highest among full professors in 2019, and among IT staff in 2020. The lowest rate, in turn, was among assistant professors in 2019, and among postdocs in 2020. The turnover rates consider only those that fall under “notice given” or “retirement” (see tables on [pages 45-46](#)).

### Promising perspectives for partners

ETH Zurich’s ability to recruit leading researchers as professors is not just a matter of providing resources for research and teaching. The University also devotes attention to partners, children, and support with integration in general (i.e., housing, schooling, childcare). Of the 87 professors appointed in the reporting period 2019/2020, 31 are female (36 percent). Especially for those coming from abroad, ETH Zurich’s Dual Career Advice provided support for the professional integration of the partners, helping a total of 27 partners enter the Swiss job market. To increase the network and the range of opportunities beyond academia, ETH Zurich joined the International Dual Career Network (IDCN) in 2014.

### Employee age pyramid for 2019 and (2020)<sup>1</sup>



<sup>1</sup> The number of employees in the employee age pyramid differs slightly from the overview of employment contracts (see [page 51](#)). The deviations are due to the fact that employees with multiple employment contracts at ETH Zurich are included here with a single entry.

## Summary of employee turnover rates 2019

| Employee turnover in 2019                                | New entries from outside | Persons leaving    |                  |                           |            | No of employment contracts | Turnover <sup>3</sup><br>total in % |
|--|--------------------------|--------------------|------------------|---------------------------|------------|----------------------------|-------------------------------------|
|  |                          | Total <sup>1</sup> | Contract expired | Notice given <sup>2</sup> | Retirement |                            |                                     |
| <b>Total ETH Zurich</b>                                  | <b>5,326</b>             | <b>5,264</b>       | <b>4,548</b>     | <b>609</b>                | <b>73</b>  | <b>12,280</b>              | <b>5.6</b>                          |
| male   | 3,431                    | 3,543              | 3,085            | 386                       | 47         | 7,828                      | 5.5                                 |
| female   | 1,895                    | 1,721              | 1,463            | 223                       | 26         | 4,452                      | 5.6                                 |
| Full Professors <sup>4</sup>                             | 13                       | 12                 | 0                | 2                         | 10         | 421                        | 2.9                                 |
| male   | 9                        | 12                 | 0                | 2                         | 10         | 359                        | 3.3                                 |
| female   | 4                        | 0                  | 0                | 0                         | 0          | 62                         | 0.0                                 |
| Assistant Professors                                     | 18                       | 9                  | 5                | 4                         |            | 103                        | 3.9                                 |
| male   | 9                        | 7                  | 5                | 2                         |            | 75                         | 2.7                                 |
| female   | 9                        | 2                  |                  | 2                         |            | 28                         | 7.1                                 |
| Scientific Assistants I/<br>Doctoral students            | 1,275                    | 816                | 641              | 171                       | 1          | 3,846                      | 4.5                                 |
| male   | 787                      | 544                | 425              | 115                       | 1          | 2,533                      | 4.6                                 |
| female   | 488                      | 272                | 216              | 56                        |            | 1,313                      | 4.3                                 |
| Scientific Assistants II/Postdoc                         | 438                      | 339                | 222              | 115                       |            | 1,306                      | 8.8                                 |
| male   | 297                      | 240                | 148              | 90                        |            | 880                        | 10.2                                |
| female   | 141                      | 99                 | 74               | 25                        |            | 426                        | 5.9                                 |
| Scientific Collaborators/<br>Senior Assistants           | 86                       | 187                | 139              | 47                        | 1          | 754                        | 6.4                                 |
| male   | 57                       | 134                | 95               | 38                        | 1          | 555                        | 7.0                                 |
| female   | 29                       | 53                 | 44               | 9                         |            | 199                        | 4.5                                 |
| Senior Scientists/<br>Executive Scientific Collaborators | 2                        | 17                 | 1                | 2                         | 12         | 289                        | 4.8                                 |
| male   | 2                        | 13                 |                  | 2                         | 10         | 245                        | 4.9                                 |
| female   |                          | 4                  | 1                |                           | 2          | 44                         | 4.5                                 |
| Scientific staff on hourly wages                         | 2,835                    | 3,378              | 3,273            | 105                       |            | 1,791                      | 5.9                                 |
| male   | 1,940                    | 2,343              | 2,281            | 62                        |            | 1,151                      | 5.4                                 |
| female   | 895                      | 1,035              | 992              | 43                        |            | 640                        | 6.7                                 |
| IT staff   | 227                      | 173                | 94               | 48                        | 17         | 1,300                      | 5.0                                 |
| male   | 148                      | 111                | 60               | 27                        | 13         | 939                        | 4.3                                 |
| female   | 79                       | 62                 | 34               | 21                        | 4          | 361                        | 6.9                                 |
| Technical staff  | 106                      | 59                 | 23               | 28                        | 5          | 638                        | 5.2                                 |
| male   | 89                       | 49                 | 18               | 23                        | 5          | 566                        | 4.9                                 |
| female   | 17                       | 10                 | 5                | 5                         |            | 72                         | 6.9                                 |
| Administrative staff                                     | 326                      | 274                | 150              | 87                        | 27         | 1,832                      | 6.2                                 |
| male   | 93                       | 90                 | 53               | 25                        | 7          | 525                        | 6.1                                 |
| female   | 233                      | 184                | 97               | 62                        | 20         | 1,307                      | 6.3                                 |

1 including deaths and dismissals

2 by employee

3 excluding contractual expiration

4 does not include externally employed dual professors

## Summary of employee turnover rates 2020

| Employee turnover in 2020                                | New entries from outside | Persons leaving    |                  |                           |            | No of employment contracts | Turnover <sup>3</sup><br>total in % |
|--|--------------------------|--------------------|------------------|---------------------------|------------|----------------------------|-------------------------------------|
|  |                          | Total <sup>1</sup> | Contract expired | Notice given <sup>2</sup> | Retirement |                            |                                     |
| <b>Total ETH Zurich</b>                                  | <b>5,437</b>             | <b>5,153</b>       | <b>4,365</b>     | <b>665</b>                | <b>90</b>  | <b>12,855</b>              | <b>5.9</b>                          |
| male   | 3,529                    | 3,358              | 2,885            | 394                       | 54         | 8,164                      | 5.5                                 |
| female   | 1,908                    | 1,795              | 1,480            | 271                       | 36         | 4,691                      | 6.5                                 |
| Full Professors <sup>4</sup>                             | 13                       | 12                 |                  | 2                         | 8          | 432                        | 2.3                                 |
| male   | 8                        | 8                  |                  | 1                         | 6          | 367                        | 1.9                                 |
| female   | 5                        | 4                  |                  | 1                         | 2          | 65                         | 4.6                                 |
| Assistant Professors                                     | 19                       | 6                  | 4                | 2                         |            | 113                        | 1.8                                 |
| male   | 11                       | 5                  | 4                | 1                         |            | 77                         | 1.3                                 |
| female   | 8                        | 1                  |                  | 1                         |            | 36                         | 2.8                                 |
| Scientific Assistants I/<br>Doctoral students            | 1,190                    | 840                | 671              | 167                       |            | 3,975                      | 4.2                                 |
| male   | 780                      | 557                | 447              | 108                       |            | 2,614                      | 4.1                                 |
| female   | 410                      | 283                | 224              | 59                        |            | 1,361                      | 4.3                                 |
| Scientific Assistants II/Postdoc                         | 399                      | 385                | 243              | 141                       |            | 1,333                      | 10.6                                |
| male   | 271                      | 239                | 146              | 92                        |            | 902                        | 10.2                                |
| female   | 128                      | 146                | 97               | 49                        |            | 431                        | 11.4                                |
| Scientific Collaborators/<br>Senior Assistants           | 97                       | 255                | 182              | 71                        | 1          | 793                        | 9.1                                 |
| male   | 66                       | 181                | 126              | 53                        | 1          | 572                        | 9.4                                 |
| female   | 31                       | 74                 | 56               | 18                        |            | 221                        | 8.1                                 |
| Senior Scientists/<br>Executive Scientific Collaborators | 1                        | 15                 | 3                | 2                         | 10         | 296                        | 4.1                                 |
| male   | 1                        | 13                 | 3                | 2                         | 8          | 251                        | 4.0                                 |
| female   |                          | 2                  |                  |                           | 2          | 45                         | 4.4                                 |
| Scientific staff on hourly wages                         | 3,089                    | 3,090              | 2,967            | 123                       |            | 2,009                      | 6.1                                 |
| male   | 2,090                    | 2,062              | 2,001            | 61                        |            | 1,308                      | 4.7                                 |
| female   | 999                      | 1,028              | 966              | 62                        |            | 701                        | 8.8                                 |
| IT staff   | 198                      | 192                | 105              | 41                        | 30         | 1,319                      | 5.4                                 |
| male   | 131                      | 129                | 69               | 22                        | 23         | 949                        | 4.7                                 |
| female   | 67                       | 63                 | 36               | 19                        | 7          | 370                        | 7.0                                 |
| Technical staff  | 100                      | 75                 | 34               | 29                        | 9          | 675                        | 5.6                                 |
| male   | 79                       | 69                 | 30               | 27                        | 9          | 586                        | 6.1                                 |
| female   | 21                       | 6                  | 4                | 2                         |            | 89                         | 2.2                                 |
| Administrative staff                                     | 331                      | 283                | 156              | 87                        | 32         | 1,910                      | 6.2                                 |
| male   | 92                       | 95                 | 59               | 27                        | 7          | 538                        | 6.3                                 |
| female   | 239                      | 188                | 97               | 60                        | 25         | 1,372                      | 6.2                                 |

1 including deaths and dismissals

2 by employee

3 excluding contractual expiration

4 does not include externally employed dual professors





**Maria Youssefzadeh**  
Equal Opportunities Officer,  
ETH Zurich

on Sustainable Development Goal 5  
Gender equality

Promoting equal opportunities for all genders ranges from raising awareness to implementing actual measures and monitoring the results. In the past years, ETH Zurich has been very active in the advancement of women's – especially academic – careers, and the results are beginning to show. In the future, awareness of inclusive teaching and research could be raised and more supportive measures developed.

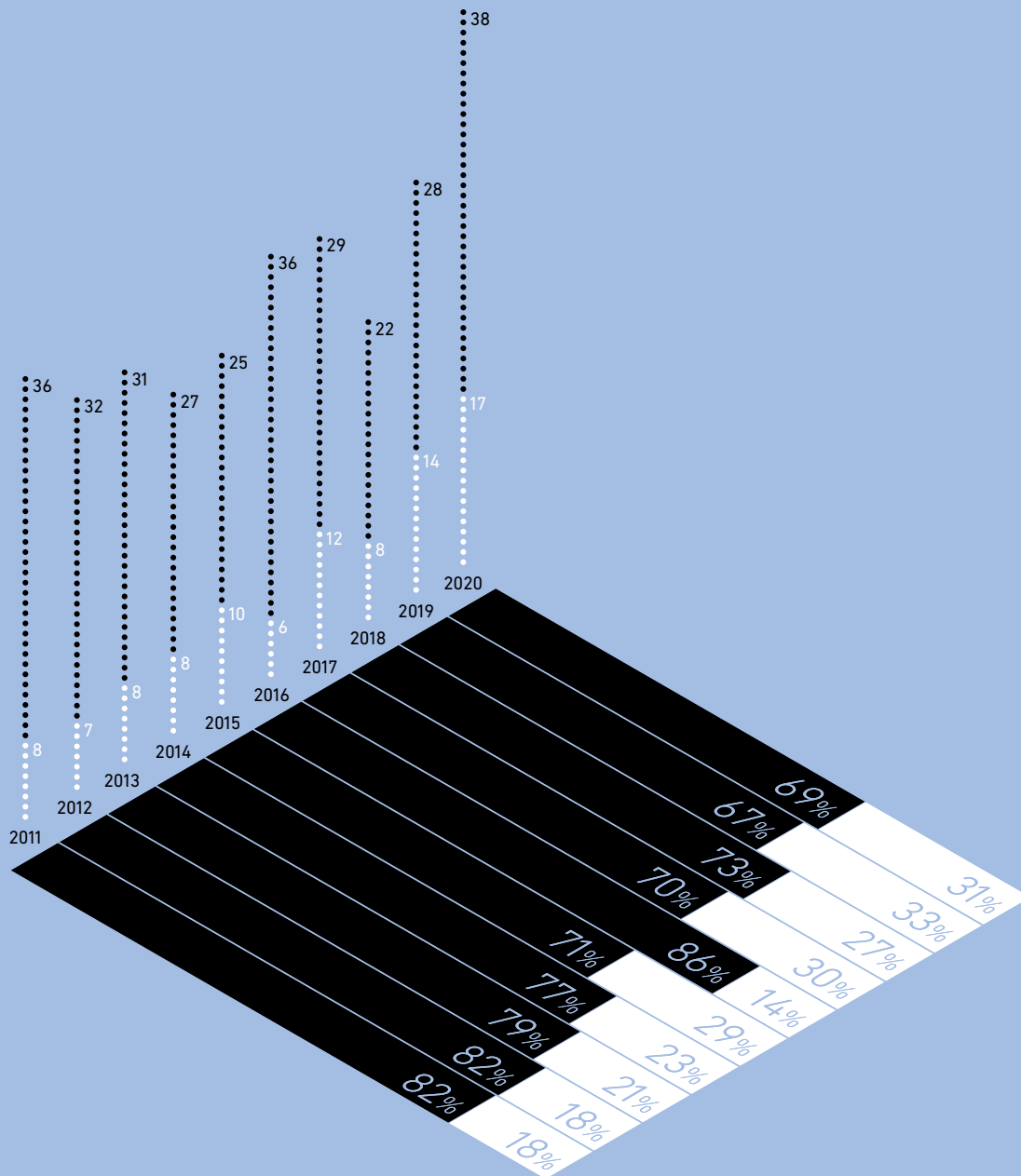
## Diversity

The wide array of people from diverse backgrounds makes ETH Zurich a unique place for working and studying. Where people of different ages, genders, cultures, religions, and people with physical limitations or special needs come together, the result is not just a collection of individuals, but much more – a setting rich in perspectives and opinions. While this is beneficial in general, diversity can also evoke challenges, tensions, and even conflicts. ETH Zurich emphasizes that no form of discrimination will be tolerated.

Even though the University fosters an environment in which mutual coexistence brings added value for all, it operates a number of services, helplines, and offices that serve as contact points in case of threats and violence, sexual harassment, bullying, discrimination, or other misconduct. With regard to diversity, **Equal!**, the University's Office of Equal Opportunities and Diversity, acts as the central point of contact at ETH Zurich. Situated in the Office of the Vice President for Personnel Development and Leadership, the unit collaborates with other institutions for the promotion of equal opportunities within national and international networks. Detailed reports at the level of the departments and the University in general provide an important basis for monitoring developments and launching appropriate initiatives.

### Nationally rooted, globally connected

As a technical university in a small country, ETH Zurich can only compete with the world's best by establishing international links, by recruiting its researchers worldwide, and by remaining attractive to students from abroad. Among its students and employees are citizens of more than 120 countries. In 2019, 57 percent of all employees and 67 percent of all professors (and 79 percent of all assistant professors) at ETH Zurich came from outside of Switzerland. Around 40 percent of all students were from abroad in 2019 and 2020. Roughly 80 percent of the Bachelor students in the reporting period were Swiss, underscoring the University's national integration and the knowledge transfer to Swiss society and industry (all numbers in headcount).



- recruited female assistant and full professors
- recruited male assistant and full professors
- percentage female
- percentage male

GOAL: TALENT RETENTION AND DEVELOPMENT

## Recruit and support the best scientists to ensure highest quality of research and teaching

In 2019 and 2020, ETH Zurich recruited 97 new professors. Various offices and services are in place to support newly arrived professors in administrative matters and help them integrate and take on their core activities as smoothly as possible. The Dual Career Advice office at the Office for

Faculty Affairs, for example, assisted 27 partners entering the Swiss job market during the reporting period.

Please find the [detailed overview of all goals](#) in the back of this report.





**Lukas Vonesch**  
Head of Human Resources

on Sustainable Development Goal 8  
Decent work and economic growth

Responsibility for humans means facilitating their growth. It means empowering them and supporting them in their development. This includes trust and values. Trust enables them to take on responsibility. Respect is indispensable for personal development. ETH Zurich promotes a culture of equal opportunities and diversity in partnership with all university groups.

### Women still underrepresented at ETH Zurich

In addition to embracing the international diversity represented at ETH Zurich, a great deal of attention is devoted to achieving a more equal balance of genders among students and at all levels of employment. While the percentage of women at various career levels at ETH Zurich has been on the rise for the past several years (25.1 percent women among all students in 2000), relatively little has changed compared to the last reporting period. In 2019 and 2020, women made up 33.1 percent of Bachelor students. Among Master students, around 31 percent were women during the reporting period. The proportion of women among doctoral candidates experienced a slight rise, reaching 33.5 percent and 34.4 percent in 2019 and 2020, respectively, compared to 31.7 percent in 2017. Among the employees (all following numbers based on employment contracts), women comprised 36 percent in both years of the reporting period. There was a substantial increase in female representation among assistant professors, rising from 21 percent in 2017 to 31.9 percent in 2020. The proportion of women in technical-administrative roles remained relatively high, with 28.1 percent among technical staff in 2020, and 71.8 percent among administrative staff in the same year.

### Status of the Gender Action Plan

The most comprehensive initiative that addresses the underrepresentation of women at ETH Zurich is the Gender Action Plan (🎯 GAP), which the Executive Board adopted in 2014. With the GAP, ETH Zurich focused on four areas of action: (1) careers and career development in the academic area, (2) integration of gender-specific aspects in research and teaching, (3) facilitation of work/life balance, and (4) preventing and combating sexual harassment and discrimination on the basis of gender. In 2020, the progress of the GAP was evaluated for the fourth time, with the 16 departments being invited to report on their (new) measures to implement the plan. Since the last evaluation in 2018, the implementation in the departments has further progressed. Many measures will continue to be implemented in a decentralised manner and tailored to the needs of the various departments. For the period from 2018 until 2020, it is notable that most departments focused their efforts on career development for women (direct professorial appointments, mentoring) and on supporting girls (initiatives for school-aged girls), along with founding and supporting female associations and gender and diversity groups. Only few measures focused on the work/study/family balance or on sexual harassment. Some departments increasingly tackled issues of discrimination and stereotypes and offered training courses on dealing with stereotypes.

### Equality Monitoring

On behalf of the Executive Board of ETH Zurich, the Office for Equal Opportunities and Diversity of ETH Zurich has been documenting developments in gender representation for more than ten years, both at the level of the individual departments and for ETH Zurich as a whole. While the Gender Monitoring had a clear focus on gender balance within the University, the report has been published since 2019 as **Equality Monitoring**. This adjustment is intended to highlight the fact that the key metrics for equality and diversity also include additional socio-demographic categories and thus shed light on the whole diversity of the ETH community.

### Barrier-free ETH Zurich

In 2019, a newly established working group examined 41 ETH Zurich buildings for their accessibility. In addition to numerous site visits and measurements, 13 surveys were conducted to evaluate needs. In autumn of 2020, the Executive Board gave the green light to the **Barrier-Free at ETH Zurich** project, a master plan consisting of 14 subprojects, in the areas of "construction", "technology", and "organisation".

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#### FURTHER INFORMATION:

- [!\[\]\(8ba0a8bc08cfb681721719303df69bb8\_img.jpg\) Office of Equal Opportunities and Diversity](#)
  - [!\[\]\(33b903febf51b8cea076831f447c997e\_img.jpg\) Equality Monitoring](#)
  - [!\[\]\(630eff6382b86f77a4b5cf981ec06d32\_img.jpg\) Gender Action Plan and Evaluation](#)
- 

### Student diversity

| Headcount                       | 2000          | 2017          | 2018          | 2019          | 2020          |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>Total number of students</b> | <b>10,693</b> | <b>20,607</b> | <b>21,397</b> | <b>22,193</b> | <b>23,422</b> |
| Percentage women                | 25.1%         | 31.8%         | 32.3%         | 32.9%         | 33.2%         |
| Percentage foreigners           | 20.3%         | 38.7%         | 39.4%         | 40.0%         | 40.3%         |
| <b>Bachelor</b>                 |               | <b>9,262</b>  | <b>9,517</b>  | <b>9,895</b>  | <b>10,355</b> |
| Percentage women                |               | 31.2%         | 32.7%         | 33.1%         | 33.1%         |
| Percentage foreigners           |               | 19.9%         | 20.4%         | 21.5%         | 22.2%         |
| <b>Master</b>                   |               | <b>6,158</b>  | <b>6,590</b>  | <b>7,073</b>  | <b>7,790</b>  |
| Percentage women                |               | 31.6%         | 31.0%         | 31.1%         | 31.6%         |
| Percentage foreigners           |               | 40.7%         | 41.6%         | 43.0%         | 43.5%         |
| <b>Doctoral students</b>        |               | <b>4,092</b>  | <b>4,175</b>  | <b>4,168</b>  | <b>4,316</b>  |
| Percentage women                |               | 31.7%         | 32.1%         | 33.5%         | 34.3%         |
| Percentage foreigners           |               | 71.4%         | 72.9%         | 73.2%         | 74.2%         |
| <b>MAS/MBA Students</b>         |               | <b>646</b>    | <b>635</b>    | <b>626</b>    | <b>644</b>    |
| Percentage women                |               | 41.0%         | 43.1%         | 42.3%         | 45.2%         |
| Percentage foreigners           |               | 41.8%         | 40.6%         | 37.9%         | 40.1%         |
| <b>Visiting/Exchange</b>        |               | <b>449</b>    | <b>480</b>    | <b>467</b>    | <b>317</b>    |
| Percentage women                |               | 36.1%         | 30.8%         | 38.1%         | 35.6%         |
| Percentage foreigners           |               | 94.7%         | 93.5%         | 92.5%         | 90.9%         |

## Employee diversity

| Employment contracts                              | 2019          | 2020          |
|---|---------------|---------------|
| <b>Total employment contracts</b>                 | <b>12,280</b> | <b>12,855</b> |
| Men   | 7,828         | 8,164         |
| Women   | 4,452         | 4,691         |
| Percentage women                                  | 36%           | 36%           |
| Permanent contract (all)                          | 3,562         | 3,702         |
| Permanent contract (men)                          | 2,124         | 2,192         |
| Permanent contract (women)                        | 1,438         | 1,510         |
| Fixed-term employment (all)                       | 8,718         | 9,153         |
| Fixed-term employment (men)                       | 5,704         | 5,972         |
| Fixed-term employment (women)                     | 3,014         | 3,181         |
| <b>Full professors<sup>1</sup></b>                | <b>421</b>    | <b>432</b>    |
| Men   | 359           | 367           |
| Women   | 62            | 65            |
| Percentage women                                  | 14.7%         | 15.0%         |
| <b>Assistant professors</b>                       | <b>103</b>    | <b>113</b>    |
| Men   | 75            | 77            |
| Women   | 28            | 36            |
| Percentage women                                  | 27.2%         | 31.9%         |
| <b>Scientific Assistants I/ Doctoral students</b> | <b>3,846</b>  | <b>3,975</b>  |
| Men   | 2,533         | 2,614         |
| Women   | 1,313         | 1,361         |
| Percentage women                                  | 34.1%         | 34.2%         |
| <b>Scientific Assistants II/ Postdoc</b>          | <b>1,306</b>  | <b>1,333</b>  |
| Men   | 880           | 902           |
| Women   | 426           | 431           |
| Percentage women                                  | 32.6%         | 32.3%         |

| Employment contracts   | 2019         | 2020         |
|--|--------------|--------------|
| <b>Scientific Collaborators/Senior Assistants</b>                | <b>754</b>   | <b>793</b>   |
| Men  | 555          | 572          |
| Women  | 199          | 221          |
| Percentage women   | 26.4%        | 27.9%        |
| <b>Senior Scientists/<br/>Executive Scientific Collaborators</b> | <b>289</b>   | <b>296</b>   |
| Men  | 245          | 251          |
| Women  | 44           | 45           |
| Percentage women   | 15.2%        | 15.2%        |
| <b>Scientific staff on hourly wages</b>                          | <b>1,791</b> | <b>2,009</b> |
| Men  | 1,151        | 1,308        |
| Women  | 640          | 701          |
| Percentage women   | 35.7%        | 34.9%        |
| <b>IT staff</b>  | <b>638</b>   | <b>675</b>   |
| Men  | 566          | 586          |
| Women  | 72           | 89           |
| Percentage women   | 11.3%        | 13.2%        |
| <b>Technical staff</b>   | <b>1,300</b> | <b>1,319</b> |
| Men  | 939          | 949          |
| Women  | 361          | 370          |
| Percentage women   | 27.8%        | 28.1%        |
| <b>Administrative staff</b>                                      | <b>1,832</b> | <b>1,910</b> |
| Men  | 525          | 538          |
| Women  | 1,307        | 1,372        |
| Percentage women   | 71.3%        | 71.8%        |

<sup>1</sup> Does not include dual professors, externally employed professors within the ETH Domain, or part-time employed professors

## Employment conditions

With more than 12,000 employees, ETH Zurich is one of the biggest employers in the Zurich area. The University provides attractive jobs involving interesting activities in education, research, and various other functions. As a modern employer, ETH Zurich wants to provide a stimulating working environment and progressive employment conditions. After all, without the full commitment of its employees, ETH Zurich would not rank among the world's leading universities. In addition to concrete working conditions such regulated working hours, insurance, or pension provision, this also concerns the **working environment**, health, or the compatibility of family and career. ETH Zurich provides its employees with a range of **offers and benefits**, including childcare. By conducting comprehensive employee surveys, the Human Resources Department invites feedback regarding employment conditions and the working climate at ETH Zurich.

### Working conditions inducing performance →102-41

All employment contracts at ETH Zurich are subject to public law: the Federal Personnel Act, the Federal Act on the Federal Institutes of Technology (**ETH Act**), the Personnel Ordinance for the ETH Domain (PO), and the Ordinance on the Scientific Personnel of the Swiss Federal Institute of Technology in Zurich. All of ETH Zurich's employees are covered by these legal frameworks. ETH Zurich employees have individual employment contracts that are mostly permanent for technical, administrative, and IT employees and fixed-term for employees in research. Extra hours and overtime are compensated with equivalent time off. As a matter of principle, it is possible to take both paid and unpaid leave. Mothers are entitled to four months of paid maternity leave, irrespective of the time already worked at ETH Zurich. If both parents are employed at ETH Zurich, they can share the four months between each other. After several years of successful employment, employees in management, office, and support functions can be granted a sabbatical. Salaries are defined according to function level, experience, and performance. Extra premiums for service anniversaries can be granted. For employees with contracts over 50 percent, ETH Zurich covers family allowances in addition to the cantonal family allowances. Employees of ETH Zurich pay into the federal PUBLICA pension fund with a defined contribution plan. All employees with a minimum weekly working time of eight hours are insured against accidents both during and outside of work by the Swiss National Accident Insurance Fund (SUVA).

### Additional services and benefits for employees

In addition to guaranteeing the best possible standard for general employment conditions, ETH Zurich is constantly developing its portfolio in terms of additional offers and benefits. During the reporting period 2019/2020, for example, ETH Zurich financed a total of 13,484 Half Fare **Travelcards** for the SBB Swiss Federal Railways, and contributed financially to 2,731 Generalabonnement (GA) Travelcards. In the same period, the **kihZ Foundation**, which runs seven day-care centres with 279 full-time places, provided childcare for 1,129 children, more than half of which (55 percent) were children of ETH Zurich employees. In 2019/2020, 2,387 employees benefited from reduced rates to the course program of the **Language Center** of UZH and ETH Zurich. The Academic Sports Association (**ASVZ**), which provides a discount to employees of ETH Zurich, registered 3,538 annual memberships during the reporting period. Lastly, a total of 26 ETH Zurich employees benefited from the rich offerings of the School for Continuing Education.



For additional information, please refer to the chapter **Human resources and infrastructure** in the Annual Report 2020.

## CAMPUS


## ENVIRONMENT

## Sustainable campus development


At a vibrant university like ETH Zurich, demand for space is constantly changing. The growing number of students and employees is one driver of spatial development. Other requirements for teaching and research in light of new technologies, research foci, and teaching formats also shape ETH Zurich's long-term real estate planning and its need for new buildings. The University favours versatile buildings that can be readily adapted to new developments and changing requirements. Moreover, it is essential to safeguard the quality of the existing building stock and retain its value.

At the end of 2020, ETH Zurich's real estate portfolio comprised a total of 226 properties and around 502,965 m<sup>2</sup> of usable space. The main locations, Campus Zentrum (103 buildings) and Campus Hönggerberg (52 buildings), account for almost 86 percent of this space. Overall, this amounts to a growth of approximately 5 percent compared to the last reporting period (2017/2018: 479,000 m<sup>2</sup>). The University's spatial and structural development will be focused on the two main locations, both of which offer a full range of teaching, research, and service facilities and shared space for multiple departments (15 departments in Zurich and one in Basel). Since the historic structures of the city and district limit development opportunities on Campus Zentrum, ETH Zurich has earmarked Campus Hönggerberg to meet the bulk of its future spatial requirements. In addition to these two main campuses in Zurich, ETH Zurich operates various satellite facilities<sup>1</sup> in Switzerland and abroad.

### Reducing the footprint of buildings

ETH Zurich has gone to great lengths to optimise the environmental efficiency of its buildings. As part of this effort, the MINERGIE®-ECO standard for energy-efficient and ecologically designed buildings was first applied to the Information and Science Laboratory at Campus Hönggerberg in 2008. Moving forward, ETH Zurich aims to meet the MINERGIE®-ECO certification standards in all new buildings and to gain MINERGIE® certification for its renovation projects. By the end of 2020, nine buildings had been completed in compliance with the MINERGIE® and MINERGIE®-ECO standards. No new buildings were completed during the current reporting period. However, various  **projects** for which certification is sought are currently in the planning or construction stage. In chronological order of planned completion, these are: the BSS (laboratory building for biosystems, D-BSSE), the HIF (research and teaching, D-BAUG), HPT (quantum electronics and workshops, D-PHYS), the HIC (space for student and entrepreneurial initiatives) and the HPQ (research and teaching, D-PHYS).

### Masterplan: Developing the Zurich City university district

ETH Zurich is working with the University Hospital Zurich (USZ), the University of Zurich (UZH), and the Canton and City of Zurich to develop the Zurich City university district ( **HGZZ**). The vision is of a modern and open university and hospital district to support the sciences, health care, and the general public. The close proximity of the three institutions offers unique opportunities for close collaboration across teaching, research, and medical care, promoting the rapid transfer of research findings to hospitals. Appeals were filed by several entities against the design plans presented in August 2017. But after constructive talks with the Canton of Zurich, USZ, and UZH, the appellants, including the association Zukunft Hochschulgebiet Zürich AGBB, signed an agreement in 2019 that cleared the way for the development of the HGZZ.

<sup>1</sup> In the Zurich region: Lindau-Eschikon, Rüschtikon, Schwerzenbach. Switzerland and other countries: Ascona, Basel, Castasegna, Chamau, Lugano, and Singapore.



Visualization of the new Zurich City university district: Since 1990, the spatial development of the institutions has lagged behind the changing needs in research and teaching.

### Joining Madaster: Great potential for circularity

In October 2019, ETH Zurich joined the  **Madaster Switzerland** network. As a so-called “Kennedy” partner, ETH Zurich will work with the other Madaster Kennedys to design material passports for their properties and develop a better understanding of buildings as material depots. The online platform Madaster enables an innovative inventory of materials and creates fundamental transparency in construction, thereby promoting the circular organization of planning, construction, management, sale, and demolition of buildings. Joining Madaster is an important step towards a circular economy and sustainable campus development, especially in light of the large real estate portfolio the University manages.

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#### FURTHER INFORMATION:

-  **Campus development**
  -  **Real Estate Management administrative department**
  -  **Construction and renovation projects**
-



## Biodiversity

The two main locations of the University, Campus Höggerberg and Campus Zentrum, not only serve as study and office spaces for more than 30,000 members of the ETH Community, but are also home to a variety of animals and plants. A unit of the Facility Management department takes care of the maintenance and regeneration of the green spaces so that plants, animals, and people feel at home on campus. Since 2010, the Seed City community garden at Campus Höggerberg has been an oasis of biodiversity, a space of around 1,000 m<sup>2</sup> inviting nature lovers to teach, learn, work, and relax. Overall, various units of the University, including SSHE and the Real Estate Management department, are continuously striving to promote biodiversity on campus, including through the consideration of infrastructural aspects such as lighting.



Throughout the campus sites, flowering groves and wild bee hotels have been created in a number of the green areas.

### Preserving biodiversity on campus

Throughout the change of seasons, Campus Höggerberg forms a popular habitat for various amphibians, such as alpine newts and frogs, but also for mammals such as hedgehogs and foxes. A central reason for this is that the green spaces have been ecologically enhanced over the years. A team of internal and external gardeners is tasked with cultivating six hectares of turf, sports fields, and alkaline grassland, as well as 13 hectares of meadowland. This area is not fertilised and is only mowed two or three times a year to enable biodiversity to thrive. Green area managers at ETH also maintain 1,300 trees on the Höggerberg campus, including ecologically valuable deciduous trees such as oaks. In recognition of its efforts, the Höggerberg campus has twice been recognised as a "nature park" by the Stiftung Natur & Wirtschaft association for nature and economics.



**Fritz Graber**  
Green space manager  
Campus Höggerberg

on Sustainable Development Goal 15  
Life on land

ETH Campus Höggerberg is certified as a nature park by the Stiftung Natur & Wirtschaft. Its green spaces, sustainably designed and maintained with hand-mown peripheral zones, initial planting, and small-scale structures, provide habitats and nourishment for insects and amphibians. Environmental planning for construction projects could further expand the existing level of biodiversity.

Campus Zentrum also showcases the value of committing to biodiversity. Flowering groves and wild bee hotels have been created in a number of the green areas, with a pocket of land having recently been established at the Haldenbach computer centre. An array of sumptuous blooms have blossomed at both sites, attracting bumblebees and wild bees. Specifically, the main building is interesting from an environmental perspective, serving as a rocky landscape for certain varieties of birds and bats, with cracks and crevices providing the animals with shelter and nesting spaces. During the lockdown in 2020, 32 common pipistrelles became lost inside the main building and were not able to find their own way out. Once they had been noticed, 22 weakened animals were rescued. Some of them were very emaciated, while for another ten animals, help came too late.

Altogether, ETH Zurich still has some way to go in its mission to promote biodiversity, for example, in terms of light pollution. A new approach to exterior lighting is currently being implemented at the Campus Höggerberg. The intention is to predominantly use LED lights with minimal blue and AV light content so as not to disrupt the animals' biological clocks. The lights should also only shine downwards in order to prevent light pollution.

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**FURTHER INFORMATION:**

- 🔗 **ETH community magazine "life" (July 2019): Buzzing with life**
  - 🔗 **Bat protection**
-

# Energy

The increasing number of students and employees along with new infrastructure requirements for research and education are significant drivers of ETH Zurich's overall energy demand. Balancing this development with the increasing need for energy is a key challenge that ETH Zurich faces as an institution with a strong commitment to sustainability. Guided by the University's comprehensive Energy Concept (🔗 **Energieleitbild**), ETH Zurich is constantly working to improve its energy efficiency. The Energy Officer supervises the strategy in close coordination between all relevant units and decision-making bodies. The University's energy-related flagship project is the 🔗 **Energy Grid** at Campus Hönggerberg, which is working on ways to revolutionize the heating and cooling system on the campus in the medium and long term.

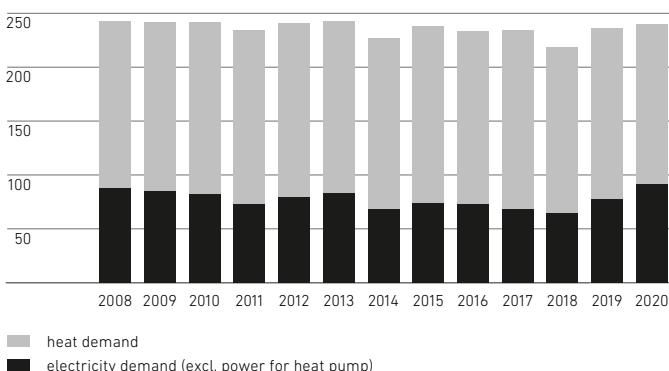
## Energy demand

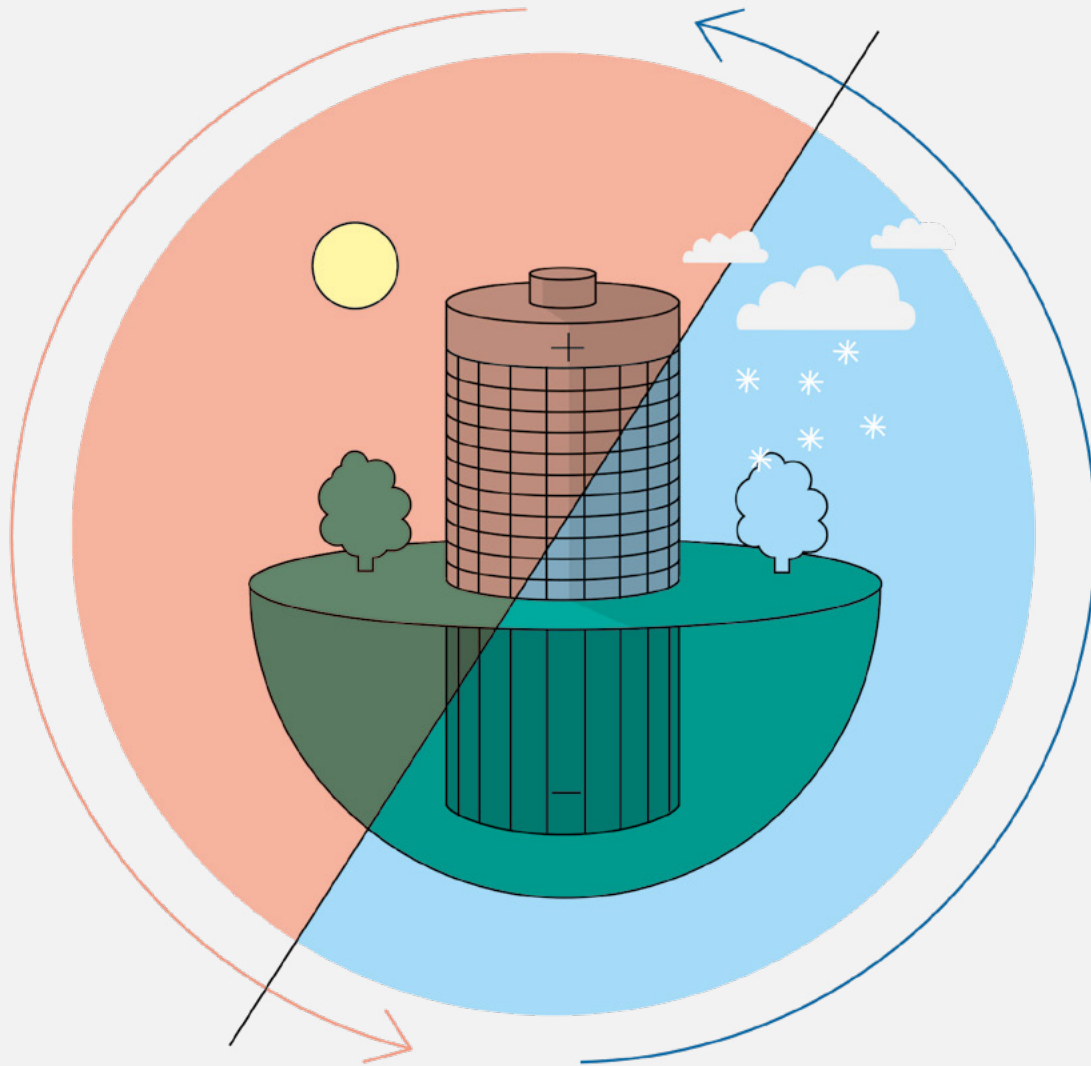
Direct energy used by ETH Zurich (defined as fuels like natural gas, oil, and wood-chips burned in own facilities) was 37.2 GWh in 2019 and 37.3 GWh in 2020. Compared to the last reporting period (2018: 32.5 GWh), this amounts to an increase of roughly 15 percent. Indirect energy use (defined as electricity and district heating purchased from outside providers) was 146.5 GWh in 2019 and 147.4 GWh in 2020, which is slightly higher (1.3 percent) than indirect energy use in the last reporting period (2018: 145.5 GWh). The total energy (electricity and heating) used by ETH Zurich was 158.1 GWh in 2019 and 160.4 GWh in 2020. Between 2012 and 2020, absolute energy demand remained relatively stable, ranging from a minimum of 147.3 GWh in 2018 to a maximum of 166.9 GWh in 2013.

Other than expected, there was no significant decline in electricity and heat consumption in 2020, even though the university operated in emergency mode for much of the year due to the COVID-19 pandemic. District heating actually consumed nearly 8 GWh more in 2020 than in 2019. There are several reasons for this, such as the use of new steam converters, the partial shutdown of a waste heat recovery system for chillers, and the decision to keep the ventilation systems operational around the clock in order to keep the virus load in the buildings as low as possible.

Nevertheless, 25.9 GWh in 2019 and 24.5 GWh in 2020 were sold as heating energy to third parties. According to the Swiss Federal Office of Energy (SFOE), the heating energy sold in both years is equivalent to the annual energy consumption of more than 18,000 households in Switzerland.

**Total energy demand per energy-consuming area (final energy)**  
in kWh per m<sup>2</sup>





## HIGHLIGHT

Contributes to SDG **7** **9** **13**

## Energy excellence: Anergy Grid wins Watt d'Or prize

One of the mainstays of ETH Zurich's future is the "new" campus at ETH Höggerberg, which has in fact already been part of the University for over 40 years. As Campus Höggerberg continues to grow in size and significance, it also serves as a test bed and showcase for efficient technologies that can help bring down carbon emissions even as the campus expands. One example is the Anergy Grid – a dynamic underground storage system for sustainable heating and cooling. This unique and innovative energy solution was awarded the Watt d'Or Energy Prize 2020 by Switzerland's Federal Office of Energy for energy excellence in the "Buildings and space" category.

The Science City campus has a substantial annual energy consumption of nearly 77 GWh, including 22 GWh for heating buildings. At the same time, since it operates many energy-hungry assets such as data centers or high-performance

labs, significant cooling is required. The Anergy Grid allows both these requirements to be balanced out through long-term storage of waste heat in water-filled probes buried 200 meters below the green hilltop.

Depending on the season, the water is used to heat or cool the buildings efficiently, and with minimal carbon emissions compared to the diminishing quantities of natural gas used for heating. "With this solution, ETH Zurich has contributed savings of 5,000 tonnes of CO<sub>2</sub> per year to its long-term goal of reducing its carbon footprint at the Höggerberg campus by at least 80 percent by 2040 compared to 2006," says Dominik Brem, responsible for Building Technology and Sustainability at ETH Zurich's Real Estate Management unit.

The Watt d'Or prize is awarded for outstanding energy projects with the aim of motivating businesses, policy-makers, and the general public at large to discover the advantages of innovative projects and energy technologies for themselves. For the campus administrators at Höggerberg, it is an inspiration and encouragement to continue on the path of technological innovation for clean and efficient energy.

🔗 **Anergy grid**

🔗 **Watt d'Or**

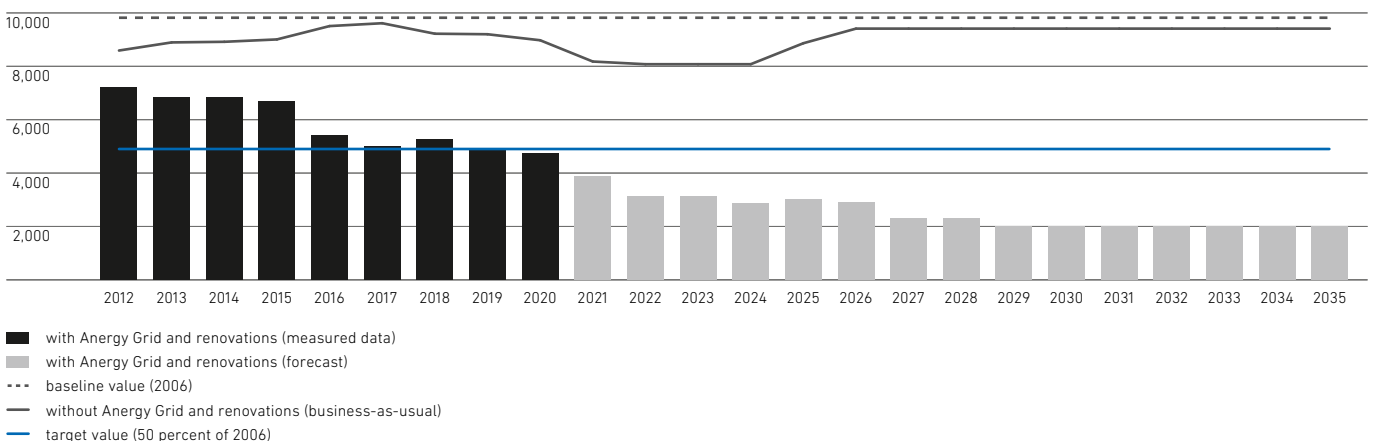
The normalised energy demand (by energy-consuming area) was 236 kWh/m<sup>2</sup> in 2019 and 240 kWh/m<sup>2</sup> in 2020 (rounded). Calculated per fulltime equivalent of employees and students, it stood at 7,128 kWh in 2019 and 7,003 kWh in 2020 (rounded). While normalised energy demand by energy-consuming area has remained stable over the past decade, a significant improvement is identified at the level of the normalised energy demand by fulltime equivalent: between 2008 and 2020, there was a decrease of 33 percent.

The share of ETH Zurich’s electricity consumption supplied from renewable energy sources stood at 88 percent in 2019 and 2020. For financial reasons, 12 percent less electricity from renewable sources was purchased compared to the previous reporting period. Even though the share is smaller, the target, as defined in the Energy Concept, of achieving a share of electricity from renewable sources that is at least equal to or greater than that in the overall Swiss electricity mix was reached. According to the Energy Concept, a level of 100 percent should be reached again by 2035 at the latest. The share of heating demand covered from renewable sources stood at 37 and 36 percent in 2019 and 2020, respectively. In previous years, it had been significantly higher (59 percent in 2014). The major reason is that the Walche heat pump was taken out of service in 2017. Even though this reduced the electricity consumption by about 9 GWh per year, the approximately 20 GWh heat per year could no longer be obtained from the Limmat river, which in turn negatively affected the overall balance in the share of renewable heat. The installation of new chillers with waste heat recovery in 2022 will increase the renewable share again.

**Energy Grid at Campus Höggerberg**

With the Anergy Grid, ETH Zurich is building a dynamic underground storage system in an effort to significantly reduce CO<sub>2</sub> emissions from heating and cooling at Campus Höggerberg. While the technology used is by no means new, the size and complexity of this project are unparalleled. The first phase of construction began in 2010 and was completed in 2012. The project aims to decrease the CO<sub>2</sub> emissions from an initial value of 9,800 t CO<sub>2</sub>eq per year (baseline 2006) to 4,900 t CO<sub>2</sub>eq per year (50 percent of 2006). In 2019, they stood at 4,920 t CO<sub>2</sub>eq, and at 4,737 t CO<sub>2</sub>eq in 2020. The target value of 4,900 t CO<sub>2</sub>eq has been achieved in 2020. The figure below vividly contrasts the impact of the Anergy Grid with a “business as usual” forecast, accounting for planned renovations and infrastructural developments on Campus Höggerberg.

**CO<sub>2</sub> emissions from heating and cooling at Campus Höggerberg**  
in metric tonnes CO<sub>2</sub>eq per year



## Environmental statistics

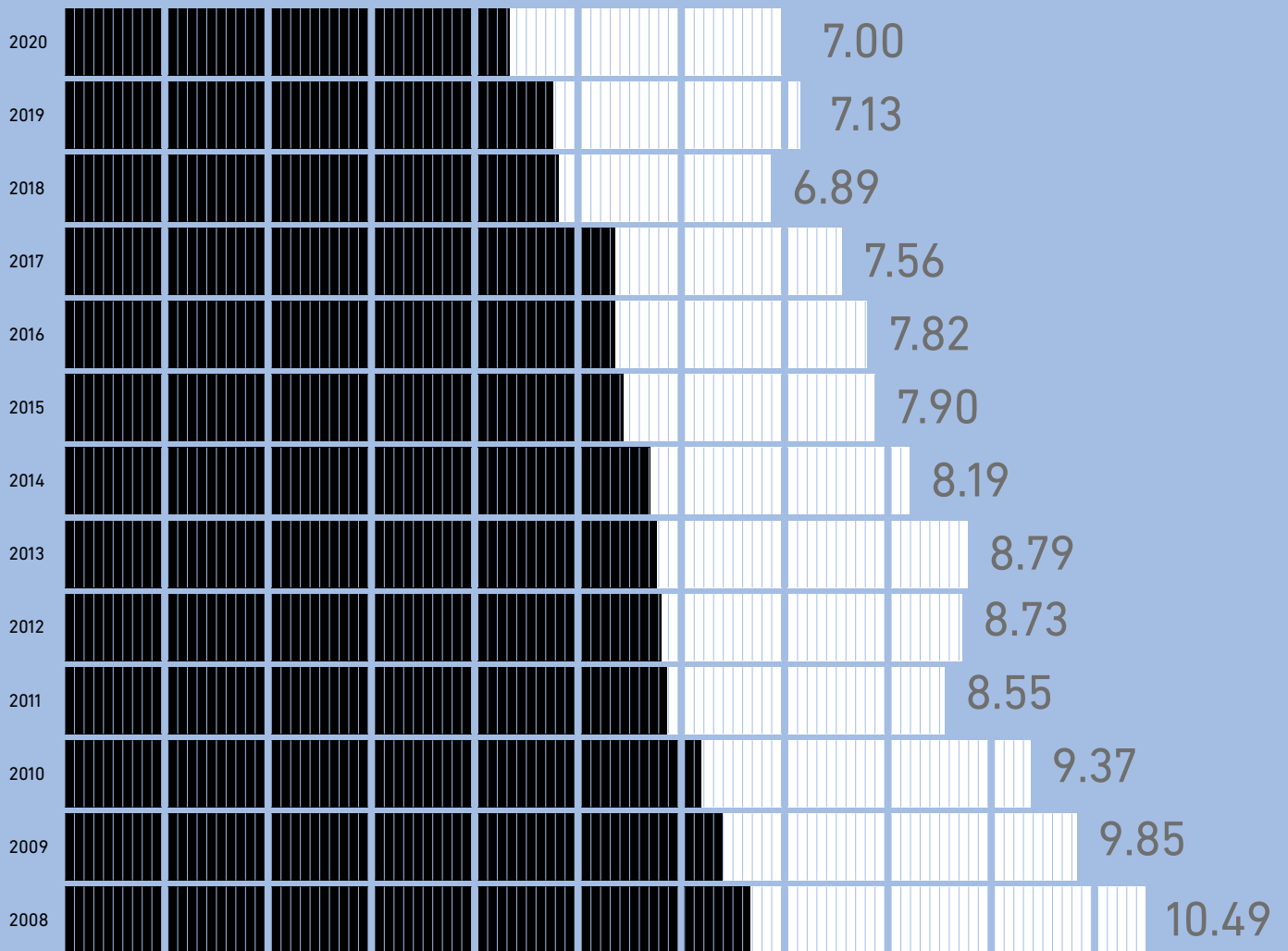
| Electricity (in GWh)  | 2012          | 2013          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          | 2020               |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------|
| <b>Total electricity demand</b>                                       | <b>111.8</b>  | <b>113.0</b>  | <b>111.9</b>  | <b>114.6</b>  | <b>115.7</b>  | <b>113.7</b>  | <b>103.5</b>  | <b>106.0</b>  | <b>99.2</b>        |
| <b>Share from renewable sources (in %)</b>                            | <b>24</b>     | <b>62</b>     | <b>95</b>     | <b>100</b>    | <b>100</b>    | <b>100</b>    | <b>100</b>    | <b>88</b>     | <b>88</b>          |
| Total produced on site  | 0.2           | 0.2           | 0.3           | 0.2           | 0.2           | 0.2           | 0.2           | 0.2           | 0.2                |
| Production from photovoltaic cells                                    | 0.2           | 0.2           | 0.3           | 0.2           | 0.2           | 0.2           | 0.2           | 0.2           | 0.2                |
| <b>Total electricity purchased</b>                                    | <b>111.6</b>  | <b>112.8</b>  | <b>111.6</b>  | <b>114.4</b>  | <b>115.5</b>  | <b>113.5</b>  | <b>103.3</b>  | <b>105.8</b>  | <b>99.0</b>        |
| Electricity purchased for buildings                                   | 101.5         | 103.2         | 104.8         | 107.2         | 106.0         | 108.9         | 103.3         | 105.8         | 99.0               |
| Electricity purchased for Walche heat pump                            | 10.1          | 9.6           | 6.8           | 7.2           | 9.5           | 4.6           | 0.0           | 0.0           | 0.0                |
| <b>Heating (in GWh)</b>   |               |               |               |               |               |               |               |               |                    |
| <b>Total heat demand of ETH Zurich (net energy)</b>                   | <b>50.7</b>   | <b>53.9</b>   | <b>45.5</b>   | <b>48.9</b>   | <b>49.0</b>   | <b>46.0</b>   | <b>43.8</b>   | <b>52.1</b>   | <b>61.2</b>        |
| <b>Share from renewable sources (in %)</b>                            | <b>42</b>     | <b>55</b>     | <b>59</b>     | <b>56</b>     | <b>55</b>     | <b>52</b>     | <b>45</b>     | <b>37</b>     | <b>36</b>          |
| Total heat produced (net energy)                                      | 77.9          | 83.1          | 68.5          | 74.0          | 75.8          | 75.5          | 67.9          | 77.9          | 85.8               |
| Sold heat to third parties (net energy)                               | -27.2         | -29.2         | -23.0         | -25.1         | -26.8         | -26.6         | -24.1         | -25.9         | -24.5              |
| <b>Total heat produced (net energy incl. external purchasers)</b>     | <b>77.9</b>   | <b>83.1</b>   | <b>68.5</b>   | <b>74.0</b>   | <b>75.8</b>   | <b>72.5</b>   | <b>67.9</b>   | <b>78.0</b>   | <b>85.8</b>        |
| District heating  | 21.6          | 21.8          | 17.8          | 20.9          | 19.2          | 30.3          | 42.2          | 40.7          | 48.4               |
| Walche heat pump  | 27.3          | 26.3          | 19.4          | 20.2          | 24.8          | 11.9          | 0.0           | 0.0           | 0.0                |
| Fossil fuels  |               |               |               |               |               |               |               |               |                    |
| Gas (excluding gas for CHP electricity)                               | 25.5          | 31.2          | 27.4          | 29.4          | 33.7          | 32.2          | 30.4          | 36.1          | 36.7               |
| Oil   | 5.9           | 0.0           | 0.0           | 0.0           | 0.6           | 0.0           | 1.3           | 0.3           | 0.0                |
| Non-fossil fuels  |               |               |               |               |               |               |               |               |                    |
| Woodchips   | 0.5           | 0.5           | 0.5           | 0.6           | 0.0           | 0.9           | 0.8           | 0.8           | 0.6                |
| From heat recovery  | 8.9           | 11.8          | 11.9          | 10.0          | 7.5           | 9.8           | 8.9           | 7.9           | 5.7                |
| Losses during conversion  | -11.8         | -8.5          | -8.6          | -7.1          | -10.0         | -12.5         | -15.7         | -7.9          | -5.7               |
| <b>Relative amounts</b>   |               |               |               |               |               |               |               |               |                    |
| Electricity demand (kWh/FTE <sup>1</sup> ), excl. power for heat pump | 5,826.2       | 5,780.7       | 5,712.3       | 5,431.4       | 5,353.2       | 5,345.5       | 4,838.7       | 4,778.5       | 4,330.1            |
| Heat demand/energy-consuming area (kWh/m <sup>2</sup> )               | 80.2          | 83.1          | 68.5          | 74.6          | 73.7          | 68.5          | 64.9          | 77.7          | 91.5               |
| Total energy demand/FTE (kWh/FTE)                                     | 8,732.5       | 8,789.4       | 8,186.6       | 7,901.9       | 7,823.4       | 7,596.3       | 6,885.4       | 7,128.1       | 7,003.4            |
| Total energy demand/energy-consuming area (kWh/m <sup>2</sup> )       | 241.1         | 242.7         | 226.8         | 238.5         | 233.5         | 231.1         | 218.3         | 235.8         | 239.6              |
| <b>Emissions of CO<sub>2</sub> (in t CO<sub>2</sub>eq)</b>            |               |               |               |               |               |               |               |               |                    |
| <b>Total CO<sub>2</sub>eq emissions</b>                               | <b>31,498</b> | <b>29,357</b> | <b>30,362</b> | <b>32,440</b> | <b>31,172</b> | <b>30,203</b> | <b>30,771</b> | <b>28,878</b> | <b>14,669</b>      |
| Direct CO <sub>2</sub> eq emissions (Scope 1)                         |               |               |               |               |               |               |               |               |                    |
| Gas and district heating  | 4,655         | 5,620         | 5,521         | 6,656         | 6,899         | 6,155         | 6,212         | 6,205         | 6,252              |
| Oil   | 2,088         | 11            | 5             | 0.5           | 161.7         | 4.8           | 382.6         | 93.3          | 4.2                |
| Coolants (adjusted in 2014)   | 62            | 62            | 517           | 517           | 517           | 517           | 517           | 517           | 517                |
| Indirect CO <sub>2</sub> eq emissions (Scope 2)                       |               |               |               |               |               |               |               |               |                    |
| Purchased current   | 1,606         | 1,585         | 1,471         | 1,555         | 1,563         | 1,526         | 1,384         | 1,427         | 1,315              |
| Other indirect CO <sub>2</sub> eq emissions (Scope 3)                 |               |               |               |               |               |               |               |               |                    |
| Commuter traffic (adjusted in 2018)                                   | 3,501         | 3,588         | 3,688         | 3,965         | 3,980         | 4,094         | 4,290         | 4,448         | 2,067 <sup>2</sup> |
| Business travel (adjusted; see note on <a href="#">page 66</a> )      | 19,586        | 18,491        | 18,870        | 19,456        | 17,761        | 17,906        | 17,985        | 16,188        | 4,514              |
| Printing (recorded in 2014) <sup>3</sup>                              |               |               | 290           | 290           | 290           |               |               |               |                    |

1 Students count as 0.68 FTE

Rented smaller premises and premises outside the canton of Zurich are not included in the multi-year comparisons.

2 Due to the COVID-19 pandemic and the emergency operations on campus in large parts of 2020, campus presence and commuter traffic were estimated at 45 percent.

3 Emissions associated with printing are not disclosed consistently in this report due to data availability.



- electricity demand (excl. power for heat pump) per FTE in MWh
- heat demand per FTE in MWh
- total energy demand per FTE in MWh

GOAL: ENERGY

## Reduce energy consumption at ETH Zurich

The total energy (electricity and heating) used by ETH Zurich was 158.1 GWh in 2019 and 160.4 GWh in 2020. Between 2012 and 2020, absolute energy demand remained relatively stable, ranging from a minimum of 147.3 GWh in 2018 to a maximum of 166.9 GWh in 2013. While normalised energy demand by energy-consuming area has remained stable over the past decade, a significant improvement is identified

at the level of the normalised energy demand by fulltime equivalent: between 2008 and 2020, there was a decrease of 33 percent.

Please find the [➔ detailed overview of all goals](#) in the back of this report.



**Martina Blum**  
Deputy Energy Commissioner,  
City of Zurich

on Sustainable Development Goal 7  
Affordable and clean energy

Efficient energy usage and the transition to renewables are fundamental requirements for achieving global sustainability goals, which include both ecological and societal aspects. In this sphere, ETH Zurich has a great deal of leverage: If it can raise students' awareness of sustainability across disciplinary boundaries, they will advocate integrated solutions for the rest of their lives.

## Greenhouse gas emissions

Global warming is one of the most pressing challenges of sustainable development. Living up to the priority given to climate change in its research, ETH Zurich monitors its own carbon footprint critically. For reasons of transparency and comparability, ETH Zurich bases its monitoring on the guidelines of the Greenhouse Gas Protocol (🔗 **GHG Protocol**), including emissions from own operations, purchased electricity, or mobility. However, even as the University makes great efforts to reduce its footprint, the spatial developments and the ongoing increase in student and employee numbers over the past decade remain major challenges for absolute emissions reduction.

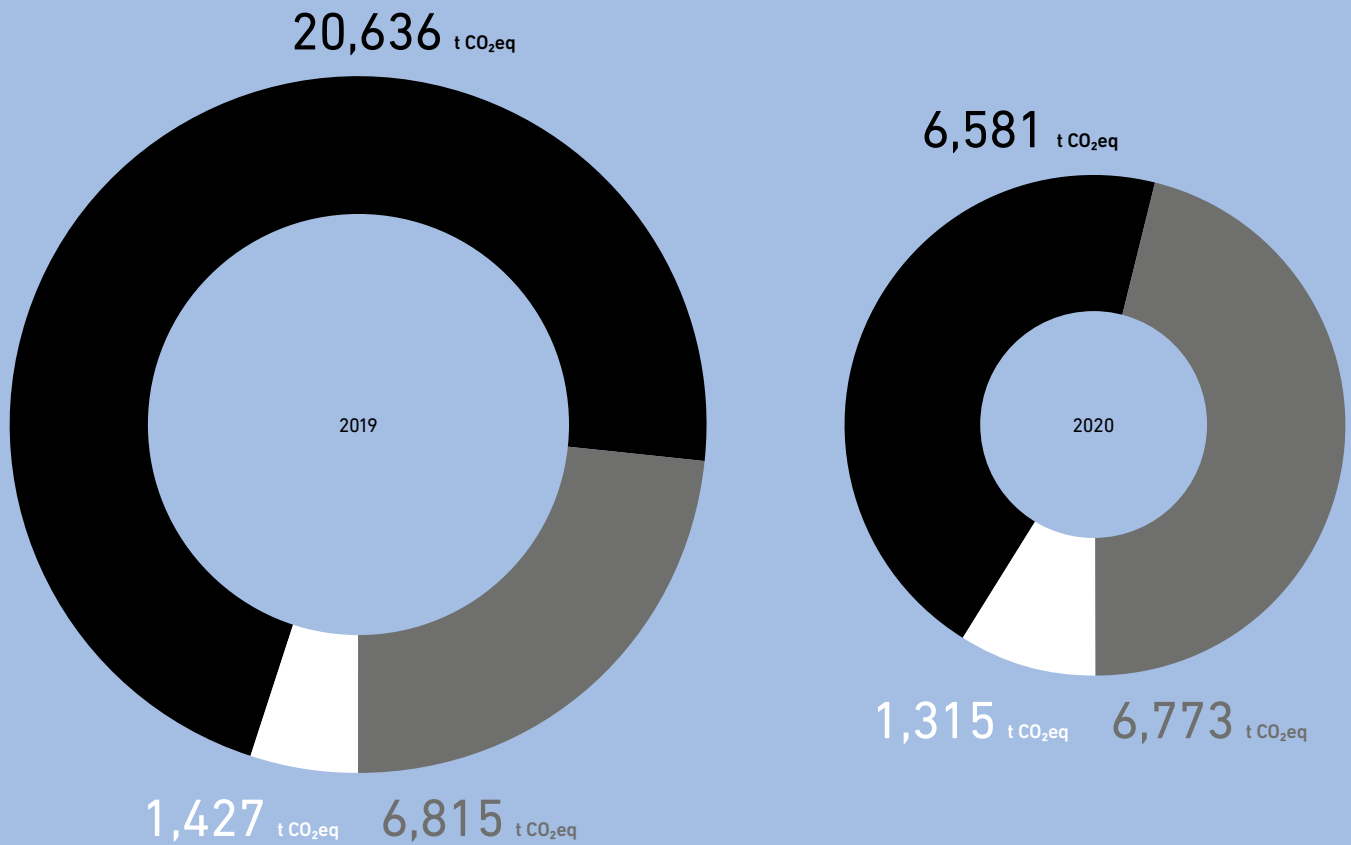
### Greenhouse gas accounting

As part of its environmental management, ETH Zurich collects information on its carbon footprint on an annual basis.<sup>1</sup> In accordance with the categories of the GHG Protocol, ETH Zurich reports direct and indirect emissions clustered into three Scopes: Scope 1 emissions refer to direct greenhouse gas emissions from owned or controlled sources. Scope 2 emissions are indirect greenhouse gas emissions from the generation of purchased energy. Scope 3 includes all other indirect greenhouse gas emissions that are generated in the value chain, including both upstream and downstream emissions.<sup>2</sup>

<sup>1</sup> Previous reports included the emissions of volatile organic compounds (VOC) caused by ETH Zurich's laboratory activities (2015: 52.7 t CO<sub>2</sub>eq), solvents (2015: 92.1 t CO<sub>2</sub>eq), and printing (2014: 290 t CO<sub>2</sub>eq). These are not disclosed in this report due to a lack of data.

<sup>2</sup> Scope 1 emissions were documented and verified with SILOVEDA software. Scope 2 emissions from purchased electricity were assessed based on documentation provided by the supplier.





GOAL: EMISSIONS

## Across ETH Zurich, reduce overall CO<sub>2</sub>eq emissions (direct and indirect) to contribute to the goals of the Paris climate agreement

In line with the Federal Council’s decision to pursue the “Klimapaket Bundesverwaltung”, ETH Zurich has been mandated to develop a strategy to reach net zero emissions by 2030 by reducing its overall CO<sub>2</sub> emissions at least by 50 percent compared to 2006 (the rest may be compensated with emission certificates). For this purpose, a university-wide working group has been set up to define the operational concept for implementing the strategy. In a participatory process, the working group will develop a white paper that

outlines scenarios and recommendations for the Executive Board of ETH Zurich. This paper will also assess further Scope 3 emissions, e.g. caused by infrastructure and buildings, food or procurement activities of ETH Zurich.

Please find the ➔ **detailed overview of all goals** in the back of this report.

Total CO<sub>2</sub>eq emissions  
 ■ Scope 1  
 ■ Scope 2  
 ■ Scope 3



**Anna Knörr**  
 President, Student Sustainability  
 Commission, ETH Zurich

on Sustainable Development Goal 13  
 Climate action

The key word is action. Knowledge about the 2°C threshold is floating around in the minds of many staff and students at ETH Zurich. But often we are too busy with study or job responsibilities to change habits and translate knowledge into action. Each department needs a dedicated team whose explicit job is to facilitate action.

**Scope 1: Direct greenhouse gas emissions**

In 2019 and 2020, Scope 1 emissions (mainly from fossil fuels like natural gas burned in own facilities) were 6,815 and 6,773 t CO<sub>2</sub>eq, respectively. Compared to the total during the previous reporting period (2017: 6,677 t CO<sub>2</sub>eq and 2018: 7,112 t CO<sub>2</sub>eq), the total Scope 1 emissions increased by 1.5 percent.

**Scope 2: Indirect greenhouse gas emissions**

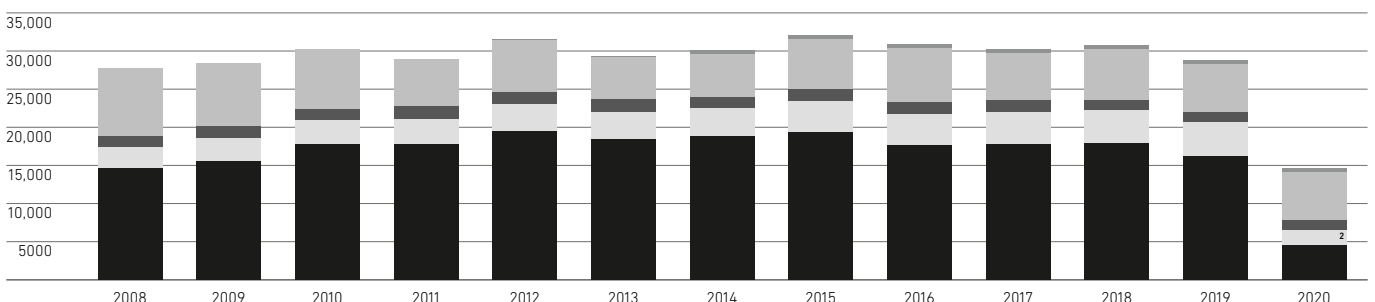
In 2019 and 2020, Scope 2 emissions (from purchased electricity, without district heating) were 1,427 and 1,315 t CO<sub>2</sub>eq, respectively. The values were calculated taking into account the electricity mix of the electricity supplier. For example, in 2020 (supplier: Stadtwerk Winterthur), the mix was composed as follows: 92 percent hydro-power, solar energy, wind energy, and biomass, and 8 percent from Swiss nuclear energy. Compared to the total during the previous reporting period (2017: 1,526 t CO<sub>2</sub>eq and 2018: 1,384 t CO<sub>2</sub>eq), the Scope 2 emissions decreased by almost 6 percent.

**Scope 3: Other indirect greenhouse gas emissions (incomplete)**

According to the GHG Protocol standard, Scope 3 comprises 15 categories of activities, both upstream and downstream. Given the data availability, ETH Zurich only reports part of these emissions in this report. These include emissions from business travel (of staff, invited guests, and students) and commuter traffic (adjusted in 2018). In 2019 and 2020, these emissions amounted to 20,636 and 6,581 t CO<sub>2</sub>eq, respectively.

**CO<sub>2</sub> emissions**

in metric tonnes of CO<sub>2</sub> equivalent per year



1 The values between 2014 and 2016 included 290 t CO<sub>2</sub>eq associated with printing.

2 Due to the COVID-19 pandemic and the emergency operations on campus in large parts of 2020, campus presence and commuter traffic were estimated at 45 percent.

# Mobility

Greenhouse gas emissions and mobility are closely interlinked as long as transport is based on fossil fuels. For a sustainable, future-oriented mobility, it is crucial to make use of the opportunities offered by technological and societal innovations and by digitalization, but also by sustainable travel choices of individuals. ETH Zurich is committed to sustainable mobility in research, education, and campus operations. Two major activities with this aim include the **🚀 Air Travel Project** and **🚲 Campus mobility** with active support for public transport, bike-sharing offers, and E-mobility.

## **Air travel project: Stay grounded – keep connected**

ETH Zurich's standing as a globally renowned university relies on cooperation and exchange with partners worldwide. While participating in conferences and implementing international projects is key for researchers at all levels, ETH Zurich has a major responsibility in helping to protect the climate, environment, and resources. However, business trips account for over half of the total greenhouse gas (GHG) emissions generated by ETH Zurich, with about 90 percent of this due to air travel (average during the period 2006-2020).

Launched in 2017, ETH Zurich's Air Travel Project "Stay grounded – keep connected" addresses the conflict of objectives and seeks to motivate members of ETH Zurich to reduce greenhouse gas emissions generated by business trips. The focus is on cultural change, which is stimulated and supported through a combined top-down and bottom-up approach. Working in a participatory process, the departments, the Executive Board, and administrative units at ETH Zurich agreed to an average per-capita reduction of 15 percent until 2025, as measured against the average for 2016-2018. It neither includes compensation nor the efficiency gains of the airlines due to technological progress. If the efficiency gains were accounted for, ETH Zurich's reduction target would amount to about 25 percent.

The departments have developed a wide range of concrete and innovative measures to achieve the reduction target. In 2019, ETH already reduced its flight emissions by 10 percent compared to the reference period 2016-2018. Several departments have decided to introduce an internal carbon tax as a steering charge. The revenue will be invested in teaching, research, and promoting young scientists, with a focus on themes that lead to a reduction in CO<sub>2</sub>. All departments are in favour of using and organising video conferencing more frequently – even beyond the COVID-19 crisis. In the course of the pandemic, digital communication solutions have received a strong boost. The goal must be to benefit from this experience and to sustainably anchor low-emission modes of exchange in academia. Even if the "flight abstinence" during the pandemic was not voluntary (in 2020, ETH Zurich recorded a reduction in flight emissions of 77 percent compared to the reference period), this caesura is impressive proof that routines can change significantly.

In January 2020, ETH members from all units came together to share ideas in interactive workshops following input presentations. The participatory process and governance in particular have attracted a great deal of attention from the research community, international companies, and the national and international public. Susann Görlinger, who leads the Air Travel Project, presented the project to numerous other universities and research institutes on various occasions, nationally and internationally. The selection as a finalist in the International Sustainable Campus Excellence Awards (ISCN Award) 2020 in the category "Cultural Change for Sustainability" underlines the visibility and relevance of the project.



**Stéphanie Penher**  
 Head of Transport Policy  
 and Campaigns,  
 Verkehrsclub der Schweiz

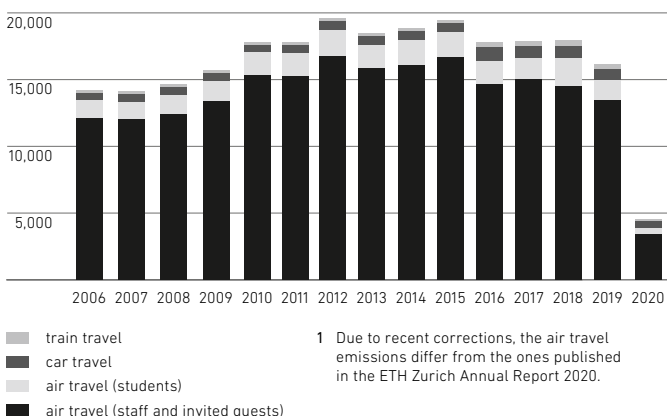
on Sustainable Development Goal 11  
 Sustainable cities and communities

With their structural and social density, cities are habitats, workplaces, and places for living in societal diversity, for exchange and encounter. However, the city also enables dissimilarities and contradictions. Only where contrasts meet can new paths and approaches be found. ETH Zurich is part of what makes the city a place of manifold possibilities.

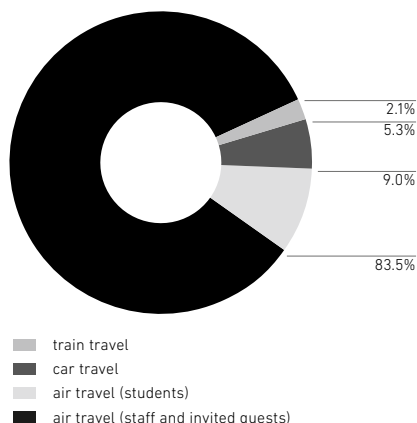
The Air Travel Project has also encouraged ETH Zurich’s members to rethink the role that air travel plays in academia. In 2020, Agnes Kreil, a doctoral student at ETH Zurich’s Transdisciplinarity Lab, conducted a survey among ETH professors. The results show that the idea of reducing emissions from air travel is now widely anchored at ETH Zurich and the project is accepted and supported: The survey found that 92 percent know about the project; only 20 percent have not talked about the project or flight reduction in the last two months; 78 percent say they are willing to reduce their personal air travel; and 36 percent have already reduced their air travel because of the project. This confirms that the project was able to raise awareness of the high impact of emissions from air travel on ETH Zurich’s carbon footprint while simultaneously initiating a joint search for solutions.

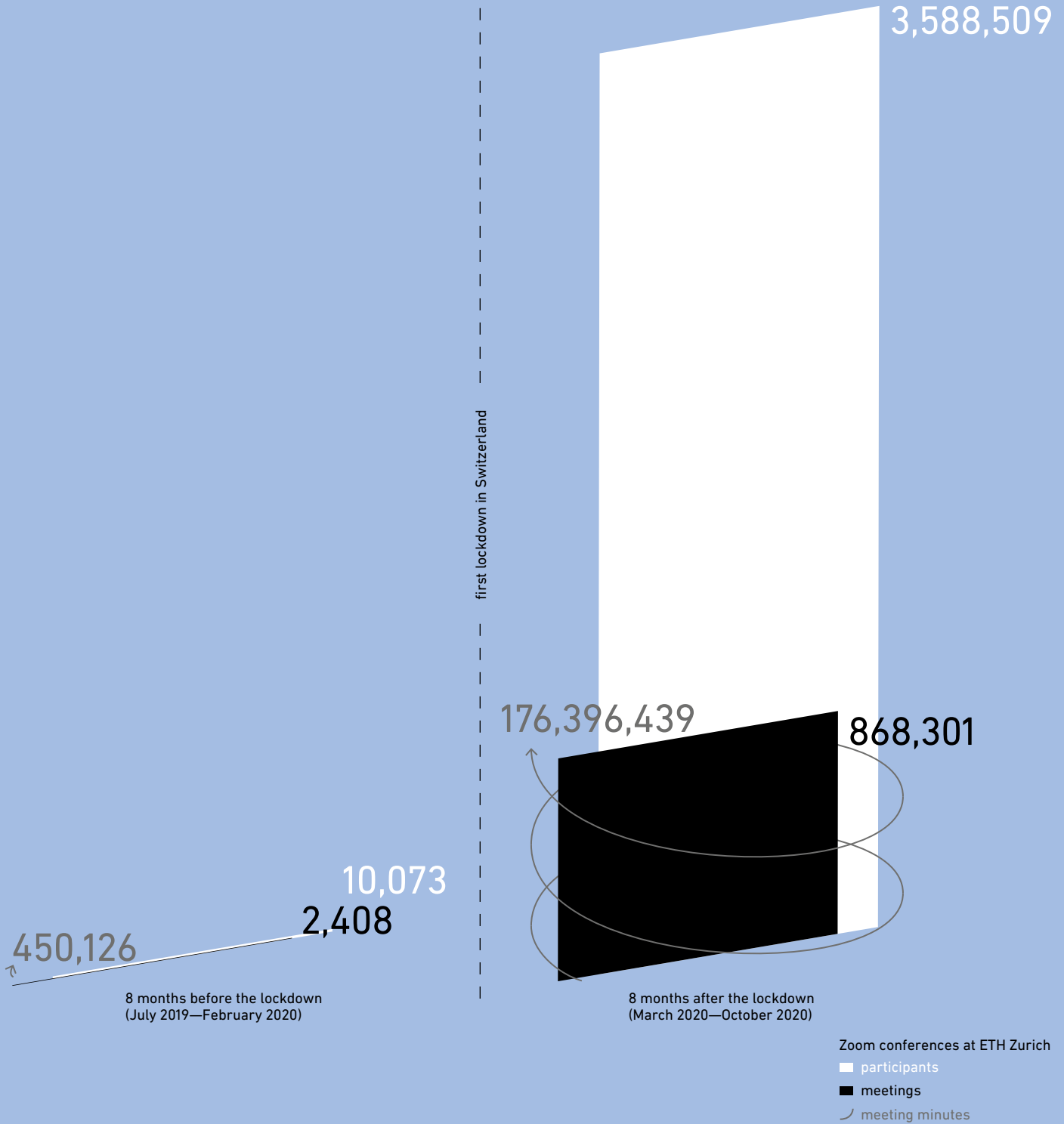
**NOTE** Compared to earlier reports, the flight emissions for the years 2006-2015 have been re-aligned because of a change of the method used to estimate flight emissions after 2015 (see [Medhaug, 2021](#)). The method for estimating car and train emissions has also been slightly adapted since 2016 (for more information, see [www.ethz.ch/airtravel](http://www.ethz.ch/airtravel)).

**CO<sub>2</sub> emissions caused by business travel<sup>1</sup>**  
 in metric tonnes of CO<sub>2</sub> equivalent per year



**CO<sub>2</sub> emissions caused by business travel in 2019**  
 (by category)





GOAL: MOBILITY

# Limit air travel and promote the use of alternatives for collaboration and international networking

Launched in 2017, ETH Zurich’s Air Travel Project “Stay grounded – keep connected” seeks to motivate members of ETH Zurich to reduce greenhouse gas emissions generated by business trips. Triggered by the COVID-19 pandemic and the lockdown, the use of video conferencing at ETH Zurich experienced rapid growth. While there were only 147 new Zoom users at ETH Zurich as of February 2020,

a total of 8,150 members of ETH Zurich registered for a Zoom license in March 2020 alone. The accelerated use of virtual alternatives has contributed significantly to reducing air travel.

Please find the [detailed overview of all goals](#) in the back of this report.



The electric buses will be recharged at a new 300-kW charging station at the stop on Campus Höggerberg

### ETH Link going electric

Since 2009, the ETH Link bus has provided shuttle services multiple times per hour between the Campus Zentrum and Campus Höggerberg. The bus allows ETH Zurich members to commute between the two campuses without having to switch buses. Until now, the ETH Link has been powered by diesel. Since the start of fall semester 2020, the campuses have been serviced by the first electric vehicle. Two more buses will follow in autumn 2021. The fully electric, 18-metre-long articulated (bendy) buses will be coming straight off the production line. With a battery capacity of 243 kilowatt-hours, they have a travel range of 125 kilometres. The environmentally friendly buses can accommodate 131 passengers: 38 seated, 93 standing, and two in wheelchairs.

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#### FURTHER INFORMATION:

- [ETH Week 2019: "Rethinking Mobility"](#)
  - [Mobility-related offers to members of ETH Zurich](#)
-

# Paper consumption

Despite the ongoing process of digitalisation, the consumption of large quantities of paper remains common practice at universities. To mitigate the environmental impact, ETH Zurich focuses both on reducing the quantity of paper consumed and on lowering the environmental impact of the paper that is used. Where possible, ETH Zurich encourages the use of electronic documents.

## Cutting use of paper

In 2019, 28.3 million A4 sheets were delivered on campus by the ETH Office Supplies Shop.<sup>1</sup> That amounts to a decrease of 44 percent since 2016 (50.4 million pages). Irrespective of the general trend, there was a significant decline in 2020, which can be explained by the COVID-19 pandemic and the emergency operations at ETH Zurich. In 2020, a total of 18.7 million A4 sheets were delivered, which represents another drop of 34 percent between 2019 and 2020. This corresponds to a paper consumption of 4 kg per fulltime equivalent in 2020. With regard to the share of recycled paper, relatively little has changed since the end of the last reporting period (2018). In 2019 and 2020, the share was 84.8 percent and 82.4 percent, respectively, while the remainder was FSC-certified paper. Besides the exceptional year 2020, the downward trend in total paper consumption is partly related to the increased external procurement of print services by the Print + Publish section. Further possible explanations for the reduction include increased environmental awareness (e.g., double-sided printing) and the growing use of (mobile) electronic devices.

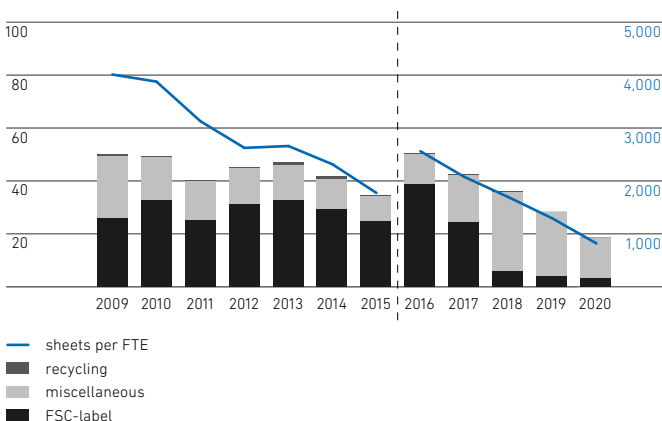
**NOTE** In 2016, the paper procurement process and internal responsibilities of paper supply were reorganized. Data from 2007 to 2015 include delivery volume of ETH Office Supplies Shop. Data since 2016 include both delivery volume of ETH Office Supplies Shop and the data from the IT Services printing volume.

### FURTHER INFORMATION:

- ➔ **Print + Publish unit**
- ➔ **Office supplies**

<sup>1</sup> The delivery volume of the ETH Office Supplies Shop covers an estimated 98 percent of ETH Zurich's total paper requirements. The remaining 2 percent are directly procured from external suppliers.

**Paper consumption**  
in millions of A4 sheets of paper per year



# Recycling and waste

Within its various facilities and diverse activities, ETH Zurich generates a significant volume of waste. Considering the environmental impact associated with waste, ETH Zurich is committed to developing comprehensive waste management solutions. The University aims to avoid waste, wherever feasible, or divert as much of the waste as possible away from mainstream disposal into recycling streams. The **operational environmental and waste management** comprises a series of mission statements, fact sheets, and guidelines, such as the **Disposal Guideline** of the Safety, Security, Health and Environment (SSHE) department. The **Facility Management administrative department** leads the development of new solutions for the waste situation by continuously keeping statistics and trying to optimise existing processes. The main challenging factor remains the continuous increase in the number of ETH Zurich members.

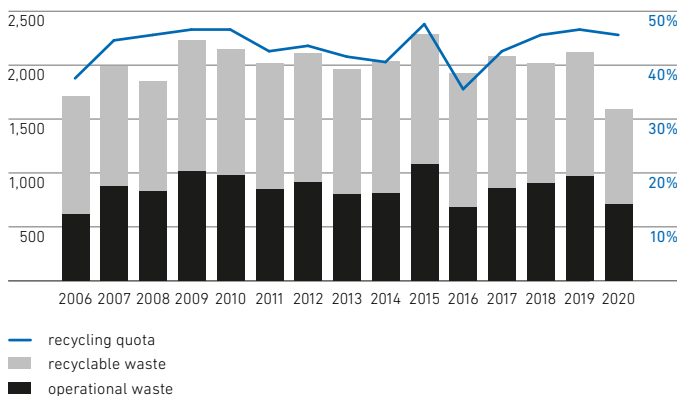
## Redirecting waste stream

As in the previous reporting period (2017/2018), the overall goal of directing 50 percent of the waste volume into recycling streams had not been achieved by the end of 2020. Depending on the building area and the corresponding material consumption requirements, the recycling rate varied between 23 and 100 percent. Considering the total waste volume of 2,122 t in 2019 and 1,595 t in 2020, university-wide recycling quotas of 46 percent (978 t) and 45 percent (717 t) were reported. The remaining non-recyclable operational waste (1,144 t in 2019 and 878 t in 2020) was combusted. With the exception of 2020 (COVID-19 pandemic), the waste volume generated at ETH Zurich has been slowly increasing over the past years due to the steady growth in student and employee numbers.

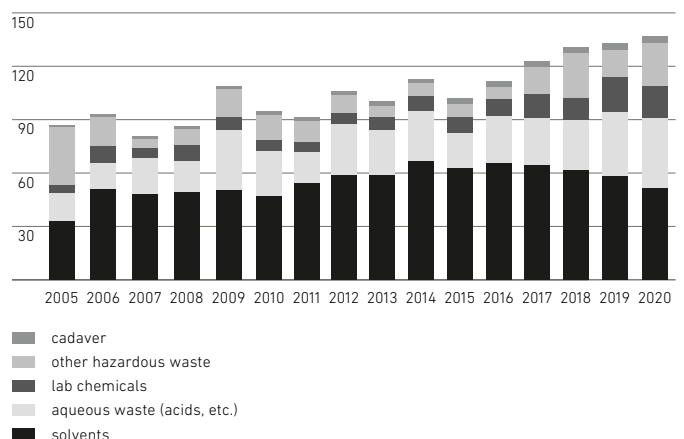
## Disposing of hazardous waste

In dealing with hazardous waste, ETH Zurich takes strict safety precautions. Special training is given to ensure that employees and students have a clear understanding of **disposal practices** and can implement them safely. In 2019 and 2020, ETH Zurich disposed of 132.8 t and 136.9 t of hazardous waste. Broken down by type, the total volume in 2019 comprised 58.1 t solvents, 36.5 t aqueous waste, 19.4 t lab chemicals, 15.0 t other hazardous waste and 3.8 t cadaver. In 2020, it comprised 51.6 t solvents, 39.5 t aqueous waste, 17.7 t lab chemicals, 24.6 t other hazardous waste and 3.5 t cadaver. Despite the lockdown in early 2020, the volume of hazardous waste was almost the same as in 2019. This was due, on the one hand, to an increase in clean-up activities during the lockdown and, on the other hand, to a boost in research activity after the lockdown.

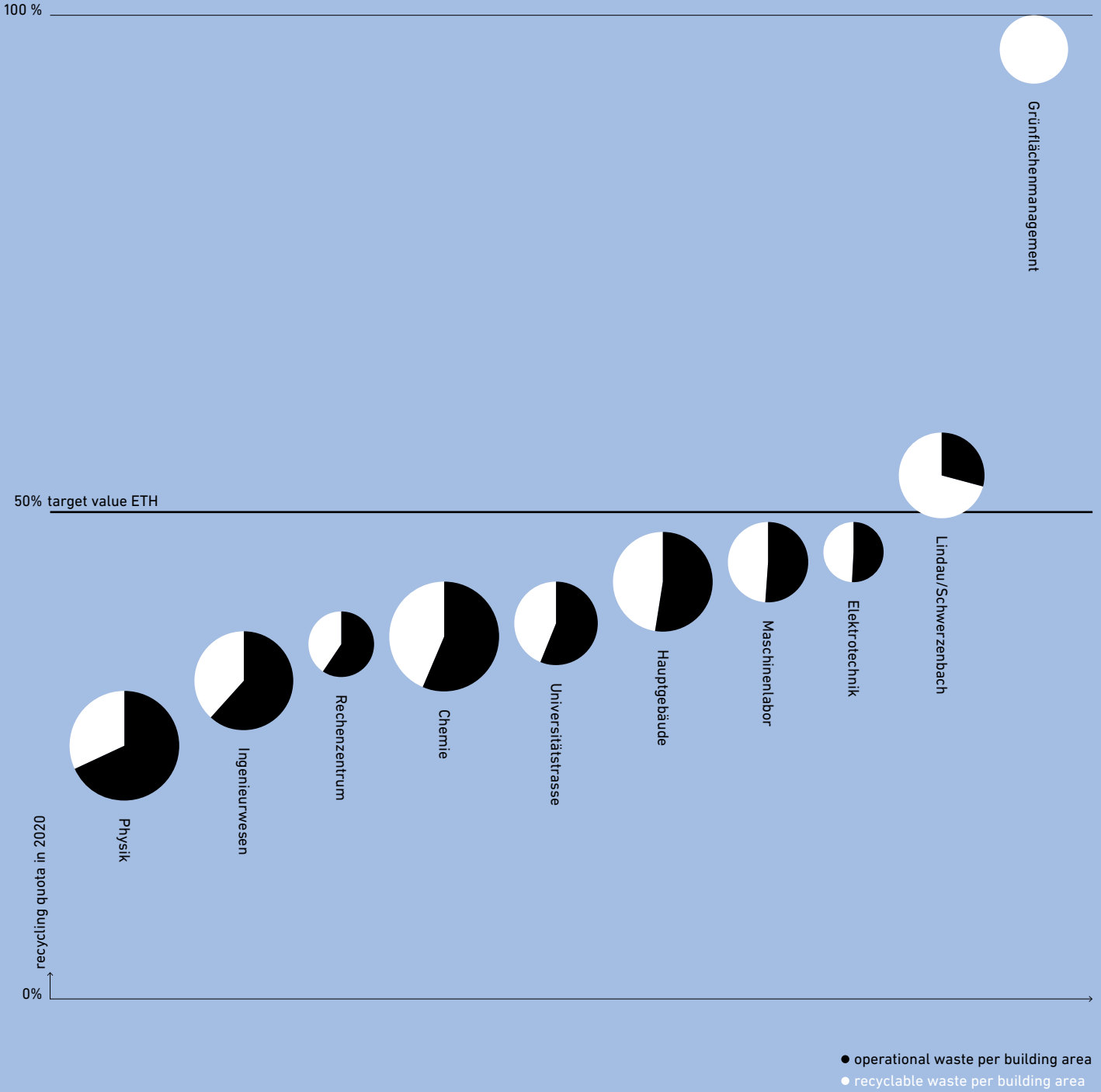
**Waste**  
in metric tonnes



**Hazardous waste**  
in metric tonnes







GOAL: WASTE

# Direct 50 percent of total waste materials to a recycling stream

The target of 50 percent for ETH Zurich as a whole had not been achieved by the end of 2020. Within the reporting period, the recycling quota varied between 23 and 100 percent – depending on the building area – resulting in overall quotas of 46 percent in 2019 and 45 percent in 2020.


Please find the [detailed overview of all goals](#) in the back of this report.

**✗ NOT ACHIEVED**

## Food

The production and consumption of food is an essential contributor to the global greenhouse gas footprint. Under normal conditions, over 1.7 million menus are sold annually at the ETH Zurich campus (in 2018). As CO<sub>2</sub> emissions associated with food represent a significant portion of ETH Zurich's total greenhouse gas emissions, food-related issues play an increasingly important role in the University's approach to sustainability. In close exchange with the catering companies on campus, various units of the University are constantly developing new solutions that are backed by the University's core competencies in education and research.

### **Towards a sustainability programme for catering**

Between 2013 and 2017, close collaboration between the Catering Commission of ETH Zurich, ETH Sustainability, the World Food System Center, and the catering companies on campus laid the foundations for a tailor-made climate program for gastronomy. The work was based on a "living lab" approach that involved numerous students and researchers. The final report was published in July 2017. The results provided the basis for the ETH Zurich  **"ETH Climate Programme for Gastronomy"**. Launched in January 2018, it motivated catering companies to take a series of measures with the aim to reduce their greenhouse gas emissions by 10 percent within three years as compared against the average footprint in 2015/2016. From the outset, the programme was designed in a way that would form part of a more comprehensive "ETH Sustainability Programme". As part of this more complex programme, participating catering companies were encouraged to consider other factors in addition to reducing CO<sub>2</sub> emissions, including animal welfare, health, food waste, and biodiversity. In order to make the further development as participatory as possible, workshops were held in summer and fall 2019. The workshops involved the catering provided by the two major catering companies SV Group and Compass Group, students of the Student Sustainability Commission (SSC), ETH Sustainability, ETH Zurich's Partner Organisation section, experts from Eaternity, and researchers from ETH Zurich. The original plan was to replace the current "ETH Climate Programme for Gastronomy" with the more comprehensive "ETH Sustainability Programme" at the end of 2020. Due to the COVID-19 pandemic, this plan was adjusted so that the former programme would continue through the end of 2021. Other planned projects and awareness-raising activities had to be postponed until further notice.

HIGHLIGHT

Contributes to SDG 12

# reBOX: Purple is the new green

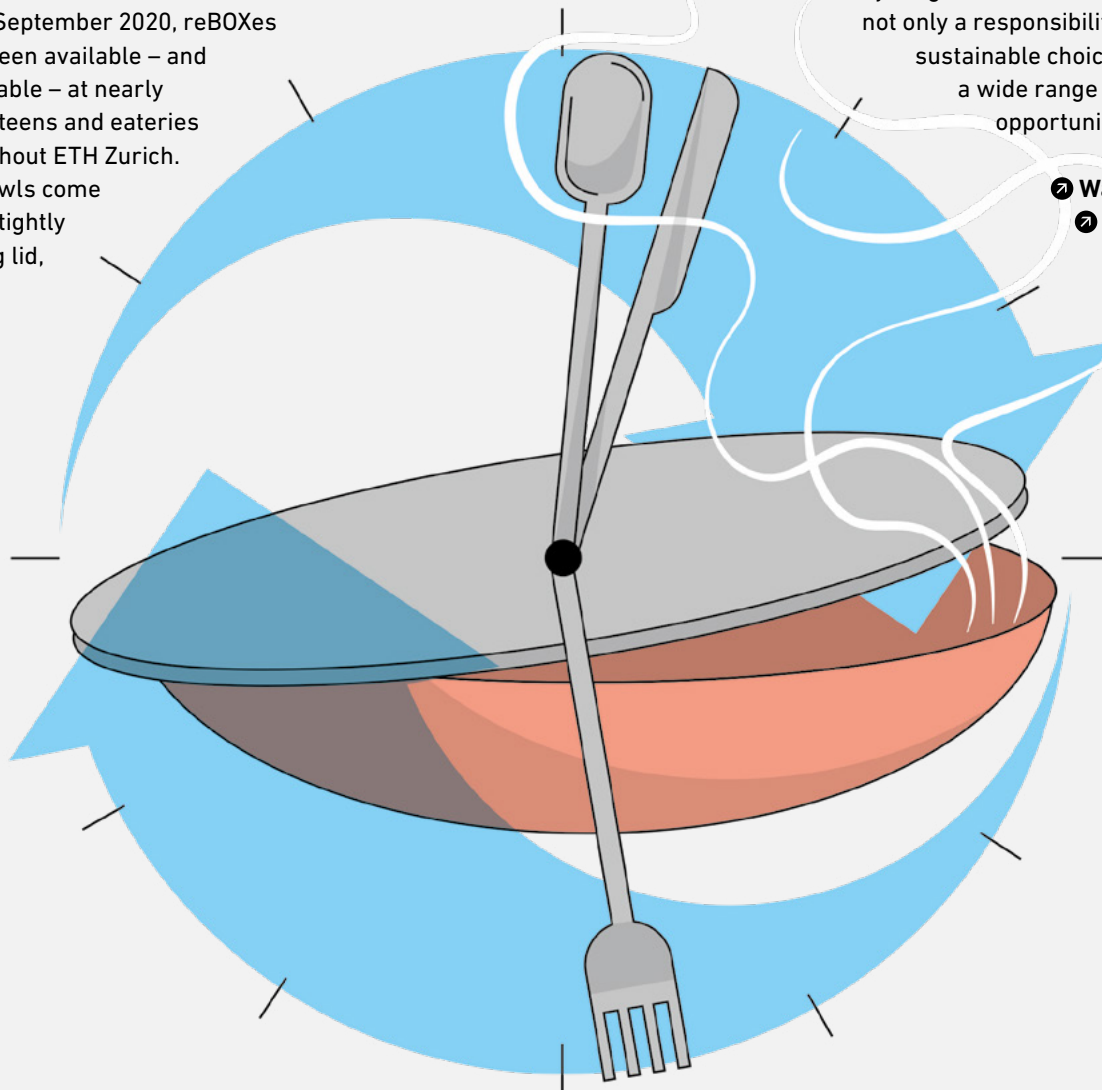
For students and staff seeking takeaway or a quick snack between classes, ETH Zurich offers many options, from cafeterias to food trucks. From an environmental point of view, however, takeaway is often an unsustainable choice because disposable packaging and containers add to non-biodegradable waste and litter. Now, a new option is available: For a ten-franc deposit, customers receive the reBOX, a reusable container that they can either keep using or return to collect the deposit (or a fresh meal in a new container) at any of the reCIRCLE partner restaurants throughout Switzerland.

Since September 2020, reBOXes have been available – and returnable – at nearly all canteens and eateries throughout ETH Zurich. The bowls come with a tightly sealing lid,

are dishwasher-proof, and can be microwaved. With a distinct aubergine colour, they are green by nature, far surpassing disposable dishes as they can be reused at least 100 times. Each is given an industrial-grade scrubbing before being returned to circulation. If all 35,000 students and staff at ETH Zurich were to use such a box instead of a throwaway container just once a week, that would save 50 tonnes of plastic every year. Nationwide, the reCIRCLE partners account for 50,000 disposable containers saved every day.

A life-cycle assessment showed that the reBOX has a lower environmental impact than disposable containers after less than ten washing cycles. “The reBOX is a simple, yet effective measure to reduce waste on our campuses,” says Isabelle Castagna, ETH Sustainability Project Manager. “It not only helps us avoid disposable packaging, it’s also a stylish option for taking leftovers home. The container is a very tangible reminder that we have not only a responsibility to make more sustainable choices, but also a wide range of attractive opportunities for doing so.”

- Waste on Campus
- reCIRCLE BOX





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**Dörte Bachmann**  
Sustainability Manager,  
SV Group

on Sustainable Development Goal 12  
Responsible consumption  
and production

A sustainable diet can have a huge impact on the achievement of the SDG12. With the ETH Climate Program, ETH Zurich has taken on a pioneering role in promoting sustainable campus catering. Nevertheless, we all have the responsibility to support the SDG12 with our consumer choices.

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#### **Comprehensive packaging study provides recommendations**

At the suggestion of ETH Zurich's Partner Organisation section, ETH Sustainability conducted a comprehensive inventory of the packaging situation covering all SV Group, Compass Group, Nooba AG, and Coop AG operations on the ETH Zurich campus in 2019. Based on a literature research, comparisons of life cycle assessments, and on empirical data from practice, the inventory study laid the decision-making basis for catering companies to adapt their packaging practice in a sustainable manner.

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#### **FURTHER INFORMATION:**

- **Inventory study (in German): Verpackungen und Take-away-Geschirr in der ETH-Gastronomie**
  - **Sustainable events tool**
-

## CAMPUS

GOVERNANCE  
AND FINANCE

## Finances

Sustainability is also one of the core principles of ETH Zurich's financial management and strategy, underpinning a long-term vision to finance ETH Zurich's research and education today and in the future on the one hand and to invest its assets in an ecologically sustainable way and manner on the other hand. Both aspects are equally important. ETH Zurich needs financial sustainability regarding the funding of its excellent and growing research and education activities in order to contribute to the Sustainable Development Goals (SDGs), and ETH Zurich has a responsibility to be a social and ecologically sustainable institution. Financial sustainability is based on a financial plan covering a period of five years and a long-term approach to balance sheet management. The ecological sustainability of ETH Zurich's finances is based on specific criteria for its asset management that are outlined below.

### Importance of third-party funding

The share of the federal financial contribution granted to ETH Zurich amounted to CHF 1,293 million in 2020 (or 68 percent of total revenues). Third-party funding was CHF 595 million. Hence, the share of third-party funding has more than doubled from around 15 percent in 2000 to 32 percent in 2020. The increasing share of third-party funding that the University attracts allows ETH Zurich to implement its sustainable strategy in research and teaching more quickly and to expand these activities. In view of the strong international competition among universities with technology-intensive cutting-edge research and a continuous increase in the number of students, deliberately diversifying the funding base is a necessity. Selective diversification of its sources of funding also helps to keep the University on a sustainable track in financial terms.

### Sustainable investments

With about 80 percent of total revenue coming from public funds such as the Federal Government, the Swiss National Science Foundation (SNSF), and the European research framework programs, ETH Zurich's financing model differs significantly from the Anglo-Saxon "private university" model. None of the public funds ETH Zurich is entrusted with are invested on the market, but funds must be placed with the Swiss Federal Treasury. Only third-party funds that are not used immediately are partly placed in the market. Such funds amounted to CHF 323 million as per year-end 2020. ETH Zurich is hence only a "small" institutional investor. The return on investment placed on the market amounted to about 1 percent of total revenues in 2020. Under the current investment strategy of ETH Zurich, the funds have to be invested mainly directly or indirectly in stocks or bonds. Based on the regulatory framework stipulated by the ETH Board,<sup>1</sup> alternative investment models such as private equity are excluded. The investment strategy is built on four pillars: return, risk, cost-efficiency, and sustainability. ETH Zurich's investments placed in the market are managed by three Swiss asset managers. Since asset management is not part of ETH Zurich's core business, the University has instructed the asset managers to primarily pursue the approach of passively managed mandates.

ETH Zurich defines sustainability according to currently valid ESG criteria (environmental, social, governance) and seeks to invest in solutions that are as sustainable as possible, without neglecting the other strategic goals and regulatory framework conditions.

<sup>1</sup> E.g., investment guidelines (<https://rechtssammlung.sp.ethz.ch/Dokumente/120.4.pdf>)

**Isabel Günther**

Professor of Development Economics  
and director of NADEL

on Sustainable Development Goal 10  
Reduced inequalities

Research has shown that 60-80 percent of income is determined by the country we are born in and by the income of our parents. This lottery of birth is one of the biggest injustices. COVID-19 will deepen these inequalities. But research has also shown that education can be the engine of social change. ETH Zurich strives for diversity in its students and partnerships with universities around the world for a more equitable access to excellent science and engineering education.

#### Sustainability in asset management is operationalized by the following factors:

1. All three asset managers that ETH Zurich works with are members of **Swiss Sustainable Finance**. All mandated asset managers are signatories to the **UN Principles for Responsible Investment (UN PRI)** and are thus committed to promoting sustainable investment.
2. All investments comply with the exclusion list of the **Swiss Association for Responsible Investments**.
3. The majority of investments made by ETH Zurich follow either a “best-in-class” approach, which means that only companies that belong to the best in terms of their Environmental, Social, Governance (ESG) scoring in relation to their specific industries are invested; or that companies with a very low ESG rating are excluded;<sup>1</sup> or that they comprise companies with a 25 percent lower exposure to fossil fuel reserves, a 30 percent higher exposure to renewable energies, and a 25 percent higher exposure to investments that contribute to achieving the 2°C target path.

ETH Zurich’s Vice President for Finance and Controlling (VPFC) oversees the asset management process and consults three times per year with the ETH Investment Commission (four members, including two ETH professors, and an external consultant).

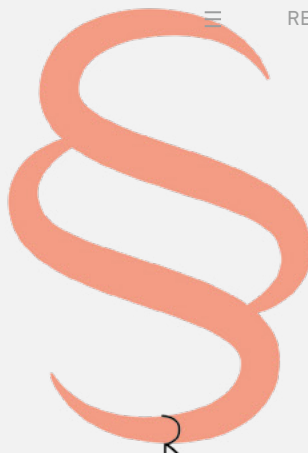
#### Moving forward

**Reporting:** ETH Zurich strives to continuously improve the social and ecological sustainability of its investments. In order to evaluate the progress made, the global custodian of ETH investments will prepare an annual sustainability reporting on all three mandates (first time for 2020). Climate change is of high importance to ETH Zurich asset investments. Therefore, the global custodian has been instructed to extend the sustainability reporting with CO<sub>2</sub> key figures (e.g., CO<sub>2</sub> footprint) in 2021. **Exclusion of fossil fuels:** Investments in companies that are engaged in the exploration of fossil fuels, or generate revenues with it, currently account for less than 1 percent of the ETH portfolio. ETH Zurich strives to reduce that share to zero if such products become available to its asset managers.



For additional information, please refer to the chapters **Governance and sustainability**, **Finance**, and **Consolidated financial statements** in the Annual Report 2020.

<sup>1</sup> This excludes companies with their own coal reserves, production of weapons and war material, production of alcohol, gambling, genetic engineering, production of tobacco and smoking products, child labor, and pornography.



HIGHLIGHT

Contributes to SDG **8**

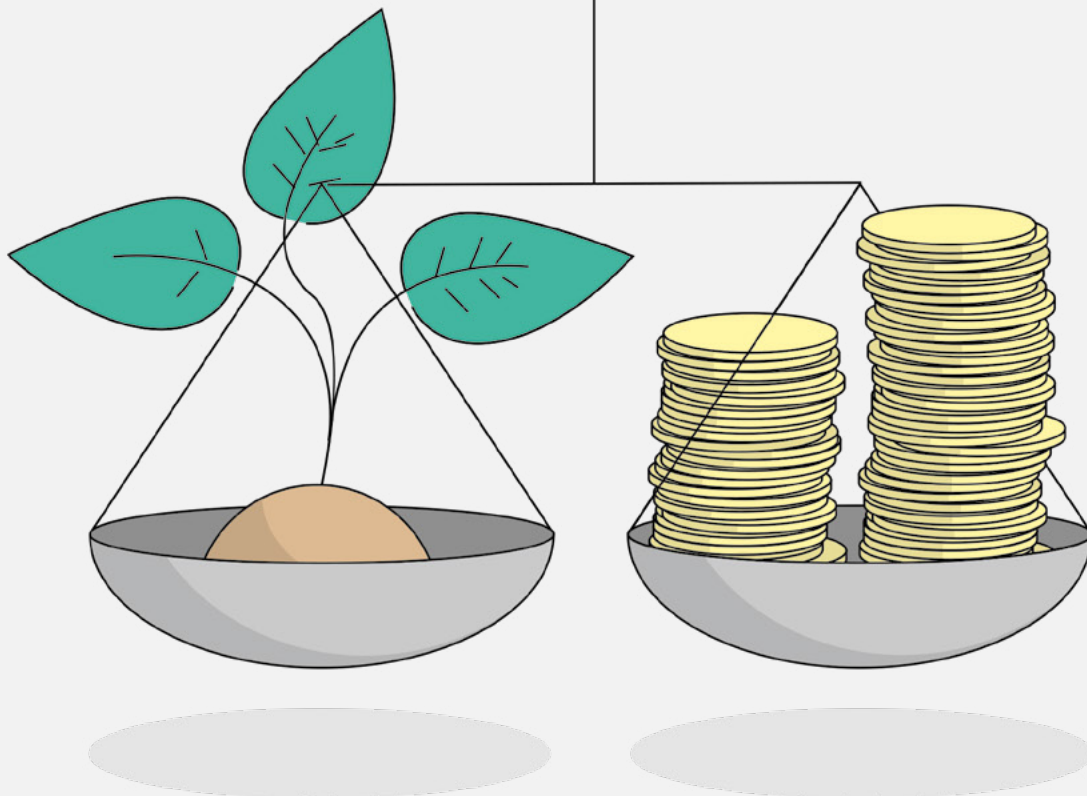
# Paradigm shift in the new procurement law

The new federal procurement law that came into force on January 1, 2021 introduced a number of innovations. The most fundamental change is a greater emphasis on quality competition, sustainability, and innovation, prioritising the “most advantageous” rather than the “most economical” offer. The law aims to eradicate price dumping and requires compliance with social and environmental standards.



This paradigm shift enables a new procurement culture. With a procurement volume of approximately CHF 650 million per year, ETH Zurich already emphasises sustainability, quality, and innovation in its procurement processes and, where possible, calculates full costs over the entire lifecycle. The revised procurement law will allow ETH Zurich to intensify its focus on quality, sustainability, and innovation, and redefine its procurement culture.

The new procurement law deliberately leaves room for discretion. Procurement offices must redefine their procurement culture and refocus their efforts with clear objectives. A willingness to assume both risks and responsibility will be required. Procurement will become more complex in terms of content, and tenders will require more knowledge, resources, and time.

Workshops on implementing the new procurement culture for decision-makers, responsible parties, and procurement staff are currently being held at the strategic and operational levels. Plans are in place to define the new procurement culture in the “Procurement Policy 2.0”, to develop tools, and to further develop the capabilities of procurement staff. The ETH Legal Office provides information on the new procurement law, in particular on the factsheet, information notices, templates, and training.



INSIGHT

Contributes to SDG  

# ETH Zurich's pandemic response: Solidarity goes viral

In coping with the COVID-19 crisis, the first priority has been the individual well-being of all ETH members. Researchers and students have contributed in various ways to what has been a collective effort, both globally and locally.

Despite the lockdown, students and staff were able to benefit from the services offered by the ETH Library thanks to the dedication of the library staff.





Pharmacy student Ilario Scapozza helping out at a pharmacy during the COVID-19 crisis.

On March 16, 2020, less than three weeks after the first COVID-19 case was registered in Switzerland, ETH Zurich went into emergency mode, shutting down all non-essential in-person activities at the workplace. This marked the beginning of a long period of adaptation, with new rules being adjusted on an ongoing basis, in line with the measures announced by the Federal Council in Bern. Almost overnight, all aspects of the University's teaching, research, and administration operations had to be revised and, where possible, shifted to online platforms. The shutdown was especially difficult for some experimental researchers whose lab work had to be suspended.

The first priority was to facilitate work from home and protect those who needed to be physically present – through new procedures, and with additional hardware, where needed. The switch to online teaching was one aspect of this rapid response, but by no means the only one. "It was an admirable effort by all parties involved," says ETH Vice President Ulrich Weidmann, the head of the crisis response team. "Lecturers, students, and staff all worked together to centralise and digitise all aspects of university life, turbocharging a development that had already been in the works before the pandemic struck." This collective effort has allowed ETH Zurich to remain functional during a year like no other.

### **An adaptive community**

As the global experience of the past year has shown, there is no one-size-fits-all response to the novel coronavirus. With adaptability and resourcefulness, the ETH Corona Task Force has overseen the implementation of government-mandated security measures and guidelines and developed appropriate procedures that are tailored to the specific situation of ETH Zurich. For example, general regulations on face masks and social distancing



were adapted for exam situations, and a Corona Hotline was set up for all members of the ETH community. From the start, the Personnel and Organisational Development Team has been providing personal support to all employees on how to cope with the ongoing crisis, including through individual coaching. Supervisors received advice on dealing with new and challenging management situations. And until the end of August 2020, the Services department ran a Corona helper pool that placed volunteer staff members for assignments within ETH Zurich.

### **Student participation: Exemplary**

For many, the pandemic has been an opportunity to catch up on reading. Even though the ETH Library was closed, users were able to borrow books and journals by postal home delivery, while the library staff worked hard to send individual scanned articles and book chapters by e-mail. Regular electronic services such as the digital textbook collection and the e-journals were in especially high demand.

Many contributed to public health simply by staying at home with a good book, but some students with specialized skills were eager to become involved more actively in the COVID-19 response. Pharmacy students organized the Pharmadelivery platform, a volunteer programme to bring medical supplies to customers' homes. This relieves pressure on overburdened pharmacies and helps protect

vulnerable people. Students enrolled in the ETH Human Medicine Bachelor programme launched Students4-Hospitals, an initiative to assist over-taxed healthcare facilities. More than 120 students were placed in hospitals and other institutions during the first wave of the pandemic.

### **Collective response**

Finally, the helpfulETH initiative – a joint project of ETH Zurich and EPFL under the aegis of the Swiss National COVID-19 Science Task Force – matches up healthcare providers with engineers to find solutions for specific pandemic-related needs, such as low-cost ventilators, face shields, containment systems for electronic devices, or methods for recycling masks. At ETH Zurich, these solutions are manufactured at the Makerspace, a workshop in the Student Project House operated by students.

Since the beginning of the pandemic, students, staff, and professors have pulled together and contributed in many ways to our University's culture of social sustainability, and to the global pandemic response. All of these contributions underline our shared conviction that maintaining a sustainable workplace, especially during a society-wide emergency, can only be a community effort.

- ➔ **ETH task force**
- ➔ **Pharmadelivery**
- ➔ **Students4hospitals**
- ➔ **HelpfulETH**

# DIALOGUE

|   |    |
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| ④ Engaging with the public                  | 81 |
| ④ Expertise for decision-makers             | 87 |
| INSIGHT                                     |    |
| ④ Charting a path for global transformation | 90 |

## Engaging with the public

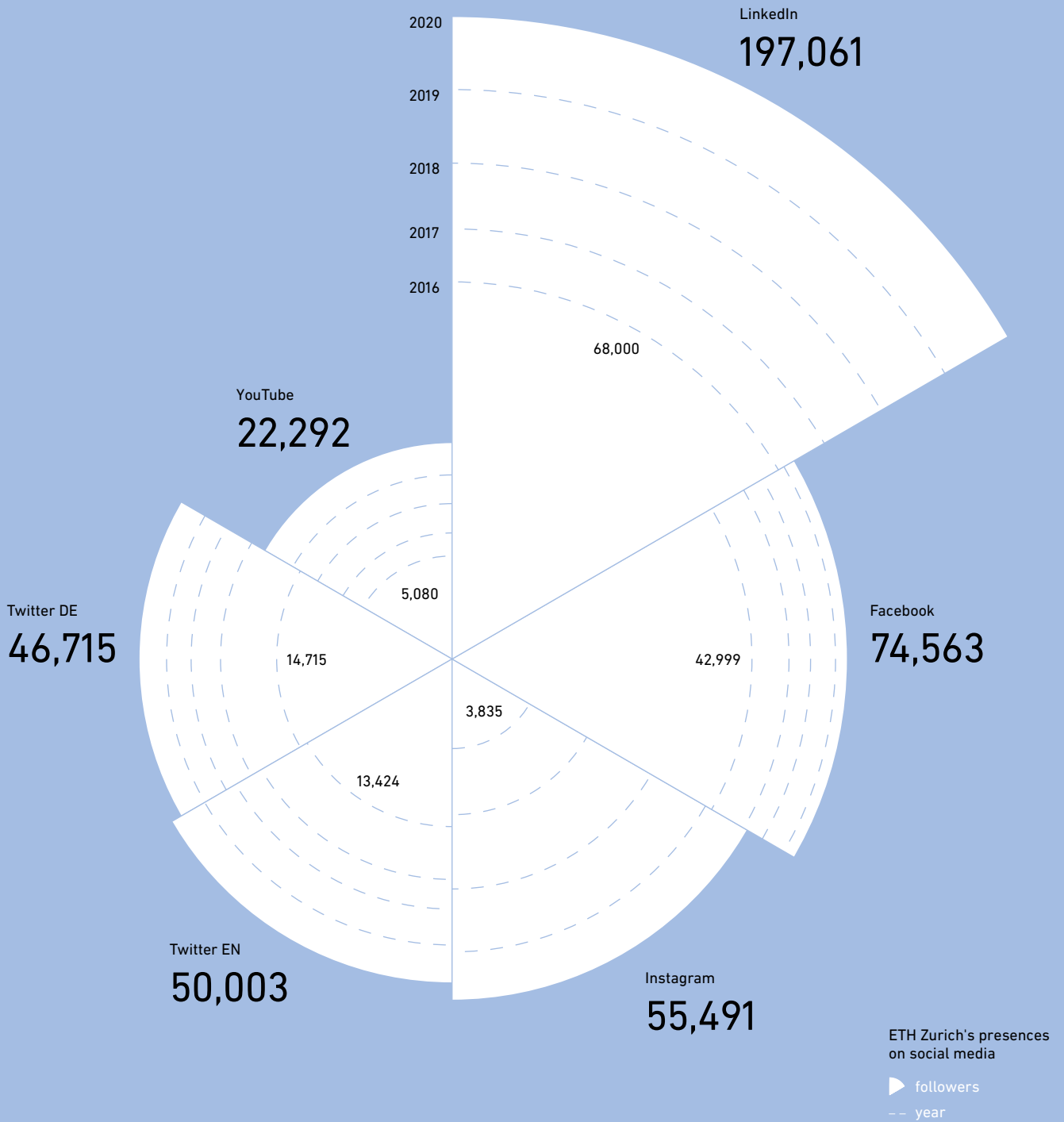
Beyond research and education, ETH Zurich actively engages with the public and maintains a dialogue with society. On the one hand, for a public university, it is important to explain, what it does and why. On the other hand, science needs to listen to its stakeholders, for both sides can learn from each other through dialogue. According to the “Wissenschaftsbarometer Schweiz” (2019), an overwhelming majority of the Swiss population believes that researchers should inform the public about their work. ETH Zurich is continuously developing its portfolio of channels and dialogue formats and promoting the value of science. The formats are developed in close coordination with the members of the Executive Board and often originate from bottom-up initiatives of individuals or groups of researchers. Formats like the Cybathlon, the award-winning [Zukunftsblog](#), the [ETH Climate Talks](#), or the biannual Scientifica are very well received and provide a valuable platform for the enrichment of the wider public and researchers alike. Through a variety of free tours, ETH Zurich also provides the general public with insights into its research, its campus, and the lives of historical figures, such as perhaps its most famous alumnus, Albert Einstein.

### Public engagement, offline and online

[Treffpunkt Science City](#) is a public science programme with lectures, demonstrations, and experiments for young and old. Each of the programmes, which run for five weeks in spring and autumn, tackles a different theme and offers something of interest for visitors of all ages. At the 2019 events, the audience was introduced to the fascinating world of materials and water. Due to the COVID-19 pandemic, all events in the autumn 2020 edition (focus: climate crisis) were livestreamed. Recordings of the presentations and panel discussions are available online.

The [Scientifica: Zurich Science Days](#) take place every two years in cooperation with the University of Zurich. Under the headline “Science Fiction – Science Facts”, more than 20,000 participants had the opportunity to get answers to their questions directly from researchers. Around 400 scientists presented their research during stimulating conversations at over 50 booths, 34 short lectures, and various shows, which included interactive experiments and a “Science Slam”. The Science Cafés, which are particularly well-suited to addressing hotly debated topics in society, were also popular.

Ever more popular are the [public guided tours](#), which are free of charge. The tours last about one hour and provide insights into diverse topics such as the dynamic underground storage system at Campus Hönggerberg, the digitization of the ETH Library, or art on campus. Due to the COVID-19 pandemic, some of the tours were conducted online via livestream.



GOAL: DIALOGUE

# Maintain various channels of internal exchange and public dialogue

Various formats are in place and under development to support the dialogue with decision-makers, the public, and other stakeholders inside and outside of ETH Zurich (see table on [pages 84–86](#)). ETH Zurich maintains growing presences on various social media platforms.

Please find the [detailed overview of all goals](#) in the back of this report.





After years of preparation, the pilots put their assistance technologies to the test in a spirit of competitive sportsmanship.

### **CYBATHLON 2020: Promoting social inclusion**

The **CYBATHLON** is a unique championship in which people with physical disabilities compete against each other to complete everyday tasks using state-of-the-art technical assistance systems. Beyond the competition, the CYBATHLON offers a platform to advance research in the field of assistive technology and to engage with the public about the inclusion of people with disabilities. While the first CYBATHLON championship in 2016 took place in the SWISS Arena in Kloten with almost 5,000 visitors, the second edition in 2020 had a different setup due to the COVID-19 pandemic. At what was called the CYBATHLON 2020 Global Edition, 51 teams from 20 countries competed against each other, in different time zones and locations.

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#### **FURTHER INFORMATION:**

- [\*\*➤ Citizen Science Center\*\*](#)
  - [\*\*➤ Global Lecture Series\*\*](#)
  - [\*\*➤ ETH Meets You\*\*](#)
  - [\*\*➤ Digital Platform\*\*](#)
  - [\*\*➤ ETH at Olma\*\*](#)
-

## Summary of channels for internal and external dialogue →102-43 →102-44

### Dialogue mechanisms on the level of the institution<sup>1</sup> (not public)

| Dialogue mechanism (frequency)   | Stakeholder groups   | Topics addressed   |
|--|--|--|
| <b>ETH-Ratssitzungen –<br/>ETH Board Meetings</b><br>(according to defined schedule and based on demand)   | Members of the ETH Board, Federal Council, Federal Parliament  | The ETH Board is the strategic and supervisory body of the ETH Domain and responsible for implementing and fulfilling the performance mandate set by the Federal Council and the Federal Parliament and for the four-year strategy of the ETH Domain |
| <b>ETH-Rat Dialog-Meetings –<br/>ETH Board Dialogue-Meetings</b> (annually)  | Members of the ETH Board, Executive Board of ETH Zurich  | Dialogue between the ETH Board and the Executive Board of ETH Zurich on strategic planning   |
| <b>Dialogue between Executive Board of<br/>ETH Zurich and departments</b><br>(16 meetings per year)  | Heads and delegates of all 16 departments  | Strategic planning and strategy implementation   |
| <b>Hochschulversammlung (HV) –<br/>University Assembly</b><br>(at least five plenary meetings per year)  | Members of the Lecturer's Conference (KdL), the Academic Association of Scientific Staff (AVETH), the Association of ETH Students (VSETH), and the Staff Commission (PeKo) | The University Assembly provides advice to the Executive Board of ETH Zurich and advisory opinions to the ETH Board  |
| <b>Gesamtkonferenz des Lehrkörpers –<br/>General Faculty Conference</b> (annually)   | All lecturers of ETH Zurich  | Advising the Executive Board of ETH Zurich with regards to educational matters, strategic issues, or organisational decisions  |
| <b>Gesamtprofessorenkonferenz –<br/>Professors' Conference</b> (annually)  |  |  |
| <b>Konferenz des Lehrkörpers incl. Ausschuss<br/>der Konferenz des Lehrkörpers (KdL) –<br/>Lecturers' Conference</b> (annual meetings and based on demand)   |  |  |
| <b>Studienkonferenz –<br/>Conference of the Directors of Study</b><br>(three meetings per semester and based on demand)  | Directors of Studies of all study programs   | Exchange about study programs, curricula, and exam regulations. Advising the Rector of ETH Zurich  |
| <b>Expert commissions</b><br><ul style="list-style-type: none"> <li>• Strategy Commission</li> <li>• Teaching Commission</li> <li>• Research Commission</li> <li>• ICT Commission</li> <li>• Risk Management Commission</li> <li>• Investment Commission</li> <li>• Ethics Commission</li> <li>• Commission for Good Scientific Practice</li> <li>• Environmental Commission</li> <li>• Catering Commission</li> </ul> (various frequencies) | Experts from respective units of ETH Zurich  | Various experts commissions giving advice to the Executive Board of ETH Zurich   |
| <b>Global Advisory Board (GAB)</b> (twice per year)  | International experts, Executive Board of ETH Zurich   | International strategy of ETH Zurich   |
| <b>Staff Commission</b> (monthly and based on demand)  | Administrative and technical staff   | The Staff Commission represents the interests and concerns of administrative and technical staff to the Executive Board of ETH Zurich.   |

<sup>1</sup> In addition to the dialogue mechanisms on the level of the institution, departments maintain their own dialogue mechanisms on matters such as teaching or grading.

## Dialogue mechanisms for selected stakeholders

| Dialogue mechanism (frequency)   | Main stakeholder groups                                 | Topics addressed  |
|--|---|---|
| <b>Industry Day</b> (annually)   | Industry representatives                                | Topics of common interest for ETH Zurich and industry   |
| <b>Partnership Councils</b> (based on demand)                          | Decision-makers from public and private sector          | Supporting some of ETH Zurich's competence centers by integrating practitioner perspectives and ensuring the dissemination of research findings |
| <b>ETH-Tag</b> (annually)  | Selected decision-makers from public and private sector | Recognition of outstanding services and achievements and presentation of awards   |
| <b>Diverse alumni specific activities and events</b> (based on demand) | Alumni  | Networking and career support   |

## Major public event formats

| Dialogue mechanism (frequency)                  | Main stakeholder groups                        | Topics addressed   |
|---|--|--|
| <b>Treffpunkt Science City</b> (twice per year) | Public   | Selected focus topics of public interest   |
| <b>Scientifica</b> (biannually)                 | Public   | Selected focus topics of public interest   |
| <b>Cyathlon</b> (once in four years)            | Public   | Demonstration of latest assistive technology to support people with disabilities |
| <b>ETH Meets You in Davos</b> (annually)        | Decision-makers from public and private sector | Selected focus topics of public interest   |

## Online communication<sup>1</sup>

| Dialogue mechanism (frequency)   | Main stakeholder groups  | Topics addressed   |
|--|--|--|
| <b>ETH-News</b> (daily)  | Public, media, employees, students, decision-makers from public and private sector | Research highlights, campus news, events   |
| <b>ETH Zurich on social media</b> (daily):<br><ul style="list-style-type: none"> <li>• <a href="http://www.twitter.com/eth">www.twitter.com/eth</a></li> <li>• <a href="http://www.youtube.com/ethzurich">www.youtube.com/ethzurich</a></li> <li>• <a href="http://www.facebook.com/eth">www.facebook.com/eth</a></li> <li>• <a href="https://www.linkedin.com/company/eth-zurich_4923">https://www.linkedin.com/company/eth-zurich_4923</a></li> <li>• <a href="http://www.google.com/+ethzurich">www.google.com/+ethzurich</a></li> <li>• <a href="http://www.xing.com/companies/ethzürich">www.xing.com/companies/ethzürich</a></li> <li>• <a href="https://www.instagram.com/ethzurich/">https://www.instagram.com/ethzurich/</a></li> </ul> | Public, media  | Research highlights, news, and events of public interest   |
| <b>Zukunftsblog</b> (twice per week)   | Public, media, decision-makers from public and private sector                      | Research findings about topics related to digitalization, health, and sustainability                   |
| <b>Podcast</b> (monthly)   | Public, media, decision-makers from public and private sector                      | Background reports and expert talks on various themes from research, education, and knowledge transfer |
| <b>Ökonomenstimme – Voice of Economists</b> (several publications per month)   | Public, economists (German speaking)   | Topics of economic interest  |
| <b>Technology Alert e-mails</b> (two times per month)  | Industry representatives   | Regular information on latest technologies developed at ETH Zurich                                     |
| <b>Various newsletters of competence centres and institutes</b> (individual)   | Specific interest groups   | Regular updates on research results, teaching activities, or events                                    |

<sup>1</sup> In addition to the online communication on the level of the institution, other units of ETH Zurich maintain their own channels.

## Printed communication

| Dialogue mechanism (frequency)                             | Main stakeholder groups   | Topics addressed  |
|--|---|---|
| <b>Annual Report of ETH Zurich</b> (annually)              | Public, decision-makers from public and private sector, employees, students         | Overview of the most important achievements and events of the previous year and financial statement according to IPSAS standard         |
| <b>Sustainability Report of ETH Zurich</b> (biannually)    | Public, decision-makers from public and private sector, employees, students         | Overview of the progress that ETH Zurich has made with regards to its contribution to sustainable development in the previous two years |
| <b>Globe magazine</b> (quarterly)                          | Public, employees, students, alumni, decision-makers from public and private sector | Selected focus topics, latest research findings, and events   |
| <b>life magazine</b> (quarterly)                           | Employees, students   | Information about campus life and latest developments   |
| <b>Polykum magazine of the VSETH</b> (nine times per year) | Students  | Selected focus topics of interest for students  |





**Martin Ackermann**  
 Professor for Microbial Systems  
 Ecology and Head of Swiss National  
 COVID-19 Science Task Force

on Sustainable Development Goal 3  
 Good health and well-being

The COVID-19 crisis revealed an unmistakable truth: We're all in this together. I am convinced that we can overcome difficult situations like this one as well. What will it take? We all need to act in solidarity, proactively and sustainably. In 2020, we saw that when we act together, we can achieve things that we couldn't imagine before.

## Expertise for decision-makers

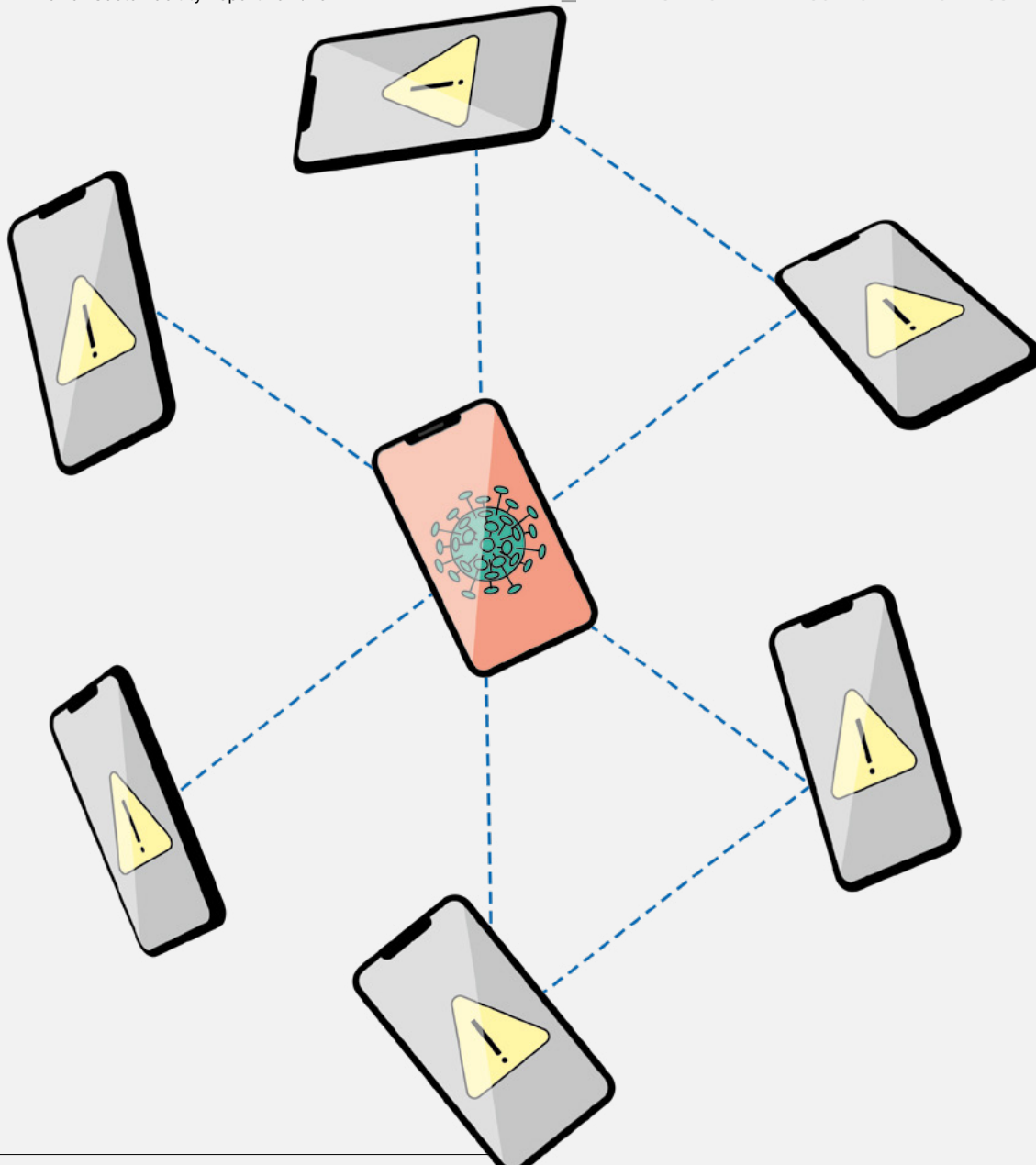
ETH Zurich makes its broad expertise available to decision-makers in industry and policy. This is largely done in the context of its policy advice. Furthermore, the University regularly organises events aimed at decision-makers and maintains various channels of exchange. The number of requests for scientific expertise, especially in fields related to sustainable development, attests to the high reputation of the institution.

### ETH Zurich in Davos

As in the two years before, ETH Zurich was present at the World Economic Forum (WEF) 2019 and 2020 in Davos. The public science exhibitions and a number of events in its pavilion were dedicated to the topics of "Rethinking Design" (2019) and "Rethinking Creativity" (2020). The multi-faceted topics triggered inspiring discussions on the role of design in science and technology. The spectrum of exhibits ranged from game design and a virtual reality tour of the Robotic Fabrication Lab to new materials – for example, an "artificial tree" that converts CO<sub>2</sub> and light into solar fuel, lightweight fibres that can replace steel cables, or a new material that can be used to build computers in the future. Several events provided the ETH representatives with the opportunity to build and intensify contacts with global partners, as well as with public authorities and business representatives from the Canton of Graubünden.

### Science Task Force

In the special circumstances of the pandemic year 2020, a dozen professors from ETH Zurich volunteered to serve on the **Swiss National COVID-19 Science Task Force**. The group is composed of some 70 experts representing disciplines that range from epidemiology and healthcare to economics. The group has a mandate to advise the public authorities, but does not make decisions about measures or actions taken. Furthermore, the Task Force summarised the current state of knowledge about the pandemic in regular policy briefs and dealt with an overwhelming number of requests from the media and the public. The members do not receive any remuneration or compensation for their work. From summer 2020 on, the Task Force was headed by Martin Ackermann, Professor for Microbial Systems Ecology at ETH Zurich.



HIGHLIGHT

Contributes to SDG **3** **17**

# SwissCovid app tracks close encounters of the risky kind

The best most of us can do to fight COVID-19 is to wash our hands, keep our distance, and stay at home. Nevertheless, our paths do intersect from time to time, whether at the supermarket or during other vital tasks. The innovative SwissCovid mobile app, commissioned by the Swiss government and developed by ETH Zurich and EPFL with international partners, can help to stop the spread of the virus after such encounters.

While other contact tracing apps use GPS, SwissCovid relies on Bluetooth to monitor potential transmission chains and to prompt users to get tested if they know they may have been exposed. When two smartphones in close proximity (less than two meters apart for more than 15 minutes) locate

each other via the app, they swap an encrypted key. If an app user tests positive for the coronavirus, they receive a code from the medical authorities that can be submitted through the app, which alerts other users of the exposure risk from contact with the infected person.

“This is an experiment for all of us. Something like this has never been attempted before,” says Srdjan Čapkun, Professor for Systems and Network Security at ETH Zurich. “The app had to be designed to preserve user privacy, enable roaming between countries, and work on top of existing smartphone software and hardware.” SwissCovid was developed under the Decentralised Privacy-Preserving Proximity Tracing project in collaboration between the two universities as well as Apple and Google, making Switzerland the first country to use the tech giants’ application programming interfaces for this purpose. The app was designed by over 25 scientists and academic researchers from across Europe and has been scrutinized and improved by the wider community.

**SwissCovid App**



For additional information, please refer to the chapter **Industry and society** in the Annual Report 2020.

### **Exchange with industry**

The **Industry Day**, a regular fixture since 2013, showcases the research activities of ETH Zurich and offers a platform for industry representatives to engage with the University's leading researchers. During the event, industry representatives are briefed on the University's latest research projects that have potential commercial applications. In 2019, nearly 30 speakers and a record 80 exhibitors, including many new professors, took the opportunity to engage in dialogue with around 500 industry representatives. Due to the COVID-19 pandemic, the 2020 ETH Industry Day was held as a virtual event, in a series called **ETH Industry eWeek**.


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#### **FURTHER INFORMATION:**

**Industry relations**

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INSIGHT

Contributes to all SDGs 

# Charting a path for global transformation

The lectures series “Sustainable Development Goals in Context” offers ETH students and faculty as well as the public a chance to understand the UN SDGs from a transdisciplinary perspective. It is a platform for open and critical debate with experts working in the field on how ETH Zurich contributes to the achievement of these global targets.

Michael Gerber, former Ambassador and Swiss Special Envoy for Global Sustainable Development (2012-2018), kicked off the first series with a keynote speech on Switzerland's engagement on behalf of the 2030 Agenda.





# THE SUSTAINABLE DEVELOPMENT GOALS IN CONTEXT

## PUBLIC LECTURE SERIES

The 17 Sustainable Development Goals (SDGs) promulgated by the UN as part of the 2030 Agenda have become iconic, ranging from eradication of poverty and hunger to climate action, peace, and social justice. But their practical operationalization is often less well understood. “The impulse for the ‘SDGs in Context’ lecture series was a need for scientific discussion about these global targets at the Department of Environmental Systems Science,” says Bernhard Wehrli, Professor for Aquatic Chemistry and Director of Studies at D-USYS, who organized and chaired the lectures in cooperation with ETH Sustainability and ETH for Development. “We wanted to include faculty members from other departments as well as external experts from various fields while remaining accessible to everybody. Students can get credits for writing an essay, but the lectures are open to the general public.”

The format brings together ETH scientists with speakers from outside the University who can contribute real-life perspectives on the challenges of societal transformation. “This dialogue with practitioners is very productive,” says Wehrli. “They have a lot to tell us about how solutions are implemented. Since the ideas being developed at ETH Zurich are always ten years or so ahead of their time, we must bridge that gap between the laboratory and the societal or political

spheres – and identify the point at which they are ready to adopt technical solutions.”

### Deep transformations

The lectures are structured along six fields of deep transformation that can serve as building-blocks in achieving the SDGs: (1) education, gender and inequality; (2) health, well-being and demography; (3) energy decarbonization and sustainable industry; (4) sustainable food, land, water and oceans; (5) sustainable cities and communities; and (6) digital revolution for sustainable development. “We use that framework to group the SDGs into thematic areas,” Wehrli explains. “It helps us to explore interconnections, since many transformations involve two or three sustainability goals. Exploring them through the lens of big issues such as health or decarbonisation helps the students to understand the very complex system of criteria, measures, and goals involved.”

After all, ETH Zurich is training not just future engineers or architects, but future leaders who will witness and help manage those transformations. By inviting decision-makers including members of parliament, CEOs of start-ups and larger companies, or representatives of NGOs, the organisers are presenting potential role models to the students – including many ETH alumni. “These are people for whom influencing decisions is

their daily business, and who have a lot of experience to bring to the table. I noticed that the young people listened very carefully when those people told their stories,” Wehrli adds.

### ‘Amazing engagement’

Students attending the lectures were given the assignment to do some research on one of these transformations, collect the facts, and then put those into perspective in a short text. “We ended up with a sizeable collection of work written by 100 contributors, much of which was really substantial, and you could feel that people were burning for the idea of sustainability. That in itself was a very nice output,” Wehrli recalls. The other surprise was how well the dialogue between ETH Zurich and the outside world worked. Due to the COVID-19 lockdown from March 2020 onward, the lectures were shifted to the virtual space. This made them available to listeners from places as diverse as Bangladesh, Norway, Tunisia, or Ghana, to name only a few. “That’s something I’d like to see more of – opening up our lectures and having the chance to listen to people from outside, but also being accessible to a global audience,” says Wehrli.

Due to the success of this lecture series, the decision was made to repeat it in the spring of 2021. Some other ETH lecturers have indicated that they would like to do something similar, and so we may expect to see more lectures, workshops, and events on topics such as sustainability in research in the future. “There are many ideas for broadening the footprint of this series,” says Wehrli. “But as far as goals are concerned, we’ve already achieved our primary one: There is definitely more awareness of the UN SDGs now at ETH Zurich than there was before.”

### 🎯 Public Lecture Series



RESEARCH

EDUCATION




CAMPUS

DIALOGUE





# SUSTAINABILITY GOALS

✘ **NOT ACHIEVED**
🔄 **PROGRESSING**
➡ **ON TRACK**
✔ **ACHIEVED**

**ETHICS GOALS**

|   |   |  |
|---|---|--|
| <p><b>Conduct research in compliance with the "Guidelines for Research Integrity and Good Scientific Practice at ETH Zurich"</b></p>                            | <p>The Commission on Good Scientific Practice (GSP), which started its operations in 2018, consists of 16 delegates of the University's departments. It promotes the debate over research integrity at the interface between the departments and the executive board. During the reporting period 2019/2020, the GSP worked on better incorporating aspects of research integrity in the field of education and on a critical revision of existing integrity guidelines. In order to familiarize doctoral students with ETH Zurich's integrity guidelines at the beginning of their studies, the "Workshop on Research Integrity" was launched as part of their introductory program. In the medium term, a mandatory course on this topic is also planned for doctoral students, which will focus on scientific integrity as well as general and subject-specific aspects of research ethics. The awareness-raising measures implemented in recent years in the area of scientific integrity have had an effect on many researchers at ETH Zurich. The existing guidelines and instruments provide researchers with orientation and serve to resolve problem and conflict situations. With the election of a confidant, ETH Zurich strengthened its resources for consultation and conflict resolution in this area.</p> |   |
| <p><b>Research involving animals: Evaluate research projects for their compliance with legal and ethical norms</b></p>  | <p>As a member of the Swiss 3R Competence Centre (3RCC), ETH Zurich actively promotes the principles of 3R (reduction, refinement, and replacement) of animal experimentation in its research operations. After issuing a "Policy on Experimental Animal Research" in 2012, ETH Zurich established the "Animal Welfare Group" in 2018. During the reporting period, the group was attached to the Office for Research, as part of the Ethics and Animal Welfare team (four of eight team members are Animal Welfare Officers). At ETH Zurich, the professional and responsible handling of laboratory animals is ensured by various measures. In addition to the training of researchers, animal welfare officers perform an important function. In 2020, they provided further advice to researchers, subjected applications for research involving animals to preliminary review, and also increased the number of inspections.</p>   |   |
| <p><b>Research involving human subjects: Evaluate research projects for their compliance with legal and ethical norms</b><br/>➡ <b>Infographic on p. 15</b></p> | <p>In 2019 and 2020, 192 and 185 projects and programmes were submitted to the ETH Ethics Commission for review, respectively. The number of projects and programmes has continued to increase as a combined result of the growth of ETH Zurich, the University's strategic focus on medicine, and an improved awareness in the community.</p>  |  |

**RESEARCH GOAL**

|   |  |   |
|---|--|---|
| <p><b>Strengthen collaboration of engineering and natural science disciplines with the humanities and social and management sciences in fields relevant for sustainable development</b></p> | <p>Beyond their departmental affiliations, many researchers at ETH Zurich are actively engaged in inter- and transdisciplinary research projects in the context of NCCRs, Competence Centres, SCCER, and other interdisciplinary initiatives. Further integration and a stronger focus on application are needed, however.</p>   |  |
|   | <p>Four of the ten Competence Centres provide a platform for researchers at ETH Zurich to engage in projects in the University's core areas of sustainable development research.</p>   |  |
|   | <p>ETH Zurich acts as the Leading House for five NCCRs, and as a Co-Leading House for another five. The University also acts as the Leading House for three Swiss Competence Centres for Energy Research (SCCER), which are funded by innosuisse in cooperation with the Swiss National Science Foundation (SNSF). Researchers of ETH Zurich participate in all of the eight SCCERs.</p>   |  |
|   | <p>In 2017, the Executive Board of ETH Zurich launched the ETH+ initiative. The initiative aims to build capacities and open up new fields of knowledge, particularly at the intersection between disciplines. The core of ETH+ is the creation of new professorships in promising areas. Nine projects were funded in the first round. The second and third calls for entries in this competition for ideas, in which all members of ETH Zurich could take part, were announced in 2019. In the second round, a total of 241 employees submitted 25 outlines of ideas, building numerous bridges across disciplinary and organisational boundaries.</p> |  |

**INTERNATIONAL PARTNERSHIP GOALS**

|   |  |   |
|---|--|---|
| <p><b>Extend collaborations with peer institutions on the national and international levels</b><br/>➡ <b>Infographic on p. 17</b></p> | <p>Collaborations between professors of ETH Zurich and their partners abroad have steadily increased over the past years. In both 2019 and 2020, more than 9,000 international contacts were officially registered, which is about 50 percent more than in 2012 (all numbers based on self-declaration in the Annual Academic Achievement Reporting). Even though there has been a significant decrease in air travel due to the COVID-19 pandemic, the collaborations have still increased.</p> |  |
| <p><b>Maintain existing alliances and networks with first-rate partner universities abroad</b></p>                                    | <p>ETH Zurich is part of various international university alliances such as the International Alliance of Research Universities (IARU), the IDEA League, the International Sustainable Campus Network (ISCN), the Global University Leaders Forum of the World Economic Forum (GULF), UNITECH International, and the Scholars at Risk (SAR) network.</p>   |  |

## EDUCATION GOALS

### Promote the education of experts that are in high demand in science, business, and society

In a 2019 study, the Swiss Federal Statistical Office found that 85 percent of graduates assessed their education as “good” or “very good”. Furthermore, 94 percent of the graduates were employed within less than one year after graduation, while an additional 3.7 percent were not seeking employment.



### Continue recruitment measures for the best students nationally and internationally

With its “ETH unterwegs” programme, ETH Zurich visited six high schools, reaching out to thousands of potential students all over Switzerland in 2019. In the same year, ETH Zurich organized five “ETH Study Weeks” with 128 participants, featuring outreach contributions from the study programmes in biology, engineering science (an interdisciplinary project between D-ITET and D-MAVT), materials science, mathematics, and physics. ETH Zurich also offered a comprehensive overview of its academic programmes at the “Study Information Days” in cooperation with the University of Zurich, with 6,350 high school students. In 2020, the efforts were significantly influenced by the COVID-19 pandemic. ETH Zurich visited one high school (before the first lockdown in March), but all other planned visits of the “ETH unterwegs” programme were postponed. The six scheduled “ETH Study Weeks” were also postponed. For the first time, however the “Study Information Days” were held online, with more than 3,600 interested participants.



Launched by the Rector of ETH Zurich, the “Youth Academy” supports and promotes the interest of students in STEM subjects as well as in the corresponding Matura profiles. It aims to attract prospective students and prepares them to study at ETH. The initiative builds on the University’s strong ties to high schools in German-speaking Switzerland and in Ticino and provides stimulating teaching offers.



### Support particularly gifted Master students by providing grants to incoming students ➔ Infographic on p. 32

Fully funded through the ETH Foundation, the Excellence Scholarship and Opportunity Programme (ESOP) is awarded to outstanding students who receive group based training and interaction with the donors for the duration of their studies and a grant (CHF 24,000) that covers the costs of studies and living during their Master degree programme (104 students during the reporting period). With the ETH-Departmental (ETH-D) Scholarship Programme (formerly MSP), students receive a grant for the duration of their studies, as well as the opportunity to work as assistants (73 students during the reporting period). The ETH-D scholarship has been enhanced in value so that any student from any country will not need to find additional funds to guarantee access to studying at ETH Zurich. Accepted students receive up to CHF 21,000, with CHF 15,000 coming from the Rector’s funds and CHF 6,000 from the department through either a scholarship or an assistantship.



### Extend dual-mode teaching, i.e., the combination of in-classroom teaching and e-learning, as well as further methods of self-study

ETH Zurich operates a network of Educational Developers, who act as points of contact for teaching-related issues in their departments. Thanks to their connection with the Educational Development and Technology (LET) unit, they are familiar with best-practice scenarios, current educational technology, and services and tools for teaching development, including dual-mode teaching. As of 2020, Educational Developers were working in 12 of the 16 departments at ETH Zurich. Including the representative of the School for Continuing Education, the network consists of 13 experts. During the COVID-19 pandemic, the network played a key role on the ground, enabling the teaching staff in their respective departments to make the transition from offline to online as efficiently and effectively as possible.



In 2019/2020, 25 new projects selected from 38 submitted applications were initiated through the Innovedum fund. These projects received a total of CHF 2.6 million in funding. In terms of the number of applications, a record high was reached in 2017/2018 (66 applications).



### Increase in the number of online examinations through new infrastructure and projects

The aim of the “Mobile Examinations” project is to open up additional capacities for conducting authentic computer-based (online) examinations through mobile devices with a Wi-Fi connection. This allows online examinations to be taken in regular lecture halls and seminar rooms and not only in the University’s computer rooms. During the reporting period, the number of mobile examinations at the Campus Zentrum was increased. The planned capacity increase at Campus Höggerberg (lecture halls and HCI cafeteria) was temporarily delayed due to the COVID-19 pandemic. A total of 73 mobile examinations were conducted during the reporting period, with a total of 3,596 candidates. During the reporting period, 18 examinations with 2,380 candidates were also conducted as part of the “Online Examination with Code Expert” project. The project was thus successfully completed and integrated into the “Online Examinations” service.









### Improve mentoring relations through the appointment of additional assistant and full professorships ➔ Infographic on p. 33

The ratio of students to faculty at ETH Zurich is much higher than at other leading universities. Although ETH Zurich has established many new professorships and assistant professorships, the ratio is driven to a large extent by the increasing student numbers. As a result, the situation is deteriorating, with a ratio of 1:44 in 2020 (1:32 in 2000 and 1:40 in 2010). More and more experienced scientists are taking on mentoring roles, which is not reflected in this ratio. In addition, ETH Zurich is increasing its teaching capacity in terms of infrastructure and faculty and is developing new teaching formats and techniques to make teaching more efficient without compromising on quality, despite growing student numbers.












## SUSTAINABILITY EDUCATION GOALS

|   |  |   |
|---|--|---|
| <b>Offer a diverse summer and winter school programme on sustainable development at ETH Zurich</b>  | ETH Zurich hosts and co-organises a variety of summer and winter schools covering specific sustainable development themes, such as the ETH Sustainability Summer School, the World Food Systems Summer Schools, the Plant Science Center Summer School, the Climate-KIC Summer School (The Journey), the Swiss Competence Center in Energy Research (SCCER) Summer School, the Swiss Climate Summer Schools, the Engineering for Development (E4D) Winter School, the ETH4D Summer Schools, ETH Singapore Month, ETH Week, and the TdLab Winter School. Not all of the above took place during the reporting period. Due to the pandemic, some of the offerings were postponed or held online. |    |
| <b>Improve the ability of doctoral students to interact with non-academic stakeholders and provide recommendations for research topics</b>    | Since the reporting period, the doctoral administration has offered a series of workshops under the title "Introductory program for new doctoral students". Workshops are led by internal and external experts and cover topics such as "Developing scientific writing skills at doctoral level" or "Shape your doctorate, effective communication". Furthermore, the Human Resources administrative department offers a variety of consulting and coaching services from which doctoral students can benefit.   |    |
| <b>Provide a platform for students to tackle sustainability-specific questions with practice partners from the public and private sectors</b> | As part of ETH Week 2019, 200 ETH students from 37 countries spent six days exploring various aspects of current and future forms of mobility. In doing so, they were in lively contact not only with various scientific experts, but also with a large number of stakeholders from politics and industry. ETH Week 2020 had to be postponed to 2021 due to the COVID-19 pandemic.   |    |
| <b>Offer innovative activities and events for students and other members of ETH Zurich to learn about sustainability</b>                      | For the first time, the public lecture series "The Sustainable Development Goals in Context" took place in the spring semester 2020. It was organized in cooperation between D-USYS, ETH Sustainability, and ETH4D. In 14 sessions, students as well as employees and members of the public were able to engage in dialogue with various representatives from business, politics, and civil society. Around 450 people had registered for the first edition of the public lecture series.  |    |
| <b>Develop an overview that describes cross-departmental sustainability and sustainability-related educational activities at ETH Zurich</b>   | Since 2020, ETH Zurich has been offering, in addition to its traditional course catalogue, a new course catalogue that features courses related to the Sustainable Development Goals. Keywords from the 2030 Agenda were identified and applied as a filter to the existing course catalogue. Both a selection and the full list are available online, grouped by the 17 SDGs. The list will be updated each semester. In future, it will be possible to attach the SDGs to each course in the next iteration of the course management software.   |   |
|   | All courses associated with the "Science in Perspective" (SiP) study programme are listed in the course catalogue of ETH Zurich, differentiated into "Type A: Fostering general reflection skills", encompassing all SiP courses, and "Type B: Reflecting on subject-related methods and topics", highlighting courses that are particularly suited to students of specific departments.   |  |







## TALENT RETENTION AND DEVELOPMENT GOALS

|   |   |   |
|---|---|---|
| <b>Recruit and support the best scientists to ensure the highest quality of research and teaching</b><br> <a href="#">Infographic on p. 48</a> | In 2019 and 2020, ETH Zurich recruited 97 new professors. Various offices and services are in place to support newly arrived professors in administrative matters and help them integrate and take on their core activities as smoothly as possible. The Dual Career Advice office at the Office for Faculty Affairs, for example, assisted 27 partners entering the Swiss job market during the reporting period.  |  |
| <b>Support employee development through comprehensive personnel development measures</b>  | In 2019 and 2020, 61 and 63 internal training courses were offered, respectively, with around 820 participants annually. Of the 63 internal training courses offered in 2020, 41 were offered online due to the COVID-19 pandemic. The main topics covered were leadership, project management, personal development, and work techniques. Due to the pandemic, self-leadership, mental/social fitness, and virtual leadership as specific topics were added to the programme. In addition, around 100 customized team workshops were offered, and around 300 employees took advantage of personal coaching offers. |  |
|   | In 2019 and 2020, CHF 229,000 and CHF 293,000 were invested in external professional development offerings. During the same period, 115 and 126 employees availed themselves of these offerings, respectively.  |  |







## DIVERSITY GOALS

|  |  |   |
|--|--|---|
| <b>Preserve diversity among students and staff of ETH Zurich</b>           | In both 2019 and 2020, 57 percent of employees at ETH Zurich came from foreign countries. Among all employees, the share of women stood at 36 percent in 2019 and 2020. Within the student body, which comprises more than 120 nationalities, foreigners accounted for 40 percent in 2019 and 2020. The share of female students in the reporting period was at around 33 percent (all numbers in headcount, rounded).       |  |
| <b>Increase gender balance on all levels of the academic career ladder</b> | Since the targets for female representation as defined in the Objective Agreement and the ETH Board for 2013–2016 were not met, the Gender Action Plan is addressing the issue of gender balance in a systematic manner. The current status of the plan and the share of female representation are reported on  <a href="#">page 49</a> . |  |



## BUILDING EFFICIENCY GOALS

|   |   |   |
|---|---|---|
| <b>Implement MINERGIE®-ECO standard (or similar) in new buildings and MINERGIE® standard (or similar) for renovations</b>                     | In addition to the MINERGIE®-ECO and MINERGIE® standards, the SGNi sustainability standard is implemented for laboratory buildings. Going forward, a new sustainability guideline and checklist for building projects will be applied.  |  |
| <b>Increase the use of rainwater in building projects</b>   | Rainwater use is now standard in new building projects on Campus Höggerberg. Further use of rainwater has been evaluated. The next building to be connected is the HIF (planned for 2022/2023).   |  |
| <b>By 2022, install (or retrofit) photovoltaics systems on new and existing buildings</b>   | With every new building or and every roof renovation, a photovoltaics system will be implemented (as far as legally possible and economically reasonable). The potential implementation of facade systems will be evaluated for new buildings. Suitable roofs will be evaluated for economically reasonable retrofits (upgrade). Where possible, living lab projects will be implemented. During the reporting period, three roofs were retrofitted (HPL, HIA, HCI), with 730 kWp photovoltaics system capacity (to be commissioned in early 2021). |  |
| <b>By 2026, produce at least 1,210 MWh through photovoltaics</b>  | The current production of PV power stands at 200 MWh per year.  |  |
| <b>Optimize circularity in building projects</b>  | ETH Zurich joined the Madaster Switzerland network in October 2019. A first pilot project using the Madaster platform as a planning support tool for improving the circularity of the building is underway. The first project is a provisional solution using modular construction.   |  |
| <b>Implementation of an overall sustainability concept for the Campus Höggerberg until 2022, integration new special building regulations</b> | In a first step (2021), all existing concepts and regulations for the Campus Höggerberg will be analysed and aggregated. In the second step, missing guidelines/specifications for an integral sustainability concept for the campus will be developed and implemented, including progress monitoring.  |  |

## ENERGY GOALS

|   |   |   |
|---|---|---|
| <b>Reduce energy consumption at ETH Zurich</b><br> <b>Infographic on p. 61</b>       | The total energy (electricity and heating) used by ETH Zurich was 158.1 GWh in 2019 and 160.4 GWh in 2020. Between 2012 and 2020, absolute energy demand remained relatively stable, ranging from a minimum of 147.3 GWh in 2018 to a maximum of 166.9 GWh in 2013. While normalised energy demand by energy-consuming area has remained stable over the past decade, a significant improvement is identified at the level of the normalised energy demand by fulltime equivalent: between 2008 and 2020, there was a decrease of 33 percent. |  |
| <b>Continue to encourage energy-related dialogues with employees, students, and the public</b>  | An awareness campaign has been evaluated and will be implemented as part of the VBE (Vorbild Energie Bund) in the period 2021-2030.   |  |
| <b>For operation of the energy supply system at Campus Höggerberg (Anergy Grid), ETH Zurich will use energy from sources that comply with high ecological standards</b> | The new HI-central was commissioned in 2020, ensuring the connection of HIB/HIF/etc. to the Anergy Grid. Currently, 10.0 GWh of heating and 9.6 GWh of cooling are sourced from the Anergy Grid. At its current status, 2.4 GWh are required to operate the pumps and other auxiliary systems. In collaboration with the Chair of Process Engineering at ETH Zurich (D-MAVT), the energy flows in the system are continuously simulated and modeled to improve operation and future expansion.  |  |
| <b>By 2025, 50 percent of the total heating requirements on Campus Zentrum (including external consumers) will be covered by waste heat</b>                             | In 2019 and 2020, 8.5 percent (3,777 GWh of 44,507 GWh) and 2.3 percent (1,143 GWh of 49,593 GWh) of the total heat demand on the Center Campus was met by waste heat. The decrease in the use of waste heat is due to conversion work on the heat supply system and the installation of the cooling network.   |  |
| <b>Implement first phase of "Masterplan Energy" at Campus Zentrum</b>   | Important milestones were reached in the implementation of the "Masterplan Energy" at the Campus Zentrum. The first new cooling centre (MLY) with waste heat recovery was completed in 2020. By 2022, two new cooling centers (ML, CLA) will serve the network. From 2024, a third cooling centre (CHN) will be built and integrated into the network. The cooling network is a basic requirement for connecting ETH Zurich to a possible lake water supply for cooling and heating.  |  |

## EMISSION GOALS

|  |   |   |
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| <b>Across ETH Zurich, reduce overall CO<sub>2</sub> emissions (direct and indirect) to contribute to the goals of the Paris climate agreement</b><br> <b>Infographic on p. 63</b> | ETH Zurich has been mandated to develop a strategy to reach net zero emissions by 2030 by reducing its overall CO <sub>2</sub> emissions at least by 50 percent compared to 2006 (the rest may be compensated with emission certificates). For this purpose, a university-wide working group has been set up to define the operational concept for implementing the strategy. In a participatory process, the working group will develop a white paper that outlines scenarios and recommendations for the Executive Board of ETH Zurich. This paper will also assess further Scope 3 emissions, e.g. caused by infrastructure and buildings, food or procurement activities of ETH Zurich. |  |
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| <p><b>Reduce direct CO<sub>2</sub> emissions on Campus Höggerberg by 50 percent by 2020 (4,900 t CO<sub>2</sub>eq per year) through the implementation of the “Energy Concept Campus Höggerberg” based on geothermal storage systems (base year 2006)</b></p> | <p>Direct CO<sub>2</sub> emissions on Campus Höggerberg have continuously decreased since 2012, from 7,231 t CO<sub>2</sub>eq in 2012 (corrected) to 4,920 t CO<sub>2</sub>eq in 2019 and 4,737 t CO<sub>2</sub>eq in 2020. The slight increase in 2018 is due to the use of oil instead of natural gas during a short peak season for heating purposes, (see figure on <a href="#">page 59</a>).</p> |  |
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**MOBILITY GOALS**

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| <p><b>Limit air travel and promote the use of alternatives for collaboration and international networking</b><br/> <a href="#">➔ Infographic on p.67</a></p> | <p>Launched in 2017, ETH Zurich’s Air Travel Project “Stay grounded – keep connected” seeks to motivate members of ETH Zurich to reduce greenhouse gas emissions generated by business trips. Triggered by the COVID-19 pandemic and the lockdown, the use of video conferencing at ETH Zurich experienced rapid growth. While there were only 147 new Zoom users at ETH Zurich as of February 2020, a total of 8,150 members of ETH Zurich registered for a Zoom license in March 2020 alone. The accelerated use of virtual alternatives has contributed significantly to reducing air travel.</p> |  |
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| <p><b>Increase number of students travelling between the two campus sites using non-motorised traffic</b></p> | <p>Employees and students of ETH Zurich can use several bike-sharing systems at a reduced rate to commute between Campus Zentrum and Campus Höggerberg. The existing cooperation with PubliBike was extended, as was the financing of the station at Campus Höggerberg. The cooperation with BOND (formerly smide) was also extended. In 2019, about 400 trips per day were registered. In 2020, there were over 1,000 trips per day. In the fourth quarter of 2020, 124 people availed themselves of a special discount introduced for employees and students of ETH Zurich. During the reporting period, ETH Zurich’s employees and students also participated in the “Bike to Work” programme. Across both years combined, 1,791 participants in 482 teams recorded a total of 481,265 kilometres.</p> |  |
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| <p><b>Optimise public transportation between Campus Zentrum and Campus Höggerberg</b></p> | <p>Before the student residences at Campus Höggerberg were occupied, the ETH Link shuttle bus commuted between the campuses three times an hour. Since 2017, the number of hourly commutes has increased to four, in line with the growing number of passengers. While in 2017, 855,000 passengers were transported, the number stood at 980,000 passengers in 2018. In 2019, the mark of 1 million (1,017,000) transported passengers was exceeded for the first time. In 2020, in turn, the number of passengers dropped significantly to 400,000 people due to the COVID-19 pandemic and the emergency operations on campus (virtual classes, home office). Since September 2020, the ETH Link has been running on electricity.</p> |  |
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| <p><b>Reduce fuel consumption at ETH Zurich</b></p> | <p>Fuel consumption was reduced to 68,503 litres in 2020, which amounts to a decrease of 10 percent since 2018. The development is the result of the substitution of combustion engine driven cars by electric cars. By 2020, 25 percent of the fleet was electric. A new guideline was also issued requiring the procurement of low-emission vehicles.</p> |  |
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**PAPER CONSUMPTION GOALS**

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| <p><b>Reduce paper consumption</b></p> | <p>The absolute paper consumption in 2019 was 44 percent lower than in 2016. In 2020, consumption was even 63 percent lower than in 2016, primarily due to the pandemic. Per fulltime equivalent, this equates to 6.4 kg and 4 kg in 2019 and 2020, respectively.</p> |  |
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| <p><b>Increase the proportion of recycled paper</b></p> | <p>The share of recycled paper roughly doubled between the last and the current reporting periods from 41.8 percent in 2017 to 82.4 percent in 2020. At the same time, the share of FSC-certified paper was reduced from 57.9 percent in 2017 to an average value of 16.8 percent between 2018 and 2020.</p> |  |
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**WASTE GOALS**

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| <p><b>“Host Recycling Days” on campus</b></p> | <p>No recycling days were held in 2019 and 2020. However, if they need to, users can plan and arrange an appropriate disposal in consultation with the respective building area. The building area managers will provide the containers to meet the specific requirements.</p> |  |
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| <p><b>Direct 50 percent of total waste materials to a recycling stream</b><br/> <a href="#">➔ Infographic on p.71</a></p> | <p>The target of 50 percent for ETH Zurich as a whole had not been achieved by the end of 2020. Within the reporting period, the recycling quota varied between 23 and 100 percent – depending on the building area – resulting in overall quotas of 46 percent in 2019 and 45 percent in 2020.</p> |  |
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| <p><b>Provide infrastructure for disposal of biogenic waste</b></p> | <p>Inspired by an award-winning idea submitted for a competition, ETH Zurich has installed 60 collection boxes for biogenic waste on its Campus Höggerberg. In 2019 alone, around 4,400 kg of biogenic waste were collected and used for energy generation.</p> |  |
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**FOOD GOAL**

**Development of recommendations for catering companies to reduce packaging and advance the substitution of disposable dishes with reusable dishes** In 2019, ETH Sustainability, with the support of the Partner Organisation section, published a thorough analysis on the packaging and take-away dishes in ETH catering facilities. The study aims to provide catering partners with a sound decision-making basis for the sustainable adaptation of their food and beverage packaging. 

**OUTREACH GOALS**

**Maintain various channels of internal exchange and public dialogue**  
 **Infographic on p.82** Various formats are in place and under development to support the dialogue with decision-makers, the public, and other stakeholders inside and outside of ETH Zurich (see table on  **pages 84–86**). ETH Zurich maintains growing presences on various social media platforms. 


**Provide services for the benefit of the whole country by fulfilling diverse national tasks** ETH Zurich applies its scientific and technical expertise to public service tasks on behalf of the Federal Government, including the Swiss Seismological Service (SED), the Swiss Economic Institute (KOF), the Center for Security Studies (CSS), the Centro Svizzero di Calcolo Scientifico (CSCS), the ETH Library, the Centro Stefano Franscini, Atlas der Schweiz, Schweizer Weltatlas, and the National Center for Climate Services (NCCS), and contributes to the maintenance of Swiss cultural goods, including the Collection of Prints and Drawings (Graphische Sammlung), the Archives of Contemporary History, the gta Archive, the Werner Oechslin Library Foundation, and the Thomas Mann and Max Frisch Archives. 

## Previously achieved goals


Goals that were achieved in previous reporting periods had not been documented systematically so far. An overview of these goals is listed below, differentiated by reporting period and goal type. Please note that the status nomenclature has been developed along the way.

**Achieved during the reporting period 2017/2018**

**BUILDING EFFICIENCY GOAL**


**In major investment projects, assess costs, energy usage, and emissions over the entire life cycle of the investment. In newly constructed buildings, only state-of-the-art construction standards and energy-efficient construction types are used** Life-cycle costing analyses are conducted for larger projects (new buildings) already in the phase of the architecture competition, by analysing the different project proposals. Calculations are repeated and monitored during the project’s realisation. 


**FOOD GOAL**

**Development of a general set of criteria for assessing the climate-friendliness of offerings in the catering industry** During the fourth phase of the “Sustainable Catering” project, recommendations on how to measure the CO<sub>2</sub> equivalent footprint of menus were elaborated. These recommendations are part of a systemic framework to reduce emissions caused by the catering industry. 


**Achieved during the reporting period 2015/2016**

**MOBILITY GOALS**

**Offer ECO-Drive training to staff** ECO-Drive training has been integrated into the regular driver training at ETH Zurich. 


**Deliver internal ETH mail with hybrid and/or electric cars (electric energy from renewable sources)** As a result of a study conducted by the Institute for Dynamic Systems and Control at the Department for Mechanical and Process Engineering (D-MAVT), a hybrid truck was purchased in 2015 to deliver mail on Campus Hönggerberg. 

**WASTE GOAL**


**Establish a concept for recycling data media, hardware, and other IT infrastructure** Decommissioned IT equipment is warehoused and can be purchased by employees. Remaining equipment is prepared for external sale by a broker. 


Achieved during the reporting period 2013/2014

## ETHICS GOAL


**Develop a Code of Conduct for research cooperation at ETH Zurich** Consolidating the exchange of 47 units at ETH Zurich, the Executive Board adopted the document in April 2014. 

## RESEARCH GOALS


**Strengthen the collaboration between engineering and natural science disciplines and the humanities and social and management sciences** In cooperation with the University of Zurich and under the aegis of Hochschulmedizin Zurich (HMZ), ETH Zurich established two new interdisciplinary competence centres in 2014: the Competence Center for Personalized Medicine (CC-PM) and the Zurich Center for EXperimental and Clinical Imaging TEchnologies (EXCITE). 


**Strengthen the collaboration between engineering and natural science disciplines and the humanities and social and management sciences in fields relevant for sustainable development** Established in cooperation with the Commission for Technology and Innovation (CTI) of the Swiss Confederation, ETH Zurich is the Leading House for three Swiss Competence Centers for Energy Research (SCCER) on "Supply of Electricity" (SCCER-SoE), "Efficiency of Industrial Processes" (SCCER-EIP), and "Efficient Technologies and Systems for Mobility" (SCCER-Mobility). 

## EDUCATION GOAL


**Develop guidelines defining the quality of degree programs and courses at ETH Zurich** Incorporating input from the Study Conference and the Teaching Commission, the Rector adopted a catalogue of "Quality Criteria for Teaching" in 2013. 


## FOOD GOALS

**Increase awareness of embedded carbon in food. Design and implement an accompanying study to investigate the impact of climate-friendly menus on the CO<sub>2</sub> balance of ETH Zurich (Project phase I)** ETH Seed Sustainability and the World Food System Center conducted a joint study to assess and raise awareness of the environmental impact of food. The study was conducted in the framework of two Master theses and one project thesis at D-BAUG. Empirical results are based on 1,800 survey responses. In addition, an average of 1,300 people were reached daily through the accompanying three-week information campaign in ETH Zurich restaurants. 


**Increase awareness of food waste and investigate how to reduce food waste at restaurants on campus (Project phase II)** ETH Seed Sustainability and the World Food System Center conducted a joint study to raise awareness of the social, ecological, and economic impact of food waste. The study was conducted in the framework of two interdisciplinary master theses. Empirical results are based on 1,325 survey responses. In addition, an average of 1,300 people were reached daily through the accompanying three-week information campaign in ETH Zurich restaurants. 

## ENERGY GOALS


**Increase the percentage of electricity that comes from renewable energy sources. From 2013 onwards, the share of power from renewable sources at ETH Zurich will be at least equal to or greater than its share in the total mix of electricity in Switzerland (production mix). The share of power from renewable sources will be continuously increased. The target is 100 percent by 2035** The share of power from renewable sources reached a level of 95 percent in 2014 (in Zurich: ewz.naturpower naturemade basic and ewz.wassertop naturemade star). Furthermore, ETH Zurich purchases guarantees of origin indicating the energy source used to generate the electricity. 


**Increase share of geothermal and ambient heat to 50 percent of overall heat usage** Heat recovery from chillers was increased to 11.94 GWh. In 2014, 2.2 GWh were harnessed from the Energy Grid. Of the total demand at ETH Zurich (45.6 GWh), 31 percent was provided by geothermal and ambient heat without the Walche heat pump, and 52 percent including the Walche heat pump. 

## MOBILITY GOAL

**Define principles for new acquisitions to the car fleet** Principles have been defined and have been in effect since early 2014. The fleet currently consists of 80 cars, many of which are used in a car-sharing mode by institutes and departments. Older vehicles of the fleet are replaced on an annual basis (around eight cars per year) by vehicles that have lower CO<sub>2</sub> emissions. 

## EMISSION GOALS

**Complete Phase 1 of "Energy Concept Campus Höggerberg" (construction of two storage fields, a total of 300 geothermal probes, and main piping loop)** Phase 1 was completed, and Phase 2 is due to be completed by 2017. 

**Implement CO<sub>2</sub>-free printing at printing facilities** Through the acquisition of certificates, 100 percent of laser print jobs at printing facilities are CO<sub>2</sub>-free. 

# ABOUT THIS REPORT

 [Methodology and scope of reporting](#)

## Methodology and scope of reporting

The ETH Zurich Sustainability Report 2019/2020 is ETH Zurich's sixth comprehensive Sustainability Report. This report has been prepared in accordance with the GRI Standards: Core option and the ISCN Sustainable Campus Charter. The topics outlined in the GRI reporting framework cover a broad range of sustainability metrics related to economic, environmental, and social performance, which is applicable to various industry sectors. The ISCN Sustainable Campus Charter, in turn, reflects the guiding principles of the ISCN, that is, "that organizations of research and higher education have a unique role to play in developing the technologies, strategies, citizens, and leaders required for a more sustainable future". The ISCN Sustainable Campus Charter includes five calls to action, three regarding institutional leadership and two regarding network collaboration.

### Preparation and methodology

Designed to integrate stakeholder views from all fields relevant to ETH Zurich, the report is the result of a three-stage process:

- ① **Mapping stakeholder groups**
- ② **Engaging with stakeholders**
- ③ **Defining the content and scope of the report**

## 1 Mapping stakeholder groups

ETH Zurich is more than an institution for higher education and research. It is also one of the biggest employers in the Zurich area, a place for dialogue and exchange, and a growing system of campuses shaped by complex and highly specialised infrastructure. Accordingly, ETH Zurich has a large spectrum of stakeholders both within the University and beyond. Internal workshops yielded and consolidated a detailed stakeholder map for ETH Zurich (see ➔ **page 103**). ➔<sup>102-42</sup> Stakeholder groups were primarily categorised by position (internal or external) and then according to ETH Zurich's four strategic fields of action in sustainability: (1) Research, (2) Education, (3) Campus, and (4) Dialogue. Two additional categories were defined to capture stakeholder groups beyond the four fields of action: (5) Finances and (6) Others.



## Stakeholder groups → 102-40

| Field of action | Internal stakeholder group                                     | External stakeholder group   |
|-----------------|--|--|
| Research        | Vice Presidency for Research*                                  | Industry*  |
|                 | Vice Presidency for Knowledge Transfer and Corporate Relations | Federal Parliament*  |
|                 | Faculty (Professors)*  | ETH Domain*  |
|                 | Departments  | swissuniversities*   |
|                 | Competence Centres   | International universities   |
|                 | Scientific staff*  | Funding agencies and organisations (Swiss National Science Foundation, innosuisse, European Union, etc.) |
| Education       | Rector**   | High schools   |
|                 | Academic Services  |  |
|                 | Student Services   |  |
|                 | Study Commissions  |  |
|                 | Directors of Study   |  |
|                 | Students*  |  |
| Campus          | Vice Presidency Infrastructure                                 | Local neighbourhoods of ETH Zurich at Campus Zentrum and Campus Hönggerberg*                             |
|                 | Vice Presidency for Personnel Development and Leadership       | Local neighbourhood of ETH Zurich in other locations in Switzerland and abroad                           |
|                 | ETH Zurich Executive Board and Associate Vice Presidents**     |  |
|                 | Secretary General  |  |
|                 | Staff Units****  |  |
|                 | Administrative departments***                                  |  |
|                 | Administrative and technical staff*                            |  |
|                 | Student organisations*   |  |
|                 | Sports facilities  |  |
|                 | Catering facilities  |  |
| Dialogue        | Community and Outreach*  | Public administration  |
|                 | Corporate Communications                                       | Public authorities*  |
|                 |  | NGOs*  |
|                 |  | Media  |
| Finances        | Vice Presidency for Finance and Controlling                    | Tax payer  |
|                 | Financial Services*  | Donors   |
|                 | Accounting   | Foundations*   |
|                 | Controlling**  | Other third-party funding  |
| Others          |  | Alumni of ETH Zurich*  |

1 Every star (\*) in the table indicates one person that was interviewed on behalf of the respective stakeholder group.

## 2

**Engaging with stakeholders**

Regularly inviting stakeholders to express their expectations creates opportunities for open reflection on the comparative relevance of various aspects of ETH Zurich's sustainability-related activities and issues. It also allows for a critical discussion and fresh feedback on the University's existing sustainability strategy, its previous achievements, and its sustainability goals. Finally, these discussions also give an indication as to how the content and scope of the report is defined. While not fully reflecting a representative sample of stakeholders, the reporting process can be regarded as an important aspect of stakeholder interaction on sustainability, bringing momentum for mutual learning, and as a point of departure for future developments in the field. For the multi-stakeholder process underlying the compilation of its Sustainability Reports, ETH Zurich won the Swiss Ethics Award in 2018.

In 2015, a total of 21 interviews were conducted with representatives of internal and external stakeholder groups. As part of the "materiality analysis", their assessments were incorporated into the creation of the "materiality matrix" (see below). Likewise, excerpts of their statements were integrated as "stakeholder perspectives" into the ETH Zurich Sustainability Report 2013/2014. In the preparation of the two subsequent Sustainability Reports (2015/2016 and 2017/2018), additional feedback and voices from various internal and external stakeholders were incorporated. Prior to the current report (2019/2020), a new set of interviews was conducted with nine representatives of diverse stakeholder groups. In addition, 17 individuals (some of whom were also among the nine interview partners) were asked about their views of ETH Zurich's efforts for the achievement of the Sustainable Development Goals.

Interview partners and other stakeholders were selected based on their familiarity or acquaintance with ETH Zurich (for example, graduates of ETH Zurich as external stakeholder representatives) or for having professional or academic backgrounds related to sustainability (in the case of internal stakeholder representatives). → 102-42



## 3

**Defining the content and scope of the report**

The materiality matrix indicates which topics the interview partners and other stakeholders assessed are relevant for ETH Zurich from an internal (x-axis) and an external viewpoint (y-axis). Topics located in the four upper right fields of the matrix were identified as the most material ones and were indicative for the structure of the report at hand. The positioning of the topics within the matrix has been critically reviewed and adjusted over the years as part of the process described above. Topics are clustered to constitute the scope of the chapters, as shown in the matrix. Those topics situated outside the upper four right fields were not considered for the report. Progress on these topics is accounted for and communicated elsewhere by the respective units of ETH Zurich. →102-46

Note: Unless stated otherwise, information disclosed in this report refers to the two main locations of ETH Zurich in the city of Zurich: Campus Zentrum and Campus Hönggerberg. The social and economic data presented cover all operations of ETH Zurich. Facility and environmental data are derived from its two campuses in Zurich (Campus Zentrum and Campus Hönggerberg). Smaller sites such as field research stations are not included in all key figures, since meaningful data are not available and their impact on overall results would be negligible.

**Changes since the last report** →102-48 →102-49

Overall, the ETH Zurich Sustainability Report 2019/2020 adheres to the scope and structure of the previous report. Throughout the years, however, steps have been taken to ensure that the feedback and expectations of the stakeholder groups were met in the best possible way. The regular dialogue-oriented feedback from the Association of Students at ETH Zurich (VSETH) and the Student Sustainability Commission (SSC), to name just one example, has made a particularly constructive contribution to further developing and sharpening the focus of the report.

The changes since the last report include conceptual, content-related, and methodological aspects: At the request of numerous stakeholders, this report contains significantly more visual elements, including infographics instead of the original goal tables (these are now at the end of the report) and illustrations (instead of photos in the highlights). In addition, greater emphasis was placed on the Sustainable Development Goals, for example, by including an explicit integration into the stakeholder perspectives. Also conceptual in nature is the decision to no longer publish a separate appendix to the report by incorporating the long version of the GRI Index and the ISCN Sustainable Campus Charter reference. This report is thus a stand-alone report that includes all indices. Finally, the Sustainability Report 2019/2020 is not published at the same time as the ETH Zurich Annual Report 2020.

In terms of content, the topics of “mobility” and “finances” were given more space than in the previous report, as requested. The stakeholder interviews also revealed that a large number of respondents would like to see a new subchapter on the topic of “biodiversity”. The chapter “attractive employment conditions” has been renamed using the more neutral wording “employment conditions”. The chapters “informing the interested public” and “informing political decision-makers” have been renamed “engaging with the public” and “expertise for decision-makers”, respectively. Lastly, sustainability goals that had been listed as “achieved” in previous Sustainability Reports, and were therefore no longer listed in the subsequent report, are now also presented.

With regard to the data, a few minor changes were made. Instead of headcount, the report now discloses the number of employment contracts in some cases (indicated accordingly). The reason is that some employees have multiple part-time employment contracts, which would not be reflected in a headcount. In the tables disclosing turnover rates and employee diversity, some of the categories have been renamed in the interests of consistency with other reports. The calculation method for collecting air travel emissions was improved again, including a retroactive adjustment of the data (see ➔ **page 66**). It now also includes the air travel-related emissions of invited guests and students. Wherever possible, concrete statistics have been presented throughout the report, which has also been prioritized in response to several stakeholder requests.

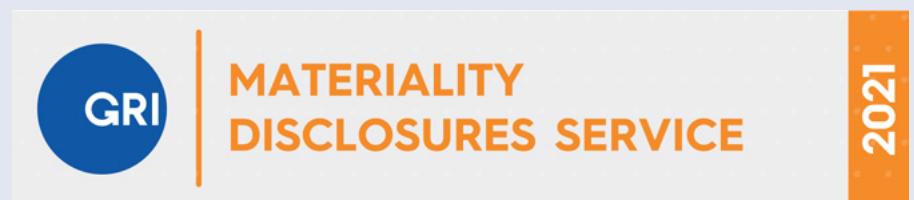
# CONTENT INDICES

|   |                                       |     |
|---|---------------------------------------|-----|
| ➔ | GRI Content Index                     | 109 |
| ➔ | ISCN Sustainable Campus Charter Index | 116 |
| ➔ | SDG Content Index                     | 117 |

## GRI Content Index

This GRI Content Index provides an overview of ETH Zurich's Sustainability Report 2019/2020 and the GRI Standards disclosures addressed. It serves as a compass and helps finding relevant information. Complementing information can be found in the Annual Report 2020 (references indicated with "Annual Report" in the table below).

This report has been prepared in accordance with the GRI Standards: Core option. For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index included in the ETH Zurich Sustainability Report 2019/2020 (pages 109-115) is clearly presented and that the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report.



## GRI 101: Foundation 2016

| General Disclosures                     |   |   |   |
|---|---|---|---|
| GRI Standard                            | Disclosure  | Page number   | Comment(s) and/or direct answers  |
| GRI 102:<br>General<br>Disclosures 2016 | <b>Organisational profile</b>                                       |   |   |
|   | 102-1 Name of the organisation                                      | Cover   |   |
|   | 102-2 Activities, brands, products, and services                    | Inside cover  |   |
|   | 102-3 Location of headquarters                                      | p. 53, p. 106   | Zurich, Switzerland   |
|   | 102-4 Location of operations  | p. 53, p. 106   |   |
|   | 102-5 Ownership and legal form                                      |   | see Annual Report 2020: pp. 62-65   |
|   | 102-6 Markets served  | p. 53, p. 106   |   |
|   | 102-7 Scale of the organization                                     | p. 44, pp. 50-51, p. 75   | see Annual Report 2020: pp. 70-76   |
|   | 102-8 Information on employees and other workers                    |   | ETH Zurich does not outsource relevant tasks to workers who are not employees.  |
|   | 102-9 Supply chain  |   | The major share of ETH Zurich's operating expenses are personnel costs (roughly 67 percent in 2020). In 2020, 27 percent of the overall expenses were on goods and materials, premises costs, and other operating costs. A key feature of procurement at ETH Zurich is the exceptional range. It spans construction, operation, and maintenance of buildings to highly specialized and innovative installations and infrastructure. In addition to numerous standard goods and consumables for office, laboratory, and workshop requirements, this also includes a variety of services (e.g., information media, cargo and passenger transport, canteen operation, etc.). Procurement is organised in six procurement offices at ETH Zurich. They manage the procurement process for the goods and services assigned to them (material groups), i.e., they procure these themselves or provide information about the optimal ordering process. In doing so, they ensure observance of the legal provisions. The Procurement Policy of ETH Zurich is the binding basis for all procurement activities. It sets out, on the one hand, the expectations for all purchasing parties as regards an efficient, coordinated, and transparent procurement and, on the other hand, describes the requirements of ETH Zurich for their suppliers. |
|   | 102-10 Significant changes to the organization and its supply chain |   | No significant changes  |
|   | 102-11 Precautionary principle or approach                          |   | see Annual Report 2020: pp. 66-67   |
|   | 102-12 External initiatives   |   | ISCN Sustainable Campus Charter   |
| 102-13 Membership of associations       |   | ETH Zurich is a member of various national and international organisations and networks. A selection is presented here: <ul style="list-style-type: none"> <li>• CESAER (Conference of European schools for advanced engineering education and research)</li> <li>• innosuisse</li> <li>• swissuniversities</li> <li>• EAIR (European Association for Institutional Research)</li> <li>• EUA (European University Association)</li> <li>• GULF (Global University Leader's Forum by the WEF)</li> <li>• IAESTE Switzerland (International Association for the Exchange of Students for Technical Experience, ETH is supporting partner)</li> <li>• IARU (International Alliance of Research Universities)</li> <li>• IAU (International Association of Universities)</li> <li>• IDEA League (Imperial College London, TU Delft, ETH Zurich, RWTH Aachen League)</li> <li>• ISCN (International Sustainable Campus Network)</li> <li>• NaTech Education (an organisation to foster interest in science and technology among elementary school and secondary school children)</li> <li>• OECD IMHE (OECD programme on Institutional Management in Higher Education)</li> <li>• Scholars at Risk (international network of higher education institutions dedicated to protecting threatened scholars)</li> <li>• SEFI (The European Society for Engineering Education)</li> <li>• Swiss Academy of Engineering Sciences (SATW)</li> <li>• Swiss Academy of Humanities and Social Sciences (SAGW)</li> <li>• Swiss Academy of Medical Sciences (SAMW)</li> <li>• Swiss Academy of Sciences (SCNAT)</li> <li>• UNITECH International (network of leading European technical universities and multinational enterprises)</li> </ul> |   |



| General Disclosures           |  |                |   |
|-------------------------------|--|----------------|---|
| GRI Standard                  | Disclosure   | Page number    | Comment(s) and/or direct answers  |
| <b>Strategy</b>               |  |                |   |
| 102-14                        | Statement from senior decision-maker                       | p. 3           |   |
| <b>Ethics and integrity</b>   |  |                |   |
| 102-16                        | Values, principles, standards, and norms of behavior       | p. 16          |   |
| <b>Governance</b>             |  |                |   |
| 102-18                        | Governance structure                                       |                | see Annual Report 2020: pp. 60-65   |
| <b>Stakeholder engagement</b> |  |                |   |
| 102-40                        | List of stakeholder groups                                 | p. 103         |   |
| 102-41                        | Collective bargaining agreements                           | p. 52          | The conditions of employment are based on the Swiss Federal Personnel Act and the ETH Personnel Ordinance. Salaries are calculated according to function level, experience, and performance. Working contracts and salaries are based on the Personalverordnung (PVO).                            |
| 102-42                        | Identifying and selecting stakeholders                     | p. 102, p. 104 |   |
| 102-43                        | Approach to stakeholder engagement                         | p. 84          |   |
| 102-44                        | Key topics and concerns raised                             | p. 84          |   |
| <b>Reporting practice</b>     |  |                |   |
| 102-45                        | Entities included in the consolidated financial statements |                | ETH Zurich<br>ETH Singapore SEC Ltd.<br>Rübel Geobotanical Research Institute Foundation<br><br>Associated entities<br>ETH Zurich Foundation<br>Student Housing Foundation<br>Albert Lück Foundation<br>Archives of Contemporary History Foundation<br>Foundation for Contemporary Jewish History |
| 102-46                        | Defining report content and topic boundaries               | p. 106         |   |
| 102-47                        | List of material topics                                    | p. 105         |   |
| 102-48                        | Restatements of information                                | p. 106         |   |
| 102-49                        | Changes in reporting                                       | p. 106         |   |
| 102-50                        | Reporting period   | p. 101         |   |
| 102-51                        | Date of most recent report                                 | p. 106         |   |
| 102-52                        | Reporting cycle  | p. 86          |   |
| 102-53                        | Contact point for questions regarding the report           | p. 118         |   |
| 102-54                        | Claims of reporting in accordance with the GRI Standards   | p. 109         |   |
| 102-55                        | GRI content index  | pp. 110-115    |   |
| 102-56                        | External assurance   |                | No external assurance was sought, but the standards for internal monitoring and measurement systems were applied, which include external auditing in the case of financial data.  |

| <b>Material Topics</b>                       |  |                     |   |
|--|--|---------------------|---|
| <b>GRI Standard</b>                          | <b>Disclosure</b>  | <b>Page number</b>  | <b>Comment(s) and/or direct answers</b> |
| <b>Research environment</b>                  |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 13               |   |
|  | 103-2 The management approach and its components         | p. 13               |   |
|  | 103-3 Evaluation of the management approach              | pp. 15-16,<br>p. 93 |   |
| <b>Research for sustainable development</b>  |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 18               |   |
|  | 103-2 The management approach and its components         | p. 18               |   |
|  | 103-3 Evaluation of the management approach              | pp. 18-20,<br>p. 93 |   |
| <b>Knowledge transfer</b>                    |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 22               |   |
|  | 103-2 The management approach and its components         | p. 22               |   |
|  | 103-3 Evaluation of the management approach              | pp. 22-25           |   |
| (own ind.)                                   | Number of Spin-off companies                             | p. 24               |   |
| <b>Educational environment</b>               |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 29               |   |
|  | 103-2 The management approach and its components         | pp. 29-31           |   |
|  | 103-3 Evaluation of the management approach              | pp. 31-33,<br>p. 94 |   |
| <b>Education for sustainable development</b> |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 34               |   |
|  | 103-2 The management approach and its components         | p. 34               |   |
|  | 103-3 Evaluation of the management approach              | pp. 34-37,<br>p. 95 |   |
| <b>Participation</b>                         |  |                     |   |
| GRI 103:<br>Management<br>Approach 2016      | 103-1 Explanation of the material topic and its Boundary | p. 41               |   |
|  | 103-2 The management approach and its components         | pp. 41-43           |   |
|  | 103-3 Evaluation of the management approach              | pp. 41-43           |   |

| Material Topics                               |  |                  |  |
|---|--|------------------|--|
| GRI Standard                                  | Disclosure   | Page number      | Comment(s) and/or direct answers   |
| <b>Employee retention and turnover</b>        |  |                  |  |
| GRI 103: Management Approach 2016             | 103-1 Explanation of the material topic and its Boundary   | p. 44            |  |
|   | 103-2 The management approach and its components   | p. 44            |  |
|   | 103-3 Evaluation of the management approach  | pp. 44-46        |  |
| GRI 401: Employment 2016                      | 401-1 New employee hires and employee turnover   | pp. 45-46        | Total number and rate of new employee hires and turnover are reported by employee category instead of age group due to informative value.  |
| <b>Diversity</b>                              |  |                  |  |
| GRI 103: Management Approach 2016             | 103-1 Explanation of the material topic and its Boundary   | pp. 47-51        |  |
|   | 103-2 The management approach and its components   | pp. 47-51        |  |
|   | 103-3 Evaluation of the management approach  | pp. 49-50, p. 95 |  |
| GRI 405: Diversity and Equal Opportunity 2016 | 405-1 Diversity of governance bodies and employees   | pp. 50-51        | <p>For the gender composition of the Executive Board, see <a href="#">here</a>. The relevant diversity criterion for the composition of the Executive Board is gender, which is why other diversity criteria are not reported.</p> <p>The age groups for diversity reporting differ slightly from the groups as required by GRI in order to ensure comparability with previous reports. Employee categories and age groups are reported separately due to readability.</p> |
| <b>Employment conditions</b>                  |  |                  |  |
| GRI 103: Management Approach 2016             | 103-1 Explanation of the material topic and its Boundary   | p. 52            |  |
|   | 103-2 The management approach and its components   | p. 52            |  |
|   | 103-3 Evaluation of the management approach  | p. 52            |  |
| GRI 401: Employment 2016                      | 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees | p. 52            |  |
| <b>Sustainable campus development</b>         |  |                  |  |
| GRI 103: Management Approach 2016             | 103-1 Explanation of the material topic and its Boundary   | pp. 53-54        |  |
|   | 103-2 The management approach and its components   | pp. 53-54        |  |
|   | 103-3 Evaluation of the management approach  | pp. 53-54, p. 96 |  |
| <b>Biodiversity</b>                           |  |                  |  |
| GRI 103: Management Approach 2016             | 103-1 Explanation of the material topic and its Boundary   | pp. 55-56        |  |
|   | 103-2 The management approach and its components   | pp. 55-56        |  |
|   | 103-3 Evaluation of the management approach  | pp. 55-56        |  |

| Material Topics                   |  |                      |   |
|-----------------------------------|--|----------------------|---|
| GRI Standard                      | Disclosure   | Page number          | Comment(s) and/or direct answers  |
| <b>Energy</b>                     |  |                      |   |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundary | pp. 57-61            |   |
|                                   | 103-2 The management approach and its components         | pp. 57-61            |   |
|                                   | 103-3 Evaluation of the management approach              | pp. 57-61, p. 96     |   |
| GRI 302: Energy 2016              | 302-1 Energy consumption within the organization         | pp. 57-61            | Energy consumed through car fuel for ETH Zurich's own fleet is only disclosed in litres (see <a href="#">page 97</a> ).   |
|                                   | 302-3 Energy intensity                                   | pp. 57-61            |   |
| <b>Greenhouse gas emissions</b>   |  |                      |   |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundary | pp. 62-64            |   |
|                                   | 103-2 The management approach and its components         | pp. 62-64            |   |
|                                   | 103-3 Evaluation of the management approach              | pp. 62-64, pp. 96-97 |   |
| GRI 305: Emissions 2016           | 305-1 Direct (Scope 1) GHG emissions                     | pp. 62-64            | <p>The following gases have been included in the calculation:</p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub></li> <li>• Refrigerants (R 134a, R 404A, R 410A, R 407C, ammonia)</li> </ul> <p>Source for emissions factors:</p> <ul style="list-style-type: none"> <li>• Conversion factors for natural gas and oil according to Faktenblatt CO<sub>2</sub> Emissionsfaktoren des Treibhausgasinventars der CH</li> <li>• District heating: CO<sub>2</sub>-Emissionsfaktoren FernwärmeverSORger (Eicher and Pauli, 2012)</li> <li>• Refrigerant according to GWP (Übersicht über die wichtigsten Kältemittel, BAFU, Juli 2014)</li> </ul> <p>"Direct emissions" as presented in the environmental statistics include district heating purchased from outside providers.</p> |
|                                   | 305-2 Energy indirect (Scope 2) GHG emissions            | pp. 62-64            | <p>The following gases have been included in the calculation:</p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub>eq</li> </ul> <p>Source for emissions factors:</p> <ul style="list-style-type: none"> <li>• "Umweltdeklaration EWZ/EKZ für Stromprodukte"</li> <li>• District Heating, see above</li> </ul> <p>Scope 2 emissions for ETH Zurich comprise emissions from the production of purchased current and district heating from outside providers. The latter is currently (cf. Environmental Statistics) listed with direct emissions in order to maintain consistency of reported environmental figures in ETH Zurich's Annual Reporting (see comments for 305-1).</p>   |
|                                   | 305-3 Other indirect (Scope 3) GHG emissions             | pp. 62-64, p. 66     |   |
| <b>Mobility</b>                   |  |                      |   |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundary | pp. 65-68            |   |
|                                   | 103-2 The management approach and its components         | pp. 65-68            |   |
|                                   | 103-3 Evaluation of the management approach              | pp. 65-68, p. 97     |   |

| <b>Material Topics</b>               |  |                    |   |  |
|--------------------------------------|--|--------------------|---|--|
| <b>GRI Standard</b>                  | <b>Disclosure</b>  | <b>Page number</b> | <b>Comment(s) and/or direct answers</b> |  |
| <b>Paper consumption</b>             |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | p. 69              |   |  |
|                                      | 103-2 The management approach and its components         | p. 69              |   |  |
|                                      | 103-3 Evaluation of the management approach              | p. 69, p. 97       |   |  |
| GRI 301: Materials 2016              | 301-2 Recycled input materials used                      | p. 69              |   |  |
| <b>Recycling and waste</b>           |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | pp. 70-71          |   |  |
|                                      | 103-2 The management approach and its components         | pp. 70-71          |   |  |
|                                      | 103-3 Evaluation of the management approach              | pp. 70-71, p. 97   |   |  |
| GRI 306: Effluents and Waste 2016    | 306-2 Waste by type and disposal method                  | pp. 70-71          |   |  |
| <b>Food</b>                          |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | pp. 72-74          |   |  |
|                                      | 103-2 The management approach and its components         | pp. 72-74          |   |  |
|                                      | 103-3 Evaluation of the management approach              | pp. 72-74, p. 98   |   |  |
| <b>Finances</b>                      |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | pp. 75-77          |   |  |
|                                      | 103-2 The management approach and its components         | pp. 75-77          |   |  |
|                                      | 103-3 Evaluation of the management approach              | pp. 75-77          |   |  |
| GRI 201: Economic Performance 2016   | 201-4 Financial assistance received from government      | p. 75              | Annual Report 2020: pp. 74-75           |  |
| <b>Engaging with the public</b>      |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | pp. 81-86          |   |  |
|                                      | 103-2 The management approach and its components         | pp. 81-86          |   |  |
|                                      | 103-3 Evaluation of the management approach              | pp. 81-86, p. 98   |   |  |
| <b>Expertise for decision-makers</b> |  |                    |   |  |
| GRI 103: Management Approach 2016    | 103-1 Explanation of the material topic and its Boundary | pp. 87-89          |   |  |
|                                      | 103-2 The management approach and its components         | pp. 87-89          |   |  |
|                                      | 103-3 Evaluation of the management approach              | pp. 87-89, p. 98   |   |  |

## ISCN Sustainable Campus Charter Reporting References



ETH Zurich is a founding member of the International Sustainable Campus Network (ISCN) and has endorsed the ISCN Sustainable Campus Charter 2018. As a signatory of this Charter, it is ETH Zurich's aim to transparently report on its sustainability goals and achievements. The reporting in accordance to the Charter is aligned to the University's biannual Sustainability Report.

The following tables refer to the pages in the Sustainability Report 2019/2020 where the Calls to Action 1-5 of the Charter are covered. Additional information on some aspects can be found in the ETH Zurich Annual Report 2020, as indicated in the respective sections of the Sustainability Report.

|                          | Chapter  | Page        |
|--------------------------|--|-------------|
| <b>Call to Action 1</b>  | <b>Embed sustainability in all aspects of the University (governance, operations, learning, research, community).</b>  |             |
| <b>Related reporting</b> | Research   | ➔ pp. 13-27 |
|                          | Education  | ➔ pp. 29-39 |
|                          | Campus   | ➔ pp. 41-79 |
| <b>Call to Action 2</b>  | <b>Create an environment that cultivates resilient, empowered, caring, and engaged students, staff, and faculty who will contribute to the health of people and places.</b>        |             |
| <b>Related reporting</b> | Education for sustainable development  | ➔ pp. 34-37 |
|                          | Participation  | ➔ pp. 41-43 |
|                          | Employment conditions  | ➔ p. 52     |
| <b>Call to Action 3</b>  | <b>Engage with external partners, industry, government, and civil society to disseminate knowledge, research, and best practices to benefit the communities in which we serve.</b> |             |
| <b>Related reporting</b> | Knowledge transfer   | ➔ pp. 22-24 |
|                          | Engaging with the public   | ➔ pp. 81-86 |
|                          | Expertise for decision-makers  | ➔ pp. 84-89 |
| <b>Call to Action 4</b>  | <b>Deepen and broaden the collaboration that happens between members of the network to accelerate collective action.</b>   |             |
| <b>Related reporting</b> | Membership of associations   | ➔ p. 110    |
| <b>Call to Action 5</b>  | <b>Ensure that the network is significantly inspiring international dialogue and debate to contribute to the Sustainable Development Goals.</b>                                    |             |
| <b>Related reporting</b> | Dialogue   | ➔ pp. 81-89 |
|                          | SDG Content Index  | ➔ p. 117    |

## SDG Content Index



ETH Zurich contributes in many ways to achieving the Sustainable Development Goals (SDGs) of the United Nations (UN). In this report, we present an exemplary overview of these contributions. This compilation does not claim to be complete – however, it illustrates the important role of universities in the implementation of the UN 2030 Agenda. This index serves as a guide to the relevant information presented in the report.

For more information, please visit: [www.ethz.ch/2030agenda](https://www.ethz.ch/2030agenda)

| Brief description of SDG | Our contribution  |
|--------------------------|---|
|                          | End poverty in all its forms everywhere → p.36 → pp.90-91   |
|                          | End hunger, achieve food security, and improved nutrition and promote sustainable agriculture → p.19 → pp.90-91   |
|                          | Ensure healthy lives and promote well-being for all at all ages → p.23 → p.87 → p.88 → pp.90-91   |
|                          | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all → p.30 → p.31 → p.35 → pp.38-39 → p.42 → pp.90-91                                    |
|                          | Achieve gender equality and empower all women and girls → p.47 → pp.90-91   |
|                          | Ensure availability and sustainable management of water and sanitation for all → p.22 → pp.90-91  |
|                          | Ensure access to affordable, reliable, sustainable, and modern energy for all → p.26-27 → p.58 → p.62 → pp.90-91  |
|                          | Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all → p.25 → p.49 → p.77 → pp.90-91                                    |
|                          | Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation → p.24 → p.25 → p.58 → pp.90-91  |
|                          | Reduce inequality within and among countries → p.76 → pp.90-91  |
|                          | Make cities and human settlements inclusive, safe, resilient, and sustainable → p.66 → pp.78-79 → pp.90-91  |
|                          | Ensure sustainable consumption and production patterns → p.73 → p.74 → pp.90-91   |
|                          | Take urgent action to combat climate change and its impacts → pp.26-27 → p.2 → p.58 → p.64 → pp.90-91   |
|                          | Conserve and sustainably use the oceans, seas, and marine resources for sustainable development → p.20 → p.21 → pp.90-91  |
|                          | Protect, restore, and promote sustainable use of terrestrial ecosystems → p.56 → pp.90-91   |
|                          | Promote peaceful and inclusive societies for sustainable development → p.43 → pp.90-91  |
|                          | Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development → p.8 → p.21 → p.23 → pp.26-27 → p.35 → pp.38-39<br>→ p.88 → pp.78-79 → pp.90-91 |

Imprint → 102-53

**Publisher** ETH Zurich

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**Photos** Cover page: ETH Zurich / Alessandro Della Bella; inside cover: ETH Zurich / Nicola Pitaro; p. 3: ETH Zurich / Marcus Bertschi; p. 4: ETH Zurich / Gian Marco Castelberg; p. 26: ETH Zurich / Alessandro Della Bella; p. 27: ETH Zurich / Alessandro Della Bella; p. 37: ETH Zurich / Alessandro Della Bella; p. 38: Ashesi University; p. 39: ETH4D; p. 54: HGZZ; p. 55: ETH Zurich / Alessandro Della Bella; p. 68: Eurobus; p. 78: ETH Zurich / Alessandro Della Bella; p. 79: ETH Zurich / Nicola Pitaro; p. 83: ETH Zürich / Alessandro Della Bella; p. 90: Omar Kassab. Portrait photos were provided by quoted stakeholders.

ETH Zurich publishes its Sustainability Report every two years. The next issue will be published in 2023. The reporting period covers two calendar years.

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