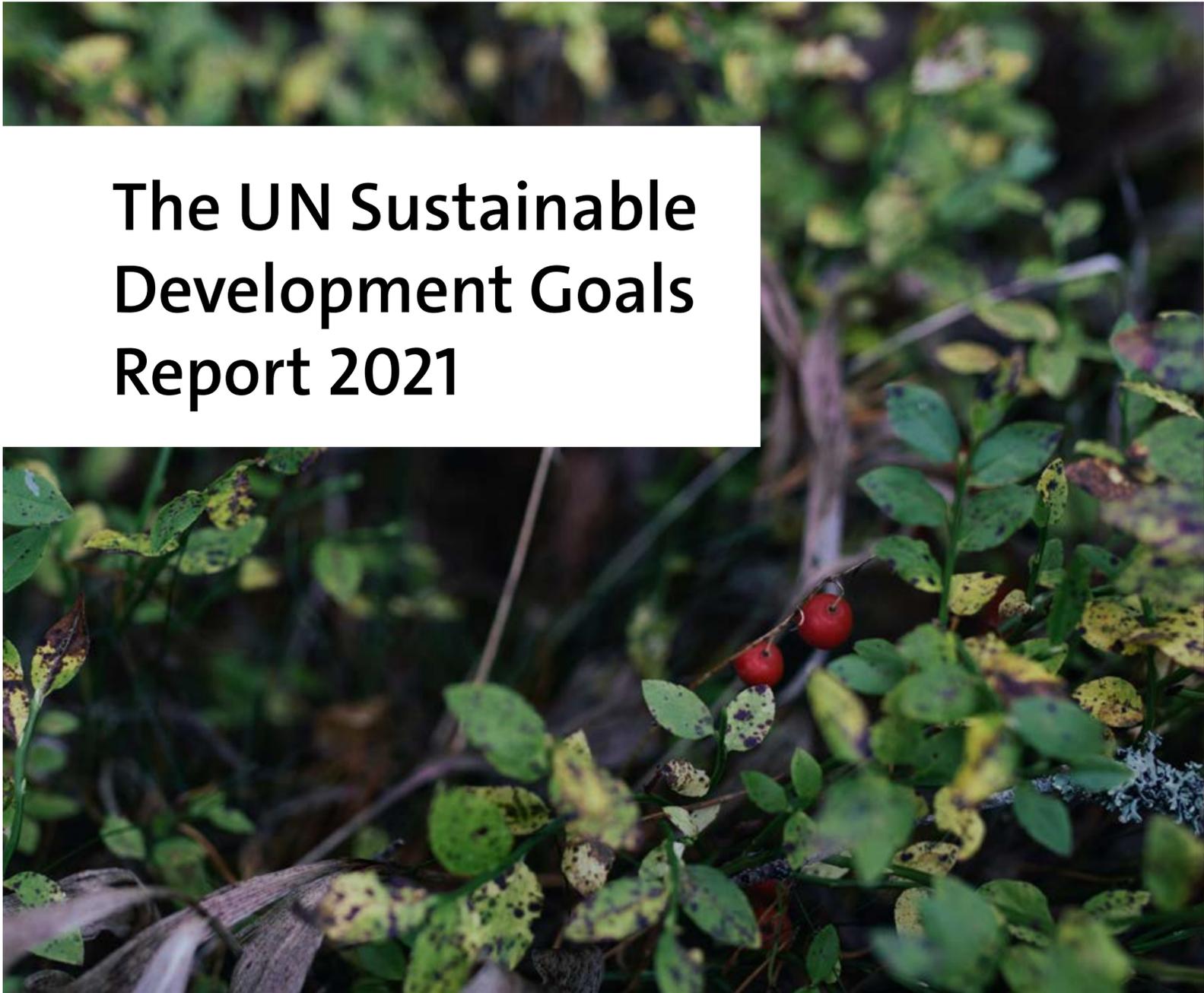




# The UN Sustainable Development Goals Report 2021



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# Message from the President of KTH Royal Institute of Technology



What is the connection to the sustainable development goals? Which of the goals does this report, this research project or this educational program relate to? These are examples of questions that are frequently asked in everyday life at KTH - in the management room, the laboratory and in the teaching room.

The global sustainable development goals facilitate and strengthen KTH's ability to work systematically with sustainable development in education, research, collaboration and with our own impact at all five of KTH's campuses. As one of Europe's leading technical universities, we have a great responsibility to contribute to the necessary transformation that is taking place through new knowledge and technological methods and solutions. It can be about anything from cutting-edge research in materials and energy, smart and useful innovations to research on sustainable consumption, urban planning or sustainable production for heavy industries to name a few areas. The IPCC's latest report, which came in April 2022, clearly shows the need for rapid and comprehensive action.

Our education integrates sustainable development at all levels, ensuring that our students are taught to

and prepared to work with these issues either when they enter working life or if they choose a research career.

In this report, we provide a sample of, or perhaps a smorgasbord of, how KTH works towards and with the 17 global sustainable development goals. One of the pillars that supports KTH is precisely sustainable development and the idea is that this should permeate our entire business.

The goals are closely linked to the goals are closely linked to each other and in many cases cross-boundary - just as multidisciplinary research and education are by nature.

There is not one solution, or one answer that is the path to a sustainable future, but requires work on a broad front - where the global goals de facto facilitate and strengthen our long-term and conscious mission to work for a sustainable and global societal development.

I welcome you to read about how KTH works with the SDGs in practice.

**Sigbritt Karlsson**

President of KTH Royal institute of technology



# Students have the floor - A year in retrospect

For us students partial to sustainability, the challenges that arose from the pandemic also represented an opportunity for change. A seed had been planted the years before, to expand the sustainability work done at THS and to structure by implementing, and during 2021 this plan was further implemented.

The year in sustainability progressed by implementing the ideas presented in the policy for climate and environment policy. Chapter representatives, centrally active people at THS, and interested students all cooperated on issues ranging from making plant based options more commonplace in food services on campuses, implementing student forums for open discussions about sustainability and continuing development and increasing our cooperation with KTH. By the end of 2021, we were further in the process towards establishing a sustainable organization, as well as a more sustainable campus, and our work will be continued during 2022.

## **The Future**

We are very proud of the progress we have made, and The student union is dedicated to pushing forward. Our immediate surroundings are improving and work continues to create a campus and an organisation for the future. We, as students, have a large part in building the society that we will live in, and our first journey into this work is through the student union.

**Ossian Ahlkvist and Adrian Södergren,**  
THS Sustainability



# This is KTH

Since its founding in 1827, KTH has grown to become one of Europe's pre-eminent technical and engineering universities, as well as a key centre of intellectual talent and innovation. As Sweden's largest provider of technical education and research, KTH attracts students, teachers and academic researchers from all corners of the globe.

KTH works closely with industry and society in general in the pursuit of sustainable solutions to some of humanity's greatest challenges: climate change, future energy supplies, urbanisation and quality of life for an aging population. Education and academic research at KTH cover a very wide area – not only in science and technology, but also within the fields of architecture, industrial economics, urban planning and education, for instance. Our innovative climate promotes versatile solutions and facilitates the creation of a new generation of engineers, architects and teachers. Over the next few years, extra focus will be placed on digitalisation, sustainability, internationalisation and gender equality.

KTH participates in international research collaborations and has many different exchange and educational programmes with universities

and colleges around the world. KTH's collaboration with strategic partners among companies, authorities and organisations offers students and researchers a wide network of contacts.

KTH conducts its education and research at five campuses in the Stockholm region. KTH's central campus is located in Stockholm's inner city next to Norra Djurgården. KTH and Stockholm University jointly organise educational programmes and research in biotechnology and physics at AlbaNova, near Roslagstull, and adjacent to KTH Campus. The management and development of KTH premises and buildings is conducted in collaboration between property owners and KTH.

The Science for Life Laboratory is located in Solna, and operated together with Karolinska Institutet, Stockholm University and Uppsala University. Education and research in the field of information technology are conducted in Kista in northern Stockholm, close to companies and research institutions involved in the sector.

With a focus on medical technology, KTH is a part of Campus Flemingsberg in the southern suburbs of Stockholm. In Södertälje,



KTH is expanding its offerings in education and research in sustainable production. In collaboration with Scania, AstraZeneca and Södertälje Municipality, KTH is a key partner in Södertälje Science Park.

### **Sustainability at KTH**

Sustainable, equal and climate neutral. These are KTH's sustainability and climate objectives summed up in three words.

KTH has university-wide sustainability objectives (2021-2025) and climate objectives for 2021-2045 which are broken down into sub-objectives with measures to achieve the goals. KTH's sustainability objectives are based on the UN's global objectives for sustainable development and are focused in the areas of education, research, collaboration, integration and working methods, resource management and climate.

- All undergraduate programs integrate sustainable development in some form. Many programs at the higher education levels lack compulsory courses or other such elements. Continual development of these programs is needed.
- During 2021, all research was reviewed by international experts in the Research

Assessment Exercise. This assessment included sustainable development as a criterion. In 2022, an action plan will be prepared for how to implement the resulting recommendations.

- KTH has arranged over 200 events, workshops, seminars and other activities in connection to sustainable development.
- Extensive digital development of operations has been done to adapt the activities to digital teaching, exams and meetings during the year.
- Between 2015 and 2021, the climate impact (CO<sub>2</sub>e) from business travel has decreased by 83 percent per annual workforce, including student travel exchanges. The exchange student travels accounted for 36 percent of the emissions in 2021.
- Operational waste has decreased by 41 percent per annual workforce plus full-year student compared to 2019.
- KTH's climate impact (CO<sub>2</sub>e) from energy use has decreased by 17.5 percent per annual workforce compared to 2015.

The pandemic has affected the indicators for business travel, waste and energy and developments must be monitored during 2022. KTH will continue to work with measures in accordance to our management plan, which



includes measures for energy saving, better resource management and travel. For a complete follow-up of KTH's sustainability goals, see [KTH's report to the Swedish Environmental Protection Agency](#).

[KTH Sustainability Office](#) works with the systematic integration of environment and sustainable development in education, research and collaboration, and progression of KTH's ISO 14001:2015 certified environmental management system. KTH Sustainability Office consists of nine people: The Vice President of Sustainability, the Sustainability Manager, four Sustainability Strategists, a chemical coordinator and two project leaders for research and education. The office collaborates both internally with KTH's Management, School Management and the University Administration (GVS) Management and externally to drive and develop sustainability in accordance to KTH's university-wide sustainability and climate objectives as well as national and international rules and regulations.



# 1 NO POVERTY





# End poverty in all its forms everywhere

The right to education is recognised as a human right in several international conventions including the International Covenant on Economic, Social and Cultural Rights, which includes an obligation to develop equitable access to higher education. KTH supports equitable access to education and encourages project initiatives and innovation through financing and programs.





### **The right to education and Student financial support**

KTH attracts students from many different backgrounds, coming from a disadvantaged background should not be an obstacle to receiving an education at KTH. Students from Sweden and EU are not required to pay tuition fees. For students required to pay tuition fees there are a range of KTH and external scholarships available.

Students from Sweden can receive grants and loans while they study. The Swedish Board of Student Finance (CSN) is the government agency that manages Swedish student finance. For non-Swedish students there are different types of Scholarships.

### **KTH Scholarships and Funds**

KTH Scholarship covers the full tuition fee of a one or two year master's programme. In order to get a scholarship the applicants are required to describe how they will use their education at KTH to contribute to sustainable development. 24 students were awarded KTH Scholarships in 2020. In addition, 12 students received KTH One Year Scholarship. One student of Molecular Techniques and Life Sciences received the KTH Joint Programme Scholarship. All of the students are enrolled in programs with the regular tuition fee (155000 SEK/year) except for Architectural students (260 000SEK/year) and the Molecular Techniques and Life Sciences (200 000SEK/year). Due to the pandemic, none of the joint programme scholarship students that we nominated were able to come to KTH during 2020.

### **KTH Opportunities Fund**

Supported by dedicated alumni and friends of KTH, Opportunities Fund offers funding for KTH students at both undergraduate and master's level, as well as for PhD-students. Students may apply for funding towards projects, internships or research connected to their studies. Applications are reviewed with KTH's four pillars of equality, sustainability, digitalisation and internationalisation in mind, as well as grade of innovation, interdisciplinary cooperation, impact and potential spin-off effects. KTH Alumni Advisory Board reviews the applications and makes a recommendation to the President, who makes the final decision. Six projects received a total of SEK 199 720 in 2021. However, due to Covid-19 several of the projects were changed or cancelled. In those cases, the recipients returned part or all of the funding. A decision has been made to close the Fund, hence 2022 will be the last year for students to apply for funding.

### **Erasmus+ Strategic partnerships Higher Education**

Within the Erasmus+ Strategic Partnerships Higher Education programme, new projects granted in 2020 concerning the development of course programmes for new arrivals to enable rapid access to the labour market. In 2021, a new seven-year programme period for Erasmus+ began.





# 2 ZERO HUNGER





# End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Through research, operations and on campus food services, KTH works with students, staff and food providers to support a fair and sustainable food system.





### **KTH Sustainable Food Network**

KTH Sustainable Food Network has the goal of developing sustainable food systems and products with positive impact on health and well-being. The highly interdisciplinary network engages and aligns the education, research and outreach at KTH towards a resource efficient and fair food system, encompassing the entire value chain. Faculty staff of different disciplines, as well as stakeholders from food industry, authorities and civil society are involved in the network.

### **KTH Blue Food - Centre for Future Seafood, Blue Food**

The Blue Food Center is aimed at establishing a national seafood center with the aim of developing Swedish sustainable production of seafood and increasing accessibility for people throughout the country. A primary task is to utilise the wild fish catch more efficiently and to develop a modern aquaculture for fish, shellfish and algae in collaboration with about 70 partners.

### **MatLust**

KTH Lean Centre competence centre conducts the contract courses Lean Production and Lean Leadership, with participants from some 40 organisations. In the five-year EU project MatLust, the Lean Centre is responsible for the lean programme, where companies receive both knowledge and tools to develop their activities to become more sustainable, efficient, learning and profitable. The purpose of MatLust is to strengthen growth and sustainability in the food industry

in the Stockholm region. MatLust offers free development programs, activities, networks and other forms of support to small and medium-sized companies. Through the investment in Södertälje Science Park, of which MatLust is a part, Södertälje becomes a knowledge centre and a creative meeting place for food and sustainability.

### **Biotechnology Master's programme**

Biotechnology is a rapidly growing subject area that combines knowledge of organisms with technology to use cells in new ways. It is used, for example, for research on diseases, to create new materials and to develop crops that can withstand a changing climate. The Master of Science in Biotechnology at KTH gives you knowledge that can revolutionise areas such as medicine, materials and food. The combination of biology and technology means new opportunities to solve challenges in health, the environment and how we can use nature's own processes for sustainable production of various products.

### **Sustainable food production and consumption course**

The course Sustainable food production and consumption describes alternative food systems and their complexity in connection with the assessment of their sustainability and demonstrates the "trade-offs" of sustainability between contrasting systems (ie local vs. global, extensive vs. intensive). Topics covered are: agroecology, food and agriculture systems, nutritional cycles, effects on sustainability, life cycle analysis,





climate change, ecosystem services, biodiversity, effects of land and water use, food security and sovereignty, trade, GMOs.

### **Procurement of food and food services**

KTH has a procedure for environmental requirements in purchasing and procurement. The routine states that the environmental impact of goods and services should be taken into account from a life cycle perspective, from the purchase of goods and services to the removal of returned products and waste.

To support colleagues in creating sustainable meetings and catering KTH has Guidelines for Sustainable events and Catering which includes sustainable food choices.

Since 2020, the School of Electrical Engineering and Computer Science adopted a decision about sustainable catering. The decision means, among other things, that the meal options will be labelled with a recommendation on which option on the menu is expected to have the lowest climate impact and that disposable plastic items must be avoided.

### **Campus Food Waste**

During the year, KTH has collaborated with the Students for Sustainability Council, which is a group under The Student Union (THS) comprising students who have come together to promote environmental and sustainability work at KTH. For example, the students have worked with the restaurants on

campus regarding their handling of food waste and disposable plastic materials.

Sustainable, healthy and affordable food choices on campus THS restaurants run by the Student union offer affordable food for students and are not driven by profits. The ambition is to provide healthy balanced meals where large portions of the ingredients are locally and sustainably sourced.

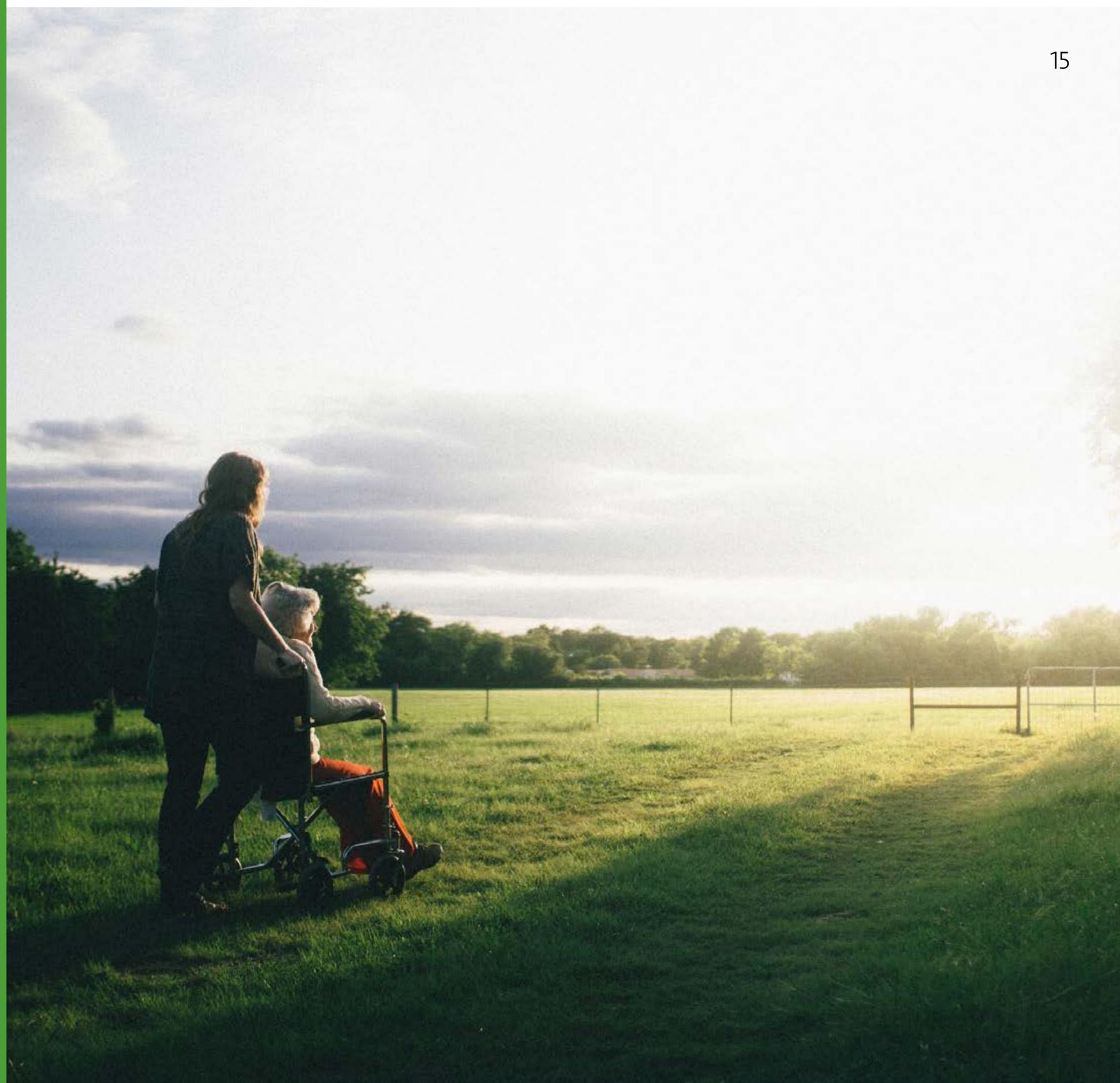
### **Restauranglabbet**

Restauranglabbet – The Restaurant Lab uses skills and creativity for the ever-changing menu depending on what ingredients are available that day. The chefs create delicious meals with great focus on sustainability through the whole value chain. The Restaurant Lab is also a live-in-lab on KTH Campus that works for accelerated innovation within sustainable food and food industry. Through circular design-driven processes and full-scale testbeds they crossbreed academia and business towards Agenda 2030. Due to the pandemic The Restaurant Lab closed permanently during Autumn 2021.





# 3 GOOD HEALTH AND WELL-BEING





# Ensure healthy lives and promote well-being for all at all ages

KTH research and education within Life Science focuses on enhancing the scientific and technological progress in life science, health and care.





### **KTH Life Science Technology Platform**

The Life Science Technology Platform connects seven thematic research areas that mostly concerns human health and the healthcare system, but also adjacent areas, e. g. environment and sustainability. The common denominator of all research is the contribution to human wellbeing. Research areas: Bioimaging, Biomolecular Tools and Biomaterials, Infrastructure in Health, Mathematical and Computational Sciences, Medical devices, MicroNanoBio, Fundamental Research in Life Science

### **Science for Life Laboratory, SciLifeLab**

SciLifeLab, Science for Life Laboratory, is an institution for the advancement of molecular biosciences in Sweden. Life science is a field of high strategic importance for Sweden, as it impacts the development of healthcare, industry, agriculture and our environment globally. SciLifeLab began in 2010 as a joint effort between four universities: KTH Royal Institute of Technology, Karolinska Institutet, Stockholm University and Uppsala University. Today, SciLifeLab support research activities at all major Swedish universities. In addition to the academic projects, the research infrastructure has also provided services to health and medical care and to industry.

### **Data-Driven Life Science (DDLs)**

In data-driven life sciences, DDLs initiative spans basic research in a variety of areas such as new drugs, spread of infection and infection biology, precision medicine and diagnostics, and cell and molecular biology. As a whole, the initiative will contribute to improving human quality of life and well-being, protecting biodiversity and creating a sustainable society. The initiative is coordinated by SciLifeLab, a collaboration between the four host universities Karolinska Institutet, KTH, Stockholm University and Uppsala University, of which KTH is principal.

### **Wastewater-based toolbox for monitoring outbreaks and pandemics**

Wastewater is a potential source of information for the prevalence of infections, such as SARS-CoV-2, in a population. This project aims to develop a wastewater-based method using ultrafiltration to provide an early-warning system for outbreaks and pandemics using less volume of wastewater. With our method we were able to analyze all population of Stockholm (approx. 1.5 M) in 24h using only six wastewater samples and detect the second and the third wave of the Covid-19 pandemic. This method offers a cheaper and quicker alternative to testing a large number of random individuals in a population and increases the national preparedness for the future pandemics.





### **Education for good health and well-being at KTH**

KTH offers a strong constellation of education that cover global challenges in the broader areas of health, environment and materials. Among them are courses and programmes that address health and aging population, sustainable production and working life, food production and clean water. Under graduate programmes that contribute to good health and wellbeing include: Biotechnology and Medical technology. Master's programmes at KTH include: Macromolecular Materials, Medical Biotechnology, Medical Engineering, Molecular Science and Engineering, Molecular Techniques in Life Science, Polymer Technology, Sports Technology, Work and Health.

### **Medical technology for a sustainable world**

Medical technology programme focuses on learning to promote understanding and solutions for several of the global goals for sustainable development, especially the goal of Health and Well-being. Students also learn about economic and social aspects of technology and ethical issues around technology and healthcare, so that they can ensure that care is organised in an economically and socially sustainable way. Upon completion, students have the necessary tools to begin a career that will contribute to the development of sustainable healthcare, both in Sweden and in other countries where the need is even greater.

### **EIT Health**

EIT Health, a Master's programme in innovative technology for a healthy living environment, started in the autumn term of 2020. The programme is led by KTH in collaboration with five other universities. The doctoral programme BEHealsy, in the field of biomedical engineering and health systems, which is led by KTH, took place during 2019 and will also continue next year.

### **Staff working environment and wellness at KTH**

KTH takes a holistic perspective on the work environment. At KTH, the term "work environment" means both the physical and psychosocial work environment as well as factors that actively contribute to the sustainable development of society. KTH regards healthcare and wellness as an important issue since good employee health means they are better prepared to meet the demands of working life. Your health is not only a personal affair, but also a shared resource, which is decisive for the organisation's performance. KTH offers all employees among other things: occupational healthcare, rehabilitation support, crisis support and stress management. As an employer KTH is legally required to supply aids to vision, such as glasses if an employee have trouble with their vision. As well, all employee are given a healthcare allowance of maximum 3000 SEK per calendar year as well as the right to exercise during paid working hours through use of a weekly health and wellness hour.





# 4 QUALITY EDUCATION





# Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

KTH's objective is that education in technology should be upheld as a natural choice for young people who want to contribute constructively to sustainable societal development.





KTH's steering documents determine that sustainable development must permeate all study programmes. KTH's overall sustainability objectives include specific objectives for education. Education is directly linked to the global target 4.7, which states that all students should receive sufficient knowledge of sustainable development, but above all, the teaching at KTH affects every one of the sustainable development goals. At KTH, our aim is to integrate sustainable development into all of our educational programs, including doctoral programs. The number of first-cycle and second-cycle study programmes with a focus on the environment and sustainable development is the same as in recent years, with two Master of Science in Engineering programmes, ten master's programmes and one doctoral programme. The number of courses marked as related to the fields of the environment or sustainability has increased from 786 to 947 between 2020 and 2021.

### **KTH Quality System**

KTH's Quality system promotes democratic values such as academic integrity and freedom, gender equality, sustainable development, openness and collaboration with the outside world. KTH's quality work is characterised by efficiency and a system in which education, research and collaboration are followed up, reviewed and developed continuously.

### **Raising Visibility of Education and sustainable development at KTH**

All students shall possess the knowledge and skills to drive sustainable societal development and contribute to the transition to an equal and climate-neutral society. Above all, the teaching at KTH shall address all of the sustainable development goals. To highlight how programme content is connected to the SDGs, information has been included in all programme descriptions regarding how the programmes relate to the sustainable development goals. There are also some programmes that have specific focus on sustainable development. The number of first-cycle and second-cycle study programmes with a focus on the environment and sustainable development is the same as in recent years, with two Master of Science in Engineering programmes, ten master's programmes and one doctoral programme.

### **Sustainable Leadership with Lean**

During 2020, the competence centre KTH Leancentrum, in addition to its regular activities, completed a new assignment training Lean & Green and a new web-based course within the framework of KTH's further education Sustainable Leadership with Lean.





### **KTH Global Development Hub**

KTH Global Development Hub, GDH, supports the development of challenge-driven education within KTH and partner universities in Eastern and Southern Africa. Challenge-driven education is mainly used in project courses where students work with solutions to locally formulated societal challenges related to the UN's sustainability goals.

### **STEM and education for sustainable development**

The KTH Department of Learning in STEM works with various aspects of education for sustainable development and education leadership, for example through research and development and by educating, supporting and collaborating with teachers and education program directors. A current project in collaboration with the KTH Sustainability Office evaluates the integration of sustainable development in all education programs at KTH. KTH uses the CDIO framework with particular focus on enhancing the integration of sustainable development.

### **Vetenskapshus/ The House of Science**

About 80,000 school students and teachers pass through the House of Science each year with the purpose of inspiring and creating interest and knowledge in an environment that demonstrates science, technology and mathematics. Within the theme of environment and sustainability, there are several different school programs for different ages, where both biology and chemistry as well as technology are used. Supervised activities for students include building and measuring Grätzel solar cells, working with wind turbine models and thinking about raw materials and products and how to reuse and recycle these. Other activities also address the issue of how food choices affect the environment. The House of Science is a centre jointly owned by KTH and Stockholm University.





### **Pedagogical development- Developing skills for teaching sustainable development**

To ensure quality education for our students, KTH develops our teachers' skills for teaching sustainable development. The pedagogical development course Learning for Sustainable Development (4.5 credits) is offered annually for teachers at KTH and other universities. In addition to this course, sustainable development is covered in the following higher education pedagogical courses:

- Leading educational development (3 credits)
- Gender and gender equality in higher technical education (4.5 credits)
- Teaching and Learning for Challenge Driven Education in a Global Context (3 credits)
- Global Competence for Teachers in Higher Education (3 credits).
- Basic Communication and Teaching (3 credits) (for PhD-students)

### **Environmental courses and study programmes for employees**

KTH's employees, and people who work on assignment for KTH, must have adequate knowledge to perform their work duties in a manner consistent with KTH's work with environment and sustainable development. KTH offers environment and sustainability-related courses and study programmes for employees and contractors such as a basic online training on sustainability for employees, workshops during leadership training as well as lab and chemical training.





5

GENDER  
EQUALITY





# Achieve gender equality and empower all women and girls

KTH values are based on democracy, equal value of persons, human rights and freedoms and a free and open discussion. Equality between women and men and distancing oneself from all forms of discrimination are both an issue of quality and an obvious part of KTH's values. Gender equality and diversity among employees and students is also an important resource for KTH.





### **Fill the Gap**

Fill the Gap is an activity aimed at increasing the quota of female and non-binary students in the first-cycle educational programmes currently dominated by male students. Fill the Gap started in 2014 and every year a variety of activities are carried out reaching from digital marketing campaigns and social media posts to inspirational events with speakers, workshops and an educational fair. The meeting between prospective and current KTH students is essential for Fill the Gap, the core message focusing on more diversity amongst our engineers in order to build a more sustainable future for all.

### **Integration of JML into the SDGs**

In connection with the revision of KTH's sustainability objectives in 2020, JML has been written in a clearer way. The plan makes it clear that gender equality, diversity and equal opportunities are integrated into sustainability work at KTH. A call for project funding for the integration of JML and sustainable development in education has been completed in gender equality, diversity and equal opportunities collaboration with KTH Sustainability Office in spring 2020. Assessment has been carried out by a working group that includes the Vice President for Gender equality and values and the Vice President for Sustainability. The projects form an important part of the development work for the integration of JML into education.

### **The research and collaboration programme on gender-based violence**

KTH, alongside Karolinska Institutet and Malmö University, has initiated a research and collaboration programme intended to combat sexual harassment and gender-based vulnerability. The goal is to establish research-based knowledge about inclusive working and study environments as well as a sustainable organisation for the prevention of sexual harassment and gender-based vulnerability in the academic world. The programme will ultimately help to strengthen and intensify the work on the university's organisational culture, with the focus on quality, sustainable development, the working environment, leadership, gender equality and equal opportunities. The programme includes a national study regarding the prevalence of sexual harassment throughout the Swedish higher education sector, the development of new research-based knowledge about sexual harassment, as well as the development of common platforms for research collaborations and the process of change.





### **Gender Equality in education at KTH**

Gender equality, diversity and equal conditions (JML) is to be integrated into all educational programs at KTH in three aspects: content, design and implementation. By 2022 all programs must have a plan for when and how the mandatory JML content is to be integrated, so during 2021 Program Directors were offered support through workshops and coaching by KTH Equality Office. KTH Equality Office also produced materials that can be used in educational activities, both introductory academic texts and films on several topics that were added to the Necessity Bag, an online resource for JML integration.

### **Tekla Festival**

The Tekla Festival is an annual activity that started after KTH awarded world-famous musical artist Robyn its Great Prize in 2013. Robyn wanted to use Tekla to inspire girls to take an interest in technology, a historically male-dominated sector. The festival is targeted at girls and non-binaries aged 11 – 15. Tekla aims to amass knowledge and experience of inspiring the festival participants to explore technology. It does this by empowering them to build, create and test in an environment where all roles are open to them. For its first four years, the festival was held at KTH in central Stockholm. To reach a greater number of technology-oriented girls, Tekla moved to KTH Södertälje in 2019. After a two-year break due to the Coronavirus, the Tekla Festival was held at KTH Södertälje in the spring of 2022.

### **Tekla Internationally**

In collaboration with the Swedish Institute and Sweden's embassies, Tekla has been organised around the world with the aim of creating dialogue around gender equality and with the aim of involving more girls in science, technology, engineering and mathematics. The most recent Tekla workshop and dialogue was held in the Swedish pavilion at EXPO 2020 during the World Exposition in Dubai in December 2021.

### **Equal opportunities at KTH**

This includes various initiatives intended to create equal opportunities in terms of salary, power and career. One example is the continued work on faculty development from a Gender equality and diversity perspective. KTH needs to have equal processes in respect of recruitment, assessment and employment, as well as the preconditions for equal resource allocation. The FFA group (responsible for future faculty) has worked from an early stage on faculty regeneration with a focus on gender mainstreaming. The members of the group comprise Deputy Heads of Schools or Heads of Schools from all the Schools, and are headed by the Dean.





### **Integration of Gender equality and diversity perspectives**

Examples of processes in which Gender equality and diversity perspectives have been integrated or developed in 2021 include:

- Continual follow-up and the quality dialogue. In the analyses, aspects regarding gender equality and sustainable development are integral parts.
- The Swedish Discrimination Act's requirements regarding active anti-discrimination measures have been integrated into the continual follow-up process
- Handling cases of sexual harassment against students
- Continued development of the local Gender equality and diversity groups and other structures for Gender equality and diversity work in the Schools, within joint operational support and within the Student Union

### **Leading Educational Development**

The course "Leading Educational Development", which is gender integrated, is offered every year. A new course in higher education teaching, "Gender Theory and Gender Equality in Higher Technical Education", has been conducted yearly since 2019. This course is important in the development work for increased gender awareness in all of KTH's courses. The participating teachers acquire knowledge in the field of gender and education, as well as theoretical scientific knowledge that will help them in their own work regarding course arrangements. Gender research from various parts of KTH has also been included in the course. The examination contains

elements where the teachers have to apply the new knowledge in analyses of their own courses.

### **Governance at KTH - KTH Equality Office**

KTH's work for gender equality is led by a Vice President who has support from an Equality Office. KTH's Equality Office is a permanent unit whose function is to coordinate and support KTH's overall work with Gender equality, diversity and equal conditions. The Equality Office with employees and a Vice President work with programs, and trainings related to diversity, equity, inclusion and human rights on campus. KTH has two main assignments regarding gender equality, diversity and equal conditions at the university. The first is the assignment based on the Discrimination Act and the seven grounds of discrimination. The second assignment is Gender Equality Integration, where universities and colleges must develop a plan for how the higher education institution intends to develop the work with gender equality integration. The Gender Equality Policy goals thus constitute the external framework for this assignment, to which KTH must contribute in its organised work for increased gender equality. The goal of the gender equality policy is that women and men should have the same power to shape society and their own lives.





# 6 CLEAN WATER AND SANITATION





# Ensure availability and sustainable management of water and sanitation for all

Through research and education in engineering, environmental science and public health KTH supports the development of knowledge and skills to achieve clean water and sanitation for all.





### **WaterCentre@KTH**

The WaterCentre@KTH is a wide cross-disciplinary collaborative effort based at KTH Royal Institute of Technology. The centre's mission is to bring about water innovations for a sustainable future of the Earth. The centre believes in the meeting of experts, practitioners, and policymakers. It connects scientists that never would have met and offers an arena for joint knowledge creation with industry, government and civil society. Several researchers and research projects are related to climate adaptation, climate risks including rising sea levels and flood risk management working together with municipalities in Sweden and abroad. One example concerns the project "Robust decisions for managing climate risk in Sweden" which is done in cooperation with several municipalities and counties and is funded by the Swedish Civil Contingencies Agency.

### **Environmental Engineering and Sustainable Infrastructure Master's Programmes**

Our society has major challenges in managing a changing climate, developing and securing good water quality. The master's programme in Environmental Engineering and Sustainable Infrastructure offers seven different competence profiles including: Water Technology; Environmental Geotechnology and Hydrogeology; Water and Wastewater Technology; Environmental Information Analysis and Management; Sustainable Infrastructure and Environmental Systems Analysis; Sustainable Societies. There are individual

courses within the programme focusing on water technology and water and wastewater engineering such as "Water and Wastewater Handling" which describe different systems for handling and distribution of water and wastewater, criteria for evaluation, and principles and fundamentals of biological, chemical and separation methods. Study visits at plants for wastewater treatment and water treatment are included in this course.

### **Industrial and Environmental Biotechnology Programme**

The Biotechnology sector is considered to be one of the main players in the development of a sustainable society and able to tackle current and future societal challenges. The master's programme in Industrial and Environmental Biotechnology prepares students for careers focusing on the development of more effective and environmentally friendly production of commodities. The programme provides knowledge and understanding about how biological processes and cellular components are used to create new technologies, industrial processes and biotechnological products. Knowledge is acquired on how microorganisms are orchestrated to remove contaminants from water and soil or to produce biomolecules that can serve as raw materials. Microorganisms are used to design and create effective and sustainable production of products from food ingredients to detergents, paper and textiles. Sustainability is a key aspect that features in all areas of biotechnology and that continuously combines science





and technology to improve, simplify or streamline industrial manufacturing of products or services.

### **Albano campus new water systems**

In Stockholm, a cohesive university area is emerging that extends from Stockholm University in the north, via KTH over to Hagastaden with Karolinska Institutet in the west. The development of the Albano campus into a modern and competitive university environment takes place in harmony with nature and with the goal of becoming a role model in sustainable urban development. Several sustainable efforts are being pursued, including the creation of new water systems to utilise stormwater and improve the microclimate and outdoor environments that are designed to strengthen the distribution routes for plants and animals. The development project is a collaboration between Akademiska Hus, Stockholm University, KTH, Svenska Bostäder and the City of Stockholm.





# 7 AFFORDABLE AND CLEAN ENERGY





# Ensure access to affordable, reliable, sustainable and modern energy

Research and Education at KTH in the field of Energy Science and Engineering aim to gain new knowledge, and to develop technologies and systems that will allow the implementation of a sustainable global energy system with respect to both natural resources and environment. KTH offers 23 programmes with energy including the master's programmes. Energy research is conducted in a number of KTH schools, programmes and specialised research centres.





### **KTH's Energy Platform**

KTH's platform for research in energy was created to support and catalyze interdisciplinary research in the energy field. An important goal is to facilitate interaction between expertise at KTH and external partners within academia, public organisations and companies with an interest in Energy research. Students and researchers are engaged in the global innovation effort to bring forward new solutions that mitigate the threat of climate change and resource scarcity. KTH energy research and innovation is embedded in various disciplines from nano technology to economy. Research and innovation ranges

- from new nuclear reactors to more efficient solar cells,
- from smart grids to efficient heat pumps,
- from bio fuels to batteries,
- from turbo machinery to fusion reactors.

The long term vision is to develop energy systems that eliminate the contribution to climate change while at the same time safeguarding ecosystem functions and providing people around the world with energy for their basic needs.

### **Using the sustainable development goals for shaping holistic energy programs, projects and policies**

The SDGs provide a comprehensive, and internationally agreed, lens to understand and communicate cross-sectoral implications of energy policies, programs and projects. The aim of this research project is to create a framework for using the details of 169 Targets of the SDGs for shaping holistic energy programs, projects and policies.

### **Electric Power Engineering Master's Programme**

The Master's programme Electric Power Engineering addresses the global demand for affordable and sustainable resources that has created a large need for electrical engineers and researchers to provide electricity and to build new smart solutions that enable a more sustainable energy management. Electric power is one of the key areas for achieving our sustainability goals. One illustration of this is that a reduction in emissions and energy consumption often results in more demands and more utilisation of electric power, typically when changing from fossil to electric power. The first year of the programme includes technology complementary courses that provide environmental, societal, and philosophical perspectives to electric power engineering. The master's programme in Electric Power Engineering covers the following areas: modelling of electro-technical equipment, power electronics, electrical machines, power system operation and control, power system planning and electricity markets, management in power systems.





### **Sustainable Energy Engineering Master's Programme**

The master's programme in Sustainable Energy Engineering provides state-of-the-art education in the fields of solar energy, power generation, energy utilisation, and transformation of energy systems. Also, cross-cutting and interdisciplinary challenges address multiple impacts such as land use and climate change in an integrated holistic approach. After completion of the programme, students will have a broad knowledge of energy engineering, and have acquired skills in managing complex problems, taking into account lifecycle perspective. The aim is to educate leaders and developers for future innovation in energy.

### **The Sustainable Power Laboratory**

The Sustainable Power Laboratory (SPL) enables world-class research into technologies needed for the transition to a decarbonised energy system with radically reduced environmental impact. Research is carried on all levels, from materials characterisation to power system dynamics. The lab consists of nine different facilities.

### **KTH Energy Dialogue**

The KTH Energy Dialogue 2020 was held as a live digital broadcast with special focus on the country's energy competence centres where R&D is being conducted into energy sources set to pave the way to a more sustainable future.

### **SUNRISE**

The Centre Sustainable Nuclear Energy Research In Sweden, SUNRISE, relates to research to find solutions within the UN's Global Sustainability Goal number seven: Sustainable energy. The centre will conduct research to prepare for the construction of a fourth generation nuclear reactor together with Uppsala University and Luleå University of Technology, among others.

### **Renewable energy and energy efficiency in facilities on Campus**

KTH sustainability objective regarding Sustainable buildings states that "any new construction and conversions have a lower climate impact than the corresponding type building in 2015."

In accordance to KTH's sustainability objective, relevant new buildings and conversions on campus includes requirements regarding renewable energy and energy efficiency. KTH's property owners on all campuses comply with the Construction industry's building rules and follow Swedish legislation regarding energy declarations and energy mapping. For each campus area, KTH's property owner Akademiska Hus has separate energy plans.





KTH works with in continual dialogue with property owners such as Akademiska Hus that also has a sustainability goal of halving the amount of energy purchased between 2000-2025.

In addition, Akademiska Hus has climate targets on:

- Climate-neutral property management until 2025
- Climate-neutral internal operations until 2025
- Climate-neutral project activities until 2045





# 8 DECENT WORK AND ECONOMIC GROWTH





# Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

KTH takes a holistic perspective on the work environment. At KTH, the term “work environment” means both the physical and psychosocial work environment as well as factors that actively contribute to the sustainable development of society.





As a government agency, KTH follows the Swedish regulations that exist in the area och working environment. These national rules are translated into internally steering documents within KTH.

### **The Department of Industrial Economics and Organisation (INDEK)**

The Department of Industrial Economics and Organisation (INDEK) is the intersection of management and economics, technology and science at KTH. INDEK addresses SDG 8 by investigations of the future of work and re-skilling approaches as well as policy-oriented research related to the policy of innovation and growth. The department is organised into three units:

- Management & Technology (MT)
- Sustainability, Industrial Dynamics and Entrepreneurship (SIDE)
- Accounting, Finance, Economics and Organisation (AFC)

### **Fordonsdalen**

Climate change and digitalisation are creating changes in our entire transport system; infrastructure, travel behavior and vehicle types are affected. Improved efficiency and reduced climate impact are positive, but it also means a radical change for the automotive industry both in terms of products and production as well as business models. In the Fordonsdalen project granted in 2020, KTH works jointly with Region

Stockholm to strengthen the regional automotive industry's competitiveness in the transition to the sustainable transport system of the future.

### **Technology, Work and Health Master's Programme**

Functional and well-designed work systems, organisations and work environments are essential for a healthy and productive working life, and professionals with knowledge in proactive occupational safety and health management play a vital role. In the Technology, Work and Health programme, students learn how to plan, design and analyse work environments, from the perspectives of sustainable work and organisational performance. Work is an integral part of people lives and an essential determinant of health. Thus, the programme also relates to SDG #3: Good health and well-being. Work-related accidents and diseases are common in all countries, and students in this programme gain a broad understanding of worker's health: that of blue- and white-collar workers, of all genders, ages and socioeconomic classes.

### **Working environment at KTH**

Work environment means all factors, physical, organisational and social, that affect employees and students at KTH, such as attitudes, leadership, behaviour towards each other, premises, equipment, furnishings, chemical products, working methods, work organisation, cooperation, social interaction and the possibility of recovery and personal development.





### **Trade unions**

There are four trade unions at KTH that support KTH staff and faculty to monitor their interests in the workplace and assist with negotiations and contacts with the employer. The union representatives elected by the annual meeting also work in general bodies where various issues are discussed. This can apply to the work environment, gender equality, collaboration, local agreements and more.

### **Preventing discrimination in the workplace**

Discrimination in the workplace is forbidden according to Swedish law, KTH follows the Swedish legislation. This area is a very important and prioritised part of KTH's work within work environment. KTH has several documents that address working environments:

- HR policy
- Guidelines on gender equality, diversity and equal opportunities
- Code of Conduct for employees and fellow workers
- Routines for reports and investigation of discrimination and degrading treatment





# 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE





# Build resilient infrastructure, promote sustainable industrialisation and foster innovation

Investment and development of infrastructure structures within transport, irrigation, energy, information and communication are key for the achievement of The Sustainable Development Goals. The development of knowledge and skills within technology and innovation at KTH, often in collaboration with industry supports sustainable development, including economic growth, social inclusion and environmental balance.





### **AI Sustainability Center (AISC)**

The AI Sustainability Center was established with the purpose of creating a new and just approach to AI. A multidisciplinary and research-focused approach that considers both the positive and negative impacts on people and society at the same level as commercial benefits or other efficiency gains. The Center calls it Sustainable AIK. More frequently cases of unintended discrimination, faulty decisions and recommendations as well as privacy intrusion, the demand for explanation models and ability to govern AI in a more responsible way, is increasing. Today, AI is integrated without prerequisites for identifying, measuring and evaluate the implications from a social, juridical and ethical perspective.

### **Production Angels**

Produktionsänglar supports startups with sustainable and innovative products to scale up from prototype to production. Production angels' mission is to promote production in Sweden and is aimed at industrialisation and scaling up of startup companies with hardware products, the phase that is often called the valley of death. Through situation-based coaching by production experts, training materials and matching with manufacturers, Swedish startups with sustainable innovations are supported to approach a production phase with local manufacturers.

### **KTH Industrial Transformation Platform**

KTH's Industrial Transformation Platform was created to support and catalyze interdisciplinary research in the field of industrial transformation and industrialisation of new products and services for a sustainable society. An important goal is to facilitate interaction between expertise at KTH and external partners within academia, public organisations and companies with an interest in research about Industrial Transformation.

### **Programme Industrial technology and sustainability**

The programme Industrial technology and sustainability teaches students to understand and develop solutions for several of the SDGs, including the goals of Sustainable Industry, Innovations and Infrastructure as well as Sustainable Consumption and Production and Decent Working Conditions and Economic Growth. Students learn about sustainability from an industrial perspective, for the environment, work and competitiveness. The students learn and receive instruction in communication, argumentation, debates and negotiation, for example about which sustainability aspects a business should measure or debate about future technology and work in industry. These skills are crucial for collaboration and required to solve complex problems.





## **Entrepreneurship and Innovation Management Master's Programme**

The master's programme in Entrepreneurship and Innovation Management is designed to give students a focused, relevant and utilisable body of knowledge in this diverse and modern field. The programme is ideally suited for those with an interest in starting and managing innovative projects or new economic endeavours. The programme helps to improve employment opportunities, particularly for young people who have business ideas by teaching and coaching students in creativity, innovation, entrepreneurship and how to identify business opportunities. To promote sustainable industrialisation, this programme provides knowledge in the field of industrial dynamics with an emphasis on innovation and entrepreneurship aiming towards technical creativity. Moreover, students will get an opportunity to learn about the responsible consumption of natural resources and production by the application of creative ideas, entrepreneurial approaches and innovative management.



## **Transformation Day 2021**

At KTH, we want to create a common image for how we can focus our research and our commitment to offer key competence in the process of transition for a sustainable society.

The platform for Industrial Transformation hosts an annual Transformation Day. In 2021 the focus was on the transformation of the construction industry. New technology, sustainability and high values of real estate are currently driving the transformation of the sector. The KTH Transformation Day 2021, reflected upon ongoing trends, and gave an outlook for the future built society with researchers, politicians and industry representatives discussing the business of today, and what needs to be done going forward in this important sector.

## **KTH Innovation**

In 2021, KTH Innovation continued working to increase the number of ideas aiming to contribute to sustainable development. Around 75% of all ideas supported by KTH Innovation in 2021 had the ambition to contribute to sustainable development. KTH Innovation also held an internal series of lectures and workshops to increase awareness and knowledge of how sustainability impacts our innovation support across all technical fields. Sustainability aspects were fully implemented in business coaching using the KTH



Innovation Readiness Level TM model, which was also released under a creative commons license. The model enables KTH to spread our process-oriented approach to innovation around the globe. Other activities included co-organising of an accelerator program within EIT Urban Mobility, focused on mobility startups that can reduce emissions or congestion.

In 2021, we also continued working with the Global Change Award, the world's largest initiative to create a planet positive fashion industry, aiming to relaunch a new and improved concept after the pandemic.

### **Cellfion**

Cellfion is a manufacturer of nano-cellulose membranes for electrochemical energy storage and conversion devices. Derived from leading research at KTH, Linköping University, and RISE, Cellfion offers membranes based on biomaterials from the forest- a solution that is both safe and sustainable. Cellfion's patent pending technology can be applied in a range of applications that will be the backbone of the renewable energy industry such as redox flow batteries, electrolyzers and fuel cells. Reliable, high-performing membranes are a requirement for the advancement of these green technologies. The Cellfion team got support and guidance from KTH Innovation and also received investment from KTH Holding AB.

### **Research Initiative on Sustainable Industry and Society (IRIS)**

IRIS works with digitalisation, innovation and entrepreneurship, and focuses on four strategic areas for research, education and impact: Industrial transformation through sustainable digitalisation, Integrated mechanics, components and materials design, including additive manufacturing, Sustainable energy systems, infrastructure and business, Innovation and entrepreneurship ecosystems and infrastructure.

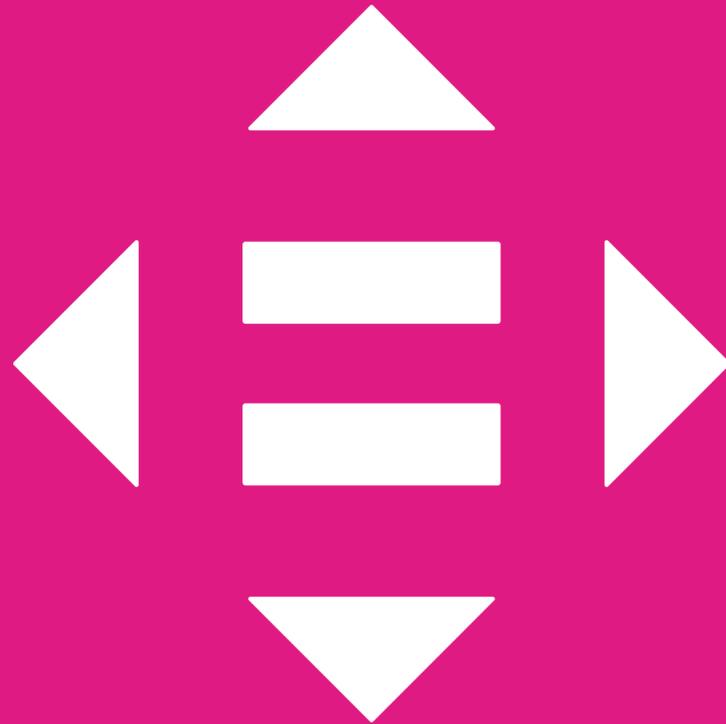
### **Center for X-Rays in Swedish Material Science (CeXS)**

The transition to sustainable energy and industrial systems requires a greater insight into materials and development. Such material development is also important to the sustained competitiveness of Swedish industry. Sweden's investments in a material science beamline at PETRA III in Hamburg, Germany enables contributions to sustainable development goals via experiments into the behaviour and characteristics of materials as they are being produced and used. Setting the research direction, and governing the Swedish materials beamline, are key duties of the Center for X-Rays in Swedish Material Science (CeXS), which KTH is responsible for.





# 10 REDUCED INEQUALITIES





# Reduce inequality within and among countries

As part of KTH's core values of democracy, the equal value of human beings, human rights and freedom and free and open discussion, KTH works to reduce discrimination and to promote equality and diversity at KTH and in society through research, education and operations.





### **Scholars at Risk (SAR)**

Scholars at Risk (SAR) is an international network dedicated to promoting and protecting academic freedom. The network gives sanctuary to scholars who are unable to work in their home countries by arranging temporary research and teaching positions at institutions in the network.

KTH is also part of the project InSPIREurope via Gothenburg university. The project is funded by the Horizon 2020 action Marie Skłodowska-Curie and is coordinated by SAR Europe. It aims to forge a coordinated, cross-sectoral, Europe-wide alliance for researchers at risk.

### **Real Estate and Construction Management**

The Department of Real Estate and Construction Management has social sustainability as one focus aspect in their research. The main focus areas related to social sustainability are:

- housing owners' strategies for building social sustainability (rental policies, owner incentives, financial viability from a societal point of view)
- conversion of rental apartments to housing cooperatives and private ownership in low-income areas including legal aspects, feasibility, integration, prices and neighbourhood effects

- sustainable renovation strategies in 1960s housing areas
- urban development work in a segregated city with filtered housing areas
- municipal housing social programs; effects of rental policies on discrimination and segregation
- gender aspects in real estate management (collaboration with Malmö University).

### **Sustainable Urban Planning and Design**

The master's programme in Sustainable Urban Planning and Design focuses on the interrelationship between the built environment and social, economic and institutional forces. The programme develops professionals with a profound and broad understanding of the multiple factors in sustainable urban development. Students are trained to alter planning and design practices to respond to the environmental conditions and societal needs of the future. Equity and equality are core qualities of sustainable societies, involving, for example, equal access to housing, public services and transport systems. The causes and consequences of inequality are analysed in courses such as Introduction to Urban Economics and Planning Theory and Urban Governance, and students will learn to address equality issues in urban planning and design in project courses.





### **Planning for Environmental Justice in Social-Ecological Systems**

The course Planning for Environmental Justice in Social-Ecological Systems focuses on environmental justice regarding access to and use of ecological resources. The course illustrates and discusses the ecological resource base needed to support urban structures and a consumption-intensive lifestyle, as well as how natural resources and negative environmental impacts are distributed among different groups in society.

### **Measures against Discrimination**

KTH is an administrative authority, as such the basic provisions for the employment of teachers and students are prescribed in the legal regulations for central government sector employment and in general labour law legislation. According to the Instrument of Government (1974:152), administrative authorities shall take into account everyone's equality under the law and shall observe objectivity and impartiality. The law also states that central government sector appointments shall be based on reasonable grounds such as length of service and expertise. Additional provisions are found in the Public Employment Act (1994:260) and in the regulations on application in the Employment Ordinance (1994:373). There are also specific regulations for public higher education in the Higher Education Act (1992:1434) and the Higher Education Ordinance (1993:100). Provisions may also be found in the Discrimination Act (2008:567), the Administration Act (2017:900) and the Language Act (2009:600). Active measures

at KTH - In cases of perceived discrimination, employees may make a complaint directly to the Discrimination Ombuds Office. This complaint to the Discrimination Ombuds Office may be made parallel with a complaint to KTH.





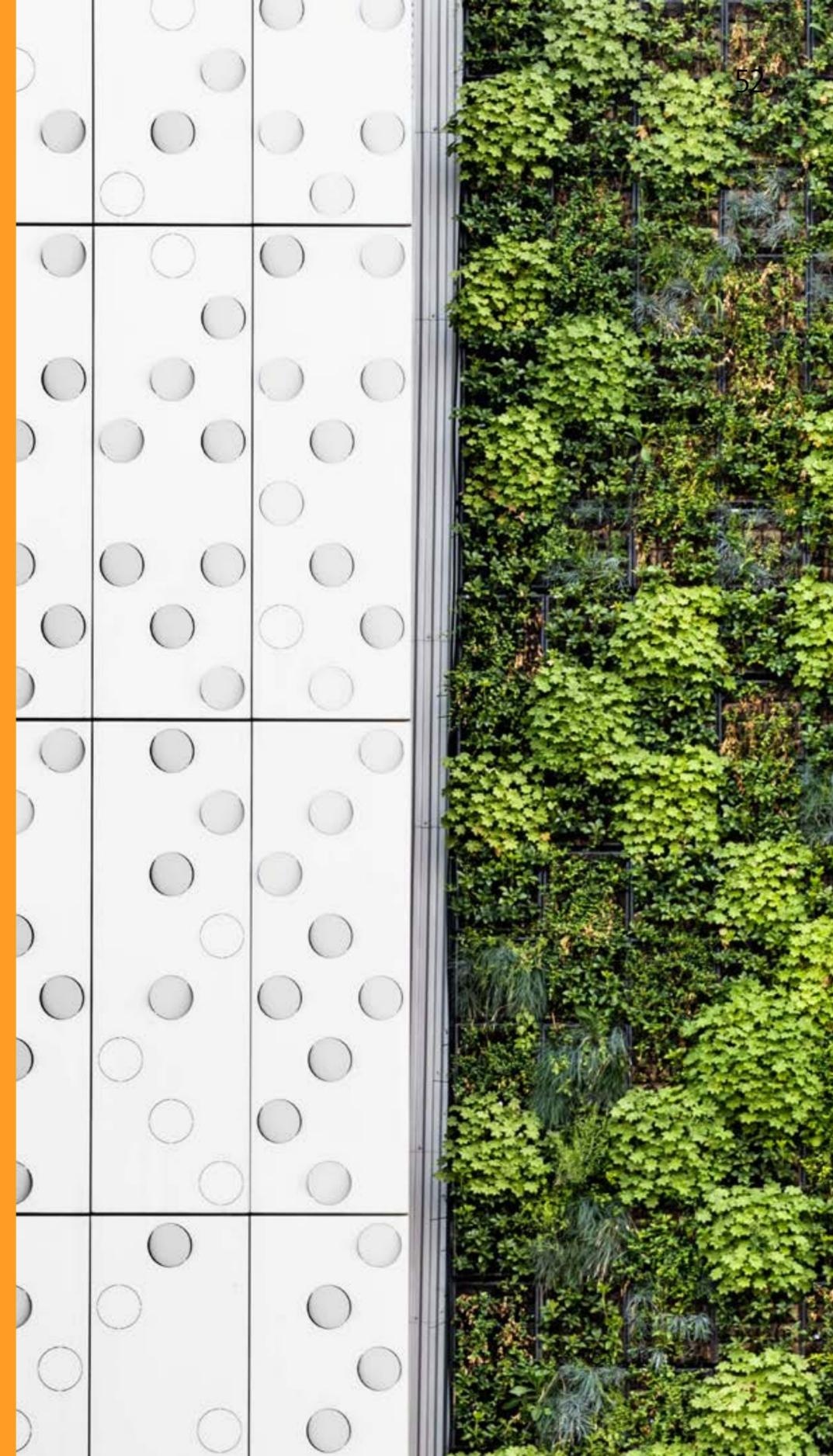
# 11 SUSTAINABLE CITIES AND COMMUNITIES





# Make cities inclusive, safe, resilient and sustainable

KTH's campuses are situated in the region of Stockholm Sweden, one of the fastest growing urban centers in Europe. Education, research and collaboration with local communities at KTH has the opportunity to help form inclusive, sustainable and smart cities that support rural-urban linkages that are socially, environmentally and economically beneficial, and respectful of basic human rights.





### **Research for new transport solutions**

The strategic research area TRENoP, research for new transport solutions, has announced six new faculty positions, one of which in the field of railway systems is already in place. Eight new doctoral students have been employed in two major research projects, including the project Sustainable and Integrated Urban Transport Systems, HITS2024, for the development of smart solutions for sustainable freight and passenger transport in an urban environment. A national agenda, Green Infrastructure Material Innovations, has been established, enabling structural support for innovation projects in the field of transport infrastructure. The project ELISA aims to demonstrate how smart ports (automation within transport, smart roads, AI can support sustainability in critical infrastructure.

### **Mistra Sustainable Accessibility and Mobility Services (SAMS)**

The vision of the Mistra SAMS Sustainable Accessibility and Mobility Services research program is that Sweden by 2030 largely has achieved a transition to far-reaching sustainable accessibility and mobility in urban regions through the implementation of disruptive accessibility services that meet the needs and preferences of broad groups of users and significantly contribute to sustainability targets.

### **KTH Live-in Lab**

KTH Live-In Lab is a platform for accelerated innovation in the real-estate sector, and for collaboration between academia and business. Most test beds in KTH Live-In Lab are operated in real environments for testing and researching new technologies and new methods. The purpose of KTH Live-In Lab is to reduce the lead times between test/research results and market introduction. In this way, KTH Live-In Lab aims to facilitate the advent of the sustainable and resource-effective buildings of the future. KTH Live-In Lab also ensures that KTH becomes a sustainable campus and that Stockholm retains its leadership in sustainable urban development with a focus on digitalisation and smart cities. This is done by accelerating the pace of innovation in the construction and real-estate sectors, based on excellence in research, education and collaboration.

### **Duved – Community of the Future**

The goal of the project is for the Duved community to develop into a self-sufficient rural village and innovation engine that shows the way for local communities to serve as role models for sustainable habitats.





### **GrönBostad Stockholm (Green Housing Stockholm)**

The aim of EU project Grönbostad Stockholm (Green Housing Stockholm) is to strengthen the collaborative structures within housing construction in the Stockholm region, at the same time as creating better conditions and opportunities for SMEs to enter into these collaborations with innovative and environmentally friendly products and services. Grön BoStad Stockholm is a collaborative project that contributes to sustainable urban development, reduced segregation and the transition to a low-carbon economy.

### **Albano is Sweden's first campus area to be Citylab certified**

On the Albano campus, 70,000 square meters of new university premises, 1,000 student and research housing as well as landscaped parks, shops and restaurants are being built. The area will be the first campus environment in Sweden to be certified according to Citylab which, unlike other environmental certifications, does not only apply to an individual building but covers an entire urban development project. Albano stands out as an urban development project on the cutting edge of sustainable urban development. The development of the Albano campus into a modern and competitive university

environment takes place in harmony with nature and with the goal of becoming a role model in sustainable urban development. Several sustainable efforts are being made, including strengthening the possibility of increased species richness for, for example, pollinators and birds. New water systems are being created to take care of stormwater, improve the microclimate and outdoor environments that are designed to strengthen the distribution routes for plants and animals.

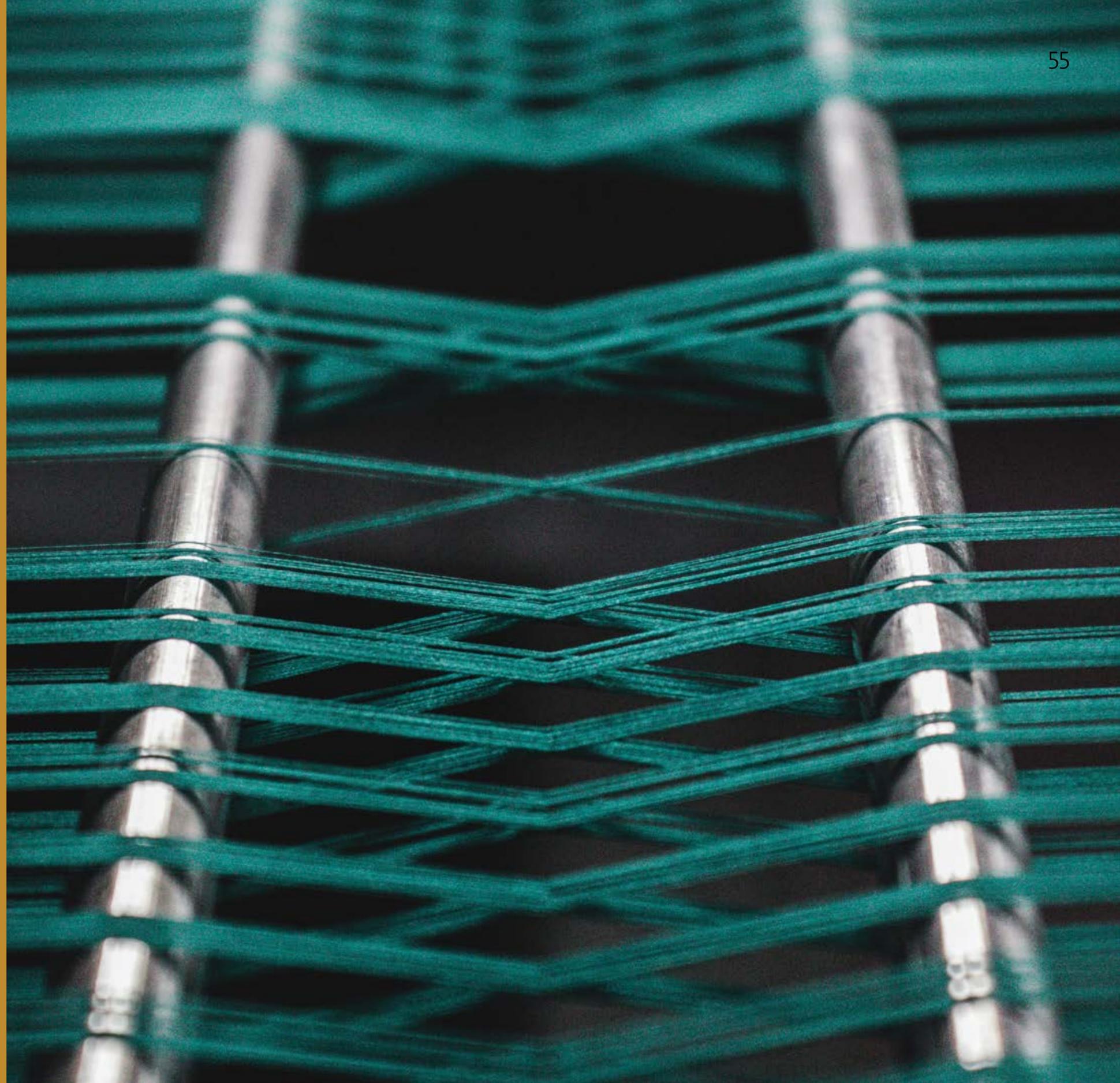
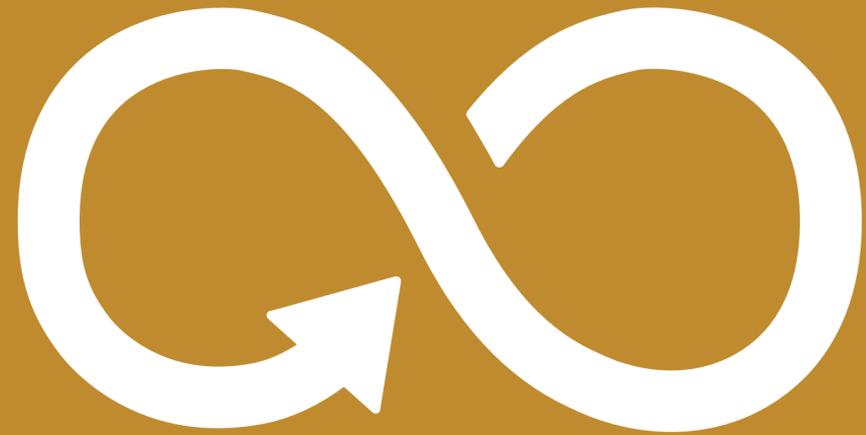
### **KTH Campuses and Public access**

Apart from research and education there are multiple common facilities at KTH's five campuses: Student health, Library, Info Centre, Sports centre and Housing agency. The public and local communities have free access to the university campuses, libraries, buildings of cultural historical value, concerts with the academic orchestra, open lectures and KTH Campus guided tours in art, architecture and history. Events at the old Nuclear Reactor hall and Open laboratories occur throughout the year. Art collections can be viewed in buildings open to the public. The campus green spaces are also used by the public, with outdoor seatings, outdoor gym, and access to the National Park, urban gardens and beehives.





# 12 RESPONSIBLE CONSUMPTION AND PRODUCTION





# Ensure sustainable consumption and production patterns

At KTH, research and education for responsible consumption and production focuses on areas such as logistics, system knowledge, process development, optimisation, quality improvement, and design and product development. Strong ties to business, industry and civil society leads naturally to excellent conditions to create sustainable manufacturing industries and sustainable consumption practices.





### **MISTRA Sustainable Consumption**

KTH is host to MISTRA Sustainable Consumption a research programme between academia and partners from business, the public sector and civil society. The aim is to stimulate a transition to sustainable consumption by generating in-depth knowledge on how niche sustainable consumption practices can become mainstream in the areas of food, vacation and furnishing. The programme examines niche sustainable consumption practices and develop roadmaps for how they can be scaled up and mainstreamed by policy makers, business, civil society organisations and citizen consumers.

The vision is that by 2030 sustainable consumption practises have become mainstream in Sweden, to a significant extent catalysed by our programme through knowledge generation and practical change. This transition has by 2030 contributed to a better quality of life, and equity, within and across borders, and have made Sweden – its companies, governmental bodies, and civil society – an internationally recognised example showing that sustainable prosperity is possible.

### **KTH's investment in sustainable production in Södertälje**

In June 2014, an agreement was presented between KTH, the Swedish Government, the Municipality of Södertälje, Scania, AstraZeneca and the company Acturum regarding an education and research initiative in Södertälje. One of the aims of the initiative is to strengthen the competitiveness of Swedish

industry through cutting-edge education and research. The research profile for the department's sustainable production development in Södertälje has three different specialisations: production management, industrial reliability and production logistics. The agreement includes an investment in four new educational programmes, with the aim of doubling the number of educational places on KTH's campus in Södertälje in the long term.

### **Sustainable Production Development Master's Programme**

The master's programme in Sustainable Production Development fosters knowledge and skills of graduates that contribute to a renewal of industrial production. Advanced knowledge and skills in the design and development of production systems are needed in order to address emerging challenges. Rational and cost-effective production systems have been key to industrialisation and wealth for decades. However, the area is experiencing change and pressure in different dimensions, which are altering the role of production systems. Requirements of more renewable energy use and circular material flow, increased digitalisation and automation, new manufacturing technologies, as well as service integration and the emergence of new business models are among the phenomena shaping production system development and change. Based on a systemic understanding and courses run in close collaboration with manufacturing companies, programme graduates will be prepared for leading the development and





design of production systems, as a part of the solution towards a sustainable society, attractive workplaces and competitive industries. This programme is closely linked to the growing research activities at KTH Södertälje and the industry in the regions.

### **Master's programme Sustainable Technology Master's Programme**

The master's programme in Sustainable Technology covers the concept of Industrial Ecology, focusing on the interaction of technical, economic, social and ecological systems and processes. Students will explore this interdisciplinary framework for designing and operating industrial systems interdependent of natural systems. Graduates will balance environmental and economic performance and lead the development of strategies for a sustainable future.

### **Co-Kitchen**

The Vision of Co-Kitchen is to develop a co-living that will be at the forefront in terms of social, economic, and ecological sustainability. Here is an opportunity to think innovatively in everything from energy and resource efficiency, coexistence, learning, cooking, and hygiene. The goal is to develop data and knowledge to influence norms, building regulations and future construction.

### **EIT Raw Materials**

Within EIT Raw Materials, the main focus is now on courses and study programmes with a particular focus on sustainability issues, such as life cycle analysis, recycling and replacement of critical raw materials.

### **XPreS: Research for Excellence in Production**

The underlying theme of all XPreS activities is the challenge-driven effort to increase sustainability in manufacturing in terms of economy, human health, and protecting the environment. For this reason, the selected impact cases are aligned to this challenge and refer to a future where the current understanding of “ownership of mass-producing facilities relying on endless resources” is redefined along with the concept of “sharing economy” and “circular economy”.





### **Circular Public Procurement**

The overall aim of the Circular Public Procurement project is to further promote the use of circular and bio-based public procurement in order to guide development for criteria and implementation. Often green public procurement GPP is related more to the environmental impact throughout the life cycle, while sustainable public procurement SPP is often related to addressing the 3 pillars of sustainability. Despite the discrepancy, addressing procurement practices may be an effective approach to motivate greener production methods by orienting production and consumption trends to encourage demand for more sustainable products.

### **KTH Waste Project**

A waste project aimed at improving, increasing and achieving a uniform sorting at source system at KTH continued in 2021 focusing on food waste management. A review of the waste rooms has been done to improve the space for handling more fractions and has enabled better source sorting in kitchens. A project plan for a new “Environmental Station” has been designed to improve and increase source sorting and recycling and in the future. Collaboration with the property owner Akademiska Hus is ongoing within waste management projects.

New legal requirements in the hazardous waste sector have increased record-keeping and reporting of hazardous waste. During the year KTH has developed routines and information material for KTH to be able to comply with all legal requirements.

### **Reuse and Purchasing at KTH – Circular Furnishings**

In 2021, a survey was made of KTH’s working methods regarding furniture handling. The mapping has laid the foundation for a project that will continue in 2022 with the aim of developing a routine for how KTH should work to achieve a more circular use of furniture from acquisition to maintenance and disposal of furniture.

KTH also signed an agreement with a new supplier for furnishings for university environments. The agreement enables, among other things, the repair of furniture, the rental of furniture and the return of furniture.





# 13 CLIMATE ACTION





# Take urgent action to combat climate change and its impacts

Higher education institutions (HEIs) have a central role in efforts to combat climate change. KTH has an important task to contribute through our education, research and external engagement and collaborations, but we also need to contribute by reducing the impact of our own operations. We work actively to reduce our own climate impact but allocating resources so that we can achieve these targets and conduct follow-ups.





### **KTH Climate Action Centre**

KTH Climate Action Centre is a new multi-disciplinary, collaborative and research-focused centre aiming to advance climate mitigation and adaptation in synergy with all the UN Sustainable Development Goals. The aim of KTH Climate Action Centre is to conduct groundbreaking research in close collaboration with stakeholders in order to speed up the transformation. The centre engages researchers from all parts of KTH, and opens up for dialogue, collaboration and action together with everyone who wants to contribute.

### **Energy Efficient Negative Emissions from the Agricultural Sector**

“Energy efficient negative emissions from the agricultural sector” is a joint project between the KTH Royal Institute of Technology (KTH), the Swedish University of Agricultural Sciences (SLU) and Uppsala University (UU). The overall goal of the project is to identify and propose a system for reduction of multiple greenhouse gases through direct air capture, DAC, which from a cost perspective must be able to compete with carbon dioxide storage from biomass, so-called BECCS (Bio-energy with carbon capture and storage).

### **The Centre Production, Use and Storage of Hydrogene, PUSH**

The Centre Production, Use and Storage of Hydrogene, PUSH, concerns research to find solutions to fight climate change. The centre conducts research into the production, use and

storage of hydrogen together with the parties Lund University, Chalmers University of Technology, Umeå University and RISE

### **Electrical Engineering**

The department of Electrical Engineering are conducting research where climate is central in some research questions, e.g.: How do we adapt the electric power grid so that it can handle 100% renewable energy sources from hydro, wind and solar power? How can we balance the level of automation and control of power systems, needed for stability, cost efficiency and reducing climate impact with the costs and risks associated with increased computing and communication? The research contributes both to SDG 7 and SDG 13. The department also contributes to SDG 13 by researching electrification of the transport sector with new core knowledge and innovative solutions from several areas within EE such as electrical machines, power electronics and electronic systems.

### **Sustainable Development, Environmental Science and Engineering (SEED)**

The Department of Sustainable Development, Environmental Science and Engineering (SEED) has developed environmental declarations for building materials for new buildings. There is a new regulation on climate declaration for buildings, which shall be effective by 2022 and where SEED has been highly involved in designing the method that should be used (simplified lifecycle analysis). The increased political will to introduce





regulation to promote the reduction of climate impact from construction of new buildings was largely due to a series of LCA studies of buildings performed by SEED in cooperation with IVL, Sveriges Byggindustrier and a large number of construction sector stakeholders. SEED is currently commissioned to write a road map for the development of this regulation in Sweden and collaborate with the Nordic countries to promote Nordic harmonisation on this topic.

### **Civil and Architectural Engineering**

The master's programme in Civil and Architectural Engineering train students in design and in how to build our future homes and infrastructure, as well as roads, bridges or tunnels, with all the challenges related to sustainability and the real demands of society. The programme also focuses on how a structure performs throughout its entire service life, not just during the building phase. Students work on developing and designing buildings and infrastructure with regard to human conditions and needs, and society's objectives for economically, socially and ecologically sustainable development. Some examples are the use of energy from wastewater to heat houses, the development and usage of vacuum insulation panels for isolation of houses, and planning construction process where we take in account all aspects such technical, environmental, economic, social and aesthetic.

### **Transport and Geoinformation Technology Master's Programme**

The main focus areas of the Master's programme Transport and Geoinformation Technology are crucial infrastructures in the creation of sustainable cities, countries and communities in general. Functional and well-developed transport systems are essential in a sustainable and prosperous society. Planning, building and maintenance of such a system demand knowledge of transport and geoinformation technologies, as well as an understanding of how new technologies and policies are adopted, how they interact and how they affect our daily activities.

### **Climate and Economic Research in Organisations project (CERO)**

Within the framework of the Travel-free Meetings in Public Authorities project (REMM), KTH has continued working on the Climate and Economic Research in Organisations project (CERO) in a collaboration between the KTH Sustainability Office and an academic researcher at the School of Architecture and Built Environment. The project includes both financial and environmental analyses of business trips and commuter travel as well as workshops. Through the CERO project, KTH has developed a follow-up tool for managing objectives and measures to reduce KTH's emissions. During 2022, a travel habits survey will be conducted, to follow-up KTH's employees travel to and from work and about their business trips.





### **Centre for Sustainable Aviation**

As residential areas increasingly approach the country's airports, there is a need to develop aviation to reduce noise and emissions. The Swedish Transport Administration and KTH therefore decided in 2015 to create a Centre for Sustainable Aviation (CSA). The purpose being to create leading Swedish research on the management and operation of aviation with regard to the environment in particular noise. The hope is that the centre will be able to generate societal benefits both in a short and long perspective, and both in a local and international perspective. The Swedish Transport Administration's ambition is that research for a total of SEK 50 million will be announced through the centre over a 10-year period.

### **The Climate Framework and The Universities' Climate Network**

In 2019, KTH and Chalmers University initiated the internationally acclaimed Climate Framework for Swedish Higher Education Institutes (HEIs) which 38 HEIs have signed. Working together with The Higher Education sector in Sweden a ground-breaking climate framework was created to guide the development of individual climate strategies aiming to bring institutions into line with national and international commitments including the Paris Agreement's 1.5C warming limit and the Swedish national target to become climate neutral by 2045. This national agenda has the objective to both reduce direct emissions of all Swedish Higher Education Institutions (HEIs) as a collective and to ensure that Swedish HEIs integrate climate action in education, research and external collaboration. This is a whole-system approach as well as a whole nation project. The signatories includes all types of HEIs including large comprehensive universities, large specialised universities, medium sized University colleges, and several smaller specialised HEIs in all areas. It also includes both private and public HEIs.

In 2021, SUHF's expert group for collaboration has taken over responsibility and THE Universities' Climate Network was formed. The Network continues to drive and develop the work of the Climate Framework and all HEIs that are members of SUHF are involved.





### **KTH's Climate objectives and measures**

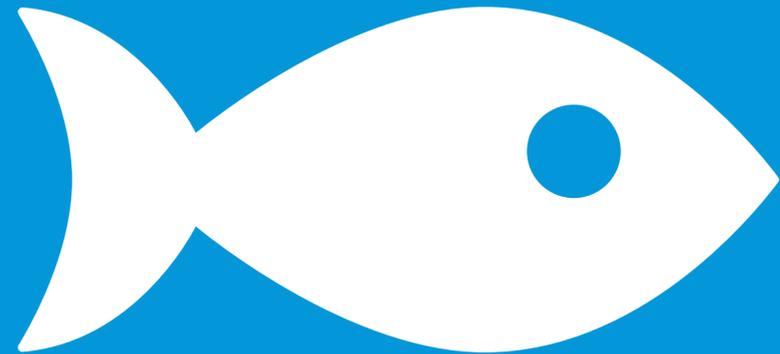
In accordance with The Climate Framework, KTH developed climate objectives for 2021-2045. The climate objectives directly affect KTH's employees and students, as well as KTH's property owners, business partners, financiers and other external partners where so is relevant. The objectives address the areas that have a major impact from a climate strategy perspective and concerns KTH's activities: education, research and collaboration, and the impact from its own activities through e.g. waste management, travel and procurement.

In addition, many of KTH's Sustainability Objectives related to the campus have implications for climate change including energy use, waste management and transport to and within our campuses. The Objective related to travel and transportation concerns emissions of carbon dioxide from air transports. The target on procurement includes climate aspects. The overall environmental management system can therefore be seen as part of the climate action plan for the university.





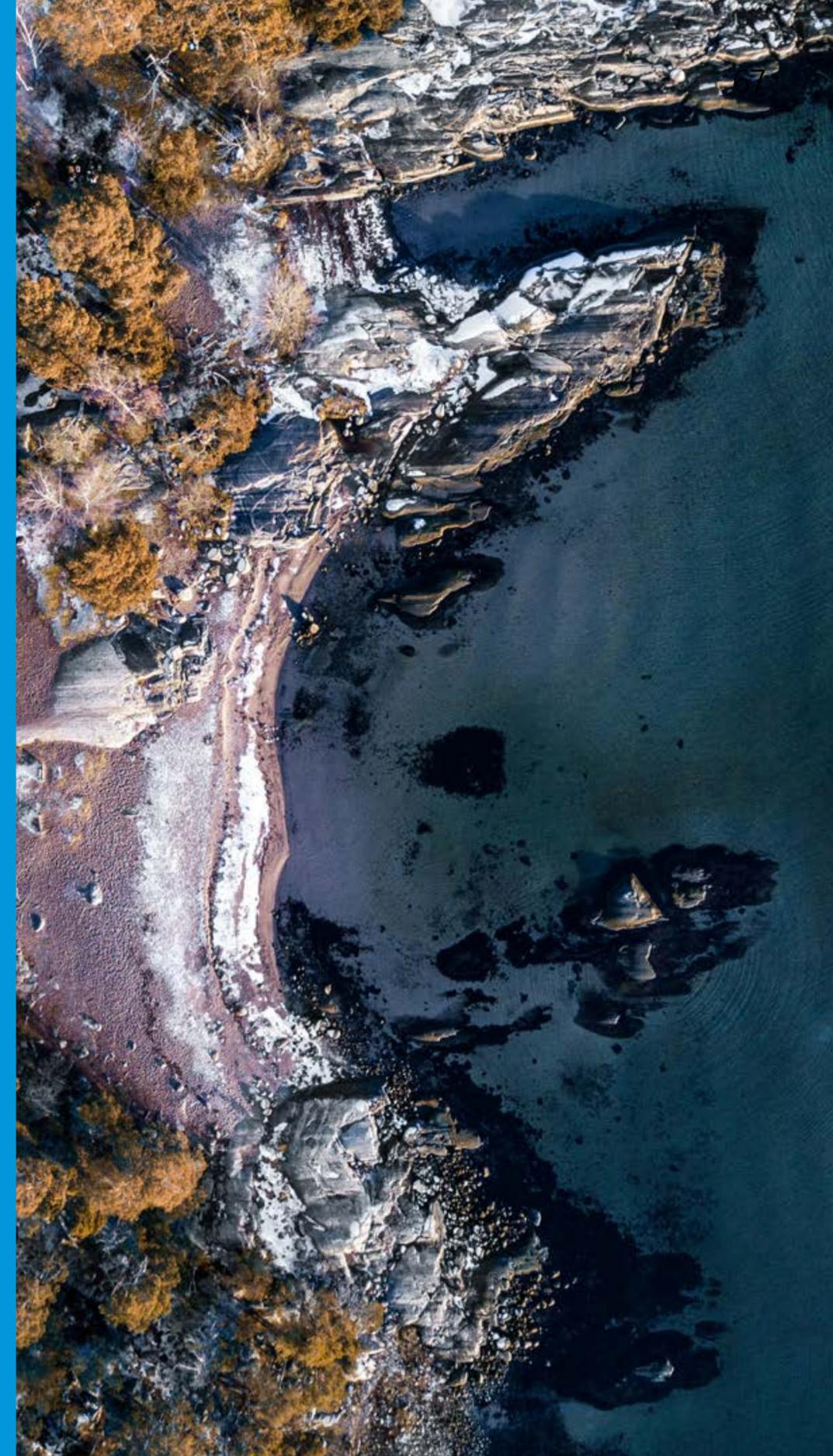
# 14 LIFE BELOW WATER





# Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Through education, research and supporting collaborative management and conservation can universities contribute to protecting and preserving aquatic ecosystems. KTH is also active in developing sustainable use of marine resources for food, materials and energy.



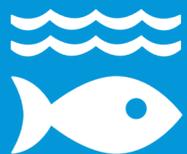


### **WaterCentre@KTH – Innovations for the Blue Planet**

The Water Centre at KTH is relevant for both SDG 6 and 14. It is a broad collaborative effort based at KTH Royal Institute of Technology. Its mission is to bring about water innovations for a sustainable future of the Earth based on meetings of experts, practitioners, and policymakers. WaterCentre's research focuses on four themes that combine the wide expertise at KTH around society's challenges with water: Circular, Decentralised, Digitalised and Marine. The centre connects scientists within IT/ICT, Marine science, Water science and treatment and Water system and management and offer an arena for joint knowledge creation with industry, government and civil society.

### **Engineered Floating Wetland**

Nature-based solutions have proven to be able to successfully tackle eutrophication problems, resulting in increased marine biodiversity, cleaner water as well as reduced greenhouse gas (GHG) emissions and use of harvested biomass as valuable materials. The objective of Engineered Floating Wetland project is to finalise the development and perform on-site tests of a novel floating wetland system in the Utö, Stockholm archipelago to capture excess nutrients in the Baltic Sea water. In the long term, the overall goal is to provide a successful model for future implementations for eutrophic marine areas as well as freshwater systems around the Nordic region.



### **Environmental Genomics study**

The research group of Environmental Genomics study how complex communities of microorganisms influence human health and play important roles for earth's geochemical cycles. Recent advances in high-throughput biology techniques make it possible to study the genetic potential and functional activities of natural microbial communities without the need for culturing. The major focus is the Baltic Sea, where the work follows two major trajectories:

1. To model the microbial ecological network that underpins the pronounced season dynamics in microbial community composition of surface waters.
2. To reconstruct the genomes of the most abundant microbial players.

### **Kristineberg Center for Marine Research and Innovation**

The research and innovation platform Kristineberg Center is a collaboration between the University of Gothenburg, Chalmers, KTH Royal Institute of Technology, IVL Swedish Environmental Research Institute, RISE and Municipality of Lysekil. At Kristineberg Center there is marine university education and research focusing on ocean acidification, microlitter and innovation.

Djurö Marine Field Station in cooperation with Värmdö municipality, to become a resource for marine research in the Baltic Sea SMaRC – Swedish Maritime Robotics Centre

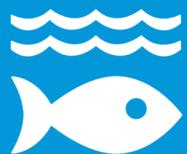


### **SMaRC – Swedish Maritime Robotics Centre**

SMaRC – Swedish Maritime Robotics Centre is a national cross-disciplinary industrial research centre for maritime robotics.

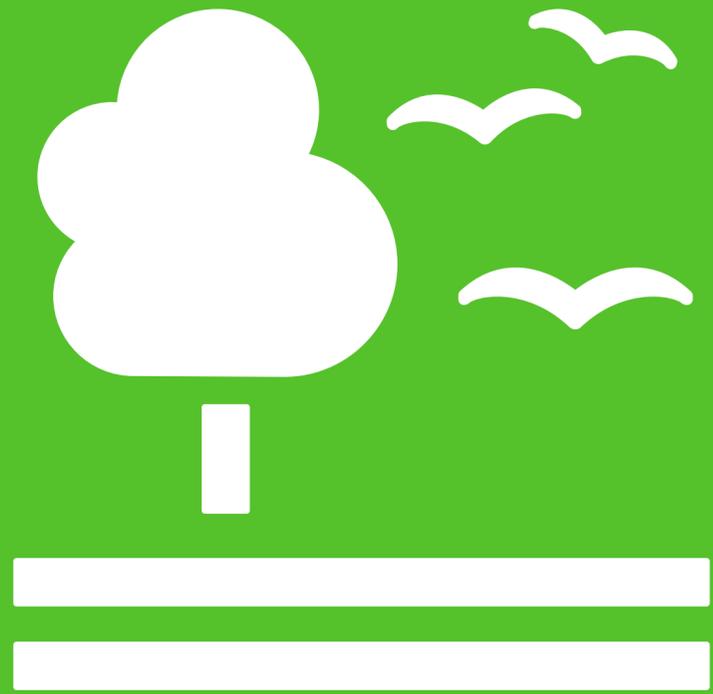
The main task is to perform research on, and demonstrate, solutions that can contribute to the transition to autonomous intelligent underwater systems.

The centre will focus on four research disciplines – autonomy, endurance, perception and communication – with the aim to develop next-generation maritime robotics for ocean production, safeguarding society and environmental sensing.





# 15 LIFE ON LAND





# Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss

KTH contributes to sustainably managed terrestrial ecosystems through education and research but also through the management of our Campus environments together with the land owners and Stockholm Region.





### **Sustainable Urban Planning and Design**

The master's programme in Sustainable Urban Planning and Design focuses on the interrelationship between the built environment and social, economic and institutional forces and is relevant for several SDGs including SDG 15. The programme develops professionals with a profound and broad understanding of the multiple factors in sustainable urban development. Students are trained to alter planning and design practices to respond to the environmental conditions and societal needs of the future. To minimise the environmental impact of urban development, innovative solutions are required. Through exercises and lectures, students will be encouraged to incorporate new technologies, sustainable materials and green solutions, as well as strategies that reduce the need for urban expansion in their proposals to enhance ecosystem services and sustainable management of natural resources.

### **Campus plan 2018-2023**

KTH and the main property owners Akademiska hus have developed a strategy for the development of KTH's various campuses for the period 2018-2023. The campus plan for KTH is a guideline for continued development of sustainable and inclusive campuses that we can all be proud of. One of the focus areas of the Campus is Ecosystem services and optimised spaces. The aim is to ensure that multifunctional spaces secure

ecosystem services, maintaining and/or creating resilience by developing spaces such as parks and green corridors and utilising stormwater. Spaces should preserve and strengthen ecosystem services and climate adaptation and developing ecological values. Based on previous inventories of trees and insects, the KTH campus is developing green spaces for greater biodiversity.

### **Tree recovery, beehives and community gardening**

KTH Sustainability Office, in collaboration with Akademiska Hus, has recovered 20 trees that were taken down at KTH Campus. The stocks have been turned into seating for visitors to KTH Campus and at the same time a home for insects and fungi. Branches and smaller parts have been taken care of to become insect nests.

During 2021, KTH Campus had four beehives. The bees have produced 120 kg of honey during the year. The honey is used in restaurants and cafés at KTH Campus and is available at KTH Entré.

At KTH Campus there are twelve urban gardening boxes that are used both for recreational cultivation and for teaching students and staff. It has been agreed to increase the number of cultivation boxes to 16.





# 16 PEACE, JUSTICE AND STRONG INSTITUTIONS





Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels





Peaceful, just and inclusive societies are necessary to achieve the UN Sustainable Development Goals (SDGs). Effective and inclusive public institutions are needed to further Agenda 2030 and the SDGs. Governments, civil society and communities must work together to implement lasting solutions, and universities such as KTH must support this working by example and by providing expertise and knowledge as a basis for well-grounded policy and decision making.

### **KTH's organisation**

The University Board is the top executive unit. The chair of the board is together with other societal representatives appointed by the government. Other members of board are the president of KTH, faculty members elected by the faculty and student representatives appointed by the student union. Union representatives can participate and express their opinions. The president's strategic council includes all heads of schools, all vice-presidents, the deputy president, the university director, the dean and pro-dean of the faculty which are elected by the faculty and student representatives. There are currently six vice-presidents appointed by the president for specific tasks including one for sustainable development and one for gender equality and values.

### **KTH working with government**

KTH's researchers are involved in several investigations and delegations that support the government's work. This includes, [the Government's Innovation Council](#), [the Government's Scientific Council for Sustainable Development](#), [the Climate Policy Council](#), and [the Collaboration program for Health and Life science](#).

### **Official remittance and consultation responses**

Before the Swedish government takes a position on a proposal, proposals are sent for consultation to authorities, organisations and other stakeholders. All answers and other remittances in connection with the referral are included in the basis for the decisions that follow the referral. As a public University KTH is a remittance body to the government when it comes to investigations, legislation, policies and strategies in sustainable development. Remittance and consultative responses are [recorded and open to the public](#). Examples include [Extraction from alum slate - Compilation of knowledge on environmental risks and proposals for tightening the regulatory framework](#), [The Swedish Environmental Protection Agency's proposal for revisions to the Environmental Management Ordinance NV-02142-20](#), and [Business and growth strategy for the Stockholm region](#).





### **Making Universities Matter:**

#### **A Knowledge Platform on the Role of Universities in Society**

Within this knowledge platform, Making Universities Matter sets out to understand how universities arrange their activities and how they are aligned with different interests in society. The platform studies how the blend of missions and tasks of universities has evolved over time, and will relate that mix to institutional specificities such as state governance and how universities interact with students, scientific communities, and stakeholders in industry, government and civil society. It also seeks to elucidate cross-national differences and similarities in the institutionalisation (and change) of universities: in Sweden and other countries in Europe, and through relevant comparisons with the evolution of university roles in North America and Asia. The platform also aims to engage in policy debates on universities, providing with policy relevant briefs and serving as a forum for topical discussion.

### **Real Estate Planning and Land Law**

One clearly and legally bounded area is the property unit, which aside from land can also include buildings and facilities. The owner has certain property rights with regard to that property unit. But various other rights can be connected to the property, such as the right of common (allemanrätt), the right of way, the right to hunt and fish, and utility easement. The Division of Real Estate Planning and Land Law engages in teaching and research on how rights associated with land use and real property can be established and/or adapted in order to facilitate desirable societal development. For example the construction of buildings with complementary infrastructure, or the conservation and protection of valuable natural areas.





# 17 PARTNERSHIPS FOR THE GOALS





# Strengthen the means of implementation and revitalise the global partnership for sustainable development

KTH is part of various regional, national and international networks and partnerships that work with sustainability issues through exchange of knowledge, experiences and resources. These networks span academia, industry and civil society. Multilevel partnerships are key to implementing the goals of Agenda 2030.





### Examples of our partnerships include:

- National infrastructures - KTH is host or partner in several national research infrastructures funded by the Swedish Research Council. Criteria defining a national infrastructure are that it must: enable research of world-class quality and thereby contribute to the development of society; be accessible to researchers, industry, and other relevant partners in Sweden, with priority given to scientific quality in case of limited accessibility; be of wide national interest, which means that the research infrastructure is used by research groups and researchers from organisations with a long-term planning horizon for their scientific activities; have a long-term plan for management, governance, funding, competence building and development.
- OpenLab is a challenge-driven innovation environment for collaboration between the City of Stockholm, Region Stockholm, the County Administrative Board of Stockholm County, Karolinska Institutet, Stockholm University, Södertörn University and KTH. The core of the activities is interdisciplinary and multidisciplinary second-cycle courses as part of a collaboration between the participating universities and other institutions of higher education. In addition, OpenLab conducts workshops and other activities where different parties meet, under new forms and ways, in order to develop proposals to deal with the challenges facing the region.
- KTH has a longstanding strategic partnership of SEI Stockholm Environment Institute an NGO Think Tank within environmental and sustainable development. SEI is an international research institute focusing on policy and the application of integrated knowledge within environmental and development issues. The institute works to reduce the gap between research and decision-making. KTH's Vice President for Sustainable Development is on the board of SEI and there are 10 researchers from the institute affiliated with KTH.
- Stockholm Trio for Sustainable Actions - The geopolitical and climate changes affect Sweden and our societies. It demands an increased understanding of complex social processes, new knowledge, strengthened innovation capacity and increased cooperation. Combine skills, offer attractive studies and be a contact hub for partners. This is the vision behind Stockholm Trio for Sustainable Actions – a new initiative 2021 from Karolinska Institutet, the Royal Institute of Technology (KTH) and Stockholm University towards sustainable societal development.





- MLUH – Miljöledare I universitet och högskolor. MLUH - Environmental leaders within universities and colleges is a Swedish network working to strengthen and develop environmental management systems environmental management in Sweden. The networks meets for annual conferences and works continuously throughout the year on key issues. In 2019 the network was integral to the creation of The Climate Framework for HEI's in Sweden.
- The project Frontrunners for Sustainable Innovation has collaborations taking place along with test and demo environments OpenLab, Kista Science City, Urban ICT Arena and Södertälje Science Park. The project focuses on KTH's research and education, together with SMEs, contributing to solutions to societal challenges through digitalisation, life sciences and environmental and climate technology. The project addresses sustainability issues in line with Stockholm's objective of being a smart sustainable and connected world-class city in 2040.
- KTH is a member of the Sustainable Development Solutions Network Northern Europe (SDSN NE) which is a regional SDSN network for Northern Europe and part of the global SDSN. The SDSN NE pools knowledge, experience and capacities of the regions' academic, business and civil society actors and strives to promote the national and regional sustainable development of Northern Europe, as well as the region's efforts for sustainable development worldwide.
- KTH is co-host of ISCN - International Sustainable Campus Network. The mission of the International Sustainable Campus Network is to provide a global forum to support leading colleges, universities, and corporate campuses in the exchange of information, ideas, and best practices for achieving sustainable campus operations and integrating sustainability in research and teaching.





# Times Higher Education Impact Rankings

In 2021, KTH Royal Institute of technology was ranked as number 41 in the world in THE Impact Rankings, which address the UN's 17 global sustainability goals. This was a clear step forward from last year's place 77, despite the fact that around 300 more universities participated. Individual goals in which KTH ranked among the top 20 worldwide: Implementation and global partnership (rank 7) Combating climate change (rank 7) and Sustainable cities and communities (rank 20). The ranking was based on extensive documentation of texts related to the sustainability goals, from KTH's website, as well as bibliometric and other quantitative data.

## About This Report

In this report, we highlight some of the many research, education, outreach and operational activities at KTH that contribute to the achievement of the United Nations Sustainable Development Goals. This report is the first where KTH examines the connections between our core business and operations to the sustainable development goals. The report will be further developed in the future. Comments and suggestions are welcome!

The report was developed by Erica-Dawn Egan, Sustainability Strategist at KTH Sustainability Office in collaboration with many engaged colleagues from many different parts of KTH including KTH Schools and University Administration. It is based on KTH's Annual Report, Report to the University Board, KTH's Sustainability Objectives report, The Research Assessment Exercise 2019-2021/2022, UNITE! Outreach survey, website review and review of articles and other sources.

### **Bibliometrics**

According to a bibliometric method developed by KTH, the share of published peer review articles with bearing on sustainable development (467 search terms) was 2021 21 % of the total amount of peer review articles (552/2815). This share (and total number) has increased steadily since 2010.

The SDG which have the largest share of publications is SDG 3 Good health and well-being, followed by SDG 7 Affordable and clean energy, and SDG 11 Sustainable Cities and Communities.

