



Report on KTH Royal Institute of Technology's overall sustainability goals 2018.





Foreword

As a technical university, KTH has unique opportunities to contribute to sustainable development. We educate our students so that they can contribute to sustainable societal development. We develop solutions that contribute to sustainable development and, in collaboration with the business sector, public sector and non-profit organisations, we can contribute to the spread of knowledge and the implementation of solutions to sustainability issues. We can also set a good example and make a contribution by reducing the environmental impact of our own activities. The starting points for our sustainability work are the Sustainable Development Goals (SDGs) of the United Nations and the Paris Agreement on combating climate change.

In accordance with KTH's policy on sustainable development, KTH shall be a leading technical university in sustainable development, and KTH shall have an identity and a brand that are associated with sustainable development. Sustainable development is a prioritised area in KTH's development plan for 2018–2023. KTH's work on sustainable development is guided by our sustainability policy and our sustainability goals for the period of 2016–2020.

We have much evidence that KTH's sustainability work is on the right track. At the end of 2018, KTH decided to join THE's ranking of universities with respect to societal impact based on the global goals for sustainable development. This ranked KTH as number 7 in the world from a total of over 500 participating universities. During spring, our environmental management system continued to be audited based on the new requirements of the environmental management standard, ISO 14001:2015. In the external audit, KTH was awarded a high grade for good engagement and knowledge in sustainability issues. Development and improvement in the area are high up on the agenda. Sustainable development was considered as being well integrated into KTH's strategic governing document. Work is ongoing to further integrate the environmental management work in the normal planning, follow-up and budgetary work of the schools. According to the ranking by the Swedish Environmental Protection Agency of the environmental management work of Swedish public authorities in 2018, we belong to the leading group that is considered to have a "very high degree" of systematic environmental management work. To achieve our sustainability goals we have to work systematically in several areas:

- Continued integration and progression of sustainable development in the degree programmes.
- Strong integration of sustainable development in KTH's research base.
- Continued efforts to increase the visibility of KTH's work linked to sustainable development.
- Implementation of the Campus Plan for 2018–2023, continued work on energy efficiency and support of sustainable travel.
- Continued work on reducing emissions from air travel.
- Continued work on criteria and working arrangements for the investment of foundation capital.

This report summarises the work with the sustainability goals and its progress. Shorter versions of the goals are included in the report. The complete text on the goals is available on [KTH's website](#). An indicator annex for the report is also available on the [website](#). In addition to the nine target areas reported here, KTH also has sustainability goals for the working environment.

Stockholm, May 2019

Göran Finnveden, Vice President for Sustainable Development
Kristina von Oelreich, Sustainability Manager

Courses and study programmes

Overall sustainability goals, 2016-2020

- KTH shall increase all employees' and students' knowledge about and involvement in issues concerning sustainable development.
- Sustainable development shall be integrated into all degree programmes, at all levels so that after graduating, students can contribute to sustainable societal development.

[A full description of the goals can be found on the KTH website](#)

Results

The goals have been partly achieved. Work to review the environment and sustainable development labelling of courses at the schools has led to an increase in these (see Fig. 1).

The career questionnaire shows that the number of students satisfied with their courses and study programmes in terms of ability to assess the account taken of sustainable development is at 63%, dissatisfied is at 19%, and those that consider that sustainable development did not appear in courses and study programmes is at 15%.

To achieve the goals demands continued systematic work where all of the schools and all of the programmes work for continued integration and progression of sustainable development in the programmes.

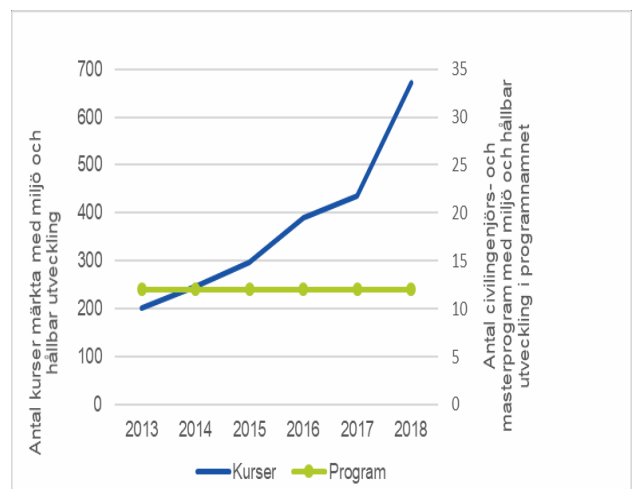


Figure 1. Number of environment and sustainability labelled courses and programmes at KTH per year, 2012 – 2018. The number of environment and sustainability labelled courses has increased from 435 to 672 between 2017 and 2018.

Examples of what we have done

- All schools work from the action programmes for the integration of sustainable development that extend up to 2020.
- In the obligatory programme analyses, sustainable development is emphasised under its own heading.
- A new civil engineering programme in Industrial Technology and Sustainability has started.
- The teaching and learning course for teaching staff in Learning and Sustainable Development is given annually.
- A web-based platform for teachers, to introduce sustainable development in main courses,

is available on the web.

- The toolbox for learning for sustainable development has been translated into English.
- Workshops for teachers have been arranged with themes including life cycle perspectives and materials selection, and sustainable business models.
- Funds have been paid to four education-related projects, including the development of a distance learning course with the theme of sustainable development for upper secondary school teachers, and a survey on the progression in KTH's courses and study programmes when it comes to sustainable development.
- Staff courses in environment and sustainable development have been conducted.

Research

Overall sustainability goals, 2016-2020

- KTH's research for sustainable development shall increase.
- The integration of sustainable development into KTH's research base shall increase.

[A full description of the goals can be found on the KTH website](#)

Results

The goals have been partly achieved. The number of article authors and publications in sustainable development increased during the year, while the external research funding with sustainable development specialisation has decreased slightly (see Fig. 2).

To reach the goals, there must be a strong integration of sustainable development in KTH's research base. Sustainable development must be integrated into more subjects and into more departments. This means, among other things, that more faculty positions, more faculty appropriations and more centres of excellence will have a clear connection to sustainability.

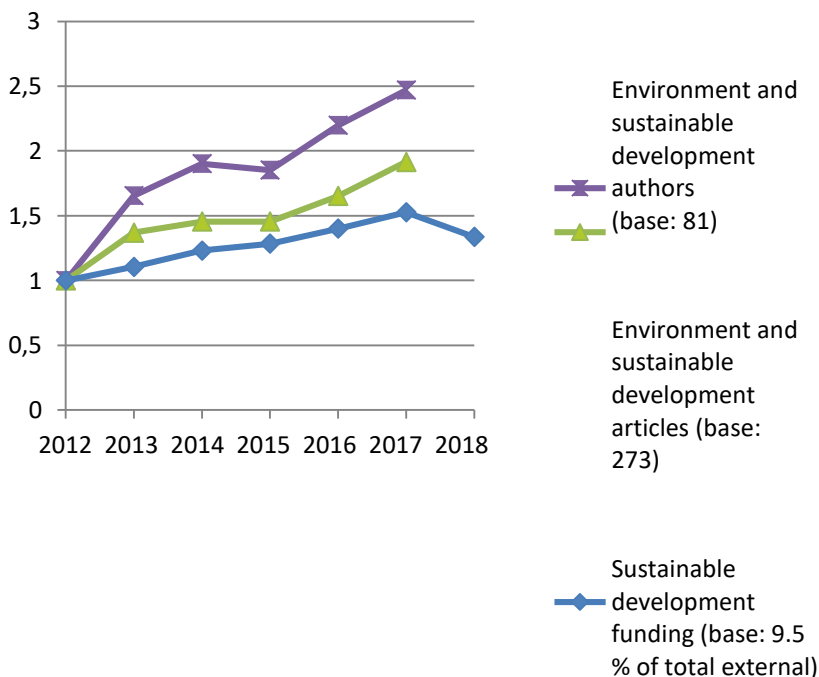


Figure 2. Normalised indicators for research in environment and sustainable development: number of authors who publish within environment and sustainable development, number of articles within environment and sustainable development, as well as external funding from the Swedish Environmental Protection Agency, Formas (government research council for sustainable development), Mistra (foundation for environmental strategic research) and the Swedish Energy Agency. The indicators describe the trends, not absolute values.

Examples of what we have done

- All of KTH's schools have drawn up an action programme for sustainable development within research.
- Routines for research have been drawn up within the environmental management system.
- A researcher-initiated network, KTH Food Sustainability, has been started for research on food.

- 14 new initiatives linked to environment and sustainable development have been granted seed funding from the KTH Sustainability Office (KTHSO), of which 12 on research.
- KTHSO has arranged network meetings and seminars for KTH's researchers in order to identify links between the disciplines and to develop new research areas.
- KTHSO has also advised about current research findings within sustainable development as a service to KTH's researchers.

Collaboration

Overall sustainability goals, 2016-2020

- In collaboration with existing and new partners, stakeholders and students, KTH shall work to contribute to sustainable societal development.
- A clearer picture of KTH as a leading technical university within sustainable development shall be conveyed through communication, dialogue and collaboration with surrounding society.

[A full description of the goals can be found on the KTH website](#)

Results

The goal that KTH, in collaboration with existing and new partners, stakeholders and students, shall work to contribute to sustainable societal development, has been fully achieved based on measures implemented in 2018. Among other things, KTH has arranged a large number of externally and internally focused meeting arenas, including the KTH Sustainability Research Day. More than 1 000 people have participated in these meeting forums during the year.

Achievement of the goal - that a clearer picture of KTH as a leading technical university within sustainable development shall be conveyed through communication, dialogue and collaboration with surrounding society - is difficult to assess based on measures implemented in 2018.

During the year, KTH has been mentioned in approximately 3 200 media editorials with links to sustainable development, which is an increase of approx. 700 references from the previous year. Out of KTH's total media exposure during 2018, the proportion linked to environment and sustainable development is 21%, an increase of 2 percentage points on 2017.

Sustainable development was the theme of a half-day seminar at the annual forum for KTH's communicators.

To achieve the sustainability goals requires greater efforts to increase the visibility of KTH's work linked to sustainable development.



Examples of what we have done

- Financial backup to collaboration and student projects within KTH.
- Participation in many networks within sustainable development, including in SDSN-NE, the Nordic network NUAS and the international network ISCN for sustainable campuses, the network for a sustainable business sector and for a fossil-free Sweden.
- Host to ISCN's annual conference with participants from leading universities throughout the world.
- Researchers involved in e.g. the government's strategic partnership programmes for circular and bio-based economy as well as smart cities, the government's National Innovation Council, the government's scientific council on sustainable development, the Swedish Climate Policy Council, the Swedish Delegation for the 2030 Agenda and the Swedish Circular Economy Delegation appointed during the year.
- Further-developed cooperation agreement with

the environment and sustainable development in focus with Stockholm Environment Institute (SEI), Swedish Environmental Research Institute (IVL) and Swedish Property Company, Akademiska Hus AB. • An internal newsletter and an external newsletter are sent out, as well as a blog written by the Vice President for Sustainable Development spreads information to stakeholders.

KTH's campuses

Overall sustainability goals, 2016-2020

- KTH's campuses shall be developed and managed sustainably. Ecological and social values shall be maintained and strengthened.
- The highest possible environmental performance shall be pursued in new construction and reconstruction.
- KTH's energy use shall be reduced by 10% (electricity, district heating, cooling) per annual work units, full-time equivalent student and per square metre.
- Travel and transportation to, from, within and between our campuses shall be made sustainably to a greater extent.
- KTH shall increase knowledge of, and have safe and well-functioning processing of dangerous waste.
- Opportunities for waste sorting into relevant waste categories shall exist throughout KTH, the amount of waste shall decrease per person and the proportion of sorted waste collection shall increase.
- KTH's campuses shall be used for courses and study programmes, research, and collaboration for sustainable societal development.

[A full description of the goals can be found on the KTH website](#)

Results

The goal to reduce energy use has not been achieved based on measures implemented in 2018 (see Fig. 3). Overall sustainability goals within KTH's campuses have been partly achieved based on measures implemented.

Work based on the Campus Plan for 2018–2023 has been started. All projects implemented during 2018 include environmental and sustainability aspects, evaluated based on the global goals of the United Nations and KTH's sustainability goals.

Continued collaboration with the property owner on energy efficiency. Energy mapping conducted during the year resulted in a range of measures. An inventory of refuse rooms and an overall project were started in order to introduce sorting of food waste and cartons, as well as to standardise waste sorting in all campus areas. During 2018, KTH Campus and Campus Flemingsberg were due for verification of four approved buildings in accordance with the Sweden Green Building Council (Miljöbyggnad) certification, one Gold and three Silver.

To achieve the sustainability goals requires, among other things, the implementation of the Campus Plan for 2018 - 2023, continued work on energy efficiency and support for sustainable travel, including cycling, for example.

Examples of what we have done

- Researchers have drawn up a strategic plan for sustainable transportation between campuses.
- Research projects for reduced food waste from employees, restaurants and cafés on campuses.
- Installation of demand-controlled lighting and ventilation, sleep mode on computers and monitors as well as projectors that switch off automatically when not in use.
- There are 6 beehives on KTH Campus, which produced 150 kg of honey in 2018, and there are 12 growing boxes for employees at KTH Campus and KTH Flemingsberg.
- A bike day was arranged at KTH Campus and grants were awarded to a student project for shared bicycles.

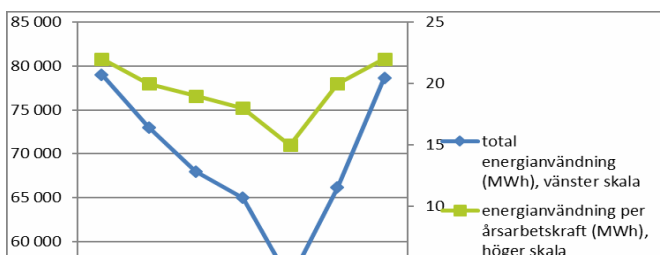


Figure 3. KTH's total energy use (blue line, left scale) and per annual work units (red line, right scale) for 2012-2018. The reduction during 2016 may be due to uncertainty in the statistical information. The increase in energy use between 2017 and 2018 is probably because 2018 was a colder year than 2017, despite the

hot summer, which means increased use of heating during the year. The use of cooling also increased during 2018, due to the hot summer.

Travel

Overall sustainability goals, 2016-2020

- Carbon dioxide emissions from KTH's travel shall decrease by 20% per annual work unit.
- KTH shall increase knowledge of and create conditions for IT solutions that make travel-free meetings possible.

[A full description of the goals can be found on the KTH website](#)

Results

The goals have not been achieved. Travel at KTH is at a high level and is affected, among other things, by variations in research projects and collaborations. The total reported CO₂ emissions from travel increased between 2017 and 2018 by over 464 tonnes, approx. 10% (see Fig. 4). Counted per man-year, the increase remains at just over 2%.

Emissions from air travel further than 500 km are responsible for the greatest share. Official travel domestically and abroad using private cars and rental cars has increased. One positive aspect is that the total number of journeys by rail has increased by 9%. Emissions from air travel less than 500 km show a limited increase, which counted per man-year is equivalent to a decrease of 1%. Account needs to be taken of the fact that contract compliance has increased, and of the variation in research projects and collaborations.

To achieve the sustainability goal requires systematic work where new measures are drawn up and implemented, low carbon travel is supported, and education and support are provided in the technology for digital travel-free meetings.

Examples of what we have done

- Update of policy documents that have been communicated to managers and fellow-workers.
- Education of staff and production of web manuals and videos in connection with travel-free meetings.
- Individuals responsible for a lot of official travel have been identified and interviews have been conducted.
- The collaboration with KTH's travel agency has led to improved and enhanced statistics.
- Employees are offered discounts for purchasing bicycles in KTH's staff benefits portal.
- The possibility of establishing an internal "climate fund" has been investigated.
- A major travel project, *Climate and Economic Research in Organisations* (CERO), covering both official travel and

commuting has been further pursued with a researcher.

- Continued collaboration in the project REMM, Virtual Meetings in Public Agencies, according to the notification of intent.

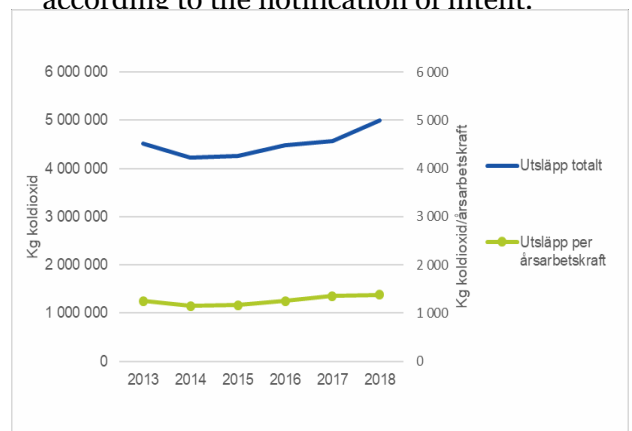


Figure 4. KTH's total carbon dioxide emissions from official travel in tonnes per year as well as emissions per annual work unit, 2013 – 2018.

Procurements and purchases

Sustainability goal, 2016-2020

- Sustainability requirements shall be included in all procurements, call-off procedures and purchases, whenever possible.
The requirements shall be continuously evaluated and further developed.

[A full description of the goals can be found on the KTH website](#)

Results

The goal has been partly achieved. Procedures and methodologies have been developed and new environmental requirements have been drawn up. The number of procurements with environmental requirements has increased (see Fig. 5). Based on number, environmental requirements were imposed in 50% of procurements in 2018, compared to 48% in 2017 (the figures are based on procurements above the procurement level defined in legislation and do not include direct awards without prior contract notice or call-off procedures against framework agreements).

What is purchased and the amounts paid vary greatly between the years, making it very difficult to compare data over time.

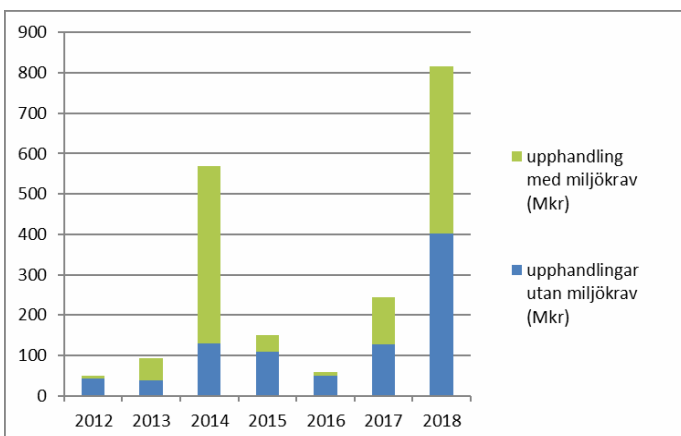
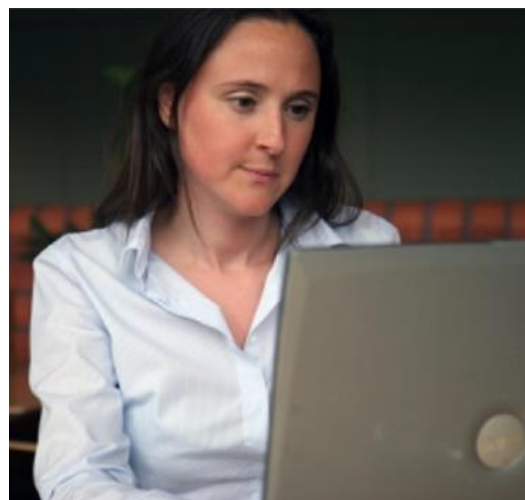


Figure 5. Proportion of procurements with (green bar) and without environmental requirements (red bar) in the total procurement value (MSEK) per year 2012 - 2018.



Examples of what we have done

- A central assessment has been made of the planned procurements for 2018 that are suitable for imposing environmental requirements.
- Collaboration has taken place with the schools and the administration in the implementation and follow-up of the environmental requirements in procurements.
- Training efforts have been conducted in order to strengthen the knowledge of those with a key function in the work to impose environmental requirements on procurements and purchases.

Chemicals

Overall sustainability goals, 2016-2020

- KTH shall increase knowledge of and create conditions for well-functioning chemicals management based on safety, environmental and health viewpoints.

[A full description of the goals can be found on the KTH website](#)

Results

The goal has been partly achieved. Systematic management of chemicals is takes place, among other things, through phasing out of CMR substances, increased knowledge of risk assessment and electronically in the inventory of chemicals.

A new plan for the work of KTH's environmental organisation has continued during 2018, which will have an impact on the work of the schools with chemicals. The aim is to enhance the work with chemicals based on the principle of "one KTH".



Examples of what we have done

- Training has been conducted on laboratory safety and risk analysis. This has also been included for some time in several of the degree programmes.
- Chemicals managers have been trained in the purchasing, management and disposal of chemicals.
- Training has been conducted of administrators in the Klara chemicals management system.
- Start-up of a project group for the preparation of general training in laboratory safety and risks at KTH.
- KTH's internal audit reviewed KTH's chemicals management during 2018, which culminated in a range of proposed measures to be implemented in 2019.
- Continued phasing out of CMR substances.
- General procedure for chemicals has been revised with regard to transporting dangerous waste.
- Annual reports and inventories of chemicals have been drawn up, based on legal requirements in force.

Investment of foundation and donation capital

Overall sustainability goals, 2016-2020

- KTH's foundation and donation capital shall be invested so that it contributes to sustainable development. [A full description of the goals can be found on the KTH website](#)

Results

The goal is on track to being achieved. Of the capital managed by KTH, the proportion linked to fossil fuel investments is less than one per cent.

Examples of what we have done

- Collaboration has taken place with capital administrators in order to exclude companies that work with fossil fuel extraction.
- KTH has also participated in events focused on sustainable investments and placements.

Organisation and management

Overall sustainability goals, 2016-2020

- Environmental and sustainability issues shall be integrated into everyday operations and be a part of all relevant processes, plans and decisions.

[A full description of the goals can be found on the KTH website](#)

Results

In 2018, work continued with the mapping of policy documents at KTH and identifying the extent that these documents include environment and sustainable development, as well as how and when it is relevant that environment and sustainable development should be integrated into them.

Examples of what we have done

- KTH's environmental management system has been approved in a certification audit in accordance with the new requirements in the ISO 14001:2015 standard.
- The sustainability work has been integrated into KTH's operational plan and in the development plans of the schools.
- KTH's sustainability policy has been revised.
- The administration has drawn up priorities for support to the schools with regard

to sustainable development.

- Decisions have been taken on a change in the organisation and methodology of the environmental management system.

The aim is to streamline and standardise the support to the schools.