

Sustainable Campus Charter Report of Aalto University 2016 ISCN-GULF

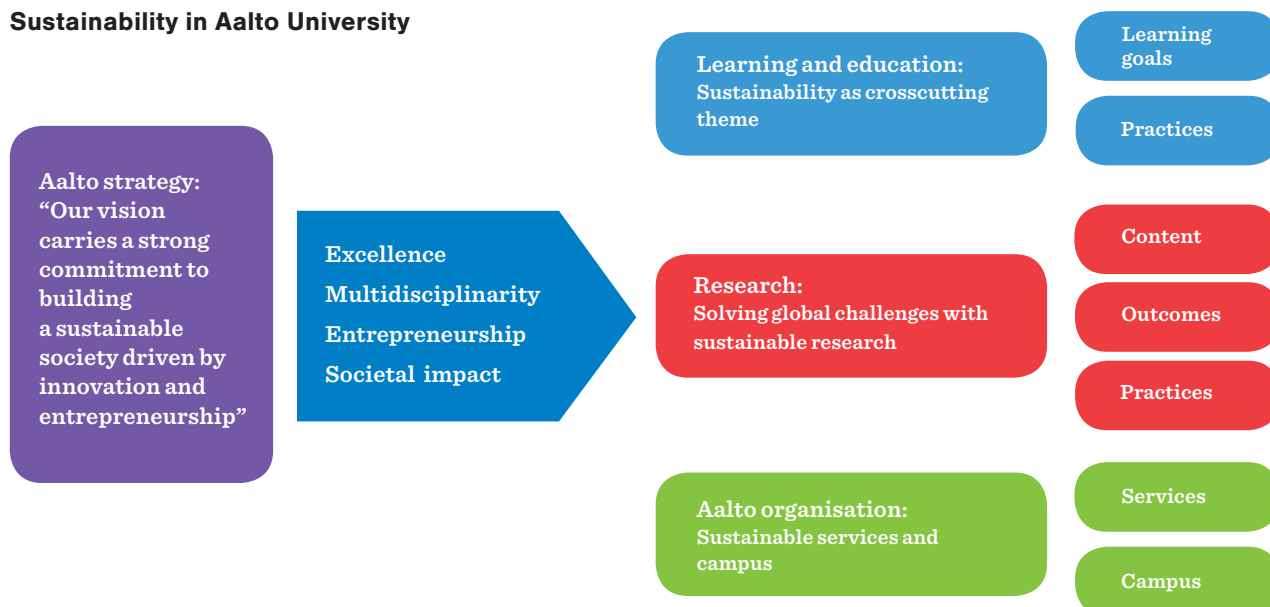


Aalto University

Responsibility at Aalto University

Responsibility and sustainable development are at the core of Aalto University's strategy and its values, and steer all of the university's operations. The key aim of the university's strategy, which was reformed in 2016, is to respond to the big challenges society is facing, such as climate change and growing inequality in society.

Sustainability in Aalto University



Aalto University is a member of the International Sustainable Campus Network (ISCN), and complies with the reporting charter endorsed by the ISCN, which specifically emphasises teaching, research and artistic activities. This report utilises the ISCN's three core principles as tools for reporting on Aalto University's responsibility and sustainable development. The university's focus areas, teaching and research (Principle 3), are reported on first followed by the environmental (Principle 1) and indirect impacts of campuses (Principle 2).

PRINCIPLE 3: Teaching, research and societal impact

Teaching and learning

Aalto University's objective is to integrate responsibility and sustainable development into all teaching and learning. The objectives laid down for 2016 included a survey of how responsibility and sustainable development are evident in the objectives of the university's degree programmes. A report on the learning objectives of Bachelor's Degree programmes revealed that the objectives are most commonly related to the student's understanding and ability to adapt his or her learning to the societal and ethical context. In addition, the objectives may be related to the content of a particular field of science: for example, sustainable use and processing of natural resources are content-related focus areas at the School of Chemical Engineering.

Another Aalto University objective for 2016 was to create a module for the internal education of teachers that will lower the threshold for the integration of responsibility and sustainable development into teaching. Responsibility and sustainable development can be part of the practices of teaching and learning or part of content. The possibility to use existing support materials that have been developed by e.g. TEK and SITRA to support teachers was also examined. The university was unable to establish an actual education programme over the year, but the themes as well as Aalto experts and areas of expertise were assessed as part of unofficial network meetings. A morning coffee event for the teachers' sustainable development network was organised three times in 2016. The objective for 2017 is to integrate responsibility and sustainable development into the broader Code of Conduct for all employees.

Aalto University's range of courses includes special courses the names of which include the terms responsibility, sustainable development and/or environment (meaning protection of the environment). In addition to this, numerous other courses have content related to the theme. In 2016, a new online course was developed, which is intended for all Aalto students and highlights the challenges related to sustainable development as well as Aalto University's expertise in finding solutions to these challenges. The course will be piloted in spring 2017. There are also numerous Master's Degree programmes at Aalto University that centre on sustainable development and responsibility. In 2017, two new multidisciplinary Master's programmes that are strongly linked to the theme of sustainable development will begin: Advanced Energy Solutions and Advanced Materials for Innovation and Sustainability (EIT Raw Materials). Aalto University also offers courses related to the theme through its partnering institutions.

Many of the university's student projects also produce new information and applications that promote sustainable development and responsibility.

- **Students taking part in Aalto University's Creative Sustainability** Master's Degree Programme's Design for Government course developed new ideas for improving the circular economy. The students created solutions for three challenges: a reduction in the amount of electronic waste, the motivation of building cooperatives in saving and maintaining energy and the improvement of transport in sparsely populated areas. The clients were the Ministry of the Environment and the Ministry of Transport and Communications.
- **Students taking the Advanced Project Design course** designed and built a solar power charged, electric bicycle. The solar chargeable bicycle is a demo version, which resembles a three-wheel cargo bike. Solar panels have been placed on the rear rack of the bicycle. It was found in practice that, if use of the bicycle relied entirely on solar energy, the batteries had to be charged up using larger panels. The solar panel on the bicycle produces a small amount of energy and it takes a long time to charge up the batteries.

Research and artistic activities

Responsibility and sustainable development are apparent in the themes, content and results, as well as in the processes and practices of Aalto University's research and artistic activities. Aalto University's strategy emphasises a multidisciplinary approach and societal impact. Based on its research work, Aalto creates expertise and new solutions that are part of the university's scope of influence and activities for the good of society. In 2016, Aalto University selected the production of sustainable development and consumption as one of its key multidisciplinary research profiles in its funding application to the Academy of Finland. Aalto's disciplines in sustainable development and the quality of research were examined for the application. Based on this work, the research community has committed to the theme, and is building a multidisciplinary research portfolio around sustainable development.

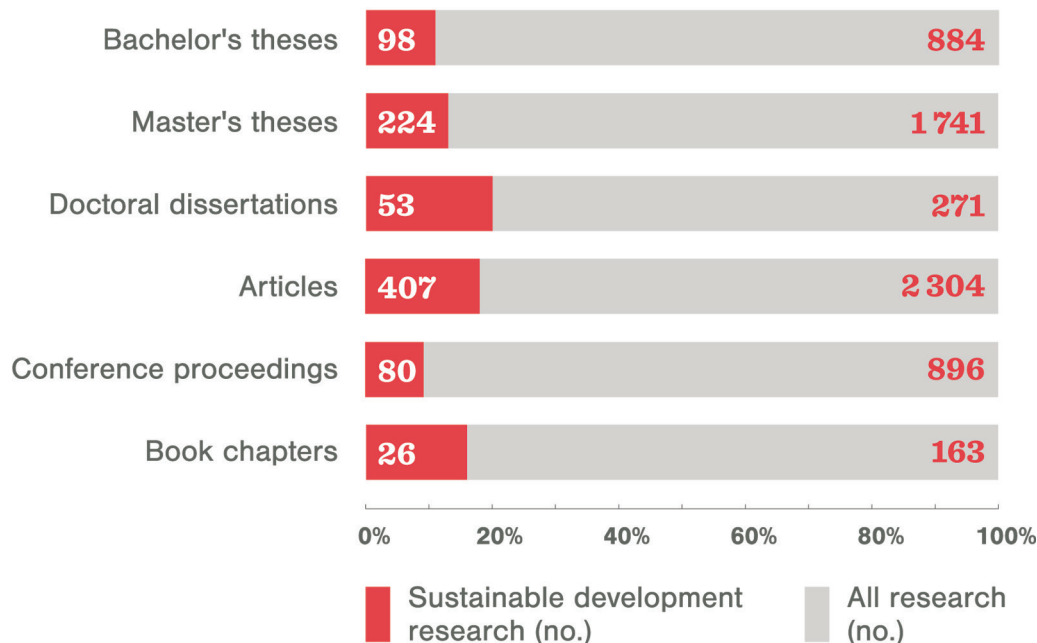
Numerous research groups that focus on the research areas of responsibility and sustainable development operate in all of Aalto University's schools. Also the university's artistic activities include numerous projects in which responsibility and sustainable development form the core.

- **Professor Herbert Sixta has led the development of Ioncell-F**, an environmentally-friendly and non-toxic method that will revolutionise the recycling of cotton. The method will make it possible to dissolve cotton waste utilising an ionic solvent developed at the University of Helsinki. Ioncell-F won the H&M Conscious Global Change Award competition, which sought out new textile industry ideas that facilitate sustainable development. VTT Technical Research Centre of Finland Ltd was responsible for the development of the method used for the pre-processing of cotton waste.
- **Together with a group of international researchers Assistant Professor Matti Kummu** developed a new type of method with which to analyse the Mekong River's water flow measurements and examined the water's solids content in 1981–2005. The research shows the changes to the route and intensity of storms that hit the that hit the drainage basins on the upper course of the river far from the delta must be taken into account when assessing the vulnerability of deltas as the ocean surface rises.
- **In his doctoral dissertation Robin Stitzing researched the effects of the car tax reform** on the markets, the environment and car sales. According to the study, the eco-friendly car tax reform had only a small impact on the sales driven carbon dioxide emissions that decision-makers thought were important, because at the same time the EU set carbon dioxide limits for car manufacturers. A car tax based on carbon dioxide emissions increased local pollution, because it favoured cars that run on diesel. Carbon dioxide emissions from diesel engines are smaller, but their local polluting emissions are greater than those of petrol engines, so carbon dioxide emissions based car tax favoured them.
- **The results of research by Professor Robin Ras can in future be utilised** e.g. in prevention of biofouling. Professor Ras received the nearly EUR 2 million ERC Consolidator Grant from the European Research Council (ERC) for his Superslippy Liquid-Repellent Surfaces project. The objective of the five-year project is to produce new types of surfaces and promote their potential use in various technological applications.

In 2016, a total of 487 (2015; 341) peer-reviewed articles and conference papers on the subject of sustainable development were published at the university. This is approximately 15% (2015; 11%) of all the university's publications. The number of bachelor's theses on sustainable development had decreased from 2015, and the share of doctoral dissertations remained fairly constant, while there was a slight increase in the number of master's theses. Additionally, many of Aalto University's research projects are indirectly related to sustainable development via e.g. the utilisation of research results.

Publications related to sustainable development 2016

Number and share of all publications



Societal impact

Aalto University makes an effort to actively find solutions for social challenges within the framework of its key expertise. The university's multidisciplinary-approach and its strong expertise in the circular economy, among other things, support the creation of new understanding and new operating practices. Aalto University participates in societal discourse in a number of ways including many open seminars and events.

Aalto University's activities also aim to reduce inequality in society. Aalto supports academic freedom and free international mobility and, like numerous other universities, it is a member of the Scholars at Risk network. The network acts to help researchers who experience persecution or are at risk in their home countries. This network makes it possible for such researchers to come work at Aalto. Aalto has held numerous courses in different fields that have focused on the challenges faced by asylum seekers and refugees and on finding solutions to improve the situation. Students have also organised various activities and events to help asylum seekers.

- **In spring 2016, a multidisciplinary group of students participating in the Sustainable Global Technologies** Master's programme combined their expertise in sustainable development, architecture and design as well as business and urban development to help asylum seekers in the island of Lesbos. The project had three goals: to clear beaches of waste and collect life vests, to develop recycling ideas for reuse of life vests, and to alter attitudes towards asylum seekers in Europe towards more empathetic and positive.

Aalto University is a member of numerous international university networks on sustainable development including the International Sustainable Campus Network (ISCN), the Nordic Sustainable Campus Network (NSCN) and the Global Alliance. Aalto University is also a member in European EIT Climate KIC -network. The cooperation projects will include climate change-related teaching, as well as innovation and entrepreneurship activities. Aalto University has also signed the universities' Rio+20 declaration.

PRINCIPLE 1: Environmental impact of campuses

A campus operating in line with the principles of sustainable development is a key part of the university's campus strategy. The most significant environmental impacts of a campus are related to energy consumption, transport and recycling. Aalto University campuses actively work to develop the energy efficiency of their present building base and to decrease energy consumption.

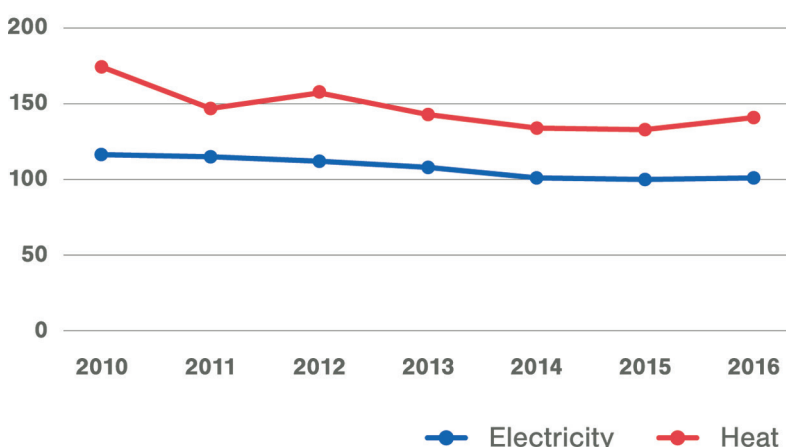
The specific consumption of electricity, heat and water in Aalto University's properties has evened out. Energy efficiency has been increased by optimising facility use and, for example, by using ecological heating and increasing the number of solar panels in certain buildings. Aalto University Properties Ltd is responsible for about 75 per cent of the facilities used by the university, and reporting aims to cover all the facilities of significant scope used by the university. In 2016, sustainable development was taken into account on the Aalto University campus in the following ways:

- **The renovation project of Aalto University's Harald Herlin Learning Centre** received the HURRAA! prize, which is awarded annually by the Building Control Committee of Espoo. The building, designed by Alvar Aalto and introduced in 1970 as the former Helsinki University of Technology's library, was transformed during its full renovation. The building materialised into a multi-purpose and modern learning centre for students, staff and other customers. Its dynamic premises support multi-disciplinary and novel learning, research and work. In connection with the renovation project, the university also invested in improving the energy efficiency of the learning centre's lighting and ventilation.
- **The use of campus facilities was optimised using the Aalto Space mobile application**, which students can use to find and reserve free study facilities. The map included in the application also helps students and visitors find their way in the building. Aalto Space was launched in September 2016, and it has acquired a large user group; over 80% of new students utilise the application.
- **Aalto University also encourages bicycling**; in addition to the staff's campus bicycles, Aalto University has purchased two fixed BFIX repair stands. The stands include tools needed for bicycle repair work as well as a QR code for a mobile guide. Use of the bicycle repair stands is free-of-charge.

Aalto University's energy, electricity and water consumption have remained even; annual variations in specific consumption are very small.

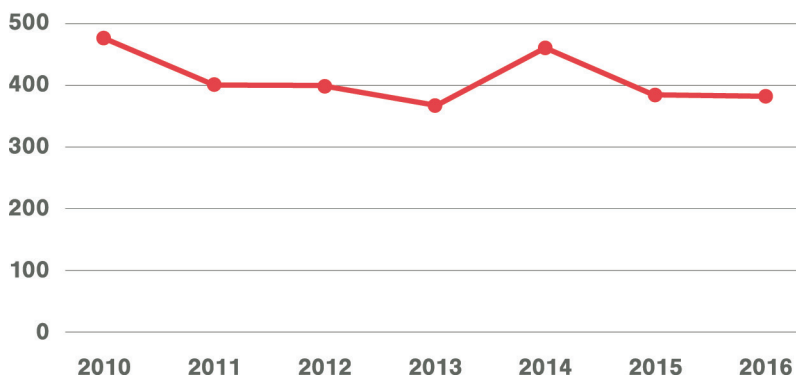
Specific consumption of electricity and heat

Aalto University Properties Ltd (kWh/brm²)



Specific consumption of water

Aalto University Properties Ltd (l/brm²)



Electricity, heat and water consumption in facilities by campus

	2015			2016		
	Electricity (MWh)	Heat (MWh)	Water (m ³)	Electricity (MWh)	Heat (MWh)	Water (m ³)
Otaniemi	29 819	38 698	112 486	27 280	36 231	96 849
Töölö	1 868	3 378	12 284	1 770	3 680	11 862
Arabia	2 399	5 595	23 015	2 254	5 652	12 182
Total	34 086	47 671	147 784	31 304	45 563	120 893

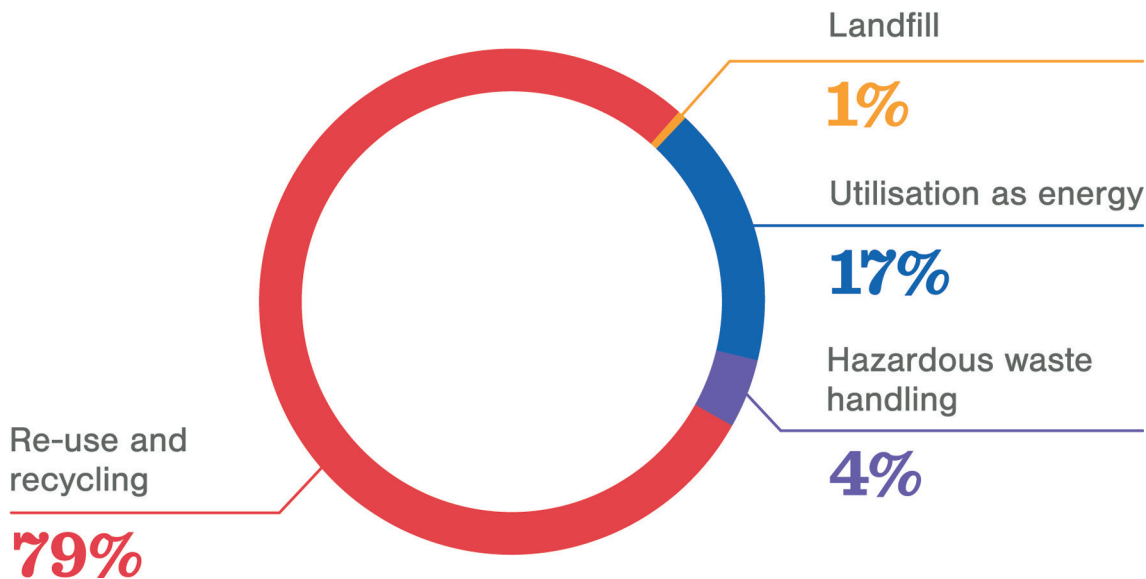
Aalto University's greenhouse gas emissions continued to fall. Consumption of electricity and heat in the facilities and air travel have all decreased from 2015.

Greenhouse gas emissions (tCO₂ eq.)

	2014	2015	2016
Electricity consumption in facilities	1 678	1 426	1 299
Heat consumption in facilities	9 734	8 867	7 615
Personnel flights	4 403	4 664	4 288
Total	15 815	14 957	13 202

The reuse of waste at Aalto University has become well-established. Of the waste generated at facilities, 95 per cent was recovered as material or used as energy in spite of the several relocations that took place on the campus in 2016.

Waste amounts according to handling method 2016



PRINCIPLE 2: Campus planning and indirect impacts

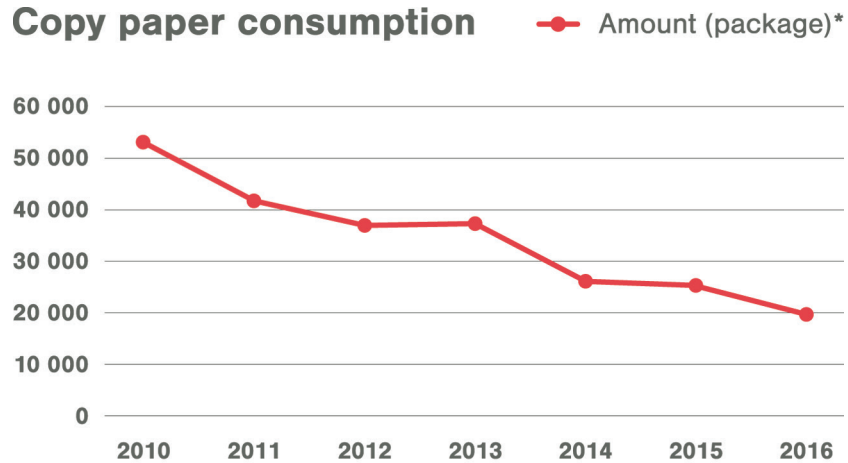
Responsibility is taken into account in all of Aalto University's daily activities and support services. The working group on responsibility and sustainable development supports work to develop the university's different activities and responsible operating practices, as well as the university's responsibility reporting. Aalto University's orientation entity for new students includes a section on responsibility and sustainable development, as well as practical instructions on the realisation of sustainable development on campuses. The orientation package was reformed in 2016, and it was presented at information events for new students and at fairs.

In 2016, Aalto University specifically focused on responsibility in stakeholder relations and developed guidelines on responsibility with regards to stakeholders. The guidelines drawn up by the working group will be linked to the Aalto University Code of Conduct. Additionally, with regard to the university's restaurant and cafeteria strategy attention was focused on food waste by examining various processes and applications for reducing waste. Development work will continue in 2017. In 2016, Aalto University's activities took sustainable development into account in the following ways:

- **Aalto University complies with the responsibility and environmental aspects** in Finland's Act on Public Contracts in all its procurements.
- **Campus development also takes into account biodiversity** and protected areas. Campus gardening has been developed and a garden for decaying wood is maintained.
- **ESG factors are a part of the manager selection process** in Aalto University's investment activities. The responsibility of the university's investment's portfolio is screened annually with regard to international norms. In 2017, an analysis will be carried out on the implementation of the current portfolio also with regard to ESG factors.

The use of copy paper decreased after previously evening out in 2014–15.

Copy paper consumption



* One package contains 500 sheets

More information:

aalto.fi/sustainability

Annukka Jyrämä

Advisor, PhD, Docent

+358 50 373 2238 / annukka.jyrama@aalto.fi

Aalto University

P.O.Box 11000

FI-00076 Aalto