

# **Sustainable development at Aalto University in 2020**

**A?** Aalto University

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In 2020 we confirmed our strategy for 2021–2024. According to the new strategy our task is to shape a sustainable future. We take sustainable development into account in teaching, research, campus, and other activities. [Aalto Sustainability Hub](#) completed its term in 2020, but its activities continue and are expanding in new ways that will be clarified in 2021. The terms of the Hub's Steering Board, Advisory Board, and the Sustainable services working group concluded at the end of 2020.

## Research

Science and art help us understand the complicated world, and to challenge our own ways of thinking. Together they bring us new knowledge and points of view that we need more than ever before to solve great global challenges.

Aalto University research covers different branches of science extensively and innovatively, while promoting sustainable development in many different fields.

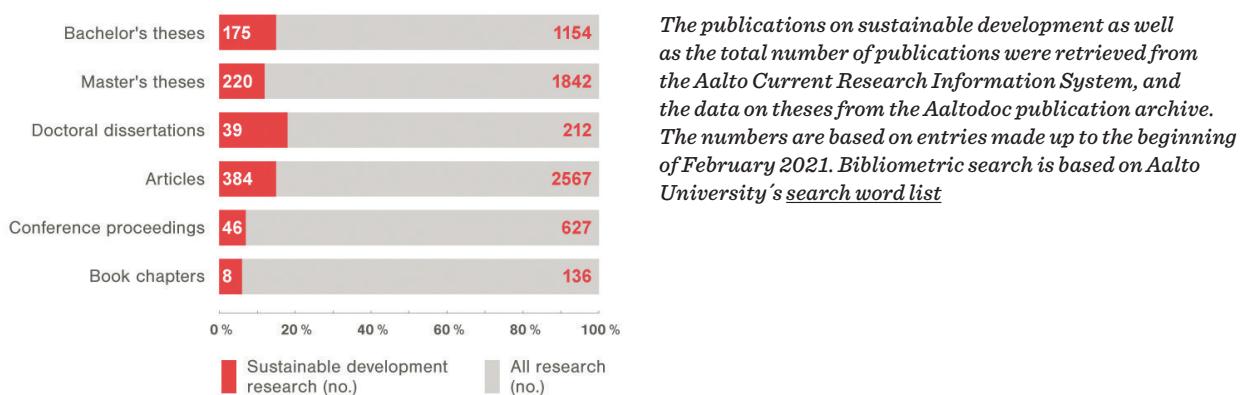
A significant proportion of Aalto University's fundamental research takes place every year in areas that have a great potential to affect sustainable development over the long term, even though the vocabulary of sustainable development does not always stand out in project descriptions.

Of the projects funded by the Strategic Research Council, research projects coordinated by Aalto University which support sustainable development continued and new ones were launched. New projects include FINIX, which promotes the textile industry, SmartLand, which promotes sustainable urbanisation, and ValueBioMat, which promotes the use of sustainable raw materials. The Jane and Aatos Erkko Foundation granted €10.5 M to Aalto University for setting up a bioinnovation centre.

[The Aalto Sustainability Talks](#) series in the autumn of 2020 used research at Aalto to engage the themes of the Sustainable Development Goals (SDG). The topics of the three events were the role of water and water management in the achievement of the goals of sustainable development, the education crisis, and ways to support educational efforts in the global south, as well as access to clean energy and developing energy production methods based on bioconversion.

### Publications related to sustainable development 2020

Number and share of all publications



Taken as a whole, research results grew compared with 2019 and correspondingly, the numbers of projects concentrating on themes of sustainable development also grew. Eighteen percent of the doctoral dissertations produced at Aalto University and about 15 percent of peer-reviewed scientific articles involved themes promoting sustainable development. The relative share of research output on sustainability remained the same in the comparison of 2019 and 2020.

In doctoral research themes of sustainable development were especially prominent in the School of Engineering and the School of Chemical Engineering.

# Education

Aalto University offers a wide range of master's degree programmes, minor subject programmes and freely available online courses that focus on sustainable development. Students learned how to combine points of view of sustainable development with multidisciplinary knowledge from different fields.

- In the 2020–2021 academic year nine master's programmes focus on sustainable development.
- The Climate University cooperative project resulted in the release of nine different online courses on circularity, sustainability, and climate change.
- In March 2020, just before the pandemic, a seminar called Climate University goes Aalto, which proved very popular, was held in Dipoli. It put a special emphasis on methods of innovation and creative art as part of teaching about climate change.
- The area examined by the Systems Thinking course of the Creative Sustainability programme was the Otaniemi campus. The task of the students was to come up with ideas for social and ecological synergies to support the goals of Aalto University in the building of a sustainable future. Proposals were linked with issues such as composting on campus and the development of urban farming.

## Aalto University courses with SDG themed content

1–3 most relevant SDGs per course



In 2020 the teachers-in-charge mentioned in their course information which UN Sustainable Development Goals, (SDG) were included in the content of the courses. The teachers were asked to select 1-3 key SDG goals. ([Read more](#))

- Aalto University has a total of 2 961 courses in the 2020–2021 academic year, of which slightly under half (48%) include content dealing with sustainable development, according to analysis by teaching staff.
- Themes of economic growth and sustainability of work (SDG 8) are emphasised in teaching available at the School of Business.

- At the School of Arts, Design and Architecture the greatest amount of teaching on offer relates to sustainable consumption and production (SDG 12) and sustainable cities (SDG 11).
- In the School of Science, the School of Electrical Engineering, and the School of Chemical Engineering the courses on offer put an emphasis on SDG 9 (sustainable industry, innovations, and infrastructure).
- In the teaching of the School of Engineering there is a focus on themes linked with sustainable cities (SDG 11) and sustainable industry, innovation, and infrastructure (SDG 9).

## Societal impact

- A key goal of the university's strategy is responding to the great challenges of society, such as climate change and increasing inequality in society. Aalto University is an active member of university networks of sustainable development in Finland and internationally. Aalto University has signed the Sustainable Development Goals (SDG) Accord, an international commitment of universities to the goals of sustainable development and is part of the International Sustainable Campus Network, ISCN. Making sustainable development a part of the mission of the university in accordance with the new strategy has led to the launch of a development project to follow the promotion of the goals of sustainable development more closely as part of the university's innovation programme.
- Aalto University committed itself to the theses of sustainability and responsibility of UNIFI, which were announced in November 2020.
- In September 2020, a national UNIFI seminar of universities represented by 400 participants was held, with themes focused especially on sustainable development in education, and carbon neutrality for universities.
- In 2020 the chairmanship of the Nordic NSCN network founded by Aalto University was passed on from Aalto to Sweden's Royal Institute of Technology (KTH).
- Aalto Sustainability Hub supported an initiative by the Aalto University Student union (AYY) to include vegetarian food at official Aalto University events.
- Aalto University was in 47<sup>th</sup> place in the global Times Higher Education University Impact rankings, evaluating how well the universities promote the UN SDGs. Aalto University jumped to 2<sup>nd</sup> place in responsible consumption in THE Impact Ranking
- At the beginning of the year a mobile app, AaltoSDG, was launched, which increased the visibility of the theme of sustainable development. The mobile app was downloaded by 1736 users in 2020. The sustainability acts of those using the app led to cuts of CO<sub>2</sub>e emissions by 28800 kilos. AaltoSDG reveals what Aalto University does to advance the SDGs and how each member of the community can implement acts that advance sustainability in their own work and everyday lives.
- During the year many different, mostly remote exhibitions and events were arranged at Aalto University, A hybrid exhibition, Designs For a Cooler Planet, Race for the future were in the autumn of 2020 both on campus and virtually.

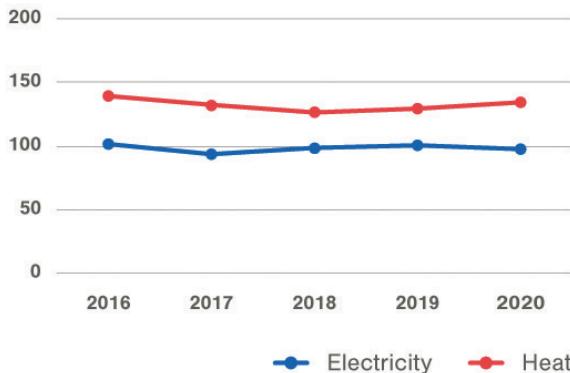
## Environmental impacts of campuses

In accordance with a goal agreed with the Ministry of Education and Culture, Aalto University is committed to reducing emissions from the energy consumption of its buildings by 30 percent from the 2019 level by the year 2024. The university has also set as its goal the achievement of carbon neutrality by 2030. The goal applies to the university campus and all of its activities. To support work on behalf of carbon neutrality, the carbon footprint of the entire campus was reduced in 2020.

Aalto University Campus & Real Estate (ACRE), which is responsible for Aalto University campus properties, affect more than half of the total emissions of the campus. In 2020 the first version of a plan of action was drafted to reduce CO<sub>2</sub> emissions of the campus.

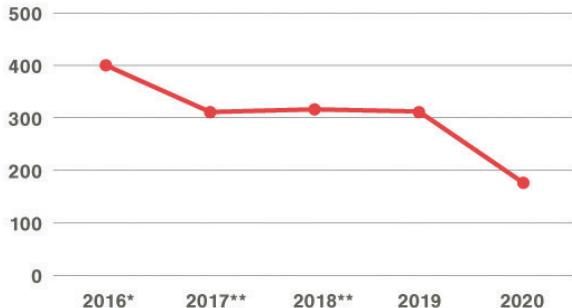
## Specific consumption of electricity and heat

Aalto University Campus & Real Estate (kWh/brm<sup>2</sup>)



## Specific consumption of water

Aalto University Campus & Real Estate (l/brm<sup>2</sup>)



\*The water consumption data for 2016 is not comparable due to a monitoring system error. \*\*The water consumption data for 2017 and 2018 has been corrected due to the error found in 2019.

Aalto University's heat and electricity consumption have remained at the same level for five years, despite the growth pressure caused by space compaction.

## Aalto University's greenhouse gas emissions 2019, 2020

(facilities, business travels)

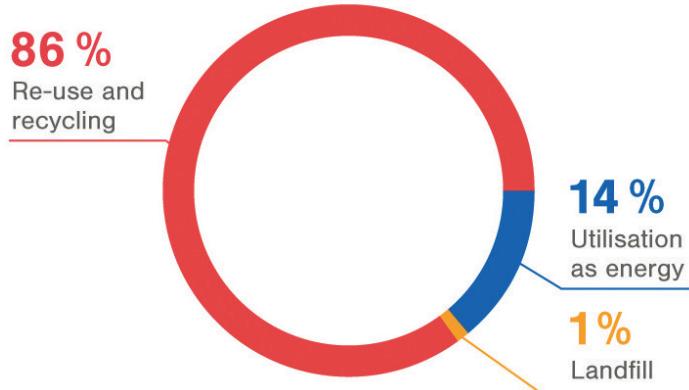
GHG Scope	Category	Emission 2019 tCO2e	Emission 2020 tCO2e	%-share
Scope 1	Heating fuel of facilities			
	total Scope 1	44	29	0,2 %
Scope 2 Market-based	Purchased electricity	0	0	
	Purchased heat	12 945	10 660	
	total Scope 2	12 945	10 660	84,5 %
Scope 3 Business travels	Flights	6 393	1 932	
	Car driving costs	44		
	total Scope 3	6 437	1 932	15,3 %
	<b>Total Scope 1+2+3</b>	<b>19 426</b>	<b>12 621</b>	<b>100,0 %</b>
Scope 2 Location-based	Purchased electricity	6 824	5 762	
	Purchased heat	12 611	11 496	

Included in the calculation: facilities owned or rented by Aalto University.

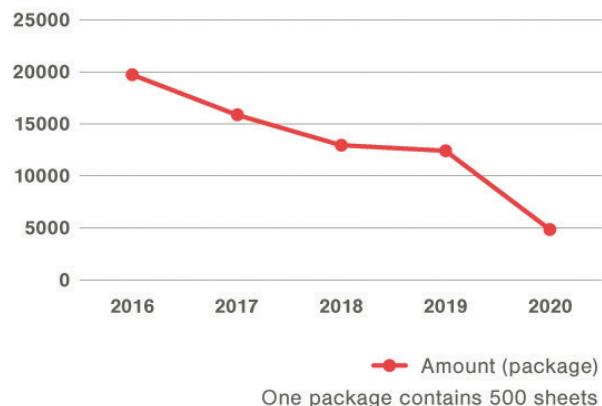
GHG refers to emissions ([Greenhouse Gas Protocol](#)) that are classified in three scopes:

- Scope 1 emissions are direct emissions (facilities, vehicles) from owned and controlled resources.
- Scope 2 emissions are indirect emissions from purchased energy.
- Scope 3 emissions are all indirect emissions that occur and are linked to our operations, both upstream and downstream.

## Waste amounts according to handling method 2020



## Copy paper consumption



- The coronavirus year was reflected on campus especially in the consumption of water. Remote work led to a reduction of water consumption on campus. Electricity consumption also declined somewhat from the previous year.
- The autumn of 2020 was exceptionally warm, which meant that the normal way of equalising consumption over different years proved to be inadequate. For this reason, the so-called weather correction for heating energy has been removed from the data with respect to the exceptionally warm September and October.
- Carbon dioxide emissions from energy went down in both categories. Metsähovi's need for heating oil declined after the renovation (Scope 1) and the proportion of the carbon-free Fortum eco heating product in the heating of the buildings was increased (Scope 2). The total amount of bought energy declined, which affected the reduction of carbon emissions.
- Researchers from Fortum and Aalto University developed an energy solution based on heat pump technology for the Aalto Works block. A regional heat transfer network utilising waste heat from the Nanotalo building enables a concentrated heat production solution and functions as an excellent research platform. A cooperative agreement with Fortum was signed in the summer of 2020. The solution reduces campus heating and cooling emissions by about 25 percent. The AW block's energy solutions are to be expanded in stages in the coming years.
- Energy efficiency of the buildings was improved in connection with renovation projects. Oil heating was scrapped at the office building of the Metsähovi Radio Observatory and energy efficiency at Aalto University's building in Töölö was improved by upgrading its building technology. In the landscaping plans for the outdoor areas of the campus, the goals of increasing nature capital were considered. The community was coached increasingly in matters related to sorting waste.
- In 2020 occupational safety was advanced especially with electrical tools (occupational safety courses and reports of deviation). Shared use of laboratory and workshop workspaces, recycling and re-use of materials increased.
- Sorting was developed further. The coronavirus led to a significant decrease in the amounts of waste and CO<sub>2</sub> emissions from campus waste management – about 42 percent, according to L & T Environmental Services. Personnel and students active in the guilds were offered environment agent training, separate recycling of plastic packages was introduced, and recycling of cardboard was increased. Waste baskets at individual work stations have been eliminated, leading to a decrease in consumption of plastic bags.
- In 2020 Aalto University delivered 10 095 tons of dangerous chemical waste and 11 660 tons of waste from electrical and electronic equipment (WEEE) to certified processors. The total amount of hazardous waste was 21 755 tons (in 2019 correspondingly 19 132 tons and 24 098 tons, making a total of 43 230 tons). Hazardous waste and WEEE is included in the figures on the amount of waste under the re-use and recycling category.
- Because of the global pandemic, the number of kilometres flown went down to a fifth of the 2019 level. A corresponding decline occurred in the consumption of paper, as the university's research, teaching, and other activities were primarily virtual.

- A benchmark report continuing the nature capital survey of the Otaniemi campus was completed. The report puts forward various ways of improving recreational possibilities, nature-based solutions, and species diversity of the campus. In practice this means, for example, art that communicates nature values, or green infrastructure, such as green roofs, features that slow the movement of flowing water, and community gardens.
- The Amphitheatre Square and the landscape plans for the outdoor areas of Dipoli reached the permit processing stage. The environmental construction of the area supports solutions in accordance with sustainable development, such as the management of runoff rainwater and the improvement of energy-efficient outdoor lighting. Another goal of planning is maintaining and improving natural diversity.
- Works of public art were sought for outdoor areas of the campus through an idea competition directed at the Aalto community. The proposals for the winners of the campus art competition were linked with bioart, focusing attention on sustainable development.
- In the autumn of 2020 the [Aalto Green Nudge team programme](#) was implemented with the support of the ISCN network in cooperation with ACRE and AYY. The programme was based on the UNEP publication *The Little Book of Green Nudges*. In the programme 9 teams of student volunteers carried out practical projects advancing campus sustainability. Eleven experts from Aalto served as mentors for the teams. They included researchers and representatives of personnel, and the Student Union.

## A socially sustainable university community

Aalto University is dedicated to promoting equality in all its activities and operations, and to eliminating discriminatory structures and processes. The key goals include improving uneven gender balance in certain fields, ensuring equal career opportunities in academic careers and fostering an inclusive culture that supports the needs of different minorities as well as international faculty.

Gender balance issues have been addressed through e.g. communication activities and events, and training of personnel. In recruitment and student marketing, development activities include improving the recruitment process by embedding diversity aspects in formal processes, and renewing evaluation guidelines and best practices to better take into consideration equality and diversity aspects in hiring decisions. Other actions in 2020 included launching an e-learning and a handbook on diversity in recruitments, adding a diversity statement to job advertisement templates, and providing D&I briefings on diversity to all Tenure Track committees. A mentoring programme for female professors was developed, and it will be launched in 2021. In regard to students, inclusion theme was embedded in the orientation of all new bachelor's and master's students, as well as in tutor trainings. Aalto University joined the HILMA Network for Gender Studies, providing all students the possibility to enroll in courses on gender studies.

In work against discrimination, faculty and staff trainings have been organised to support the community in recognising diversity aspects and unconscious biases. In addition, a Learning hub on D&I was published on the [aalto.fi](#) website to support bringing diversity and inclusion into practice in everyday work. Communication campaigns were implemented with the aim of attracting diverse talent to study at Aalto University. Examples of such campaigns include the [Shaking up tech event](#) aiming to inspire young women to study technology after high school, as well as the [Girls Takeover](#) event in which a girl from upper secondary school served as our President for a day. Aalto seeks to engage the community in the development of diversity and inclusion. An innovative example of such an initiative is Diversity Fund at the School of Science, providing personnel opportunity to apply for funding for projects that promote diversity and inclusion.

Aalto University is continuing its active work to ensure that all community members have equal possibilities to advance in their careers or studies, and to experience positive togetherness, development, and growth in their work and study community.

Sustainability reports in English: [aalto.fi/en/sustainability/sustainability-reports](http://aalto.fi/en/sustainability/sustainability-reports)

Kestävän kehityksen raportit suomeksi: [aalto.fi/fi/kestava-kehitys/kestavan-kehityksen-raportit](http://aalto.fi/fi/kestava-kehitys/kestavan-kehityksen-raportit)

Rapporter om hållbarhet på svenska: [aalto.fi/sv/hallbarhet/rapporter-om-hallbar-utveckling](http://aalto.fi/sv/hallbarhet/rapporter-om-hallbar-utveckling)

Report compiled by M.Löyttyniemi, Aalto University community and Aalto Campus and Real Estate in collaboration with Mitopro Oy.

The SDG Accord

The University and College Sector's Collective Response to the Global Goals



*AaltoASH*

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