

# Corporate responsibility report 2017



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# Sustainable development as a key part of what we do

We take account of the principles of sustainable development in research and development and in our internal operations. We apply the GRI guidelines to our reporting on corporate responsibility. In this review, we describe our social responsibility through examples. The selected GRI indicator table is published on our website (more information is available on VTT's corporate responsibility page).

## Social responsibility

VTT's research focus areas – climate action, resource sufficiency, good life, safety and security and industrial renewal – seek sustainable solutions to major social challenges. When drawing up our research agenda, we look at the issues from the outside, taking a challenge-oriented approach. This continuous process is steered by outside signals instead of our existing competencies. The challenges and future growth opportunities of our customers have a pronounced impact on our research agenda and competence development. According to studies, the utilisation rate of our research results is extremely high, which means that VTT has a highly important impact in promoting sustainable development. Our research results and experts are also widely called upon as a basis for public decision-making on the journey to a society founded on sustainable development.

VTT is a member of the FIBS corporate responsibility network.

## Responsibility for our own personnel

To this end, well-being workshops with various themes were organised for all VTT personnel. These were supplemented with a variety of events: the Heart Week tour, Dream Exercise Day, Step Competition and national exercise day "One Hundred Movements for Finland". VTT organised two human resource coaching groups in 140 for preventing coping issues and arranged a mindfulness training course that attracted 140 participants.

We also supported our personnel with Academy of Brain online courses and a pilot project for obtaining help for various crises at an earlier stage. VTT's actions for promoting well-being and activeness were recognised with the Finnish Olympic Committee's "Most Active Workplace in Finland" award, presented at the Urheilugaala sports gala held in January 2018.

Systematic competence development and training, and work-based learning, form a key element of our responsibility for our own employees.

### Accident frequency

# 0.96

per million working hours

Calculated using the method of the Workers' Compensation Centre, the Group-wide accident frequency was lower than ever at 0.96 per million working hours. The corresponding figure for the parent company was 0.82. The most common causes for accidents were bumping into an object, slipping and falling, and chemicals. There were no serious occupational accidents in the Group, and the severity indicator was 8.6 days of absence/accident (10 in the parent company).



The 2015–2017 three-year plan's projects for 2017, with the objective of developing environmental and occupational health and safety, were implemented according to plan. The themes were occupational health and safety culture and its development, strengthening the QEHS capabilities of the management chain, the common workplace, and cleanliness and order. One of these projects was the Hoksaa, huomaa, reagoi (Notice, observe, react) campaign implemented in cooperation with the occupational health care provider and accident insurer. The campaign included lectures, information and reminders of VTT's practices. A particular technical focus area was the measurement of air volumes in fume cupboards in order to ensure their reliable operation.

## Responsibility for the environment

VTT Technical Research Centre of Finland Ltd has ISO9001 and ISO 14001 quality management systems in place, certified by DNV GL Business Assurance Finland Oy Ab.

We updated our environmental principles, targets and indicators. The new principles are:

- 1) improving the eco-efficiency of our operations
- 2) communicating openly about our environmental policy
- 3) producing new and significant environmental innovations
- 4) producing expert information to support decision-making by companies and society.

VTT scientists took part in eleven parliamentary committee hearings on the subjects of energy and the environment, either as invited experts or by submitting a written statement.

There was a gap year in spot checks required by the Energy Efficiency Act. Electricity consumption remained nearly unchanged (+0.7%) from the previous year. VTT undertook to reduce its climate emissions and joined the Climate Partners network. From its EU emissions trading quota, VTT bought and cancelled a quantity of emission allowances equivalent to the CO<sub>2</sub> emissions (59 tonnes) of VTT's car fleet in 2016. The CO<sub>2</sub> emissions of VTT's leasing fleet decreased further, to 109 g/km. The use of private cars declined by 11%. The number of flights continued to decline in line with the target, with a reduction of 2% in comparison to 2016.

Use of purchased office paper once again took a downturn (-15%). The share of ecological products used amounted to 27% and printing volumes decreased by 17%. VTT does not operate in ground water areas, but in Espoo it does operate close to the Laajalahti Natura Nature Reserve.

In the monitoring of the oil spill related to the metro construction site in Otaniemi, the sampling frequency of water collected into the pump wells was reduced to twice per year. The levels of detrimental elements in the water have been very low, and a further reduction in the sampling frequency to once per year has been proposed.

The share of  
ecological products used

27%



# VTT promotes responsible operations





## VTT's innovation activities include the promotion of responsible water use

The Aalto University, Natural Resources Institute Finland (Luke), Ministry of Agriculture and Forestry, Ministry of the Environment, VTT and WWF have drawn up a water responsibility commitment as part of Society's Commitment to Sustainable Development as drawn up by the Government. VTT undertakes to promote the responsible use of water in its operations by developing innovative solutions that support industrial competitiveness and social welfare and promote the efficient and environmentally friendly use of water.

Even though the state of Finland's water reserves and their management is on a sound basis for the most part, Finnish companies operate and subcontract

in areas suffering from a variety of water-related problems. Global challenges such as the scarcity and pollution of water pose significant risks to the operations of companies, but they also play a key role in the resolution of these challenges.

The water stewardship commitment challenges Finnish companies and organisations to identify water-related risks in their procurement and value chains, ensure the water responsibility of their offices and procurement chains through risk analyses, and to develop sustainable water use and management practices together with their stakeholders.

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## The climate change plan points the way to a sustainable, low-carbon society

The impact evaluation of the medium-term climate change policy plan (KAISU) required by the Climate Change Act reviewed the impact of the climate change policy on Finland's greenhouse gas emissions, energy system, economy, environment and health. KAISU clarifies and complements the actions for reducing greenhouse gas emissions in the non-ETS or effort sharing sector, specified in the Energy and Climate Strategy published in 2016.

Based on the impact evaluations in KAISU, the greatest potential for reducing greenhouse gas emissions lies in the transport sector but, on the other hand, the reduction of transport emissions and the ensuing costs and environmental impact also involves the greatest uncertainties. Additional emission reductions can be achieved in particular by reducing the use of mineral oils for heating buildings and in machinery fuel.

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## Significant project underway to utilise Finnish discarded textiles

The industrial utilisation of discarded textiles requires that an extensive sorting and collection network is established for the different fibres – from cotton to polyester and viscose. Companies that wish to become involved in developing a business from circular economy must also be found. In the Telaketju project developing circular economy for textiles, VTT Technical Research Centre of Finland coordinates a project component that received EUR 2.3 million of funding from Tekes.

The purpose of the Telaketju project is to establish an ecosystem formed by companies and other actors that would raise the circular economy for textiles to a whole different level in Finland and develop it into a profitable business.

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## A new method for producing plant-based drinking bottles from FDCA

VTT has developed an environmentally sound and economical method for producing furan dicarboxylic acid (FDCA) from plant sugars for the production of drinking bottles, paints and industrial resins, for example. This technology enables production of plant-based products.

The main production material of drinking bottles is still oil-based PET although there has been news on alternatives based on renewable materials during the last few years. VTT's new method provides a new route for the packaging and beverage industries to expand the use of renewable materials in their production.

VTT has patented the method for producing furan dicarboxylic acid (FDCA), the monomer for PEF polymers, from sugar or sugar waste. Thanks to the solid acid catalyst and biobased solvent with short reaction time, the method provides a considerable reduction of toxic waste compared to traditional methods.

The method can be scaled-up to industrial purposes without substantial investments, and it has already raised a lot of interest in industry.

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## ITERAMS project reinventing the role of water and waste in mining

The ITERAMS project "Integrated Mineral Technologies for More Sustainable Raw Material Supply" funded by the European Union Horizon 2020 programme is reinventing water and waste in mining. The new methods developed in the project will offer the EU the potential to be in the forefront with regard to minimal waste, minimal energy and minimal water consumption in the mining sector.

Mining has been and is still a significant user of land space and water. One of the major environmental issues in processing the ore to concentrates is the waste stream, which can reach over 90% of the total mass.

The ITERAMS project targets significantly reducing water consumption by circulating process waters and reducing the amount of tailings waste through valorisation of the mineral matrix. Water circulation reduces water consumption at mine sites and the need to dispose of large quantities of wastewater in surrounding areas. To achieve this, the project focuses on the complete isolation of process waters from the adjacent water systems.

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## A total of 33 companies joining forces with VTT to develop new generation sustainable forest products

Together with a large industrial consortium, VTT has launched a EUR 4.5 million project to speed up the development of fibre-based products as alternatives to oil-based materials like plastics. The project, funded partly by the European Regional Development Fund ERD, has brought together 33 companies, ranging from small to large, global companies.

The Future Fibre Products project coordinated by VTT will transform laboratory-scale results into pilot-scale demonstrations for products and processes with a low carbon footprint. It will also explore how the current paper and board production infrastructure can be utilised in the field of new packaging solutions, non-woven materials, porous insulation materials, or even as replacements for EPS-based materials.

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