


Outotec

Experts dedicated  
to sustainable  
partnerships

Sustainability  
report 2019

 Sustainable use of  
Earth's natural resources





# Experts dedicated to sustainable partnerships

Customers increasingly seek co-creation and trust Outotec to solve demanding challenges together with them. By working closely with customers from as early in the project as possible, we can add significant value to the solution. By sharing knowledge and combining forces with customers, partners and the scientific community, we create solutions that benefit all parties.

**Read more:** [www.outotec.com](http://www.outotec.com)



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## CEO's message

# Experts dedicated to sustainable partnerships

Our mission, 'Sustainable use of Earth's natural resources', motivates us at Outotec to keep innovating and creating solutions that help our customers succeed and consider sustainability in everything they do. Our core competence comes from the knowledge of our people.

### Sustainable partnerships

I meet our customers frequently, and three major themes seem to run throughout customers' agendas globally: the availability of energy and cutting emissions, the availability of water and water treatment, and improving operational efficiency through digitalization.

Outotec's proven technologies and services allow customers to develop their operations sustainably and get the best value from their assets. We are in an excellent position as a provider of sustainable, low-emission technologies, as customers have begun to consider the costs related to future CO<sub>2</sub> emissions in their investment decisions. We have successfully helped our customers reduce emissions and expect carbon emission controls to start playing a greater role in the future.

Water availability and minimizing water related risks have become increasingly a concern and cost factor for both communities and businesses. Outotec provides, for example, tailings management solutions, which significantly reduce impacts on the community and the environment.



Automation and digitalization continue to replace manual tasks in, for example, smelting, where digital process control applications enhance efficiency by determining optimal parameters for the process and automation improves safety by removing operators from high-risk areas. Analytical skills and process control understanding become increasingly important.

### Dedicated experts

Our core competence comes from our people and their knowledge. We work hard to be the best in the industry when it comes to resource efficiency, energy efficiency, water usage and minimizing emissions. A great example we can be proud of is our long-term R&D expertise. In 2019, Outotec Research Center in Pori (ORC) celebrated its 70th anniversary. ORC is unique in the industry – its expertise in the minerals and metals processing value chain ranges from ores to finished metals and recycling.

I also want to highlight our safety performance: our lost-time injury rate covering both employees and contractors was as low as 0.6 in 2019. That is the result of a systematic long-term safety work and culture. A strong health and safety program significantly elevates productivity and engagement.

We want to make Outotec the most desirable place to work in our industry and attract great talent. Professional growth and competence development continued to be key elements of our People strategy in 2019. In the most recent employee survey conducted in November 2019, the employee engagement index was 7.5/10, which indicates a continuing positive trend. We are on the right path, but there is still room for improvement.

### A year of many notable achievements

We delivered strong growth in order intake and service sales while significantly improving profitability. We booked two large greenfield orders, one in Russia and another in Saudi Arabia. Investments in existing operations remained at the previous year's level. Copper, gold and nickel continued to be the most active metals.

In metals refining, demand in hydrometallurgical technologies for base and precious metals continued. We have new smelting projects in the preliminary planning phase as well as projects in iron ore pelletizing and sulfuric acid plant solutions. In 2019 we also took a decision to divest businesses related to aluminum, waste-to-energy and sludge incineration.

Our must-win battle programs contributed to profitability improvement. One of these is project excellence, where we have strengthened the overall margin of our project portfolio. We also continued to strengthen our customer focus, service business and product competitiveness.

Outotec's 4,000 top industry experts are driven by customers' unique challenges across the world.

In July 2019, we announced the planned merger of Outotec and Metso Minerals for creating a leading company in process technology, equipment and services for the minerals, metals and aggregates industries. The closing of the transaction is currently expected to take place at the end of June 2020.

### Driving change

We want to be an even better partner. Understanding the customer's needs holistically is key to impactful co-operation. Technology and solutions stem from this holistic approach, with continuous research and development at the core. We want to further improve our ability to quantify and communicate the impacts of our technologies and services to customers.

Sustainability is an increasingly significant contributor in creating value to our stakeholders. At the beginning of 2020, Outotec was ranked 18th in the Global 100 Index of the most sustainable companies in the world. We were included in the Index for the eighth consecutive year. In the EcoVadis assessment, we maintained the EcoVadis Gold Certificate for our corporate responsibility practices.

I believe that when we all act with integrity and take sustainability into account, we can deliver excellent business performance. We are proud of our contribution to the sustainable use of Earth's natural resources and of being able to help our customers meet their sustainability goals. I want to thank Outotec experts and everyone working with us for driving sustainable change and boldly thinking ahead.

**Markku Teräsvasara**  
President and CEO



## This is Outotec

Outotec develops leading technologies and services for the sustainable use of Earth's natural resources. Our comprehensive offering creates the best value for our customers in the mining, metal and chemical industries. Our 4,000 top experts are driven by each customer's unique challenges across the world.

Outotec's unique position as a leading technology and service provider for the minerals processing and metallurgical industry is founded on a century of scientific knowledge and operational experience of processing virtually all types of ores and minerals. The innovative research done at our in-house R&D centers and continuous development work realized together with our customers have resulted in several breakthrough technologies that have become industry benchmarks in sustainability.

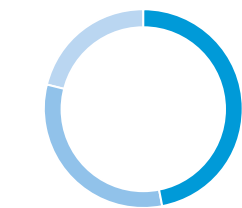
Our product portfolio includes hundreds of various plant concepts, processes, and pieces of equipment that are marketed under the Outotec brand. In addition, we have a variety of service products related to the maintenance and upgrade of the equipment and plants delivered by Outotec.



Our customers are large global mining companies, small and medium-sized mining and metallurgical companies in developed countries as well as local mining and metallurgical companies in emerging regions. Customers are investing either in new processing plants or modernizing their existing plants to increase the profitability of their operations, improve their resource efficiency, or reduce their emissions, energy consumption or fresh water use. We deliver entire processes or plants, or a single piece of equipment, with related engineering, sourcing, commissioning, training and life-cycle services. New mining or industrial plant investments involving also Outotec technologies may be subject to stakeholder questions and public debate. These questions are mainly targeted to our customers.

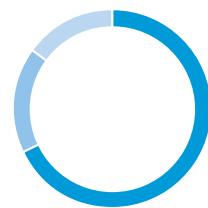
We sell products and services to over 100 countries through our market area network.

**SALES EUR 1,210 MILLION, BY REGION**



- EMEA 47%
- Americas 32%
- APAC 21%

**PERSONNEL 4,088, BY REGION**



- EMEA 68%
- Americas 17%
- APAC 15%

Outotec, headquartered in Espoo, Finland, operates globally with subsidiaries and branch offices in 41 countries. The sustainability issues covered in this report are relevant in all the countries where Outotec is present. Our major operations, each having over 170 employees, are in Finland, Australia, Germany, South Africa, and Chile. Local customer centers in nine market areas provide full support for our customers' businesses – both in the everyday running of their operations and when they make new investments. In addition, we use sales agents in countries where we do not have an established presence. We announced in December 2019 our decision to divest three of our non-core businesses from the Metals, Energy & Water segment. This enables us to focus on our core businesses in minerals processing and metals refining technologies. We renamed the Metals, Energy & Water segment as Metals Refining to reflect this change. Our two reporting segments – Minerals Processing and Metals Refining – are dedicated to the creation of sustainable technologies and life-cycle services for our customers.

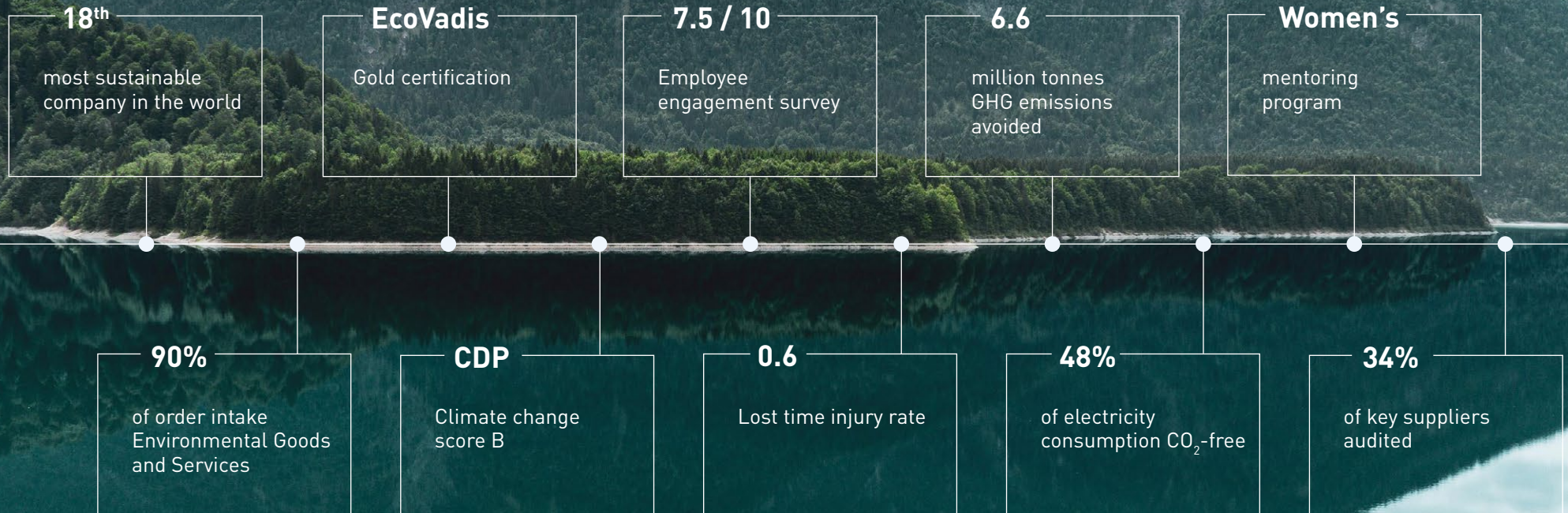
Outotec has been listed on the NASDAQ Helsinki since 2006, and the company was rated in the Mid Cap category in 2019. The company's market capitalization at the end of 2019 was EUR 1054 million. Outotec's total capitalization was EUR 379 million, of which EUR 229 million was funded by equity and EUR 150 million by a hybrid bond. The parent company Outotec Oyj has 100% ownership of its subsidiaries.

In July 2019, Outotec announced the planned merger of Outotec and Metso Minerals for creating a leading company in process technology, equipment and services for the minerals, metals and aggregates industries. The merger is currently expected to be completed at the end of June 2020 (information available in February 2020).

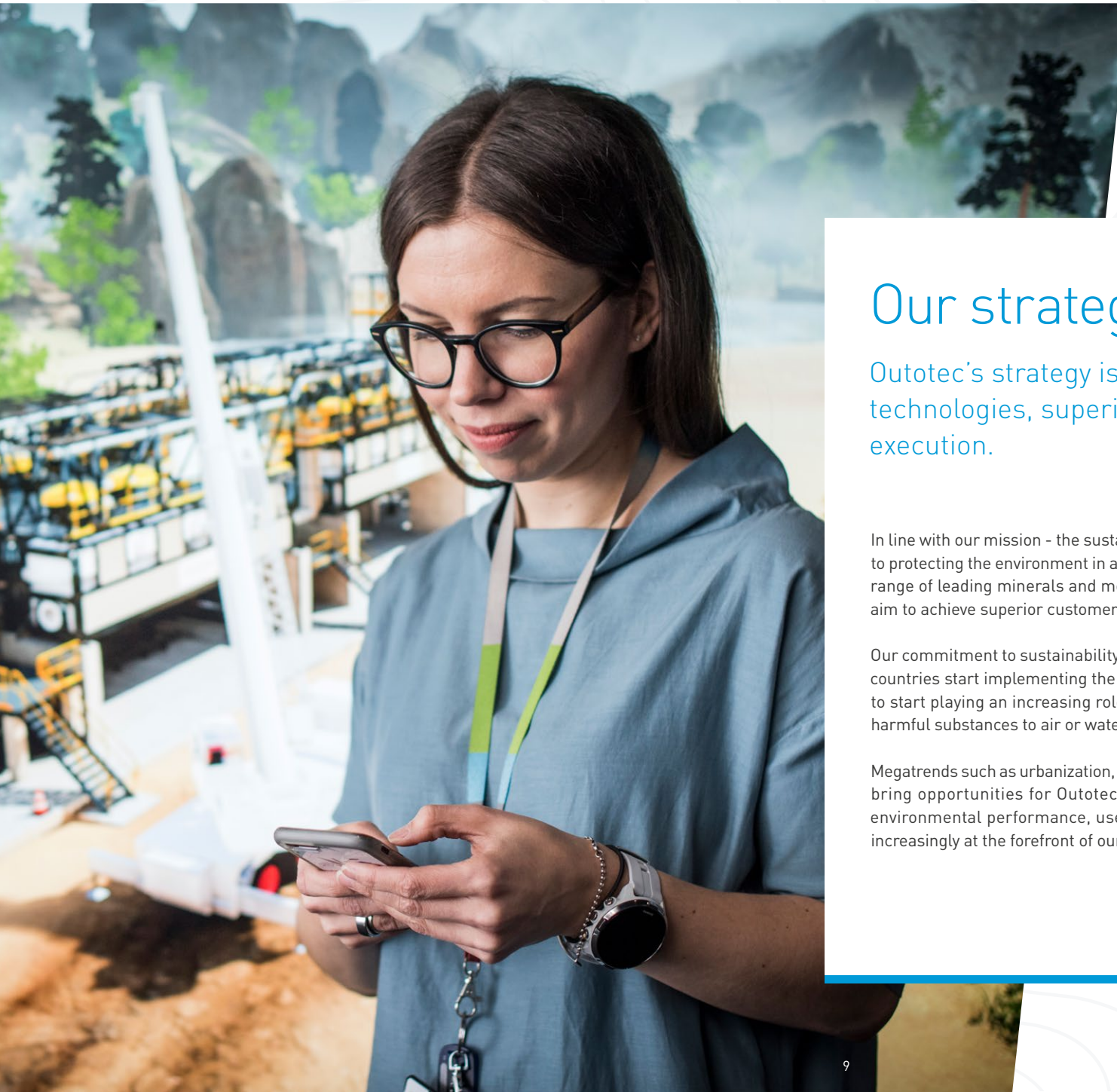
There were no major changes in Outotec's company structure, the ownership, or supply chain during 2019. The number of active suppliers is up by 600 from 2018. The legal entities and ownership structure are presented in our Financial Statements 2019 at [www.outotec.com/investors](http://www.outotec.com/investors).



# Highlights in 2019







## Our strategy

Outotec's strategy is to serve customers with leading technologies, superior customer service, and excellent execution.

In line with our mission - the sustainable use of Earth's natural resources - Outotec is committed to protecting the environment in all its activities. We strive to serve our customers using our wide range of leading minerals and metals processing technologies and life-cycle services. We also aim to achieve superior customer service and excellent execution.

Our commitment to sustainability binds us to take a holistic view of our customers' business. As countries start implementing the Paris climate agreement, we expect carbon emission controls to start playing an increasing role in addition to existing stringent restrictions on emissions of harmful substances to air or water.

Megatrends such as urbanization, resource efficiency and sustainability, coupled with digitalization bring opportunities for Outotec. While safety has long been a top priority for our industry, environmental performance, use of energy and water, and social license to operate are also increasingly at the forefront of our customers' minds, not least because of tightening regulation.



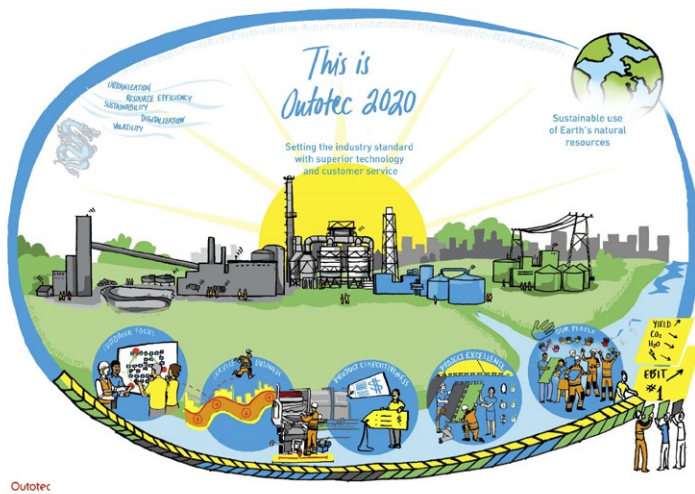
Our commitment to sustainability binds us to take a holistic view of our customers' business.

We also see untapped business opportunities and some threats in China, the country producing over half of the world's metals and owning an increasing share of the world's mining assets. Volatility and the cyclical nature of our business is expected to continue, which drives us to further grow our service business.

The key point in our climate change strategy, made in 2016, is harnessing our technology for the transition to a low-carbon industry. We have complemented the estimated impacts of megatrends with the opportunities and risks defined in connection with our climate change strategy work.

Our short-term priority was to improve our profitability to achieve economic sustainability. We also work to grow our service business to enhance our ability to create value over the cycles.

[> Read more in Financial performance](#)



## To be able to reach our 2020 vision, we are working on five development areas:

### 1 Customer focus

To deliver the best customer experience we develop our account management, sales, and leadership competencies and improve responsiveness.

### 2 Service business

Services bring us a steady revenue flow, long-term customer relationships and sustained margins. We will increase local presence and focus on our existing customer relationships and installed base to maximize customers' return on investment. We aim to increase productivity through digitalization.

### 3 Product competitiveness

We work to improve the cost competitiveness of our products by further differentiation through digitalization and improvements in energy and environmental performance. By redesigning products, by changing components without compromising on quality, and by searching for lower cost supply alternatives we aim to reduce sourcing costs.

### 4 Project excellence

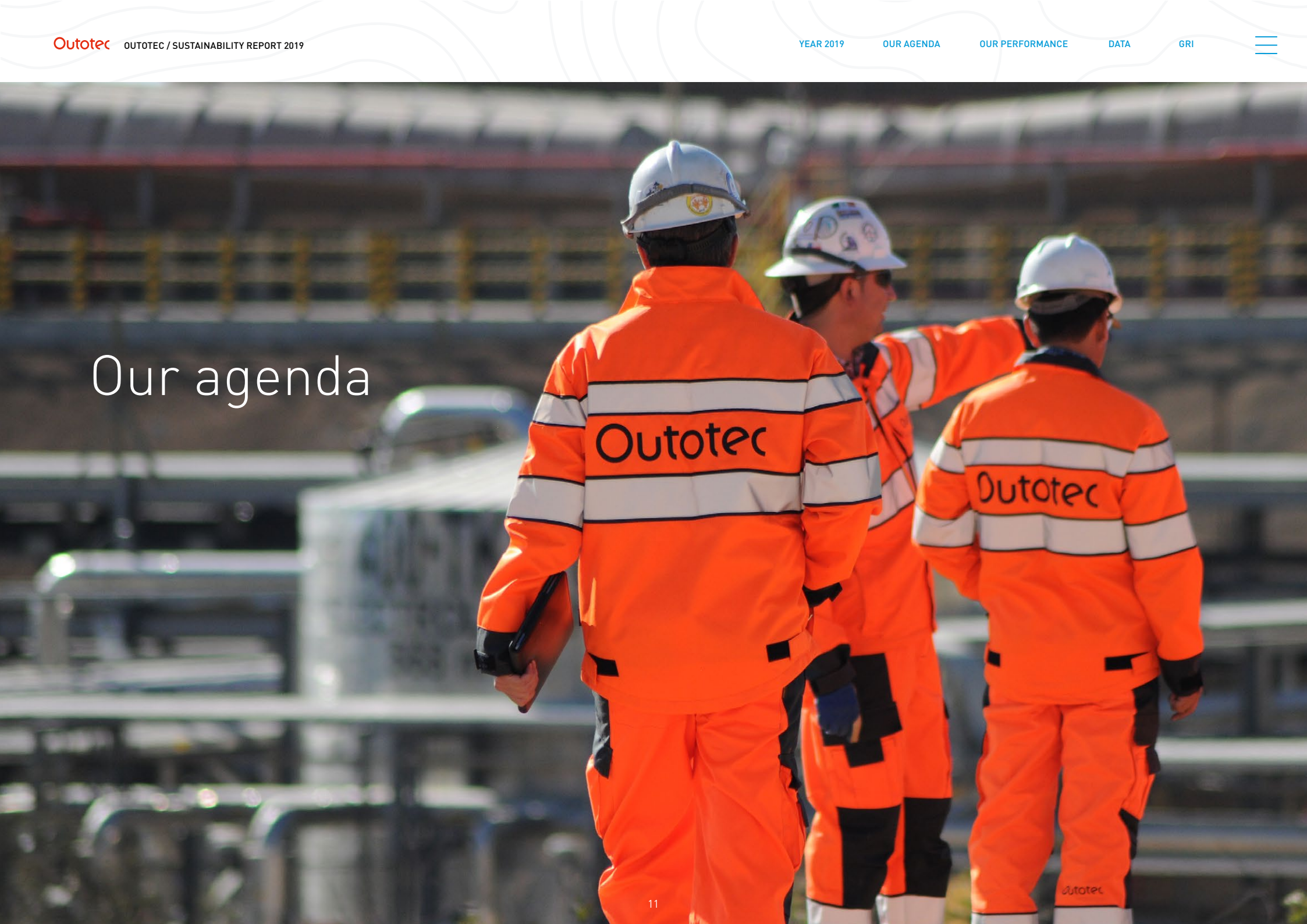
We work to improve the quality of our project deliveries and bring flexibility to the cost base.

### 5 Our people

Engaged experts are key to our success. To improve employee engagement, we are working to create an environment for our people to develop, succeed and find joy in their work. Leadership development is one focus area in this work.



# Our agenda





## Most significant topics

Outotec conducted a materiality assessment in 2018 engaging employees and other stakeholders in the discussion. As a result, three topics regarding Outotec operations were defined as having the most impact on the economy, environment and/or society, and three topics were identified as our foundation for sustainability.

In late 2018, our Sustainability Working Group carried out a new materiality assessment, viewing first the company strategy, stakeholder expectations, current sustainability trends, and relevant sustainability frameworks. Potential topics that reflect Outotec's major economic, environmental and social impacts, or influence the decisions of stakeholders were first identified together with an external partner, based on previous materiality assessments carried out in 2011 and 2014.

Representatives of key stakeholder groups and Outotec employees were interviewed, and there was an online survey on the company's external website [www.outotec.com](http://www.outotec.com) as well as in internal channels so that anyone having an interest in the company could have a say about Outotec's impacts and matters that affect his/her decisions regarding Outotec. We also asked for feedback and development ideas in the survey.



## Customers and investors expect Outotec to show sustainability leadership.

The Sustainability Working Group discussed and reviewed the results of the survey and interview, prioritized the material topics and redefined the list of key **stakeholders**. Stakeholders were evaluated based on their significance to Outotec's business and Outotec's impact on the stakeholder group. The Executive Board validated the results of the materiality assessment and our materiality approach in October 2018.

### Defining the report content and boundaries (GRI 102-46)

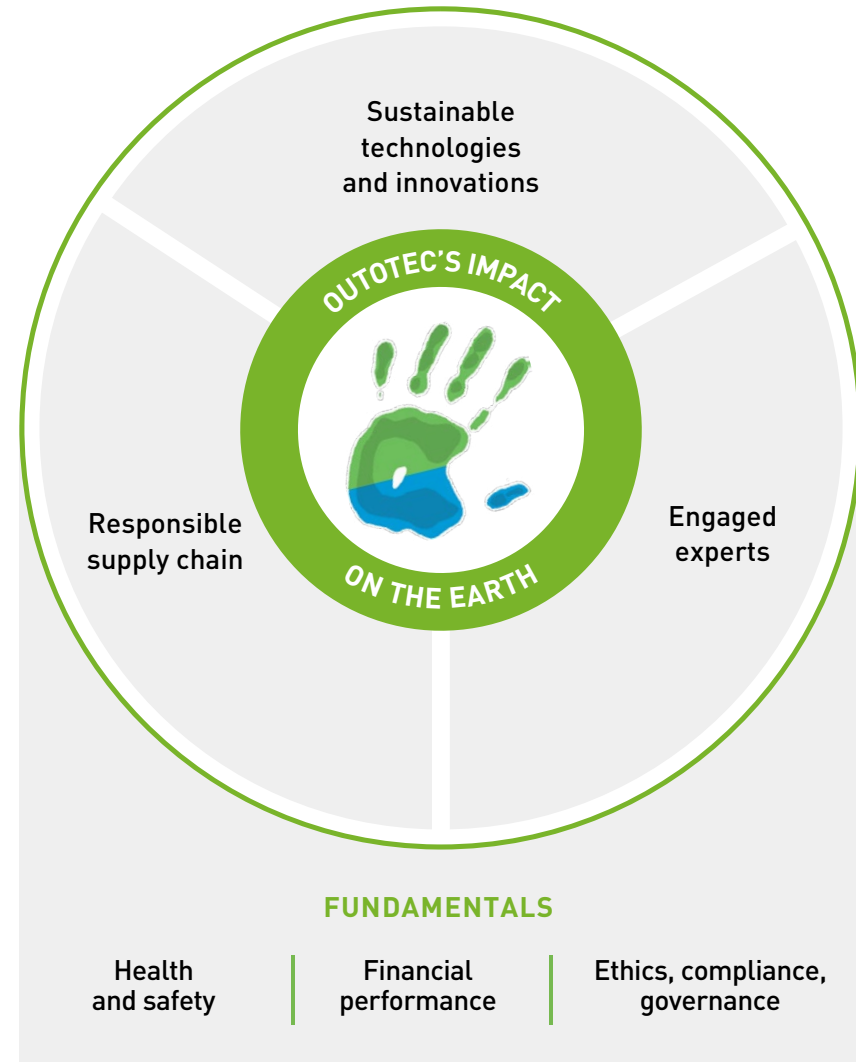
The materiality principle was applied in the materiality analysis so that we considered the interests and expectations of stakeholders, Outotec values, policies, strategy, and targets. We also considered the externally assured measurements of our positive indirect environmental impacts, environmental regulation, which we assume to be tightening, and increasing emphasis on social license to operate, as well as the main topics and future challenges of the minerals and metals processing sector.

In December 2018, the core team of our Sustainability Working Group reviewed the material topics against GRI Standards and defined the boundaries for each material topic and related indicators that form the contents of this report.

### Material topics (GRI 102-47)

Based on the materiality assessment, Sustainable technologies and innovations, Engaged experts, Responsible supply chain, Health and safety, Financial performance, as well as Ethics, compliance and governance were defined as the most material topics for Outotec.

Health and safety, Financial performance as well as Ethics, compliance and governance were considered as the foundation of our sustainability approach that the company must take good care of. Sustainable technologies and innovations, Engaged experts, and Responsible supply chain together with our own environmental performance create Outotec's total impact on the Earth and climate change. All these topics are reviewed in this report.





MATERIAL TOPIC	MATERIAL ASPECTS	BOUNDARIES
<b>Sustainable technologies and innovations</b>	<ul style="list-style-type: none"> <li>• Energy</li> <li>• Emissions</li> <li>• Customer health and safety</li> <li>• Environmental compliance</li> <li>• Local communities</li> </ul>	<p>The aspects cover the key impacts on our customers' employees and operations, either caused by Outotec, or which Outotec contributes to or is linked with:</p> <ul style="list-style-type: none"> <li>• Operation of customers' plants</li> <li>• Health and safety of people</li> <li>• Social acceptance</li> <li>• Resource efficiency</li> <li>• Customer satisfaction</li> <li>• Climate change</li> <li>• Biodiversity</li> <li>• Local environment</li> <li>• Financial performance</li> </ul>
<b>Engaged experts</b>	<ul style="list-style-type: none"> <li>• Employment</li> <li>• Labor/management relations</li> <li>• Training and education</li> <li>• Diversity and equal opportunity</li> </ul>	<p>The aspects cover the key impacts on Outotec's employees and operations at project sites, either caused by Outotec or which Outotec contributes to:</p> <ul style="list-style-type: none"> <li>• Employee motivation and competences</li> <li>• Talent retention</li> <li>• Customer satisfaction</li> <li>• Financial performance</li> </ul>
<b>Responsible supply chain</b>	<ul style="list-style-type: none"> <li>• Procurement practices</li> <li>• Supplier environmental assessment</li> <li>• Supplier social assessment</li> </ul>	<p>The reporting covers our direct suppliers and supervised contractors. Key impacts Outotec may be linked with are:</p> <ul style="list-style-type: none"> <li>• Reputation</li> <li>• Quality</li> <li>• Respecting human rights</li> <li>• Compliance and ethical business practices</li> <li>• Employment and local development</li> <li>• Climate change</li> <li>• Financial performance</li> </ul>
<b>Health and safety</b>	<ul style="list-style-type: none"> <li>• Occupational health and safety</li> </ul>	<p>The reporting covers our employees, premises and project sites as well as supervised contractors. Outotec may cause or contribute to the impacts or be linked with them (e.g. unsafe act or condition):</p> <ul style="list-style-type: none"> <li>• Health, safety and security</li> <li>• Working environment</li> <li>• Injuries and lost working time</li> <li>• Occupational diseases</li> </ul>
<b>Financial performance</b>	<ul style="list-style-type: none"> <li>• Economic performance</li> <li>• Indirect economic impacts</li> </ul>	<p>The reporting covers all Outotec's legal entities (as listed in Financial Statements 2019, p. 81). The key impacts caused by Outotec include:</p> <ul style="list-style-type: none"> <li>• Shareholder value</li> <li>• Employment and wealth</li> <li>• Local development</li> <li>• Long-term commitment of stakeholders</li> </ul>
<b>Ethics, compliance and governance</b>	<ul style="list-style-type: none"> <li>• Anti-corruption</li> <li>• Anti-competitive behavior</li> <li>• Non-discrimination</li> <li>• Socio-economic compliance</li> </ul>	<p>The aspects cover Outotec's employees, suppliers and contractors as well as sales representatives and agents. Key impacts caused by Outotec or to which the company may be linked with are:</p> <ul style="list-style-type: none"> <li>• Relationships with business partners</li> <li>• Legal compliance</li> <li>• Reputation and shareholder value</li> <li>• Company culture</li> <li>• Employee relations</li> <li>• Gender equality</li> <li>• Financial performance</li> </ul>

These topics are also reported in the Non-financial Statement published in the [Financial Statements 2019](#).

**Read also**

- [About this report, p. 81](#)



# Sustainability Agenda 2020

Our Sustainability Agenda and long-term goals are aligned with Outotec's strategy 2020.

Our Sustainability Agenda and goals for 2020 are aligned with Outotec's strategy 2020. The agenda as such has not been changed although we conducted a new materiality analysis in 2018. The redefined material topics reflect the earlier most significant topics which continue as the building blocks for our Sustainability Agenda with slightly different names: **Sustainable technologies and innovations, Engaged experts, Responsible supply chain, Health and safety, and Ethics, compliance and governance.** Based on stakeholder dialogue, **Financial performance** was added to the list of material topics. Our annual sustainability targets are linked to our 2020 goals. We have integrated the most relevant Sustainable Development Goals (SDGs) into our Sustainability Agenda. We are expecting to renew our long-term sustainability agenda and targets during 2020 acknowledging the planned Metso Outotec merger.

We have analyzed Outotec's impacts on SDGs in an internal workshop: eleven SDGs were identified as most relevant overall in addition to one other SDG, where we have an indirect impact. Our commitment and impact analysis of the SDGs was approved by the Executive Board.



We have integrated the most relevant SDGs into our sustainability agenda.

## Development work driven by 2020 goals

**Sustainable technologies and innovations** have a central role in our operations since they represent the key means of improving the resource efficiency of our customers' operations. Our long-term goal relates to providing customers with even more sustainable technologies and services, and to help them reduce their ecological footprint as well as the pollution of air, water and soil (SDG 3).

In line with the goals set by the UN General Assembly, we upgrade our customers' operations to make them more sustainable (SDG 9), while also improving energy efficiency (SDG 7). Through our technologies, we support actions to combat climate change every day (SDG 13). We also increase the efficiency of water use by reducing the amount of freshwater needed in our processes, by increasingly recycling and safely re-using water, thus decreasing the amount of wastewater (SDG 6). In addition, we have identified an indirect impact of our partnerships with our customers, suppliers, and other business partners (SDG 17) with our business operations. We cooperate with universities on R&D (SDG 4) and drive technological upgrades and innovations that will improve resource efficiency in production (SDG 8).

Outotec's business is dependent on **engaged experts**. We want to make Outotec the most desirable place to work in our industry, and to keep great talent with us. We aim to achieve 70% employee engagement by 2020.

Because the majority of Outotec's manufacturing is outsourced, a **responsible supply chain** is highly important to us. By requiring sustainable practices along our supply chain, we also promote the wider adoption of responsible management practices, thus enabling our clients to use natural resources sustainably (SDG 12).

**Health and safety** are the foundation of our work. Zero accidents is the ultimate high-level target for our development work, though this very ambitious target requires a lot of effort. Outotec's management believes that this level of commitment to a safe working environment is a necessity in the challenging project circumstances in which our employees, customers and suppliers work.

**Financial performance** has a great impact on our stakeholders and the company's success. Outotec aims to achieve continuous profitable growth and balance the cyclicity of the mining and metals industries by developing and growing service business.

In **ethics, compliance and governance**, we aim to develop strong common values and a robust Code of Conduct, as well as a solid governance structure. An integral part of this goal is to ensure that all our employees and suppliers know and act according to our Code of Conduct. We have zero tolerance for corruption. We continuously train our own employees on anti-corruption topics and require compliance from our business partners (SDG 16). Outotec implements non-discriminatory company policies and practices globally (SDG 10).





TARGETS FOR 2020	PROGRESS	RELATED SDG
<b>Sustainable technologies and innovations</b>		
<ul style="list-style-type: none"> <li>Share of Environmental Goods and Services in order intake permanently over 90%</li> </ul>	Share of Environmental Goods and Services in our order intake has remained at 90% or over since 2014.	
<ul style="list-style-type: none"> <li>Customers generate 20% less CO<sub>2</sub> when using Outotec's metals-related technologies compared to annual baselines</li> </ul>	The reduction in CO <sub>2</sub> emissions (16%) has slightly increased since last year but is still below the target of 20%.	
<ul style="list-style-type: none"> <li>50% reduction in freshwater intake per tonne of ore in non-ferrous metal concentrators compared to 2012</li> </ul>	Since 2012 water treatment and R&D have focused on reducing the non-ferrous concentrator water consumption up to 80% from that originally planned. The focus of R&D has been the treatment of recirculated process water in different process stages. Several innovation notices and patent applications have been filed in 2019.	
<ul style="list-style-type: none"> <li>Double the energy produced through our waste-to-energy solutions compared to 2013</li> </ul>	The energy produced through our waste-to-energy solutions has not been doubled as planned due to delays in getting waste-to-energy plants operating as expected.	
<b>Engaged experts</b>		
<ul style="list-style-type: none"> <li>Employee engagement index 70% in the employee survey</li> </ul>	Outotec implemented a new tool for measuring employee engagement in November 2019. 2019 scores are not directly comparable with the previous employee engagement index, but results indicate that employee engagement has continued to develop positively. (In 2019 the employee engagement index was 7.5/10.)	
<b>Responsible supply chain</b>		
<ul style="list-style-type: none"> <li>100% of our key suppliers audited regularly with supplier development actions drawn up according to audit findings</li> </ul>	We have made great progress in regularly auditing our key suppliers and in 2019 in line with the targets, 34% of our key suppliers were audited with supplier development actions planned (or implemented) according to the audit findings.	

TARGETS FOR 2020	PROGRESS	RELATED SDG
<b>Health and safety</b>		
<ul style="list-style-type: none"> <li>Zero harm</li> </ul>	We have made great progress towards zero harm and our LTIR has been reduced to an all-time low of 0.6 in 2019. We will continue our work to maintain and improve our safety performance.	
<b>Financial performance</b>		
<ul style="list-style-type: none"> <li>Continuous profitable growth</li> </ul>	In 2019, Outotec was able to improve its profitability through improved project execution, provision releases related to a few completed projects and a higher share of service sales. Between 2015 and 2018, Outotec's profitability was negatively impacted by substantial cost overruns in a few large projects taken in 2012-2015. The cost overruns arose mainly from, but not limited to, new technological applications, insufficient project risk assessment before and during execution. Although project business inherently carries certain risks, to lower the risk of future cost overruns, Outotec has reorganized its risk management procedures throughout the sales and execution process.	
<b>Ethics, compliance, and governance</b>		
<ul style="list-style-type: none"> <li>Strong common values and Code of Conduct; solid governance structure</li> </ul>	We have made progress on the Code of Conduct with the strong completion rate of the 2018 training campaign (94%). In addition, we have established a new Compliance intranet site with various Compliance related information and regular updates e.g. on Code of Conduct related aspects.	



## Annual targets

Our annual targets are structured to support our 2020 goals and in the same way also reflect the SDGs. Financial performance is reported in our [Financial Statements 2019](#)

○ Not achieved    ◐ Partly achieved    ● Achieved


TARGET FOR 2019	PERFORMANCE IN 2019	TARGET FOR 2020	GRI INDICATOR & RELEVANT SDG
<b>Sustainable technologies and innovations</b>			
<ul style="list-style-type: none"> <li>EGS to account for over 90% of order intake</li> </ul>	<ul style="list-style-type: none"> <li>● EGS accounted for 90% of order intake.</li> </ul>	<ul style="list-style-type: none"> <li>EGS to account for over 90% of order intake</li> </ul>	<p>OWN</p>
<ul style="list-style-type: none"> <li>20% reduction in CO<sub>2</sub> emissions to be achieved using Outotec's metals-related technologies, compared to industry averages</li> </ul>	<ul style="list-style-type: none"> <li>○ The reduction in CO<sub>2</sub> emissions was 16%.</li> </ul>	<ul style="list-style-type: none"> <li>20% reduction in CO<sub>2</sub> emissions to be achieved using Outotec's metals-related technologies, compared to industry averages</li> </ul>	
<ul style="list-style-type: none"> <li>Receiving at least two new orders for closed water circuit solutions.</li> </ul>	<ul style="list-style-type: none"> <li>● In two concentrator plants sold in 2019, the freshwater scarcity meant that the design of the plants needed to be revised. In both cases, the revised design has enabled the reduction of freshwater consumption by 70-80% of that originally planned.</li> </ul>	<ul style="list-style-type: none"> <li>Receiving at least two new orders for closed water circuit solutions.</li> </ul>	
<ul style="list-style-type: none"> <li>Waste-to-energy plants delivered by Outotec reduce the use of fossil fuels to exceed our annual targets from two previous years combined</li> </ul>	<ul style="list-style-type: none"> <li>○ Due to delays in getting plants operational the energy produced through waste-to-energy plants was less than the combined targets from the two previous years.</li> </ul>	<ul style="list-style-type: none"> <li>No new target set due to Outotec's strategic decision to divest the waste-to-energy business.</li> </ul>	

TARGET FOR 2019	PERFORMANCE IN 2019	TARGET FOR 2020	GRI INDICATOR & RELEVANT SDG
<b>Engaged experts</b>			
<ul style="list-style-type: none"> <li>Improvement of 4%-points in the employee engagement index compared to the 2018 employee survey results</li> </ul>	<ul style="list-style-type: none"> <li>● Outotec implemented a new tool for measuring employee engagement in November 2019. 2019 scores are not directly comparable with the previous employee engagement index, but results indicate that employee engagement has continued to develop positively (in 2019 the employee engagement index was 7.5/10).</li> </ul>	<ul style="list-style-type: none"> <li>Improvement of 0,2-points (7,7/10) in the employee engagement index compared to the 2019 employee survey results</li> </ul>	<p>GRI 102-43</p>
<ul style="list-style-type: none"> <li>2% increase in the number of female leaders in senior leadership positions compared to 2018</li> </ul>	<ul style="list-style-type: none"> <li>○ The number of female leaders in senior leadership positions did not increase.</li> </ul>	<ul style="list-style-type: none"> <li>2% increase in the number of female leaders in senior leadership positions compared to 2019</li> </ul>	
<b>Responsible supply chain</b>			
<ul style="list-style-type: none"> <li>Auditing 30% of key suppliers globally.</li> </ul>	<ul style="list-style-type: none"> <li>● 34% of key suppliers were audited with supplier development actions planned (or implemented) according to the audit findings.</li> </ul>	<ul style="list-style-type: none"> <li>Auditing 30% of key suppliers globally.</li> </ul>	<p>GRI 307-1</p>

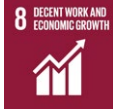


TARGET FOR 2019	PERFORMANCE IN 2019	TARGET FOR 2020	GRI INDICATOR & RELEVANT SDG
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**Health and safety**

<ul style="list-style-type: none"> <li>To proactively identify and correct unsafe acts and conditions, the reporting of hazards at the following annual rates:                             <ul style="list-style-type: none"> <li>minimum 4 reports/person at sites, workshops &amp; R&amp;D locations; and</li> <li>minimum 1 report/20 persons at offices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The number of hazards reported in 2019 was 2.2 times higher than the target.</li> </ul>	<ul style="list-style-type: none"> <li>To proactively identify and correct unsafe acts and conditions, the reporting of hazards at the following annual rates:                             <ul style="list-style-type: none"> <li>minimum 4 reports/person at sites, workshops &amp; R&amp;D locations; and</li> <li>minimum 1 report/20 persons at offices</li> </ul> </li> <li>Annual H&amp;S training:                             <ul style="list-style-type: none"> <li>minimum 10 hours/person at sites, workshops &amp; R&amp;D locations; and</li> <li>minimum 2 hours/person at offices</li> </ul> </li> </ul>	GRI 403-9 GRI 416-1 
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**Ethics, compliance, and governance**

<ul style="list-style-type: none"> <li>90% of Outotec's employees trained on Code of Conduct.</li> </ul>	<ul style="list-style-type: none"> <li>During 2019, an updated Code of Conduct training material was distributed to all employees and contractors with daily access to a computer for self-study with a new eLearning campaign targeted for 2020.</li> </ul>	<ul style="list-style-type: none"> <li>90% of Outotec's employees trained on Code of Conduct.</li> </ul>	GRI 205-2 
<ul style="list-style-type: none"> <li>Global working conditions guidelines concerning blue-collar employees to be created and implemented in 2018</li> </ul>	<ul style="list-style-type: none"> <li>Working conditions guidelines were created in 2018 and implemented in 2019.</li> </ul>	<ul style="list-style-type: none"> <li>No new target set.</li> </ul>	

TARGET FOR 2019	PERFORMANCE IN 2019	TARGET FOR 2020	GRI INDICATOR & RELEVANT SDG
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We also had a target for our own environmental performance although the topic was not considered material for Outotec.

**Environmental footprint of our own operations**

<ul style="list-style-type: none"> <li>2% reduction in CO<sub>2</sub> emissions of Outotec's own locations, mainly from purchased electricity and non-renewable fuels</li> </ul>	<ul style="list-style-type: none"> <li>Scope 1 and 2 CO<sub>2</sub> emissions decreased by 10% from 2018.</li> </ul>	<ul style="list-style-type: none"> <li>2% reduction in CO<sub>2</sub> emissions of Outotec's own locations, mainly from purchased electricity and non-renewable fuels</li> </ul>	GRI 302-4 GRI 305-5 
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# Climate actions

## Our actions to address climate change

The key to our climate change strategy, made in 2016, is harnessing our technology for the transition to a low-carbon industry. Policies relating to greenhouse gas emissions in different parts of the world are still evolving and we are following these changes, interacting with policy-makers as well as acting upon them in business development.

In today's economy, companies are becoming increasingly exposed to risks resulting from extreme weather events and transitioning to a low carbon economy. To assess these risks, investors need information on how companies are dealing with climate-related issues. Task Force on Climate-related Financial Disclosures (TCFD) is a voluntary framework to help businesses identify, measure and report the financial implications of climate change. We at Outotec are proud to support the TCFD in the implementation of a voluntary and consistent mechanism for climate-related financial risk disclosures. By supporting the TCFD recommendations, we are not only demonstrating our commitment to sustainable business practice but also hope to encourage others to do the same.



Our handprint in 2019 was 6.6 million tonnes CO<sub>2</sub>-e avoided in total.

### Science based targets

In 2018, we committed to the Science Based Targets to reduce our carbon footprint and further enlarge our handprint. Our target is to reduce absolute scope 1 and scope 2 GHG emissions 13% by 2025 from a 2017 base-year. Outotec also commits to reduce absolute scope 3 GHG emissions 10% by 2025 from a 2017 base-year. With these actions, we aim to limit global GHG emissions to a level of decarbonization required to keep global temperature increase below 2 degrees Celsius compared to pre-industrial temperatures. For Outotec, this means a reduction of GHG emissions of 13% by the year 2025, translating to a yearly reduction of roughly 2%.

In 2019, Outotec's scope 1 and scope 2 emissions reduced 15% compared to 2017 base year. With regards to the scope 3 emissions Outotec's business travel emissions increased 7% and commuting decreased by 19% compared to 2017 base year. The increase in business travel emissions is partly due to increased travel as well as a change in emission factors for short haul flights. Whereas the decrease in commuting is possibly due to a new pilot in our Espoo office where Outotec supports the use of public transportation with employer-subsidized commuter tickets. In 2019, we also reduced the number of parking spaces available for employees in Espoo. Our supply chain (purchased goods and services) emissions increased 6% compared to 2017 base year as a direct result of the increase in spending. In terms of the use of sold products, it is not yet possible to report total energy or CO<sub>2</sub> emission savings from the use of all products as a whole. However, for example the use of Tank Cell products such as C500 and TC640 has resulted to about 50% savings in energy use per reactor volume (kWh/m<sup>3</sup>) and can be estimated to lead directly up to 50% savings in CO<sub>2</sub> emissions compared to the existing industry baseline.

### Reduction of energy consumption (GRI 302-4)

We have a certified ISO 50001 Energy Management system in five locations in Finland and four locations in Germany. To support the achievement of the CO<sub>2</sub> reduction targets in our own operations, we aim to reduce our global energy consumption by 1% annually until 2025.

In 2019, Outotec purchased 7,754 MWh of CO<sub>2</sub>-free electricity based on renewable hydropower in Finland and Germany, equaling 48% of our electricity consumption and 22% of total energy consumption. We are gradually moving to renewable energy in our major locations in Germany and Finland, excluding Pori and Frankfurt research centers.

### Combating climate change with our products and services (GRI 305-5)

The most significant environmental impact of our business activities materializes through our products and services that indirectly reduce various emissions, including global carbon dioxide emissions. We measure this positive impact on climate change, our handprint, by the emissions avoided by the metallurgical industry using six Outotec technologies, compared to annual industry baselines. These technologies are ferrochrome process; copper flash smelting; alumina calcination; ceramic filters; coated titania anodes; and TankCell 300 flotation cells. The emission reductions are directly proportional to energy savings.

The GHG emissions avoided by technology are presented in [Sustainable technologies and innovations](#).

In technology development, we focus on increasing resource efficiency – aiming to reduce energy and water consumption, emissions, effluents and waste. In 2019, 81% of our R&D projects were related to initiatives targeting sustainability improvements. Our efforts to mitigate the environmental impacts of our products and services are presented in [Sustainable technologies and innovations](#).

Digitalization is seen to play a major role in mitigating climate change. We are continuously investing in ICT to utilize the opportunities of digitalization. In 2019, our investments amounted to EUR 18 million, consisting mainly of IT programs and intellectual property rights.

### Read also:

- Our targets related to products and services are presented in [Sustainability agenda 2020](#)
- [Emissions & climate data](#)
- [Financial implications due to climate change](#)



## Case: Sustainable Smelting

# Smelters find opportunities in circular economy

With both competition and regulations tightening, the smelting industry is finding ways to enhance both its productivity and sustainability. Digitalization plays a major role in this development, and the principles of circular economy are already applied with good results.

Sustainability is often perceived to include three aspects: economic, social and environmental sustainability. In smelting, development can be seen in all three areas as smelters are modernizing their ways of working. In this industry, productivity, safety and environmentally sound practices are improving hand in hand.

“In this industry, improving productivity is the main goal for all players and the reason for engaging in development activities. However, productivity can be improved by enhancing resource efficiency, managing energy consumption and reducing emissions. The end result is positive for both business and the environment,” says **Mikael Jåfs**, Director of Strategic Projects and Innovations.

### Circular economy enhances material efficiency

The circular economy is a worldwide trend concerning both environmental and material efficiency-related questions. Material recycling is intensifying in the smelting industry. Recyclable raw material is collected internally in plants as well as from external sources. In the process of smelting non-ferrous metals, there is great interest in recycling the carrier metals as they



also enable the extraction of other valuable elements. As an example, the recycling of electronic waste allows for the reuse of many other trace elements. These carrier metals are generally brought back into circulation through copper, zinc and lead smelting.

“Putting waste material into good use is a major trend. Slag dumps are beginning to fade into the past as ways to utilize residue material are developing. Tightening environmental legislation



is a significant driver in this development and, done through systemic thinking, leads to better material efficiency and thereby higher productivity,” says Jåfs. “There are, however, regulatory differences in how this secondary material can be used in different areas. In China, much of the slag from copper production is used, for instance, in the cement industry whereas less so for example in Europe.”

### Increasing automation enhances safety and efficiency

Digitalization continues to change the everyday operations in smelting. Manual tasks are replaced with automation, improving the safety of workers who no longer need to work close to molten metals. In addition to safety, automation enhances efficiency as process calculations and parameter adjustments to operations are made accurately by process control applications. However, there is still a long way to go in increasing the automation level and developing process control, particularly in non-ferrous metals.

“Compared to, for example, the oil and gas industry, we have a lot of work to do. I believe we will see significant developments in automating predictable manual work, data collection and in process control development. New applications combining a theoretical process model with machine learning will emerge and allow us to provide value more efficiently than before. Digitalization also plays a part in enhancing the traceability of materials as environmental and social impacts in the production of raw materials start to play a key role in trade,” Jåfs says.

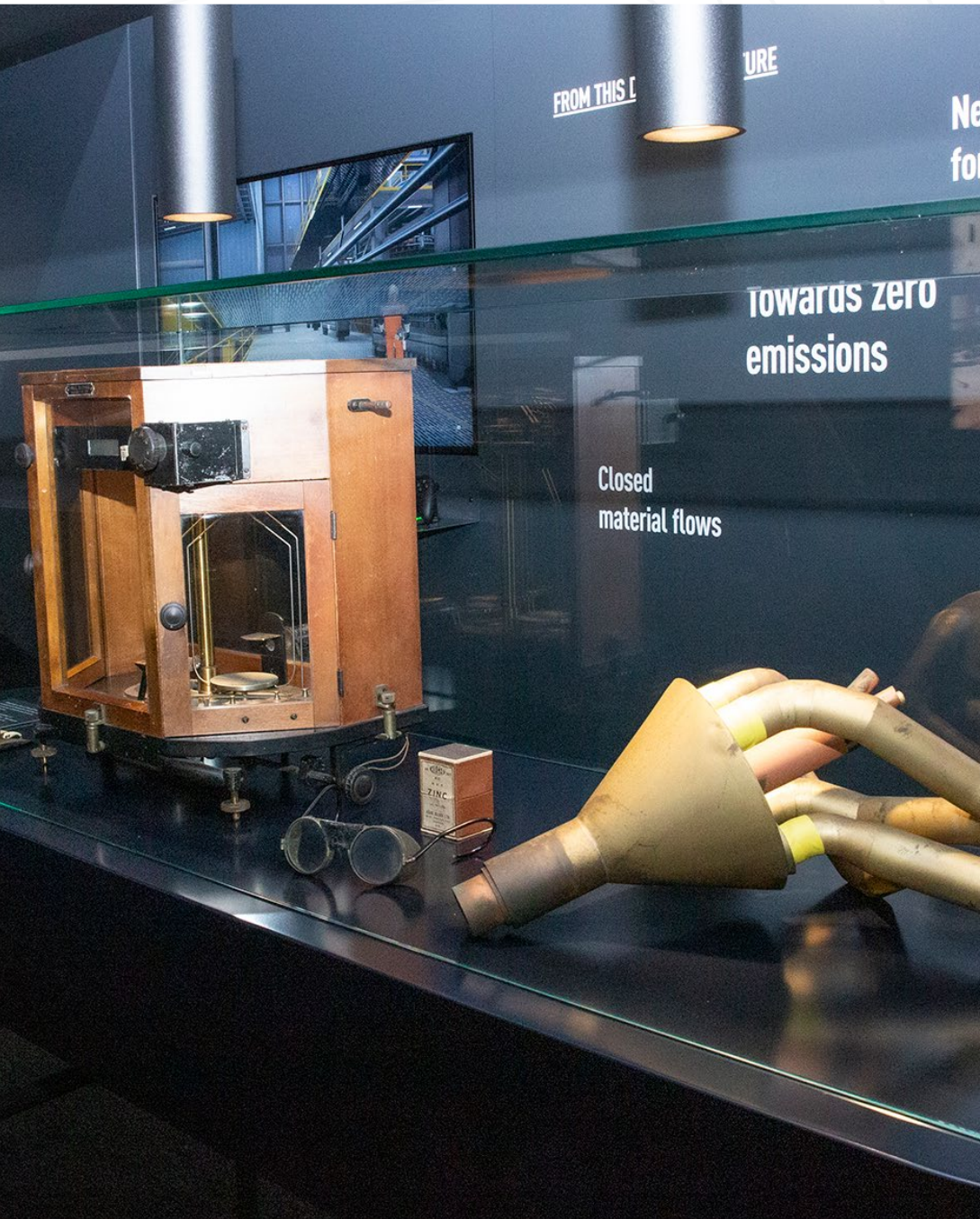
### From execution to continuous development

As new digital technology eliminates repetitive and potentially risky manual tasks, it changes the skillset needed to operate a smelter. The emphasis moves from focusing purely on execution to continuous improvement. This calls for analytical skills and a strong understanding of process control, as well as a development-oriented way of thinking.

“We cooperate closely with educational institutions and hope to see new approaches in the curricula that would provide the necessary knowhow that corresponds to the new skills demands. Digital metallurgy would be a good way to combine theoretical metallurgical knowledge with IT and process control skills to provide a sound base of domain expertise. Of course, we are also offering our current employees the opportunity to expand their skillsets,” Jåfs says.

In his opinion, the future of smelting is not a one company show. Co-creation among clients and technology providers is the best way to come up with solutions that answer the client’s needs in an efficient way. Each party holds a part of the puzzle. The customer has the data and the specific needs that serve as the basis for the work, and Outotec as the technology provider has the necessary domain expertise and knowledge of its equipment and software solutions – for example, the possibilities to use tools such as machine learning in improving process and equipment performance.

“This leads to a new business model, in which we need to be able to create added value to both the customer and the technology provider on a continuous basis. It is more of a continuous process than a one-off deal. We see this as an opportunity to strengthen our partnerships with both customers and other partners and are ready and willing to embrace new ways of working to bring the best possible solutions to the market.”



## Engaging with stakeholders

We aim to enhance transparency by maintaining continuous dialogue with our key stakeholders.

Outotec defined its key stakeholders in connection with the materiality analysis conducted in 2018. The material topics and key stakeholders are reviewed at approximately 2-3 years intervals by our Corporate Responsibility function and Sustainability Working Group.

### Identifying and selecting stakeholders (GRI 102-42)

In the recent review of key stakeholders, the Sustainability Working Group, complemented by business unit representatives and external facilitators, discussed and evaluated the significance of stakeholder groups using a long list of stakeholders collected by the core team. Each stakeholder group was evaluated by

- 1) Outotec's impact on the specific stakeholder group, and
- 2) that stakeholder group's significance to the company's business performance.





Based on the mapping, the most significant stakeholder groups overall were Employees, Customers, Suppliers and contractors, Investors, analysts and financiers as well as Academia and students. Local communities arose as significant in terms of Outotec's impact on the stakeholder group, and Authorities, regulators and governments were defined as having a large impact on Outotec's business. Other stakeholder groups defined as key stakeholders were, Potential future employees, Industry associations and NGOs, and Media because of our regular engagement with them.

We have not identified any stakeholder groups that Outotec would not engage with.

### Our key stakeholders (GRI 102-40)

- [Employees](#)
- [Customers](#)
- [Suppliers and contractors](#)
- [Investors, analysts and financiers](#)
- [Academia, research institutes, students and potential future employees](#)
- [Authorities, regulators and governments](#)
- [Potential future employees](#)
- [Local communities](#)
- [Industry associations and NGOs](#)
- [Media](#)

### Our approach to stakeholder engagement (GRI 102-43)

We collect feedback from our key stakeholders through regular customer, employee and investor surveys.

In 2018, we made a public web survey for all stakeholders about the topics that are most important and impact stakeholders' decision making regarding Outotec. We also interviewed representatives of employees, customers, suppliers, investors and academia. The material topics were selected based on the survey and interview results.

We have also discussed our sustainability reporting with some investors, and their feedback has been considered when planning the report content. We have also asked our employees for

feedback about the report, future themes and topics of interest in sustainability communications, using our internal social media.

To collect open feedback from our stakeholders we have a form on our [website](#) through which feedback can be submitted anonymously. In 2019, all feedback received through this form related to operational issues. Further, we have a compliance helpline available globally [www.outotec.com](http://www.outotec.com).

### Concerns raised by stakeholders (GRI 102-44)

In the recent materiality survey and related interviews, stakeholders had the opportunity to raise concerns or topics missing from Outotec's sustainability agenda. Topics raised by employees included long-term health impacts on local populations close to customers' sites, supply chain management, as well as a stronger focus on recycling technologies, social responsibility and working with local communities to achieve a wider impact.

Customer feedback included social responsibility topics, such as co-operation with schools, local sports associations and NGO's to further local miners' understanding of safety and business ethics.

The financial community has been putting more emphasis on ESG related KPIs in the last few years. Outotec has been continuously increasing the sustainability related materials in its equity story narrative, for example, through case studies, which portray offered technologies and benefits to customers. ESG information may often affect the investment decisions. Investors have raised questions related to Outotec's risk management policies, for example how Outotec audits and manages the supply chain when sourcing in best-cost countries. Some credit investors are also expecting to see a business model that balances the company's cyclicity

Other stakeholder groups expect, for example, Outotec to communicate its wider role in society, impact on global water systems, and action against plastic usage, to mention a few.

These concerns and feedback were discussed in the Executive Board. We are already working with some of the concerns, such as supply chain management, recycling of battery metals, and implementing a policy and programs regarding employee voluntary work with local communities. The feedback will also be considered when planning the next sustainability agenda.



**Our policies relating to stakeholders:**

- Global Procedure for Stakeholder Engagement
- HR policies
- **Disclosure Policy**
- Social media guidelines
- Donation and Employee Volunteering Policy
- **Code of Conduct**
- **Supplier Policy**
- Technology Policy

## Employees

We regularly measure employee engagement and monitor other people KPI's such as attrition rate. In 2019, a new employee engagement survey tool was introduced in order to enable more continuous dialogue with employees. Response rate in the survey conducted in November 2019 was 91%.

Special attention has been paid to employee communications. In CEO's quarterly internal briefings over Skype Broadcast platform employees may comment and ask questions, and a video recording of the discussion is available afterwards. To conduct facilitated discussions on strategic programs with employees, we continued strategy chats with a live video broadcast with selected top management representatives. Yammer is also increasingly used as an in-house social media channel.

Two Outotec Round-Table events were held during 2019, bringing together some 20 personnel representatives from Europe and top management. During dialogues between the corporate management and the employee representatives different topics were discussed. Those included company business and financial update, our strategy, Metso Outotec merger, Outotec competence development, the new employee engagement survey O'People, our tools & processes (SAFe / Scaled Agile Framework for Lean Enterprises) as well as rewarding. Close co-operation with local works councils continued in 2019.

**Employees as owners**

Many Outotec employees are also shareholders through the Employee Share Savings Plan, which was launched in 2013 and offered to employees globally except for Mozambique, Morocco,

Qatar and Saudi Arabia due to legal, taxation or administrative restraints. The Plan rewards employees for their long-term commitment to the company. 779 employees, equaling 20% of eligible personnel, participated in this program in 2019. 743 employees who participated in the Plan in 2016 and kept their shares until May 2019 received free shares. Outotec offered beneficiaries one free share (gross, with cash payments for taxes deducted) for each two shares bought with the 2016 savings.

## Customers

Customer satisfaction is high on our agenda. We build up our understanding of our customers' needs and challenges by systematically collecting feedback. We have also invested in internal feedback channels and feedback management to improve our products, services and operations.

In our customer feedback surveys, we collect Net Promoter Score and Customer Satisfaction ratings, and analyze the open comment feedback to understand customers' reasoning of the scores. This analysis helps us to tune into customers' true feelings and hear their voice, and to plan for improvement actions. The most important drivers for Outotec NPS are our equipment quality and reliability, care for the customer and project/service delivery quality.

In 2019, we collected feedback from over 1000 individuals representing nearly 700 customers and received over 4000 customer comments to analyze for actions. We have continuously expanded our survey sample and continue to focus on this going forward in order to cover our customer base as well as possible. Our aim is also to close the feedback loop with all customers who provided feedback to us and are currently reaching over 65 % rate globally in contacting the customers to discuss their feedback further.

We continuously cooperate with customers in technology and process development. In joint R&D or delivery projects, both Outotec and the customers can, for example, increase resource efficiency or improve their digital competences. This can be done for example through flowsheet development, design work or test work for customers.

## Suppliers and contractors

Our engagement with suppliers is described in **Responsible supply chain**, page 44.



## Investors, analysts and financiers

Outotec’s approach to investor relations and communicating with the financial markets is based on Finnish law, EU directives, and our own policies on corporate governance and disclosure, as well as stock exchange rules and regulations.

At the end of 2019, Outotec had 28,104 shareholders. Shares held in 11 nominee registers accounted for 37% of all Outotec shares, while private Finnish investors held 16%. Eleven sell-side analysts and one credit analyst conducted research on Outotec.

In addition to Outotec’s quarterly investor briefings and annual financial statements briefings, the CEO’s mid-quarter Q&A sessions continued to be an important channel for maintaining dialogue. These audio casts aim to further clarify information that has already been made public. In addition, we met frequently investors and analysts in one-on-one discussions, at industry seminars and road shows.

All our audio casts are recorded and available for on-demand viewing at <http://outotec.videosync.fi/archive/cmd>.

## Academia, research institutes, students and potential future employees

Partnerships and networks with universities and research institutions are an important part of Outotec’s everyday business. From the partnerships Outotec seeks high expertise and the cooperation is done to capture the best available knowledge from universities.

In Finland, our closest research partners in recent years have been Aalto University, VTT Technical Research Centre of Finland Ltd, Lappeenranta University of Technology, University of Oulu, the Geological Survey of Finland and the University of Helsinki. In Germany, where Outotec also has an in-house research center, we have had good collaboration with technical universities in Aachen, Erlangen, Darmstadt, Karlsruhe, Hamburg and Freiberg as well as the Helmholtz and Fraunhofer Institutes. The scope of these partnerships varies, but they are primarily related to process technology, resource efficiency, digitalization and IoT development, circular economy, hybrid materials and water issues. Besides project-related research cooperation, Outotec has permanent partnerships with many universities and other educational institutes. These partnerships involve contributing to educational steering committees, guest lecturing, software licensing, hosting student groups, and collaborating on Bachelor’s, Master’s and PhD theses.





We offer positions for interns, summer trainees and thesis workers. We also participate in several activities that give students an opportunity to put their academic knowledge to practical use, thereby providing them with an insight into working life.

We work with educational institutions of different levels with the aim of widening the students' knowledge of mining and metallurgical industries and getting talented students interested in Outotec. Each year we participate in several career fairs and other student events, where students can meet us and discuss Outotec and their career opportunities.

**Outotec participates as a collaborating organization in a circular economy co-creation lab**

One example of educational cooperation in 2019 was Outotec's participation as a collaborating organization to a circular economy co-creation lab organized by University of Helsinki. The aim of the HELSUS co-creation lab is to bring together students, researchers and societal actors to explore challenges and solutions on the broad topic of circular economy. The expected outcome is a bunch of co-produced, novel and innovative master's theses on this important matter.

HELSUS is a cooperative and facilitated process for master students writing their thesis in collaboration with societal actors and researchers. The lab brings people from various backgrounds together to explore challenges and solutions regarding common interests.

As a collaborating organization we provided the students with a challenge regarding recycling Waste Electrical and Electronic Equipment (WEEE) on a global level. The increasing rate of electronic waste is a highly relevant challenge for circular economy. Every year around 46 million tonnes WEEE is generated globally, while the official recovery rate is only about 20-40 %. Informal systems with manual sorting are connected to problems regarding backyard leaching, but they still have an overall better outcome than formal systems using mechanical processes. This shows that current processes can be made more effective. Regulative approaches are needed in order to better understand the effect regulation has on recycling and to understand how it is possible to increase the recycling rate.

Through the thesis projects we are interested in exploring possibilities for economically viable electrical and electronic equipment waste recycling material flow for extraction of valuable elements.

The HELSUS co-creation lab is a pilot project and replaced the Sustainability Master class. The future of these concepts will be determined after results from the pilot project are in.

Stakeholder interviews gave valuable feedback on Outotec's sustainability work

**Outotec Turula received educator organization of the year prize**

North Karelia Chamber of Commerce, University of Eastern Finland, Karelia university of Applied sciences and Riveria vocational education and training provider awarded Outotec Turula as educator organization of the year. The award comes from Outotec Turula being an extremely pro education employer. The company educates its own employees continuously and provides the possibilities for employees to educate themselves. Outotec is also open to new ways of collaborating with the educational organizations.

**Aalto University School of Chemical Engineering nominated Doctor Kari Knuutila, Chief Technology Officer at Outotec, as Alumnus of the year 2019.**

The recognition results from doctor Kari Knuutila's significant achievements in his career, a visible role in society, and for his support and continuous collaboration with Aalto University.

**Seventy years of research**

Outotec Research Center (ORC) in Pori celebrated its 70th anniversary with a seminar on October 15-16, 2019.

The research center was established in 1949, and since then it has been a part of the company's long-term research and development strategy. ORC has developed numerous cutting-edge technologies. For example, Outotec Flash Smelting, which is still is one of the world's most commonly used processes for the production of primary copper and nickel, was developed in ORC at the end of 1940s. The center's laboratories conduct tests on raw materials for Outotec's customers and the related production processes.

In 2019, ORC welcomed more than 1,400 visitors. Visitors include for example customers, potential customers and students.



## Authorities, regulators and governments

Outotec is a core partner in the European Institute of Innovation and Technology's (EIT) Raw Materials Knowledge and Innovation Community. This platform aims to make raw materials into a major strength for Europe by boosting competitiveness and the attractiveness of the raw materials sector. Outotec participates in nearly 20 related projects, aiming to create new business by upscaling technologies, while also generating new educational programs and strengthening Europe's infrastructural network. The volume of these projects in total is ca. one million euros yearly.

Outotec also has a representative at the high-level steering group of the European Innovation Partnership (EIP).

In November 2018, the European Commission invited Finland to coordinate the research related to recycling in the battery industry. Outotec will lead the project together with Aalto University's Department of Chemical and Metallurgical Engineering. The first task is to pilot new ways to collaborate in research and innovations. Further, the goal is to define a long-term vision, strategic research agenda and action plans for battery recycling in Europe.

Also, Outotec participates in further EU Horizon 2020 projects in the fields of Industrial Leadership, Societal Challenges and Excellent Science. We have ten Horizon projects ongoing with industrial actors and academic partners, with an overall volume of nearly two million euros yearly. This allows us to develop our technologies in close interaction with our customers, thus achieving a greater impact on real environmental problems.

Outotec participates in the technical secretariat of the EU's Operational Environmental Footprint Sectoral Rules (OEFSR), piloting for copper.

- [Read more](#) about our representation in industry associations and commitment to external initiatives.

## Local communities

Outotec aims to support local projects that benefit communities where our major customers operate. These community projects are based on local needs and defined through dialogue with local communities. We strive to realize community projects in collaboration with our customers,

using joint financing. We also aim to integrate voluntary work into community projects. All community projects must bring measurable benefits to the local community.

In 2018, we revised our Donations and Employee Volunteering Policy (renamed) to include guidelines for employees' voluntary work with local communities. The company volunteering policy allows each employee to use up to one working day per year for volunteering in designated volunteering actions. In 2019, nine company volunteering actions were planned and executed under the Together for the better company volunteering program. Actions were held in five different countries including Finland, Brazil, Canada, UAE and Australia. All the actions were planned and executed locally. Altogether over 200 Outotec employees participated in the "Together for the better" voluntary actions using an estimated 550 hours doing volunteer work. In addition, to the hours reported some working hours were used in the planning and organizing of the different events. These volunteering actions included elderly support, education and technology development, volunteering at charitable organizations, donation collections, and participating in environmental actions such as "One tree planted" and "Coastal cleanup".

The Board of Directors did not propose a budget for donations for 2019 to the Annual General Meeting.

As the bulk of our operations involve engineering and business management, we have not conducted impact assessments in local communities. Neither do we have any development programs. Regarding project sites, these are normally done by our customers.

## Media

We interact with media representatives both locally and globally to publicize our sustainability work. Our CEO's quarterly briefings provide basic information about Outotec's performance. We also organize interviews where journalists can discuss our goals, new products and newsworthy events with our management representatives. We publish case stories on our website for the media and aim to organize press trips to Outotec's R&D centers or reference plants at customers' sites, to show concrete examples of our work to journalists.

Our experts additionally meet trade press representatives at exhibitions and conferences and share the latest product news with them.



## Case: NLMK

# Outotec's partner NLMK pioneers in sustainable steel production

The steel industry is seeking ecologically friendly ways to produce steel while striving for optimal efficiency. This is not an easy task, considering that the global demand for scrap metals could increase substantially in the next 30 years and complex regulations are setting limitations on operating efficiently, especially in developed countries.

State-of-the-art technologies and investments in the workforce are essential for sustainable and efficient steel production. Russian steel company Novolipetsk Steel, or NLMK, has paved the way for efficient resource use in steel making and integrated sustainability as a core part of its business.

### Partnering for sustainable pelletizing

In the past 20 years, NLMK has been able to double its steel production while reducing its overall emissions by 50 percent. This is a result of using the most modern technologies. "We're constantly looking at equipment upgrades and trying to apply the most advanced solutions," stated Dmitry Kolomytsyn, Director for Capital Markets & Investor Relations at NLMK.

Outotec is a long-standing technology partner of NLMK. Outotec's and NLMK's collaboration dates back to 2011, and in 2019 the collaboration was expanded. Originally helping NLMK deliver Europe's largest pelletizing plant in Russia, Outotec is now helping to ensure operational efficiency and safety at the plant – and the latest green pelletizing technology.

Outotec supported NLMK in delivering a large-scale pelletizing plant in Stary Oskol, Russia between 2012–2014. Outotec's services included engineering, process technology, plant equipment supplies and services during the plant's installation and start-up. In addition to delivering the latest technology improvements and digital solutions, the collaboration has been

extended to cover services for installation and commissioning of an expansion of the plant. The expansion will increase the plant's capacity from 6 to 8 million tonnes.

The pelletizing plant and its most recent technological improvements "represent the cleanest pelletizing technology available in the market," said Kolomytsyn, "It also demonstrates our commitment to environmental compliance."

Outotec's solutions help improve safety and optimal performance of the pelletizing plant.

In addition to advisory services and a digital solution package, Outotec's latest solutions in green pelletizing, cooling air process and pallet car changing system will be applied to the plant. An optimum level of production in the plant is supported by solutions such as Outotec Pretium Optimus® and Outotec Pellet Size Control® system.

### Aligning steel production with sustainability goals

In addition to the latest technological innovations, NLMK focuses on social aspects and human capital.

The company prioritizes employee trainings and engagement to continuously improve working conditions and safety. Outotec's solutions, for their part, also contribute to the pelletizing plant's safety. "In 2018, our injury rate was below the World Steel Association industry average," Kolomytsyn stated.

NLMK wants to further decrease the air emission intensity and make sure that it reaches the best available technology level that's currently available in Europe," Kolomytsyn described NLMK's goals, "If you look at our current air emissions, we are already providing the best available technology in Russia."

NLMK is planning to further align its policies with the best possible sustainable practices and deliver projects that would contribute to the UN Sustainable Development Goals, Kolomytsyn reveals. Companies are adjusting their business models rapidly, seeing what they can do on a standalone basis to fix the current business model or the current way they produce steel. The good news is that the companies in the steel industry are more or less on the same page.

"We all understand that we're in the same boat," Kolomytsyn pointed out, "Therefore, we're not trying to hide or create secrets from our competitor. When it comes to sustainability, we share views and existing technologies. Everyone has accepted the fact that something needs to change." There will be steelmakers who will be leading this process, Kolomytsyn believes, and there will be steel producers who will be following the innovations and trying to implement them.



# Our performance





## Sustainable technologies and innovation

Leading technologies are our core strength. Our comprehensive offering enables our customers to run environmentally sound, profitable and socially acceptable businesses.

Outotec's key strength is the capability to develop and deliver resource-efficient technologies and products. Our product portfolio covers hundreds of various plant concepts, processes, pieces of equipment and services, and we continuously develop our offering according to the principles of sustainable development. Although the processing of minerals and metals has negative environmental impacts, through advanced technology the negative impacts can be managed. For this reason, R&D has a central role in Outotec's business and managing customers' environmental impacts and developing sustainable technologies for our customers is at the core of our sustainability work.

- **Read also** Management approach (GRI 103-1, 103-2, 103-3)







## Impacts of our products and services

The most significant environmental impact of our business activities materializes through our products and services that indirectly reduce various emissions, including carbon dioxide emissions. We measure this positive impact to combat climate change, our handprint, by the emissions avoided by the metallurgical industry using six Outotec technologies.

Our solutions utilize primary resources efficiently, reduce energy, emissions and water consumption, and produce less waste to landfill – while also cutting operating costs. We additionally offer solutions for processing secondary resources and turning side streams into salable products. Equipment upgrades, plant modernization projects, and our long-term operation and maintenance services all ensure that customers' plants will always run smoothly, safely, and efficiently, with minimum environmental impact.

Outotec's products and services – if defectively manufactured, installed or used – have the potential to cause health and safety problems for our employees, contractors, and customers as well as indirectly harm the environment and local communities surrounding our customers' plants. Indirectly, Outotec's products and services also have an impact on climate change.

To mitigate these risks, we offer training and other services to our customers to help them maintain safe and environmentally sound operation. Furthermore, we train and audit our suppliers to ensure good product quality.

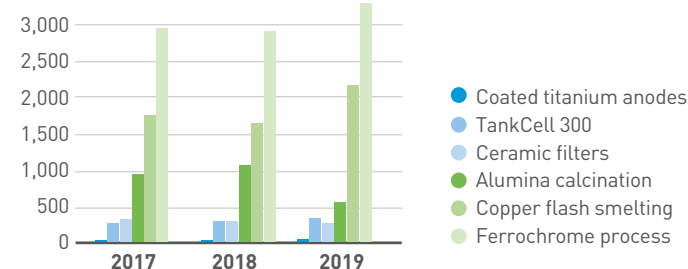
Outotec continuously works to reduce the negative environmental impacts of its technologies through R&D and product development.

### Our handprint, reduction of GHG emissions (GRI 305-5)

By selling advanced technologies Outotec reduces the global CO<sub>2</sub> emissions through its customers' industrial processes. We measure this positive impact to combat climate change, our handprint, by the emissions avoided by the metallurgical industry using Outotec metals-related technologies. Emission reductions are directly proportional to energy savings. In 2019, we calculated the positive impact of six technologies. The amount of emissions avoided depends on actual production rates by the industry. Our handprint in 2019 was 6.6 million tonnes CO<sub>2</sub>-e avoided in total.

### GHG emissions avoided using Outotec metals-related technologies, thousand tonnes of CO<sub>2</sub>e

#### EMISSIONS AVOIDED, THOUSAND TONNES OF CO<sub>2</sub>e



\*Calculated based on 2018 production volumes.

- [Read](#) our long-term and annual targets regarding products and services and our performance in 2019 in Our agenda

### Our impacts on biodiversity (GRI 304-2)

We have included information on our impacts on biodiversity in this report due to increased stakeholder interest. By describing our role and impacts we can better meet the information needs of investors, customers and local communities.

In the metallurgical industry, emissions and eco-toxic substances can cause negative environmental impacts. If not appropriately manufactured, used, or maintained, Outotec's products also have the potential to harm the biodiversity surrounding our customers' plants.

Outotec's direct impacts on biodiversity could be traced to the equipment manufacturing sites and five assembly and service workshops globally. However, these workshops are in industrial parks (zoned for industrial use), in which the environmental permitting takes into consideration biodiversity impacts and endangered species already in the planning phase.



## Developing sustainable technologies for our customers is at the core of our sustainability work

When Outotec opens new sites, they are built with tight control over their environmental impacts, and we check whether the construction requires an environmental permit. In case the construction could have an impact on biodiversity, an environmental impact assessment will be carried out (impacts on flora, fauna, endangered species, water management, pollution or habitat conversion). However, Outotec's impact on biodiversity is materialized mainly through the entire value chain.

Our customers' industrial sites, to which Outotec products and technologies are being delivered, can be in vulnerable areas, or otherwise potentially have a heavy impact on biodiversity due to the nature of activities. In cooperation with customers, we design the processes in such a way that they have minimal effluents to water and emissions to the atmosphere, and ultimately require less raw materials to be mined. Outotec's technological know-how in this regard is mainly based on closed water loops, nutrient cycling, raw material efficiency, tailings management and emissions management systems. These have a positive impact on conserving natural habitats, reducing land-use impacts, preventing pollution and reducing groundwater consumption.

### Calculating the carbon footprint for the entire life cycle of our products

In the metals value chain, 90-100% of its climate impacts (i.e. carbon footprint) relate to the energy use of the sector. Throughout the years, we have worked intensively to reduce the energy consumption of our technologies. Nevertheless, different stakeholders have started asking for exact numbers in terms of what a products' carbon footprint is.

The carbon footprint estimation can be roughly divided into two parts:

- How much carbon is emitted in the manufacture of our products (incl. equipment, processes or plants)
- How much carbon is emitted during their use phase (or in the end-of-life phase)

The first step is to calculate how much CO<sub>2</sub> is emitted during the manufacture of our products. We can already provide customers solid data about the environmental impacts of the manufacturing phase, and hence assist them in their own carbon footprint calculations. So far, we have made the estimations for thickeners and fine grinding mills and are currently preparing this data for further product systems.

In 2019 Outotec sponsored M.Sc thesis on "Process model based environmental footprints of copper smelting". In this work, the environmental issues related to copper smelting as well as their relationship to technological differences were studied. A process model based life cycle assessment (LCA) procedure was developed for Outotec to calculate and evaluate the environmental footprint of seven process models based on seven different copper smelting technologies. The results showed clear differences between the seven process technologies. Biggest differences could be seen for climate change impact, depletion of fossil fuels, metals, and water as well as energy demand and the quality of the total ecosystem. The major reasons for variations between the technologies and locations can be attributed to the source of energy for the smelter and the raw materials produced for the process. As a direct consequence, favoring cleaner energy sources and raw-material processing methods greatly reduces a smelter's environmental footprint. The next most effective way to reduce the environmental footprint is the correct selection of technology.

Outotec's experts were co-authors in the paper "Simulation-based exergy, thermo-economic and environmental footprint analysis of primary copper production" which studies the performance and environmental footprint of the complete primary copper flowsheet. This is done through a combination of several indicators such as recovery rates, exergy, material and energy consumption and life cycle assessment (LCA) indicators, with the main objective of evaluating the sustainability of the process.

Our long-term plan is not only to give the customers the data they need about environmental impacts but also to be able to use this data internally for finding the sources of competitive advantage or guide us in finding hotspots for further development.

Reference: A. Abadías Llamas, A. Valero Delgado, A. Valero Capilla, C. Torres Cuadra, M. Hultgren, M. Peltomäki, A. Roine, M. Stelter, M.A. Reuter (2019): Simulation-based exergy, thermo-economic and environmental footprint analysis of primary copper production. *Minerals Engineering*, 131, 51-65.



### Product safety (GRI 416-2)

Outotec has a Product Compliance Management process in place to make sure that our products and services reliably meet all applicable safety standards during all phases of the product life-cycle. We follow negative impacts and incidents through our QEHS management and product compliance management systems, as well as through customer feedback collected after each major delivery and in customer surveys. In 2019, we continued to improve our competencies by training, improving instructions supporting our processes, verifying compliance in project execution based on audit findings, engaging in review meetings and collecting employee feedback. In 2019, a new product incident reporting process was developed and will be rolled out in 2020.

Compliance with applicable laws, regulations, standards and customer requirements is the prime focus in Outotec’s product compliance management work. We maintain an extensive database of product compliance procedures and documents including the development, sales and delivery of our products and services.

We provide relevant information to our customers about the impacts of our products and services, including their energy consumption, emissions, metal recovery rates, and water usage, as well as safety information provided according to industry standards. Outotec manuals cover the entire life cycles of the products delivered and contain information on transport, installation, operation, maintenance and decommissioning. In addition, we offer our customers maintenance services. We also routinely provide safety training for our customers regarding the use and maintenance of our products.

Outotec’s customers can give feedback about our products and services in regular customer surveys and through an external feedback channel and Compliance Helpline on our website. In 2019, no issues were raised regarding Outotec products and services through external feedback channels.

### R&D and innovations

In technology development, we focus on increasing resource efficiency – aiming to reduce energy and water consumption, emissions, effluents and waste. In 2019, 81% of our R&D projects were related to initiatives targeting sustainability improvements.

EFFORTS TO MITIGATE THE ENVIRONMENTAL IMPACTS OF OUR PRODUCTS AND SERVICES	2019	2018	2017
R&D expenditure, EUR million	55	54*	56
R&D expenditure, % of sales	5	5	5
Share of R&D projects targeting sustainability improvements, %	81	80	79
Number of new patent applications filed	28	26	38
New national or regional patents granted	661	558	672
Number of patent families	775	761	763

\*Restated due to business divestments in Metals, Energy & Water segment being classified as discontinued operations.

Outotec’s digital strategy was updated in 2019 by a cross-functional team consisting of members from all business units, as well as Operational Excellence and market areas. In addition, we have established Outotec Digital Business Program, which is a collaboration structure for the digital community across Outotec.

Outotec extended its offering towards digitalization-based products (Pretium products). By applying optimizers in zinc roasting plants, significant increase in production rate, improvement in product quality and reduction of SO<sub>2</sub> emissions have been achieved.

In 2019, Outotec also expanded its grinding portfolio with a new range of mills and a new polymer bearing system. Along with the new mill offering, Outotec introduced the Outotec® Polymer Hydrostatic Shoe Bearing (HSB) system for large and mid-sized grinding mills. The Polymer HSB system is fitted to all new Outotec grinding mills (greater than ~3MW) as standard and is designed to maximize grinding mill availability and simplify maintenance, increasing revenue and reducing maintenance costs.

In addition, Outotec introduced a cost effective, **Modular Paste Backfill Plant (MPB 80)** for mines with low-range throughput requirements. The plant features a combined paste mixer and hopper



in place of separate units which enables significant reductions in both plant size and maintenance requirements. The plant components are pre-assembled off-site and delivered in larger, pre-engineered modules, enabling a significantly shorter interval between order placement and installation and start-up.

In 2019, Outotec and Neste introduced 100% bio-based diluent as a new solution for metals extraction. Outotec and Neste have jointly verified the viability of applying Neste MY Renewable Isoalkane™ as a fully bio-based diluent for extracting metals in hydrometallurgical processes. The diluent is based on Neste's NEXBTL technology and produced entirely from bio-based waste and residue raw materials. Thanks to its renewable origins and being readily biodegradable, the bio-based diluent reduces environmental risk and has a remarkably smaller carbon footprint over its life cycle when compared to fossil equivalents. Moreover, Neste MY Renewable Isoalkane evaporates at a lower rate, which improves copper extraction efficiency and safety due to significantly reduced volatile organic compounds (VOCs).

### Rewarding innovations

Outotec presented Technology Awards to 18 employees on October 10, 2019. Technology Awards are granted to encourage Outotec employees to create new inventions and innovations and to reward individuals or teams for their significant contributions to Outotec and the industry in general. The Technology Award comprises a certificate of honor and a significant financial reward.

- [R&D data](#)
- [Environmental data](#)





## Case: Water usage & tailings management

# Outotec provides resource efficiency and minimized risks for mining companies

Water availability and environmental risks have become increasingly significant issues for mining companies. Climate change and uncertainty of resources press miners to look into tailings management solutions for increased efficiency and sustainability.

Mining companies are faced with a myriad of challenges, with perhaps the most significant ones currently being water availability and resource efficiency. Water is a scarce resource in many parts of the world and local communities are using the same water sources as companies.

Decreasing ore grades mean that it is becoming necessary to extract higher volumes of ore to generate the same amount of refined product. In general, the lower the ore grade, the more water-intensive the processes to extract the ore. This sets importance on investing in resource efficiency and minimizing impacts on the local communities from the start.

Outotec's solutions have been used to help future proof operations and prevent mining water-related risks via taking advantage of different tailings management solutions.





“These risks are major sustainability issues for miners, because the impact on the community can be massive if operations are not carried out well,” says Jason Palmer, Director of Tailings and Water solutions at Outotec, “By changing the way you handle mining waste, you can significantly reduce the impact on the community and the environment.”

### Minimizing risks with tailings solutions

UMMC’s Uchalinsky mining and processing plant, which processes copper-pyrite ores and produces copper and zinc concentrates, was facing a problem with the almost-full tailings pond in 2014. The solution was Outotec® Thickened Tailings and Paste Plant, which turns concentrator waste into an environmentally-friendly paste.

Outotec’s plant allows efficient recovery of process water and decreases the energy consumption of slurry and water pumping. The plant also reduces the area occupied by the tailings pond and the risks of environmental contamination.

In Uchalinsky’s case, for example, moving away from the traditional method of disposal also meant that the operating life of the tailings pond was increased significantly, from 20 to 50 years.

“We can help our customers to use less energy and water in their production and reduce CO<sub>2</sub> emissions,” Palmer says.

### Dry tailings is the future

Currently mining companies are tackling the issue of tailings with a range of solutions, and they need to combine efficiency with environmental considerations. “Mining companies are constantly managing the effluent from the sites,” says Palmer, “Dry stacking means that they would have the possibility to quickly reclaim the site after the life of mine has come to an end, compared to a wet tailings dam, which can remain a long-term responsibility.”

Dry tailings solutions signify a substantial reduction of not only the amount of water used, but also the risk of failure – something that carries endless value.





## Case: Alumina calcination

# New era of alumina calcination: optimizers boost efficiency

The aluminum industry is taking steps towards a greener future as new technology reduces fuel consumption and emissions. Calcination optimizers introduce digital process control technology that has a significant impact on the carbon footprint of the entire production process.

In recent years, a new generation (GEN 5) of alumina calciners has been introduced, enhancing the sustainability of the entire process. The new calciners are more fuel efficient than the previous generation. They are also more compact, making them more sustainable from a construction and manufacturing perspective as well.

For the alumina industry, energy efficiency is one of the main drivers for technology development. Alumina is the main feed stock for aluminum metal production and calcination is one of the major energy consumers in that production chain. Alumina calcination requires approximately 3 GJ of energy per ton of alumina produced, which can be more than 30% of the total energy for the alumina production process alone.

“Most of this energy is supplied through combustion of fossil fuels. We have more than 60 delivered installations, and some of these are already becoming outdated in terms of efficiency. By modernizing them, we can reduce their emissions. Even a small improvement can have a significant impact, not only on emissions but also on plant economics, and therefore we are placing more and more focus on upgrading the large installed base,” says Dr. Linus Perander, Head of Calcination at Outotec.

Heavy reliance on fossil fuels for energy is one of the sustainability challenges of alumina and aluminum production. The highly endothermic and high temperature processes require large amounts of energy, which generates CO<sub>2</sub> emissions. Research into alternative fuels is ongoing, with some of the larger producers looking into supplementing or substituting fossils with e.g. solar or hydrogen-based concepts.

### Significant fuel savings with calcination optimizers

Calciner optimizers have already been shown to significantly reduce the energy consumption of alumina calcination by stabilizing and optimizing the process. These digital solutions help run the plants more efficiently and find the optimal operating points, which may sometimes seem counter-intuitive and difficult to deduce for a human operator. Optimizers are especially useful in the installed base and older plants, playing a major part in improving the efficiency.

Outotec’s Pretium Calciner Optimizer has sparked significant interest among customers. The two already active cases in alumina calcination have proven the tool’s usefulness and potential, driving both fuel savings and increased output.

“We applied our calcination optimizer in an old generation plant and were able to reduce its energy consumption by up to 10 per cent. To put that in context, a 10% fuel reduction means 5500 tonnes of CO<sub>2</sub> avoided per year. That is equivalent to the yearly CO<sub>2</sub> emissions of more than 600 average EU citizens. In newer plants, the potential for specific fuel energy reduction is somewhat lower, but then again newer plants operate at higher capacity, so the overall impact can still be quite significant,” Perander says.

“What sets us apart from the competition is our fundamental process knowledge about these plants. We can provide advanced analytics and diagnostics as well as operational advice. This adds a lot of value to our customers. The same principles have also been applied to e.g. roasters that are used to refine copper concentrate before refining.”



### Experts in the spotlight

With digitalization technology and solutions becoming more prevalent, new skills are needed in order to maintain the position of a technology leader. A shift must be made from pure engineering expertise to the ability to apply machine learning and AI, for instance. Outotec has already taken steps to enhance the company's digital capabilities and recruited a number of new experts. External collaboration is also important in this regard.

"Digital solutions require openness between customers and vendors which in turn requires a trust-based relationship. Customers must be willing to share their data, as that is the basis for optimization. In turn, vendors must take cybersecurity and information integrity seriously. The customer also needs to have a systematic approach to their systems architecture while making it flexible to cater for digital applications. Restricting themselves too rigidly early on will limit possibilities in the longer term," Perander says.

### Future focus on decarbonization

The aluminum industry continues to seek ways to further improve efficiency. While in new installations theoretical limits are getting closer and closer, gains to be had are still significant especially in the older installed base. At the same time, global emission limits are still becoming more and more stringent, so not doing anything is not a viable option.

However, many players are realizing that it is not enough to simply meet the regulatory limits. Being a good corporate citizen goes above and beyond the minimum requirement, and many have launched initiatives to improve their sustainability and benchmark themselves against each other. A good example of this development is the Aluminium Stewardship Index, which has started to gain traction globally in the last couple of years. There is also talk of introducing new classes of exchange traded aluminum, based on the level of environmental footprint, driven mostly by consumer demand.

"We at Outotec have distinct advantages when it comes to sustainable technology and process expertise, and we aim to maintain that edge. In the longer term, there is interest in the industry in decarbonizing the entire production chain. Alumina refining and calcination is part of this equation. We invest quite heavily in internal research and development, using our pilot plants to optimize existing designs and employing people in new fields. As always, we are pioneering to help our customers meet their sustainability goals," Perander concludes.





## Engaged experts

Outotec aims to employ the best experts in the industry to serve customers with leading technology, superior customer service, and excellent execution. Developing our people and our culture is an essential part of Outotec strategy.

Competent and engaged employees are key to Outotec's success. We mitigate risks related to employee retention and competence gaps via various competence development programs, ongoing leadership and working culture development, fair and competitive compensation as well as talent management and internal job rotation.





We regularly measure employee engagement and monitor other people KPI's such as attrition rate. In the recent employee survey conducted in November 2019, the employee engagement index was 7,5/10 (above global benchmark). Although the KPI was new due to the change in the engagement survey tool, the results indicate a positive trend continuing (2018: 61%). Outotec's target has been to achieve 70% employee engagement by 2020. The new employee engagement survey tool with dialogue functionalities enables managers to respond to employee feedback in a more effective and timely manner. The tool was extremely well received by employees, and the response rate in 2019 was record high: 91% of the employees gave their feedback in the survey.

New values launched late 2018 have been promoted throughout the year both locally and globally, and customer focus as a theme has been built in all cultural initiatives. Leadership development continued to be high on the agenda, and results were visible also in the employee engagement survey; leadership score was above the global benchmark.

Two Outotec Round-Table events were held during 2019, bringing together some 20 personnel representatives from Europe and top management. During dialogues between the corporate management and the employee representatives, various topics were discussed. Those included company business and financial update, our strategy, Metso Outotec merger, Outotec competence development, the new employee engagement survey O'People, our tools & processes (SAFe / Scaled Agile Framework for Lean Enterprises) as well as rewarding. Close co-operation with local works councils continued in 2019.

### Employment and labor practices

Outotec's responsibility as an employer is to provide decent working conditions, treat people in a fair manner, and follow the principle of equal opportunities. Our Code of Conduct provides the basis for our labor conditions, substantiated by Equality and Anti-harassment policy, HR policies and HR Handbook that enable fair employment globally. Our HR practices are always compliant with international labor standards and local legislation.

Blue-collar workers account for approximately 14% of our employees. Our working conditions guidelines for blue-collar workers are aligned with the UN Guiding Principles. The guidelines describe Outotec practices and principles regarding fair working conditions, compensation and recognition, employing migrant workers, employee communication and grievance mechanisms.

- [Read also](#) Management approach
- [View](#) the Social data
- [View](#) diversity data

### Global mobility

International assignments are an important part of Outotec's business. In 2019, there were nearly 900 project assignments abroad in 65 countries. Our Global Mobility Policy provides the terms and conditions that apply to Outotec's temporary and permanent cross-border employee transfers globally. The policy provides the framework for transparent, fair and equal treatment for global mobility.

We aim to provide competitive compensation and benefits for employees, considering different working conditions, and ensure equal and fair terms and conditions for all the international assignments as well as secure compliance in employment regulations, taxation and social security. In 2019, focus has been to ease the life of those project assignees whose families remain in the home country by increasing the assignment home leave rotation and supporting their families at home with different child care options.

### Equal opportunities and diversity

Outotec is a global employer. For example, in Finland our employees represent 37 nationalities and in Germany 28 nationalities work either as expatriates or on local agreements. In total, our employees represent 67 nationalities. We continuously monitor diversity and equality within Outotec.

As a company operating in a male-dominated industry, gender equality is an important topic for Outotec, and special emphasis is put on supporting career development of women. One important initiative in this area has been the Women's mentoring program that continued also in 2019.

We have in a global Equality and anti-harassment policy in place, as well as Equality plans in Finland and Sweden based on the local laws. 33% of our Executive Board members and 21% of our employees are female. Our target for 2019 was to increase the share of women in senior leadership positions by 2% from 2018. Unfortunately, this target was not reached in 2019.

Most of the senior management in our major locations have been hired locally. The percentage varies from 71% to 100%. To enhance equal opportunities and transparency, all open positions are published internally to enable all Outotec employees to apply for positions. Employees also have an opportunity to promote their career in the employee profile and let our organization know about their expertise. We encourage our employees to be active in their own career development and promote new tools to support this target.



We have put a lot of emphasis on implementing global policies and processes and clarifying roles and responsibilities to ensure smooth operations and equal treatment of our employees in global mobility cases, for instance.

### Employees as owners

Many Outotec employees are also shareholders through the Employee Share Savings Plan, which was launched in 2013 and offered to employees globally except for Mozambique, Morocco, Qatar and Saudi Arabia due to legal, taxation or administrative restraints. The Plan rewards employees for their long-term commitment to the company. 779 employees, equaling 20% of eligible personnel, participated in this program in 2019. 743 employees who participated in the Plan in 2016 and kept their shares until May 2019 received free shares. Outotec offered beneficiaries one free share (gross, with cash payments for taxes deducted) for each two shares bought with the 2016 savings.

### Programs for upgrading employee skills (GRI 404-2)

In 2019 professional growth and competence development continued to be a key element of Outotec's people strategy. More than 81% of all employees participated in training activities in 2019. In addition, 6,318 persons, including both employees and supervised contractors, received health and safety training. Our global training offering is built on Outotec Career and Competence Framework and consists of global competence development programs designed for key roles. General skills and onboarding modules are available for all employees. Renewed training offering site for all employees was launched in June 2019 to support easy access to trainings.

Our largest competence development initiative also in 2019 was the services certification program. Approximately 307 service professionals have completed level 1 certification program and 118 level 2 certification program since the start of the program in late 2017. The certification program is available currently for 12 technologies. Sales development program was officially closed in 2019 with close to 300 certified sales and sales leadership professionals. Project manager certification and Metallurgist Competence Development programs initiated in the second half of 2018 continued in 2019. A new global training program was developed and launched in 2019 for supply professionals, and approximately 100 professionals participate in the program. Also, a new development program for steering group chairmen was launched in 2019 to support project excellence targets. Special emphasis has also been put into developing

Dialogue with our people, strong leadership culture and continuous competence development continue to be at the core of Outotec's culture development and strategy.

onboarding modules/curricula for different employee groups. Several e-learning modules, e.g. Ground transportation safety, Metals Processing, Internal Controls and Marketing modules, were developed and launched for all employees. Customer focus has been promoted as a key theme in several programs.

In addition, more than 95% of all managers at Outotec have participated in leadership programs during 2017-2019. All our employees are in the scope of talent management, and career and development planning are key components of manager responsibilities. 99% of employees have regular performance development discussions with their managers (GRI 404-3). The performance reviews of blue-collar workers have not been registered in the data system and not included in the percentage.

Depending on local needs, we provide transition assistance to support employees who have been terminated or are retiring. These may include training, counseling or severance pay.

Please note that we report only global programs that are administrated through our learning management system (Learning Point). In addition to global trainings, a lot of training is delivered locally in different countries.

- [View](#) full employee and training data



## Responsible supply chain

Supply chain management affects the quality of products and services, our reputation, as well as local employment and businesses. The main challenge for our supply chain management concerns the need to improve cost efficiency without compromising on product quality, safety and sustainability.

As approximately 90% of Outotec's manufacturing, based on monetary value, is sourced from external suppliers, responsible sourcing and supply chain management are highly important for Outotec. Our wide product range and a high number of different delivery locations make our supply chain development and management challenging. Standardization, harmonization and focusing on fewer suppliers are key drivers in establishing a sustainable supplier base.





In 2018, our revised Supplier Policy was published and taken into use. We took our project risk assessment process and tool into use and trained 133 persons to use it. The risk assessments have provided our management with important information about major risks and planned mitigation actions and those benefits have carried over into the new year.

In 2019 Outotec appointed Anna-Maria Tuominen to lead the Supply function globally as the Senior Vice President of Supply and Manufacturing and she is a member of Outotec’s Executive Board. She has a long history of solid supply chain experience in Finland and around the globe and works with Supply Quality to promote a sustainable and socially responsible supply chain for Outotec deliveries.

99% of our key suppliers were committed to Outotec’s Supplier Policy in 2019. We define key suppliers as companies that are categorized as important suppliers in financial, strategic and operational dimensions, or in terms of product quality and delivery time. All potential new direct suppliers are assessed through our Supplier Assessment and Approval Process before getting approved supplier status.

Outotec’s compliance helpline and an external feedback channel on the company website are available for anyone to raise concerns related to corruption, human rights or any unethical behavior in Outotec’s business activities. In 2019, one supplier was rejected due to compliance concerns found in further review.

- [Read also](#) Management approach

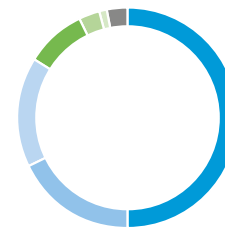
**Our suppliers (GRI 102-9, 102-10)**

Outotec delivers large and complex solutions and services globally to a relatively small number of customers, and typically the supply chain differs in each project. Most of our direct suppliers are either manufacturing workshops or component/equipment manufacturers. The rest are logistics, engineering and construction companies, and other service providers. In addition, thousands of our direct suppliers’ own suppliers form part of Outotec’s supply chain. The allocation of more business to fewer suppliers enables better management and development partnerships, in turn enhancing delivery excellence and cost competitiveness.

In 2019, we had approximately 4,400 active suppliers, of which 211 were categorized as key suppliers. As product competitiveness is one of Outotec’s strategic development areas, our work focused on the supply base management with a target of having fewer suppliers and increasing best-cost-country sourcing in China, India, Eastern Europe and Mexico.

Our total spend on customer-related purchasing in 2019 was EUR 663 million.

**SUPPLY SPEND BY CATEGORY**



- Machinery 50%
- Renting of machinery, consultancy 18%
- Basic metals and fabricated metals 16%
- Electrical and optical equipment 9%
- Rubber and plastic 3%
- Textiles and textile products 1%
- Others, such as chemicals, non-metallic minerals etc. 3%

Local sourcing covered

50%

of our total supply spend

**Supplier environmental assessment (GRI 308-1, 308-2)**

Material toxicity and chemicals have been ranked as the greatest environmental risks in the supply chain. If not appropriately manufactured, used, or maintained, Outotec’s products have the potential to harm the environment. To mitigate product quality related risks, we provide training to our suppliers and audit them regularly.

Outotec screened 99 suppliers, equaling 14% of all new suppliers using environmental and social criteria in 2019. In addition, Outotec audited 71 suppliers, equaling 33.6 % of all key suppliers, using environmental criteria. Screening is a spot check on certain topics, and we select the companies for environmental screening from the high and medium risk categories based on information collected with a supplier self-assessment questionnaire. It includes 12 questions related to environmental aspects, hazardous substances, and waste management. In case any risks are identified based on the received information, detailed environmental assessment is included in the audit, which is either performed by phone interview or site visit. Audit results and findings are reported as an official audit report in our Supplier Data Management system. Audit findings are categorized into observations and deviations.



In our supplier audits, none of the audited suppliers were identified as having significant negative environmental impacts. We evaluated supplier's approach to waste management and environmental controls. The audit teams reported that the suppliers are making strong efforts to minimize their negative environmental impact.

### The carbon footprint of our supply chain (GRI 308-2)

The sustainability of our supply chain also has an impact on climate change. The methodology of calculating supply chain emissions is based on Outotec's spending and carried out using a scope 3 screening tool developed by GHG Protocol and Quantis. To be able to use the scope 3 screening tool, Outotec's spend on supply was converted from EUR into USD. In 2019, the EUR to USD annual average exchange rate was 1.102 [source: <http://x-rates.com>].

The carbon footprint of our supply chain, at 574,730 tonnes of CO<sub>2</sub> equivalent, was considerably larger than the footprint of Outotec's own operations (includes scope 1, scope 2, business travel and commuting emissions), which amounted to 22,458 tonnes of CO<sub>2</sub>e. The biggest sources of CO<sub>2</sub>e emissions in Outotec's supply chain were machinery, representing 43% of the total. In 2019, the carbon footprint of our supply chain increased 10% due to increase in spend.

### Child labor (GRI 408-1) and forced or compulsory labor (GRI 409-1)

Outotec does not tolerate any child labor or forced or compulsory labor as stated in our Code of Conduct and Supplier Policy. According to our human rights self-assessment made in 2017, no notable risks related to the use of child labor, or forced or compulsory labor, have been identified in Outotec's own manufacturing units.

The main sustainability-related risks in the supply chain, identified in our internal workshop consisting of our global supply team, include bribery and kickbacks, occupational safety, protecting information and reporting misconduct. Child labor is a recognized risk in any supply chain, and Outotec has taken steps to reduce the possibility that our approved suppliers utilize child or forced labor. We have identified three countries in our supply chain, namely China, India and Mexico, with potential risks regarding child labor or hazardous work. In 2019, 5.6% of our suppliers were based in China, 1.7% in Mexico, and 1.1% in India. To mitigate these possible risks, our dedicated supply personnel in each of our Market Area offices assesses suppliers according to our approval process and make observations during audits and other visits.

### Supplier social assessment (GRI 414-1)

As the majority of Outotec's manufacturing is sourced from external suppliers, there are potentially more human rights-related risks in the supply chain than in our own operations. We have categorized our suppliers into three risk categories. Country risk is one criterion in determining the scope of the supplier assessment. To mitigate social sustainability related risks, suppliers are required to commit to Outotec's Supplier Policy, which reflects the principles of the company's Code of Conduct.

In 2019, we audited 33.6% of our key suppliers on quality, health and safety as well as human rights-related issues. Supplier development actions are drawn up according to audit findings. The long-term target is to audit all key suppliers with these criteria regularly with supplier development actions drawn up according to audit findings.

In supplier selection, Outotec screened 123 suppliers, in a combination of field and desk assessment. This included reviewing human rights and labor practices criteria. Screening is a spot check on certain topics, and we select the companies from the high and medium risk categories based on information collected with a supplier self-assessment questionnaire. The questions relate to social program accreditation, respect for human rights of employees, prohibition of child labor, health surveillance, incident management and occupational safety. In case any risks are identified based on the received information, a detailed environmental assessment is included in the audit conducted either by a phone interview or a site visit. The audit result and findings are reported as a formal audit report in our Supplier Data Management system. Audit findings are categorized to observations and deviations.

All the screened companies qualified as new suppliers, as none of the companies were identified as having significant potential negative human rights or social impacts. Suppliers that we do not normally screen are for example, one-time indirect suppliers, such as consultants. Some of these non-screened suppliers have, however, signed our Supplier Policy.

### Negative social impacts in the supply chain (GRI 414-2)

In our supplier audits, four suppliers, equaling 5% of the audited suppliers, were identified as having potentially negative health and safety impacts. However, none of those were considered significant and improvement measures were agreed with these suppliers. Audit findings were



related to missing health and safety practices and equipment, and wrong storage of chemicals causing a potential risk for employees. No relationships have been rejected because of health and safety findings in our supplier audits.

There were no incidents filed through formal grievance mechanisms related to our suppliers' human rights impacts, impacts on society or labor practices.

#### Spending on local suppliers (GRI 204-1)

Outotec's supply chains often combine global project deliveries and purchases from local suppliers. Our most significant operations, based on the number of employees, are in Finland, Australia, Germany, South Africa, and Chile. We report 'local supply' as the percentage of our supply spend in these countries. The calculation method was changed in 2017 to fulfill the reporting requirements. In our large delivery projects, we prefer to use suppliers in the target country. Normally we buy steel structures and detail engineering, for example, in the target country. The amount of such supply in the country of the project site can be significant. This, in turn, creates local employment and benefits local businesses.

Our spending on suppliers that are local to the purchasing operations in 2019 amounted to EUR 258 million, equivalent to 50% of our total supply spend.

In terms of spend in 2019, our largest suppliers in alphabetical order were ABB, Nordpipe Composite, Siempelkamp Giesserei GMBH, and Swiss Tower Mills Minerals Ltd.

- **Historical supply data**

Teknikum is a locally sourced supplier in Finland used to support filter projects designed and built locally in Finland. These assemblies are also shipped to global customers from our facilities in Finland.





## Health and safety – the fundamentals for our operations

Zero harm is the ultimate target for Outotec’s work on occupational health and safety. Our main safety risks occur on roads in different driving cultures and when working at project sites and manufacturing units. We have a track record of good safety performance in large projects with several safety awards from customers.

Health and safety were defined as fundamentals for Outotec in the recent materiality analysis. Zero harm is the ultimate target for our development work on occupational health and safety. Outotec’s management is committed to continuously enhance safety performance throughout the company’s operations.







All employees and contractors working under Outotec’s direct supervision have the responsibility to work safely and follow our globally harmonized procedures and work instructions. The company provides the necessary procedures, instructions, training and personal protective equipment. We check annually our procedures and work instructions for organizational and regulatory changes.

- [View also](#) Management approach

### Occupational Health and Safety (OHS) management system (GRI 403-1, 403-8)

Outotec is committed to safety at all levels of business. Top management defines targets and ensures resources, line management provides processes and tools and employees are properly trained and empowered to choose safety.

Outotec’s approach to safety is systematical. We have defined clear roles and responsibilities. We start everything with a proper risk assessment, document safe ways of working and ensure that every worker is competent, properly trained and has the latest safety information available.

For Outotec trust and transparency is important in safety. We expect every person to act when they observe an unsafe situation or behavior, regardless of whether the worker is a manager, supervisor, experienced employee, new hire or contractor.

In our health and safety work, we follow the ISO 45001 standard and Outotec’s operations globally are externally certified against it. Our OHS management system covers all Outotec’s 4,088 employees (100%), and 2,230 contractors (100%) working under our direct supervision, including all locations and project sites.

We ensure the quality of our OHS processes through internal and external audits and training. We follow key performance indicators set for safety, have regular management reviews, all our operations are managed through risk analyses and if any near misses or incidents occur, we analyze root cause properly, do preventive and corrective actions and continuously improve our performance.

### Hazard identification, risk assessment, and incident investigation (GRI 403-2)

Our OHS management is based on risk assessments. We have assessed our operations globally for health and safety risks and made mitigation plans. In addition, each Outotec location continuously assesses risks for hazards and applies the hierarchy of controls to eliminate hazards and minimize risks. Our employees and contractors have a ‘Stop Work Authority’ if there is a safety risk in their work area.

Occupational health and safety related risks are considerable in minerals and metals processing plants due to chemicals, ecotoxic substances, dust and fumes that are typical in process industries. Outotec’s specialists follow customers’ safety regulations when working on their sites. The greatest safety risks arise in countries with low awareness of safe working practices and underdeveloped occupational safety culture. When working in a work environment, where safety culture and procedures are lower than Outotec’s minimum requirements for safety, our employees are instructed to follow Outotec’s safety principles.

Increasingly Outotec’s employees travel and work in high-risk countries where security, medical and road safety risks have lately increased. In 2019, approximately 328 Outotec employees or supervised workers traveled in countries with high or medium medical risks and less than 10 persons in countries with high security risks.

Risks are managed in each location and project site based on risk categories. Regarding traveling, risks are managed based on country security risks, medical risks, and transportation risks. We prepare a risk matrix to define the risk level, and the responsibilities and mitigative actions are defined according to the risk level in question. If risks are defined at an extreme or high level, alternative options or canceling the trip will be considered.

The company follows incidents, hazards and development initiatives through its QEHS management and product compliance management systems, as well as through customer feedback, which is collected after each major delivery and continuously in the service business.

Our hazard and incident reporting system for the identification and elimination of hazards and minimization of risks is externally audited to ensure the quality. All incidents, identified hazards, and unsafe conditions must be reported with 24 hours and they require proper investigation, root cause analysis and corrective and preventive actions. The local unit head or site manager is responsible for managing the hazards in its respective unit or project site. The statistics are regularly shared with employees. We also publish safety alerts of major incidents, lessons learned and positive observations in our intranet and internal discussion groups.

### Healthcare services (GRI 403-3)

Each Outotec location has an external partner for healthcare services who also makes workplace assessments and proposes preventive and corrective actions to avoid work-related injuries and diseases. Outotec has not identified any major risk of specific occupational diseases.

Our local healthcare service partners conduct regular health checks to ensure that our employees are in good physical and mental condition. The focus is on preventive healthcare. In addition,



Outotec supports employees' sports and well-being activities, for example in many locations there are various company-supported sports clubs organized by the personnel association.

We have a global health insurance for our employees covering business travel. In most countries, we have additional health insurance to complement national social security services.

Outotec has a medical and security services agreement with the global service provider International SOS. This 24/7 service covers all Outotec employees and supports also our service providers and supervised workers in emergency situations during business trips. Through the related Medical Alerts and Travel Security Online service, travelers can find information about endemic diseases and other health, safety and security issues, as well as country-specific security risk ratings. Before any trip, travelers should check risk levels and find out what actions may be needed to reduce security, road safety and health risks.

#### Worker participation, consultation and communication on OHS (GRI 403-4)

Our entire workforce (100%) is duly represented in formal joint management-worker health and safety committees to monitor business activities, collect feedback, and manage health and safety issues in their respective location or project. The safety aspects regarding contractors and visitors are also discussed in these committees.

Outotec has a QEHS responsible person in each location with more than 10 employees. Units that have less than 10 people are represented in the health and safety committee of their closest larger unit. The EHS Manager as employer's representative is leading the local committee, and Safety Officers as employees' representatives follow the health and safety matters and report of his/her observations to the EHS Manager. The HS committees meet at least quarterly.

Health and safety topics are not covered in formal agreements with trade unions, because they are duly addressed by statutory regulations and laws that Outotec complies with.

#### Training (GRI 403-5), promotion of health (GRI 403-6) and mitigation of health and safety impacts (GRI 403-7)

We have a comprehensive training program for the use of OHS procedures and instructions, and the training hours are recorded in a training register. Trainings consist of a range of e-learnings and class room trainings as well as verbal training during work. Required trainings are determined based on employee's role as well as the risk of the work conducted. The basic training for local safety issues is mandatory for all employees and contractors and it is renewed

from 1-5 years' intervals. Persons who participate in high-risk work get more specific and frequent training.

All Outotec employees and supervised contractors working on project sites are regularly trained in health and safety matters, such as the use of protective equipment, first aid preparedness, hazard identification, risk assessment and required control actions. Our e-learning course about travel safety is recommended to all employees and mandatory for all employees who travel for business. Outotec continuously develops its training materials for safety based on current risks. As a result of the fatality in a road accident in 2018, Outotec developed new requirements, related instructions and training materials on road safety.

#### Work-related injuries (GRI 403-9)

Most work-related injuries happen during service trips or at our own manufacturing or assembly workshops. The main types of work-related injuries at Outotec are hand tool or instrument injuries, as well as trip or slip injuries. Road safety accidents are not frequent, but they are critical to Outotec, as they can have serious outcomes.

Outotec's primary focus is on leading indicators; amount of hazard reporting and safety training hours. We also measure our lost-time injury rate (LTIR, lost-time injuries per 1 million work hours). In 2019, our LTIR was 0.6. This is a significant improvement from 2018 when the LTIR was 2.0. For Outotec, safety comes first and the company has focused on safety activities, such as campaigns, hazard management, and communication at all levels of organization in 2019.

LOST-TIME INJURIES PER 1 MILLION WORK HOURS, INCLUDING EMPLOYEES AND SUPERVISED WORKERS	2019	2018	2017
LTIR	0.6	2.0*	1.7
Number of employees and supervised workers	6,318	6,762*	6,556*
Total working hours	13,400,000	14,400,000	13,300,000

\*2018 figure restated due to internal validation.

- [View also](#) Social data.

#### Product safety

- [Sustainable technologies and innovations](#)



## Case: Safety first

# More than rules or slogans – safety is a continuous and common effort

Safety comes first in everything we do at Outotec. We are very proud of the extraordinary safety figures we have been able to achieve. The results are no stroke of luck.

Safety is important to any company. The reasons range from the societal and ethical responsibilities of the company towards their employees to the economic benefits that are realized as a result of good safety performance. The overriding goal is that all employees return home at the end of the day in the same physical condition as they arrived in the morning.

Our goal at Outotec is to continually improve workplace health and safety of all our employees, contractors and clients until the goal of zero harm is reached. We had only eight lost time incidents in the whole global organization during 2019.

The positive results did not happen by chance, as we have systematically developed our safety culture, processes, competencies and performance with our personnel.





### Workplace wellbeing and engagement with safety

Numerous studies demonstrate that having a strong health and safety program and culture within a company significantly elevates the morale, productivity, and engagement of the employees.

“This translates into reduced injury numbers, higher productivity, lower turnover, improved customer relations, and ultimately higher NPS scores both internally and externally,” says **Kevin Solski**, Director of Quality, Environment, Health & Safety for the Services Business Unit at Outotec.

Much the same as any other workplace initiative, health and safety must be developed and implemented from the top levels of the organization all the way through to the field level worker.

“The commitment to the health and safety of the employees cannot be reduced only to common slogans such as ‘safety first’ or ‘safety starts with me’. There must be a tangible concerted effort put forth by the management of the company to show that the safety of employees is a top priority,” Solski says. “Once this has been established a true culture of safety begins to develop.”

### Focus on travel and hand safety

In 2019, Outotec safety campaigns have taken the important step of identifying areas for improvement and bringing them into focus. We have established methods or new procedures to mitigate the hazards and communicated the advancements throughout the organization in a manner that is both informative and fun.

“The idea behind the safety campaigns was to focus on, and bring attention to, areas where we could improve as a company. We want to make sure that employees return home at the end of the day safe and healthy and therefore strive to develop the overall safety culture within Outotec,” Solski says.

Two of the main safety campaigns in 2019 were about hand and driving safety.

Over the 4-week driving safety campaign, Outotec employees explored topics ranging from general rules to unsafe driving practices to new Outotec requirements and finally external factors that lead to hazards while driving.

The hand safety campaign focused on another serious issue. “Globally it is estimated that between 50% and 80% of all recordable workplace injuries in the industrial sector involve the hands. In the past two years, hand injuries accounted for 42% of all recorded injuries at Outotec,” Solski says.

Hand safety awareness was highlighted through a series of focused safety messages, which culminated in the “Hands Up for Safety” day. The aim was to bring attention to the things we use our hands for and how we can keep them safe and free from harm.

“Our hand campaign also brought to light that hand injuries are not isolated to the job site, as musculoskeletal injuries are also very common in office settings,” Solski says.

The ongoing establishment and elevation of the safety culture will continue to show positive gains in all areas that are influenced by improved health and safety performance. These include improved employee morale and engagement, increased productivity, strengthened customer relations, and higher retention rates of our world class personnel.



## Financial performance, value creation and our impacts

Financial success is one of the fundamental aspects of being able to create value for all stakeholders. Outotec's long-term financial targets are based on continuous profitable growth. Solid financial management is of key importance to Outotec's success.

In the recent review of material topics with stakeholders, financial performance was raised as a topic. It has an important impact on all stakeholders, a fundamental aspect that Outotec must manage well. The company's financial performance has a direct impact on employees' wealth and commitment, stakeholder value, available jobs and tax paid in local communities.

Our financial performance as well as risk management are comprehensively covered in Financial Statements 2019 and Corporate Governance Statement 2019, whereas the sustainability report focuses on value creation, company's impacts, and financial implications due to climate change.

- [Read also](#) Management approach
- [Financial Statements 2019](#)
- [Corporate Governance Statement 2019](#)



## Value creation

The key resources for value creation are the deep know-how of Outotec's 4,088 experts (as per headcount), 6,928 national technology patents, three research and development centers, as well as the Outotec brand. In addition, long customer and supplier relationships are essential resources for the company.

Outotec generates employment and wealth in local communities as an employer and a buyer of goods and services. The company also contributes to local communities through university cooperation and subcontracting R&D work. Outotec technologies often improve the conditions of the environment surrounding customers' plants.

In December 2019, Outotec announced its decision to divest three businesses from the Metals, Energy & Water segment's portfolio. These businesses relate to aluminum, waste-to-energy and sludge incineration. The businesses that will be divested have been classified as discontinued operations, including the transfer of assets held for sale and liabilities directly attributable to them on separate lines in the statement of financial position. The comparison figures in the statement of income have been restated for 2018 to show the discontinued operations separately from continuing operations. At the same time the segment was renamed as Metals Refining.

In 2019, Outotec paid EUR 9.1 million in current income taxes. Outotec neither paid dividends nor contributions to charities in 2019 due to negative earnings per share in 2018. To enhance its ability to create value over the cycle, Outotec aims to maintain its leadership in sustainable technologies and grow its service business.

### Direct economic value generated and distributed (GRI 201-1)

We made significant progress in several areas in 2019. Our order intake increased 29%, sales increased 1%, and profitability continued to improve. The improvement in the adjusted EBIT for 2019 was mainly due to improved project execution, releases of provisions in a few completed projects and a higher share of service sales. Our cash flow was nearly at the same level as the previous year with EUR 68 million.

Our service sales in 2019 were EUR 550 and increased 16 % compared to the previous year. Service order intake increased 14%. The growth came mainly from spare parts, long-term service agreements and service projects. Our long-term service contracts, as well as modernizations prolonging the lifetime of older equipment, counteract the highly cyclical mining and metals industry.

At the end of 2019, Outotec's market capitalization was EUR 1,054 million. The total wealth created by Outotec in 2019 was EUR 425 million. Due to the negative result in 2018, no dividend was paid to shareholders in 2019.

As employees are Outotec's key asset, the most significant economic value distributed is wages and salaries, which amounted to EUR 321 million in 2019.

Long customer relationships and 4,400 active suppliers are also essential resources for Outotec since some 90% of our manufacturing (based on monetary value) is sourced from external suppliers.

### Significant indirect economic impacts (GRI 203-2)

Large mines and processing plant investments – including Outotec technology – considerably boost the development of the host country and its economy. They may create altogether hundreds or thousands of new jobs, while also leading to the establishment of new industrial plants and growth of businesses along the value chain from natural resource extraction and secondary resources to finished products. In such plants delivered by Outotec, the indirect economic impacts are considered significant. Outotec has been active in developing the resource-based industries in many developing countries, such as Mongolia, Kazakhstan, and Zambia, to mention a few.

### Supporting local businesses

As the majority of Outotec's manufacturing is sourced from external suppliers, we play an important role in supporting local businesses and generating employment and wealth in local communities. In large projects, our indirect impact can be considered significant, as several hundred local engineers and other specialists, contractors and service providers work for us. A single large project can consist of over 10 million working hours at the customer's site. Most of this work is done by local suppliers or subcontractors. In 2019, we spend EUR 258 million on suppliers that are local to our major operations (Finland, Australia, Germany, South Africa, and Chile). This represents 50% of our total supply spend. The remaining supply spend was distributed among 42 countries.

- Our procurement practices are described in [Responsible supply chain](#)



## Our value creation

### OUR RESOURCES

#### Intellectual

- Outotec brand and reputation
- IPRs, 775 patent families
- Tacit knowledge
- 2 R&D centers, 1 Dewatering technology center

#### Operational

- Operations in 42 countries
- 2 manufacturing units, 6 assembly or service workshops, 1 ceramic plate production unit, several warehouses

#### Natural

- ISO 14001 global certification for environmental management
- Materials used (steel, wood packaging, etc.)
- Energy consumption: 156 TJ
- Water withdrawal: 64,018 m<sup>3</sup>

#### Human

- 4,088 employees
- Outotec culture
- 2,230 supervised contractors

#### Social

- Long customer relationships
- 4,400 suppliers
- Relationships with the academic community

#### Financial

- Capitalization EUR 379 million, of which
  - EUR 229 million funded by equity and
  - EUR 150 million by a hybrid bond

### OUTOTEC OPERATIONS



### ADDED VALUE TO STAKEHOLDERS

#### Customers

- Sustainable products and services
- Long-term support and partnership
- Social license to operate

#### Planet Earth

- Emissions avoided 6.6 million tonnes of CO<sub>2</sub>e, valued at EUR 166 million
- Increased resource efficiency

#### Employees

- Wages and salaries EUR 321 million
- Wealth and professional growth
- Safe workplace, LTIR 0.6
- Respecting human rights

#### Suppliers

- Long-term partnerships
- Economic sustainability, EUR 663 million spent on suppliers
- Responsible business practices

#### Academic community

- Subcontracted R&D work EUR 7 million
- Thesis opportunities and internships for students

#### Local communities

- Employment and wealth
- EUR 258 million spent on local businesses
- Current income taxes EUR 9 million
- Community investments 0
- Employee volunteering

#### Investors and financiers

- Market capitalization EUR 1054 million
- Compliance and transparency
- Net finance expenses EUR 14 million
- Interest on hybrid bond EUR 11 million
- Dividends 0



## Tax impacts

In 2019, Outotec paid a total of EUR 6.5 million in corporate income taxes. The table below lists the corporate income tax rates for Outotec in the countries where we were subject to corporate income taxation in 2019.

COUNTRY	CORPORATE INCOME TAX, %	COUNTRY	CORPORATE INCOME TAX, %
Australia	30	Namibia	32
Austria	25	Netherlands	19 – 25
Bahrain	0	New Caledonia	30
Brazil	34	Norway	22
Bulgaria	10	Panama	25
Canada	25.8	Peru	29.5
Chile	27	Philippines	30
China	25	Poland	19
Finland	20	Qatar	10
Germany	29.8	Russia	20
Ghana	25	Saudi Arabia	20
Greece	28	Serbia	15
India	30.9	South Africa	28
Indonesia	25	Spain	25
Iran	25	Sri Lanka	28
Kazakhstan	20	Sweden	21.4
Mexico	30	Turkey	22
Mongolia	10 – 25	United Arab Emirates	0
Morocco	10 – 31	United Kingdom	19
Mozambique	32	United States	25
		Zambia	35

In 2019 the effective tax rate for Outotec was 22.2%.

Outotec also pays, collects and remits other taxes and tax-like payments, such as value added and sales taxes, payroll taxes and capital taxes. Our total tax contribution varies depending on the geographical distribution of sales, which in turn is affected by our product mix and locations of customer projects. We have transparent communication with the tax authorities in every country where we operate.

As a globally operating company, Outotec engages in a variety of tax laws, regulations, practices and interpretations. The international tax environment is challenging to navigate; however, we are committed to be a responsible, compliant taxpayer in each country where we operate. We pursue transparency and fairness in our tax practices and do not engage in aggressive tax planning.

Outotec delivers large projects, and there may be only one on-going customer project in a given country. Due to the confidential nature of the information, we cannot disclose country specific financial information, including country specific tax numbers.

- [Read also](#) Financial Statements 2019

## Other local impacts

Where Outotec has long-term service contracts with customers, maintenance and service personnel are normally hired locally and we train them for their specific tasks after the plant has been built.

Often Outotec technologies help to improve the environmental conditions of the communities surrounding customers' plants, which improves the living conditions of people, contributes to a healthier population and boosts agriculture and small businesses.

Outotec also contributes to local communities through university cooperation and subcontracting R&D work, which generates local jobs and enhances skills and knowledge development. Ongoing research and development activities run together with our external partners received EUR 1.75 million in public funding. We additionally subcontracted work packages out to universities and mainly small and medium sized enterprises for more than three times this sum, over EUR 7 million. We also cooperate with local universities to enhance the skills and knowledge of students and decision-makers and train future plant operators and service personnel.

- [View also](#) Stakeholder engagement





### Financial implications due to climate change (GRI 201-2)

The megatrends identified as impacting Outotec’s business most are: Urbanization, Resource efficiency, Sustainability, Digitalization, and Volatility. Overall, these global megatrends appear to bring Outotec more opportunities than threats. Of these, Urbanization, Resource efficiency, Sustainability and Digitalization have the largest impact on our key stakeholders in terms of climate change. The financial impacts for Outotec are estimated mainly to be changes in revenue due to changing regulation, customer needs and expectations of local communities.

### Regulatory opportunities and risks

Most of Outotec’s opportunities and some risks caused by regulation changes relate to resource efficiency and sustainability. Eco-toxic substances from metallurgical operations can impact air quality, water, and soils and cause health problems. If customers do not fulfill the tightening environmental regulation or gain social acceptance, they may be forced to close their operations, which may reduce our possibilities to sell technology and services in the long run.

With declining ore grades and more complex ore bodies, together with stricter environmental regulation, our customers will need to replace inefficient processes with new sustainable solutions, which provides business opportunities and revenues for us.

As the concept of circular economy gains ground, we can sell more solutions for metals production from electronic waste, metallic scrap, battery paste or scrap, and mining and metallurgy related wastes. The transition to electric vehicles will bring more business opportunities for our technologies for battery metals and chemicals processing and recycling.

The regulation and demand for closed water cycles, tailings management and renewable energy will increase. Our tailings and water management solutions enable mining companies to solve their environmental challenges.





Carbon taxes favor our energy efficient technologies that fulfill even stricter future standards. In emission trading, customers can get positive cash flow which they can use for new investments or buying services from us. Outotec's advanced technologies and inclusion in the Global 100 Index of most sustainable companies help customers to gain social acceptance and financing for their projects. If we fail to keep our portfolio competitive, we may lose market share, which may impact stakeholders' decisions on us.

### Other opportunities and risks

Urbanization and digitalization offer mainly new business opportunities and revenues for Outotec. Our customers need greater production capacity and sustainable technologies to fulfill the needs of the fast-growing middle-class consumers. Digitalization enables unprecedented possibilities to meet the future demands of sustainable business. Targeting sustainability in the production of raw materials by the means of digitally enhanced continuous improvement opens the potential for decreasing production costs, reducing emissions, improving safety and maximizing profitability; all of which can play a part in fighting against climate change.

New digital tools, such as visualized real-time data, enable key decision-makers to interact, gain detailed insights and make better decisions. Outotec's global network of value-adding partners support mutual gains and performance-based earnings when combined with our unique process technologies. Digitalization enables closer and faster engagement with our customers, as possible maintenance needs can be predicted with device and asset analytics proactively. Globally utilized advanced ICT systems offer sustainable business benefits, continuous improvement tools and cost efficiency for Outotec.

### Financial impact of emissions avoided

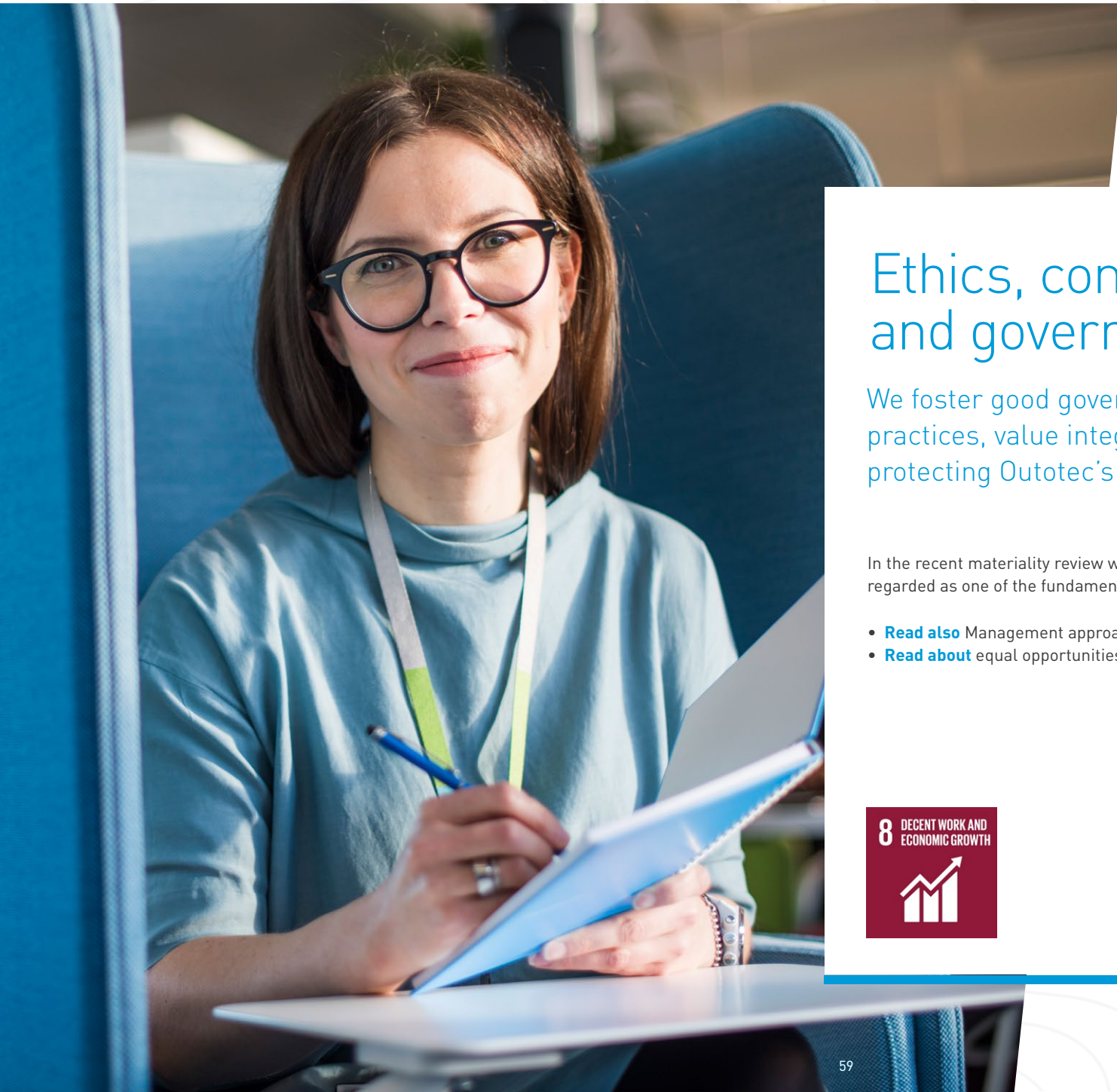
The financial impact of the annual emissions avoided by Outotec's customers using six Outotec technologies is 6.6 million tonnes CO<sub>2</sub> in total. The CO<sub>2</sub> European Emission Allowances Commodity Price [<https://markets.businessinsider.com/commodities/co2-european-emission-allowances>] (accessed Jan 17, 2020) was EUR 25.01/tonne CO<sub>2</sub>. By using this price, the value of the emissions avoided in 2019 was approximately EUR 166 million. Using a similar calculating method, the financial impact of our own emissions was EUR 562,000, and that of our supply chain EUR 14 million.

### Our ways to mitigate climate change related risks

We continuously develop our technologies, new business concepts and modular products. In 2019, we spent EUR 55 million in R&D and product development to further improve the resource efficiency and competitiveness of our products. 81% of our R&D projects were related to initiatives targeting improved metals recovery, energy saving, waste minimization, emission reduction and/or safety improvement.

Digitalization is seen to play a major role in mitigating climate change. We are continuously investing in ICT to utilize the opportunities of digitalization. In 2019, our investments amounted to EUR 18 million, consisting mainly of IT programs and intellectual property rights.

- [R&D data and Emissions and climate data](#)



## Ethics, compliance and governance

We foster good governance and ethical business practices, value integrity in all contexts, and strive for protecting Outotec's good reputation.

In the recent materiality review with stakeholders, Ethics, compliance and governance was regarded as one of the fundamentals constituting the foundation for our sustainability.

- **Read also** Management approach (GRI 103-1, 103-2, 103-3)
- **Read about** equal opportunities and labor practices in Engaged experts





# 94%

of permanent employees with daily access to a computer completed the Code of training during 2018.

## Ethics

Outotec respects the internationally proclaimed human rights in line with the company's commitment to the United Nations Guiding Principles on Business and Human Rights. The company has also joined the United Nations Global Compact Initiative and is committed to its Ten Principles, as well as the principles of the Universal Declaration of Human Rights. These commitments are re-iterated in Outotec's Code of Conduct and substantiated in the HR policies, QEHS Policy and Supplier Policy.

## Mission, values and Code of Conduct (GRI 102-16)

In line with our mission, Sustainable use of Earth's natural resources, Outotec is committed to protecting the environment in all its activities. We strive to serve our customers using our wide range of leading minerals and metals processing technologies and life-cycle services. Our commitment to sustainability binds us to take a holistic view of our customers' business.

Outotec's values were redefined during 2018 using virtual co-creation; all employees were invited to share their thoughts and participate in shaping the values that guide Outotec people going forward. The new values are:

- Care for the customer
- Take ownership
- Foster renewal
- Perform together

These values and **Code of Conduct** define our common way of working. Our Code of Conduct sets out the principles of business conduct and gives guidance to our employees and external stakeholders on ethics, compliance with laws and regulations, solid governance and management of sustainability and risks. The Code is approved by the Board of Directors, and all employees and business partners are expected to follow it.

Outotec's target is that employees participate in e-learning on the Code of Conduct or attend the related classroom training on a regular basis. During 2018, 94% of permanent employees with daily access to a computer completed the Code of Conduct training. During 2019, updated Code of Conduct training material was distributed to all employees and contractors with daily access to a computer for self-study. A new Code of Conduct eLearning campaign is planned for 2020. All Executive Board members, Market Area heads and their respective direct reports have signed a specific declaration of compliance related to Outotec's compliance program and policies and additionally, those senior managers with business roles are required to complete an e-learning module of internal controls. In addition, a summary of anti-corruption risks and required business behavior and actions was made available for all employees and contractors through Outotec's internal Compliance portal.

Outotec requires its new sales agents and representatives, as well as the existing ones when their contract is renewed, to commit to Outotec's principles. The company also conducts compliance checks on new customers, suppliers and selected other project related third parties through a screening portal with checks for sanctions as well as legal and reputational risks.

All projects of a certain size or complexity are subject to a risk assessment which includes various compliance and ethics queries and escalations for the identified risks. They may involve more detailed investigations internally, or through a third party, and may result in Outotec declining to bid for certain projects. In addition, unknown and potential risk customers, suppliers or agents are regularly being assessed for compliance risks using an external tool with escalation paths.

## Assessing human rights risks

Potential risks and human rights impacts in Outotec's business relate to project site work in high-risk countries. Outotec has assessed the human rights risks in its own operations, with the focus on service and manufacturing sites. As a result, no significant human rights risks were identified. Based on the assessment, working conditions guidelines regarding blue-collar workers were implemented during 2019. These guidelines were aligned with the UN Guiding Principles.



## Compliance

Outotec endorses responsible business practices and complies with national and international laws and regulations. The company has zero tolerance against corruption, works against corruption in all its forms, and requires its suppliers and business partners to follow the same principles and fully comply with all applicable anti-corruption laws.

### Mechanisms for advice and concerns about ethics (GRI 102-17)

Our SVP – Legal, Contract Management and Corporate Responsibility, who is a member of the Executive Board, has the overall accountability for corporate responsibility including mechanisms to seek advice about and report on unethical behavior. The Chief Compliance Officer reports unethical behavior, non-compliance cases – reported through Compliance Helpline or otherwise – and actions taken quarterly to the Audit and Risk Committee of the Board of Directors. There are no independent mechanisms for advice and concerns about ethics in use.

Outotec’s Compliance Helpline on the company website is available for anyone to raise concerns related to corruption, human rights or any unethical behavior. All concerns raised are treated confidentially, and there is a clear no-retaliation policy. More severe compliance cases may be submitted to Outotec’s Compliance Board, whose members are the Chief Compliance Officer, the General Counsel, the Chief Financial Officer and the Head of Human Resources. In 2019, there were in total 36 Compliance cases investigated and received from all channels (website, intranet, email, verbal, etc.).

### Operations assessed for risks related to corruption (GRI 205-1)

Outotec’s strategic and operational risks are described at ([www.outotec.com/company/investors/](http://www.outotec.com/company/investors/)) and the company’s risk management policies, responsibilities and processes are set out in our [Corporate Governance Statement 2019](#) on pages 9-10.

Our risk management is based on our Enterprise Risk Management Policy. Environmental, social and economic sustainability related risks are covered in the project risk assessment tool, which is used to assess all new projects worth at least one million euros. Appropriate follow-up actions are defined based on these findings. The assessments are project-specific, and for this reason, the number and percentage of operations could not be reported.

In 2019, internal audits were conducted in the Middle East and Southeast Asia Pacific market areas and for agents used by Outotec (in process). Outotec also conducted compliance due diligence checks relating to identified high-risk countries.

### Communication and training about anti-corruption policies and procedures (GRI 205-2)

Outotec’s internal and external audit processes consider any corruption suspicions and fraudulent acts that may occur. We train our employees in connection with audit activities at our market area operations regarding anti-corruption policies and procedures for preventing misconduct and crimes. Virtual training, processes and guidelines on anti-corruption are also available to all employees. In 2019, an anti-corruption campaign regarding anti-corruption risks and required business conduct was made available for all employees and contractors.

### Confirmed incidents of corruption and actions taken (GRI 205-3)

Compliance investigations led to the termination of twelve employment contracts during 2019. Outotec did not have to pay any fines or fulfill any non-monetary sanctions for non-compliance with compliance laws in 2019.

### Incidents of discrimination and corrective actions taken (GRI 406-1)

We monitor the number of filed, addressed and resolved grievances about labor practices. Outotec’s Compliance Helpline and other feedback channels are available for all employees and external stakeholders for raising concerns. In 2019, six reported incidents of discrimination were filed through formal grievance mechanisms within Outotec. These incidents were reviewed locally, in cooperation with the global Human Resources function and/or the Chief Compliance Officer and have been closed with remediation action plans implemented and results reviewed through our routine management review processes.

- [Read about](#) product compliance in Sustainable technologies and innovations.

### Governance structure (GRI 102-18)

The work, duties, composition, committees, and remuneration of the Board of Directors are described in our [Corporate Governance Statement 2019](#). There is no correlation between the compensation for Board members and Outotec’s social or environmental performance.



The Board of Directors' diversity principles are also detailed in the Corporate Governance Statement. Based on these principles, the Board members must have the necessary knowledge and experience regarding the business, social, and cultural conditions in the most significant markets to Outotec's business; while they must also constitute a fair and balanced combination of professional experience, skills, gender, nationality, knowledge, and variety of opinions and backgrounds considering Outotec's current and future needs.

Outotec's long-term objective is to have a fair and balanced representation of both genders in the Board. When preparing for nominations to the Board of Directors, Outotec's Nomination Board aims to ensure that these diversity principles are followed, that the Board functions well as a whole, and that the competence profile of the Board of Directors supports Outotec's existing and future businesses and is consistent with our strategic goals.

**Managing sustainability**

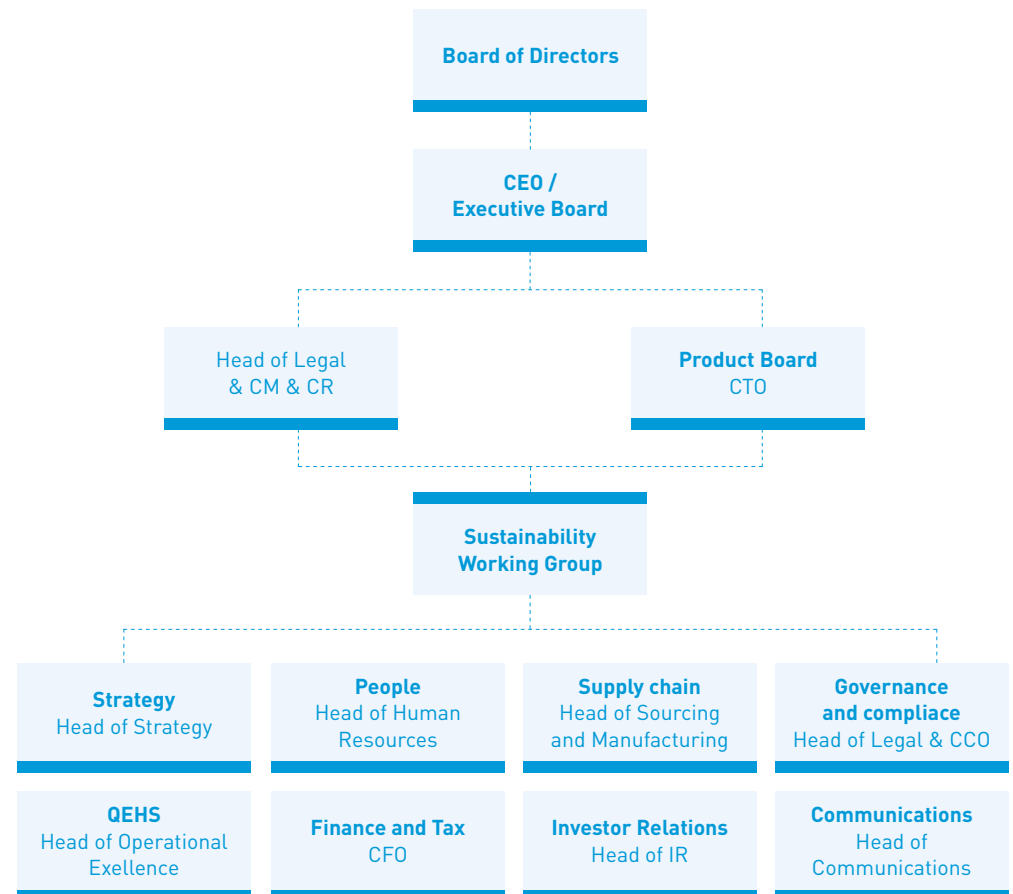
The Code of Conduct, Supplier Policy, HR policies, Donation and Employee Volunteering Policy, as well as Quality, Environment, Health and Safety Policy define the basic requirements for Outotec's environmental, social and economic sustainability. We continuously train our employees and suppliers on these principles.

Outotec's Executive Board reviews and approves our Sustainability Agenda as well as the sustainability strategy, targets and reporting. The Board of Directors approves our Statement on Non-financial Information, published as part of the Financial Statements, covering the environment, social and employees, anti-corruption and human rights related topics. Our SVP – Legal, Contract Management and Corporate Responsibility, who is a member of the Executive Board, has the overall accountability for corporate responsibility.

Our corporate level Product Board is responsible for the sustainability of our products and services. It oversees and steers Outotec's approach in product and technology development and the related innovation ecosystem and consists of the Executive Board members, Chief Technology Officer (chairman), and business unit representatives. Corporate Product board decides, among other things, the sustainability measures and development targets of Outotec's products. In addition, each business unit has its own Product Board to manage the sustainability of its products and services.

Sustainability is integrated into all relevant organizational functions, such as Quality, Environment, Health and Safety; Supply; Human Resources & Communications; Legal & Contract Management and Finance & Control. We have a Sustainability Working Group, whose core team coordinates sustainability work and meets frequently whenever needed.

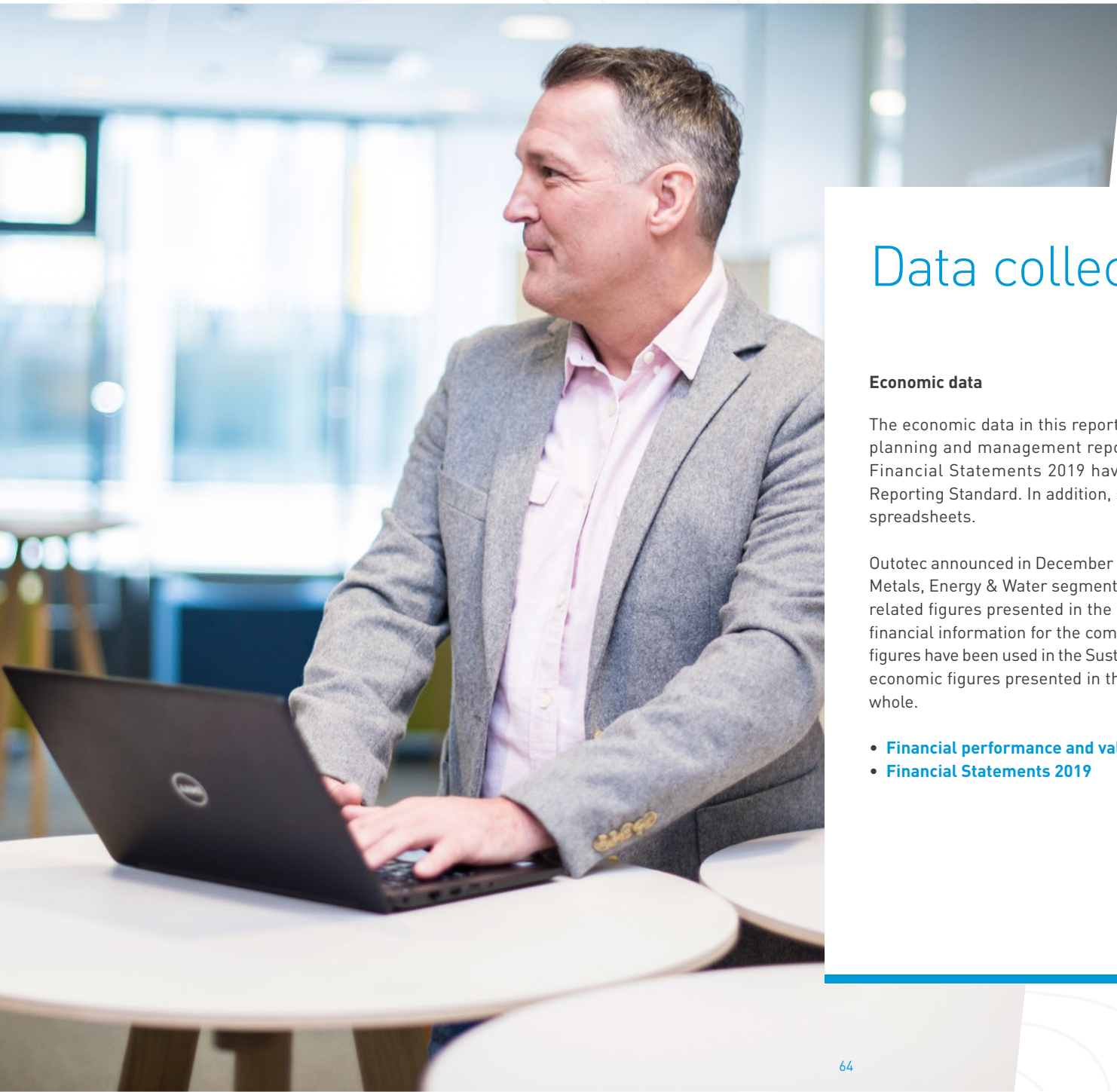
Sustainability-related personal targets are included in the annual bonus plans of the Executive Board members, QEHS managers, and environmental and sustainability managers. Inventors working with new, patentable solutions receive monetary rewards for their inventions. Furthermore, Outotec rewards all employees for making proposals that improve the sustainability of the company's internal processes.





# Data





## Data collection

### Economic data

The economic data in this report is based on data collected through our enterprise resource planning and management reporting systems. The figures used in Outotec's consolidated Financial Statements 2019 have been prepared according to the International Financial Reporting Standard. In addition, some data has been collected manually from Microsoft Excel spreadsheets.

Outotec announced in December its decision to divest three of its non-core businesses from the Metals, Energy & Water segment. Outotec's income statement, order intake and order backlog related figures presented in the financial statements relate to our continuing operations and financial information for the comparison period 2018 has been restated accordingly. The same figures have been used in the Sustainability report 2019. The divestment plans have only impacted economic figures presented in the Sustainability report. All other figures are for Outotec as a whole.

- [Financial performance and value creation](#)
- [Financial Statements 2019](#)





## Environmental data

Environmental data has been collected through our Environment and Health and Safety reporting platform. Each location's data is compiled on Microsoft Excel spreadsheets in Sharepoint and fed into our Power BI database. The data is then analyzed and calculation are performed.

The environmental data is available for Outotec's largest business units. Our smallest offices with typically fewer than 10 persons were not able to report environmental data, because they are in large office premises together with other companies. They pay a monthly lump sum to office space providers, and therefore it is not possible to determine their specific electricity, heat, or water consumption.

Our principle in collecting the environmental data is financial control, and leased assets are included in the reported figures.

Performance data on environmental aspects has been collected from our major business units for electricity use, district heating and cooling, owned and leased company cars, water use, recycled waste, and landfilled waste. The report also includes information on the combustion of fuels in company-owned combustion sources (scope 1 emissions), and figures on hazardous wastes, which were mainly generated in our research centers, manufacturing workshops, and ceramic plate production plant.

Scope 3 emissions regarding business flights is received from our partner CWT Travel.

Our positive impact to combat climate change, the handprint, is measured by the emissions avoided by the metallurgical industry using six Outotec metals-related technologies. We have calculated the carbon dioxide (CO<sub>2</sub>) emissions from the use of six significant Outotec technologies, combined this information with production data, and then compared it with emissions from other corresponding technologies on the market.

Environmental data from Outotec's project site operations was excluded from the data collection. All the local subsidiaries from which the data was collected are fully owned by Outotec, and for this reason, no allocations to subsidiaries regarding the environmental indicators were made.

- **Environmental impact of our own operations**
- **Environmental data**

## Social data

Data on our employees was collected applying a global master data system based on SAP Human Capital Management. The system includes accurate data on Outotec employees globally, covering all business units and providing basic information on all employees. Data on performance development dialogues (PDD) is compiled from the PDD tool based on Success Factor system.

Our Learning Management System provides information on Outotec's own global training programs and e-learning modules concerning vocational training and Code of Conduct training. However, it is not possible to categorize training hours by gender, region or employment category in the current system. Local training data is collected with Microsoft Excel sheets from HR personnel in the market area offices. The training of blue-collar workers normally takes place in classroom and those hours are not reported in the Learning Management System.

Training hours on health and safety are compiled from the Health and Safety reporting system and they cover both Outotec employees and supervised contractors on project sites.

Outotec's global health and safety reporting system is used for data collection and to map out and monitor progress towards common health and safety targets in all Outotec operations. Data about employees traveling in high-risk countries was collected from the Travel Tracker system used as part of our Global ISOS service.

Supply chain data is collected using the Global Supplier Database and from the SIEVO spend management software. The methodology of calculating supply chain emissions are based on Outotec's spending and carried out using a scope 3 screening tool developed by GHG Protocol and Quantis. To be able to use the scope 3 screening tool, Outotec's spend on supply was converted from EUR into USD. In 2019, the EUR to USD annual average exchange rate was 1.102 (source: <http://x-rates.com>).

To collect data on human rights and compliance, a questionnaire in the form of Microsoft Excel sheets was sent to the persons responsible for human resources in each location. Compliance data was also collected from the feedback received through Compliance Helpline and other feedback channels.

- **Social data**
- **Health and safety**
- **Responsible supply chain**
- **All historical data**



## Economic data

Economic data is presented in the **Financial performance and value creation** chapter. Please also see Financial data in **online data tool**.



## Environmental impact of our own operations

Although the environmental impact of our own operations is relatively modest in comparison to our value chain, as the work is mainly done in offices, we strive to operate with minimum inputs of energy and materials. We closely monitor our consumption of electricity, heating and water. Sustainability, pollution prevention and sound environmental management are required in all our operations.

The bulk of our operations involve engineering and business management in subsidiaries and branch offices located in 41 countries in addition to Finland. Only a few of them require an environmental permit, and the risks related to these operations are managed by certified environmental management systems. Approximately 90% of Outotec's manufacturing is outsourced, and we report the carbon emissions of our supply chain separately. Our reporting of environmental data covers Outotec's premises and employees, as well as supervised workers at our project sites.



In 2019, we had research centers in Finland, Germany; a pilot plant and R&D unit in Australia; a Dewatering Technology Center, two manufacturing workshops and a ceramic plate production plant in Finland; assembly shops in North- and South America, Asia, Sub-Saharan Africa and Middle East as well as several warehouses. None of these sites are in or adjacent to protected areas or areas of high biodiversity value (GRI 304-1). Outotec closed its service workshop in the United Arab Emirates at the end of 2018. This workshop was included in the 2018 environmental data, but not in the 2019 data. In addition, the size of the operations in Philippines was reduced and it did not fall under the scope of reporting in 2019.

Our management’s commitment to the continuous improvement of our environmental performance is reflected in both ambitious target-setting and results. We evaluate the environmental aspects of our offices, research centers and manufacturing workshops, and set annual targets based on this evaluation. Outotec operates according to globally harmonized business processes. The company is globally certified to ISO 9001 (quality), ISO 14001 (environment) and ISO 45001 (safety) standards. In addition, the locations in Finland and Germany are certified to ISO 50001 (energy). Our performance is followed-up regularly through internal and external audits.

Environmental criteria are considered whenever we select new office premises. Outotec’s two largest offices, in Espoo, Finland, and Oberursel, Germany, fulfil LEED® Gold requirements regarding the construction. Leadership in Energy and Environmental Design (LEED) is a globally recognized green building certification program.

At our research centers, we record monthly our consumption of electricity and natural gas and other fuels used for test purposes.

Our target is to reduce the amount of waste produced and our waste management system provides collection, sorting, storage and disposal of waste on our own premises. Outotec employees are instructed to separate different types of waste for sorted collection. Where hazardous wastes such as radioactive, flammable, explosive, toxic, corrosive or bio-hazardous materials need to be handled, specialized contractors are commissioned to dispose of these materials safely and in line with local legal requirements and customers’ requirements at construction sites.

### Energy consumption within the organization (GRI 302-1)

Our total electricity and fuel consumption from non-renewable sources remained at the same level as in 2018. We did not directly consume any renewable fuels, or sell any electricity, heating, cooling or steam in 2019. However, we purchased 7,754 MWh electricity based on renewable hydropower in Finland and Germany. This corresponds to 48% of our electricity consumption and 22% of total energy consumption.

Figures for energy consumption are collected globally from our operations based on the energy-related invoicing in each location. The conversion factors between energy units are taken from [Statistics Finland](#)

ENERGY CONSUMPTION, TJ	2019	2018	2017
Direct energy consumption:	61.1	52.5*	50.4
Propane gas	8.6	8.4	11.4
Light fuel oil, gasoline and diesel	38.2	27.3*	24.2
Coal, coke, semi coke	0.0	0	0.03
Natural gas	14.3	16.8*	14.8
Indirect energy consumption:	95.2	103.6*	109.4
Electricity (incl. cooling)	57.6**	60.4*	62.9
District heating	36.5	42.1	45.4
Steam	1.1	1.1	1.0
Total energy consumption	156.3	156.1*	159.8

\* Figure restated as a result of data validation.

\*\*Converted to TJ from 15,992 MWh



### Energy intensity (GRI 302-3)

Our energy intensity calculations include fuel, electricity, heating, cooling and steam consumed within Outotec.

ENERGY, TJ/EUR 1 MILLION SALES	2019	2018	2017
Energy intensity	0.13	0.13*	0.14

\*Restated due to business divestments in the Metals, Energy & Water segment being classified as discontinued operations.

The denominator for the energy intensity calculations is our annual sales:

DENOMINATOR	2019	2018	2017
Sales, EUR million	1,210	1,198*	1,139

\*Restated due to business divestments in the Metals, Energy & Water segment being classified as discontinued operations.

### Reduction of energy consumption (GRI 302-4)

To support the achievement of Outotec's CO<sub>2</sub> reduction targets, Outotec has a global annual energy reduction target of 1% until 2025.

Outotec implemented an Energy Management system based on ISO 50001 in five locations in Finland in 2017 and four locations in Germany in 2016. All these locations are committed to continuously improve energy efficiency and have been certified by TÜV Rheinland Cert GmbH in the respective years. In Finland, we renewed our official energy saving agreement which consists of short-term (4% savings until 2020) and long-term (7.5% savings until 2025) targets with 2016 as the base year. The principles will be expanded globally to other Outotec locations in the coming years, and a certification will be considered case-by-case.

The consumption figures include different types of fuels, purchased electricity, and district heating. The conversion factors between energy units were taken from [Statistics Finland](#).

ENERGY CONSUMPTION IN FINNISH UNITS, TJ	2019	2018	2017	2016
<b>Pori research center and Turula works</b>				
Energy consumption	31.0	36.0	35.7	38.3
Energy saved due to efficiency improvements, TJ compared to base year	2.6	0.5	1.0	base year
<b>Lappeenranta works</b>				
Energy consumption	15.0	15.4	17.2	18.8
Energy saved due to efficiency improvements, TJ compared to base year	3.8	1.4	0.7	base year
<b>Turku works</b>				
Energy consumption	11.5	9.4	11.3	13.2
Energy saved due to efficiency improvements, TJ compared to base year	1.7	3.6	1.2	base year
<b>Total</b>				
Energy consumption	57.5	60.8	64.2	70.3
<b>Saving compared to 2016, %</b>	<b>11.5</b>	<b>7.8</b>	<b>4.2</b>	base year

### Interactions with water as a shared resource (GRI 303-1)

Even though our direct impact of our operations on water quality and availability is relatively low and mainly constrained to the usage of municipal water services, Outotec's wider value chain has a significant impact on water availability and water-related environmental factors. The mining industry uses extensive amounts of water for minerals processing and refining, which is why water scarcity and sometimes also excess water constitute risks for Outotec's customers. When planning water related activities it is recommended to take a wider water management approach, as it is imperative to guarantee the availability of right quality water for processing and production purposes, as well as for discharge. In the case of Zero Liquid Discharge requirements, suitable effluent and process water treatment and recycling consideration with a predictive outlook



are imperative. Outotec believes that tailings and water are interconnected and conventional tailings ponds are of special interest, since they pose an extensive risk and cover large areas and contaminated water that can interact with the environment. Also, mining operations can change sites' topographical and hydrological conditions in the long run. Minerology and therefore water chemistry also differ by site and by time, which is why every mine site requires activities targeted to their own operations.

To tackle these problems, Outotec offers solutions and technologies to reduce water consumption, increase water recyclability, as well as monitor and predict water balances. In some of the cases, we apply life-cycle assessment to estimate the potential impacts and benefits.

We manage and monitor closely our own water consumption and report it annually. We also interact with other stakeholders in increasing sustainability in global water supplies.

### Water withdrawal by source (GRI 303-3)

We purchase water locally from municipal water suppliers and channel wastewater into municipal waste water systems. The water volumes are calculated mostly based on invoices, except for certain locations in Africa that use water from drill wells. Because our workshops are mainly assembly shops, no process water is discharged. Our research center in Pori uses measured amounts of river water for cooling purposes in test facilities. After use, this water is channeled back to the river. Outotec stores no rainwater; neither do we use seawater, produced water or wastewater from other organizations.

WATER CONSUMPTION, M <sup>3</sup> /YEAR	2019	2018	2017
Municipal water	61,235	60,653*	48,556
Surface water	1,476	2,458	5,521
Ground water	1,307	4,447	23
Total water consumption	64,018	67,558*	54,100

\* Figure restated as a result of data validation.

The reported total water consumption has decreased by 5% since 2018.

### Direct GHG emissions (Scope 1) (GRI 305-1)

Scope 1 greenhouse gas (GHG) emissions are calculated based on the consumption of non-renewable fuels in our locations globally, plus the carbon dioxide equivalent (CO<sub>2</sub>e) emissions released by company cars, excluding vehicles used in site operations at customers' plants. The conversion factors for the fuel specific CO<sub>2</sub>e emissions are taken from [Statistics Finland](#). For the company cars, the CO<sub>2</sub>e emissions are calculated based on the reports of the leasing companies in Finland (annual kilometers, CO<sub>2</sub> emissions/km/car type). For other locations, the CO<sub>2</sub>e emissions were calculated by using the reported fuel consumptions, kilometers and average CO<sub>2</sub>e emissions. The GHG emission calculations only relate to CO<sub>2</sub>, as we do not release emissions of other greenhouse gases. The gas included in the calculations is CO<sub>2</sub> from fossil fuel sources, excluding bio-based CO<sub>2</sub> emissions (Outotec has no biogenic emissions). In terms of consolidation, the figures include operations in which Outotec has full financial control, i.e. our own operations and offices, with site operations at customers' premises excluded.

DIRECT GHG EMISSIONS, TONNES OF CO <sub>2</sub> e	2019	2018	2017
Scope 1 emissions (own fuel combustion, company cars)	4,206	4,344*	4,287
Company car emissions in Finland, g CO <sub>2</sub> e/km	93	103	110

\* Figure restated as a result of data validation.

### Energy indirect GHG emissions (Scope 2) (GRI 305-2)

INDIRECT GHG EMISSIONS, TONNES OF CO <sub>2</sub> e	2019	2018	2017
Scope 2 market-based emissions (purchased electricity, district heating and steam)	6,164	7,123	7,883

In line with the Greenhouse Gas Protocol, we used the Corporate Accounting and Reporting Standard to calculate Scope 1 and Scope 2 emissions. The emissions are indicated in CO<sub>2</sub>. The country specific emission factors were retrieved from RE\_DISS for the European countries (AIB, European Residual Mixes Results of the calculation of Residual Mixes for the calendar year 2018, Version 1.1), for the other countries from GaBi databases or for those not found in these, we



used the Protocol's calculation tool 'GHG emissions from purchased electricity'. In calculations for market-based emission for Europe we used 'Residual mix CO<sub>2</sub>e emission' factors (AIB, European Residual Mixes Results of the calculation of Residual Mixes for the calendar year 2018, Version 1.1). In terms of consolidation, the figures include operations in which Outotec has full financial control, i.e. our own operations and offices, with site operations at customers' premises excluded.

In 2019, Outotec purchased 7,754 MWh of CO<sub>2</sub>-free electricity from renewable energy sources in Finland and Germany, equaling 48% of our electricity consumption and 22% of total energy consumption. We are gradually moving to renewable energy in our major locations in Germany and Finland, excluding the Pori and Frankfurt research centers.

Market-based Scope 2 emissions decreased by 13 %, mainly due to reduced electricity consumption. Location-based Scope 2 emissions were 7,617 tonnes of CO<sub>2</sub> in 2019.

In 2018, Outotec set new GHG emission targets for the combined Scope 1 and Scope 2 emissions which are in line with the Science Based Targets requirements. The Science-based targets framework is based on climate science, according to which a global carbon budget is estimated to keep global temperature increase below 2 degrees Celsius compared to pre-industrial temperatures. In Outotec's choice of methodology, the carbon budget is equated to global GDP and our share of emissions is determined by our gross profit, that is our share of the global economy. In practice, for Outotec this means a reduction of GHG emissions of 13% by the year 2025, translating to a yearly reduction of roughly 2%.

### Other indirect GHG emissions (Scope 3) (GRI 305-3)

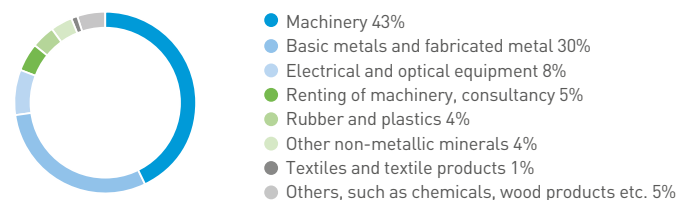
We include business travel, commuting and supply chain in our scope 3 GHG emissions. The data about business travels are received from our globally centralized travel agency that covers all major locations. According to our Travel Policy, the preferred travel agency is to be used for all travel purchases, and no purchases from local travel agencies are allowed. Thus, we have estimated that the coverage of the travel agency report is higher than 98% but no extrapolation was made to cover the unknown share. The commuting related emissions are estimated based on average numbers realized in Espoo and extrapolated to cover the all employees.

SCOPE 3 GHG EMISSIONS, TONNES OF CO <sub>2</sub> e	2019	2018	2017
Air transactions	10,890	10,100*	10,170
Rail transactions	48	54	57
Commuting	1,150	1,402	1,420
Supply chain (Purchased goods and services)	574,730	520,680	544,100
Total Scope 3 emissions	586,818	532,236*	555,747*

\*Restated due to internal validation.

Approximately 90% of Outotec's manufacturing is outsourced. The carbon footprint of our supply chain amounted to 574,731 tonnes of CO<sub>2</sub>e in 2019. This represents an increase of 10% compared to 2018, which is due to increase in spend. The largest source of CO<sub>2</sub>e emissions was the category of machinery, representing approximately 43% of the total. The calculations are based on Outotec's spending and carried out using the Scope 3 screening tool developed by Quantis and GHG Protocol.

### CO<sub>2</sub> EMISSIONS BY SUPPLY CATEGORY



Our travel-related emissions and traveled kilometers increased slightly from 2018. This is partly due to increase in travel as well as change in emission factors for short haul flights. The CO<sub>2</sub>e emissions for flight and rail travel are reported directly by our travel agent Carlson Wagonlit Travel.



CO<sub>2</sub>e emissions from commuting have decreased 18% possibly due to a new pilot in our Espoo office where Outotec supports the use of public transportation with employer-subsidized commuter tickets. We also decreased the number of parking spaces available for employees in Espoo in 2019. In addition, we encourage employees to use bicycles for commuting by offering them a season ticket for the Helsinki and Espoo citybikes, as well as providing a citybike parking station on Outotec premises.

We use teleconferences and Microsoft Teams Meetings for internal meetings. Video conferencing systems are also available in our major locations. After the Office365 collaboration and information sharing tools were taken into use in 2015, traveling to internal meetings has reduced.

Outotec strives to use responsible air carriers and hotels. Lufthansa and Finnair, for instance, use relatively new fleets, which generally produce lower emissions. In agreements with hotels, Outotec prefers hotels with favorable social responsibility policies.

TOTAL GHG EMISSIONS, TONNES OF CO <sub>2</sub> e	2019	2018	2017
Total GHG emissions (scope 1, 2 and 3)	597,188	543,703*	567,917*

\*Restated due to internal validation.

#### GHG emissions intensity (GRI 305-4)

TONNES OF CO <sub>2</sub> E/EUR 1 MILLION SALES	2019	2018	2017
Scope 1+2	8.6	9.6*	10.7
Scope 3 (includes business travel, commuting and supply chain emissions)	485	444	489*
Relative total GHG emissions	494	454*	499*
Relative flight emissions	9	8.4*	8.9

\*Restated due to internal validation.

Our relative Scope 1 and 2 emissions per one-million-euro sales decreased by 10% from 2018.

The overall positive impact of Outotec's business travel and commuting can be best illustrated by comparing our total annual GHG emissions in 2019, which were 22,458 tonnes CO<sub>2</sub> (includes scope 1, scope 2, business travel and commuting emissions), with the emissions avoided by using six of our metals-related technologies, which amounted to 6,644,791 tonnes of CO<sub>2</sub>e.

#### Nitrogen oxides, sulfur oxides, and other significant air emissions (GRI 305-7)

VOLATILE ORGANIC COMPOUNDS (VOCs), TONNES	2019	2018	2017
VOC emissions from paint shops	7.8	5.8	8.8

We report only VOC emissions, as nitrogen and sulfur oxides as well as other air emissions are not relevant in our operations. We estimate the VOC emissions based on the paint consumption in our manufacturing, assembly and service operations. The VOC emissions have increased in 2019 due to new paint shop being purchased by our Turula works (previously painting in Turula was outsourced). We have used 300 g VOCs per one-liter paint as the emission factor in our calculations.

#### Total weight of waste by type and disposal method (GRI 306-2)

WASTE, TONNES	2019	2018	2017
Waste recycled	835	415	599
Landfill waste and incinerated waste	464	429	609
Hazardous waste	69	24	41
Total waste	1368	867	1,249
Paper recycled	73	57	83

We follow global guidelines in waste management, which are applicable for all Outotec offices, workshops and test facilities. We have instructed our locations to sort waste according to local regulations and the guidelines provided by facility owners. Waste disposal method has been determined either from information provided by the waste disposal contractor or directly by locations. Waste amounts increased significantly because of higher sales volumes in 2019.

#### Significant spills (GRI 306-3)

No significant spills were reported in Outotec operations and project sites in 2019.

A small amount of hazardous waste is produced in the final surface treatment of filter presses in our Lappeenranta works. In addition, oily waste from lubricants used in the Turula works is classified as hazardous. Our research centers produce small amounts of different kinds of hazardous chemicals. These hazardous wastes are sent to local hazardous waste treatment facilities.





## Social data

### Employees (GRI 102-8)

Outotec had 4,088 employees at year-end 2019, which was 76 employees more than the previous year-end. Temporary personnel accounted for about 6% of the total payroll. Some of the temporary employees are self-employed, typically retired Outotec experts who work shorter periods in our customer projects. During annual vacation seasons, we hire students as trainees.

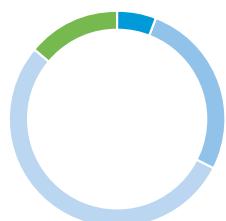


The average age of employees was 42.4 years.

EMPLOYEES BY EMPLOYMENT CONTRACT AND GENDER*		2019	2018	2017
Male	permanent	3037	3,028	3,176
	temporary	182	182	175
	male all	3219	3,210	3,351
Female	permanent	795	751	745
	temporary	74	51	50
	female all	869	802	795
All employees	permanent	3832	3,779	3,921
	temporary	256	233	225
Total number of employees at year end		4088	4,012	4,146
Employees on average		4143	4,095	4,149

\* Outotec has started to report the number of employees in external reporting as full-time equivalent (FTE) starting from the beginning of 2019. Since FTE is adjusted as per working hours (employee working 50% is counted as 0.5FTE), it gives a better understanding of the resources than headcount. In the annual report number of employees has been reported as 4045 FTE in the end of the year. For sustainability reporting the number of employees is reported as headcount (each employee is one head), since it is a more relevant figure for the KPIs reported in the sustainability report than the FTE.

### EMPLOYEES BY CATEGORY



- Senior management 6%
- Middle management 27%
- Specialists 54%
- Blue-collar workers 14%

EMPLOYEES BY REGION		2019	2018	2017
EMEA	permanent	2593	2,537	2,662
	temporary	193	153	151
	EMEA all	2786	2,690	2,813
Americas	permanent	676	704	723
	temporary	15	33	35
	Americas all	691	727	758
APAC	permanent	563	538	536
	temporary	48	47	39
	APAC all	611	585	575

PART-TIMERS PER REGION IN 2019		PART-TIME	FULL-TIME
EMEA	female	44	562
	male	60	2120
	EMEA all	104	2682
Americas	female	0	134
	male	3	554
	Americas all	3	688
APAC	female	18	111
	male	13	469
	APAC all	31	580
<b>Total</b>		<b>138</b>	<b>3950</b>



### New employee hires and employee turnover (GRI 401-1)

NEW EMPLOYEE HIRES	2019	2019	2018	2018	2017	2017
<b>by gender</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Female	173	4	162	4	123	3
Male	439	11	504	13	599	13
<b>by age group</b>						
<30	186	5	238	6	227	5
31-50	339	8	349	9	392	9
>51	84	2	76	2	63	2
<b>by region</b>						
EMEA	401	10	404	10	401	9
Americas	103	3	169	4	200	5
APAC	108	3	93	2	81	2
<b>Total</b>	<b>612</b>	<b>15</b>	<b>666</b>	<b>17</b>	<b>682</b>	<b>16</b>

EMPLOYEE TURNOVER RATE	2019	2019	2018	2018	2017	2017
<b>by gender</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Female	97	2	122	3	96	2
Male	388	9	506	13	439	11
<b>by age group</b>						
<30	59	1	70	2	92	2
31-50	307	8	400	10	311	8
>51	119	3	158	4	131	3
<b>by region</b>						
EMEA	295	7	431	11	312	8
Americas	129	3	116	3	162	4
APAC	61	1	81	2	61	1
<b>Total turnover rate</b>	<b>485</b>	<b>12</b>	<b>628</b>	<b>16</b>	<b>535</b>	<b>13</b>

### Compensation (GRI 102-38)

The total compensation paid out to employees in 2019 amounted to EUR 321 million. Outotec's compensation policy is described on [www.outotec.com/cg](http://www.outotec.com/cg). We define countries with over 170 employees or more as significant operations. In 2019, those countries were Finland, Australia, Germany, South Africa and Chile.

COMPENSATION	2019	2018	2017
Wages and salaries paid, EUR million	321	293*	326
Ratio of annual total compensation of CEO to mean compensation of employees	10.6	15.1	11.3**
Finland	10.7	15.0	11.8
Australia	3.5	3.7	3.6
Germany	2.0	2.3	2.4
South Africa	4.1	4.0	3.5
Chile	2.5	4.6	4.1
Percentage increase in annual total compensation ratio, %	-29.55	33	10
Change in annual total compensation of CEO, %	-26.85	26.5	14.5
Change in annual mean compensation of employees, %	3.56	-4.8	0.2

n = 3,063, coverage 76%

\*Restated due to business divestments in Metals, Energy & Water segment being classified as discontinued operations.

\*\*Restated due to an error in calculation

The ratio of annual total compensation of the CEO to mean compensation of employees was 10.1, which was 4.5 %-points lower than in 2018. The annual total compensation ratio is calculated for all employees globally. The calculations do not include blue-collar workers, because their information is not included in our SAP Master data system.

72 key employees were part of the company's share-based incentive program in 2019. In addition, 799 employees equaling 20% of eligible personnel participated in our employee share savings plan. This plan was not offered to employees in Mozambique, Morocco, Qatar and Saudi Arabia due to legal restrictions. In May 2019, Outotec paid out a total of 99,981 shares and cash



payments to cover estimated taxes to 743 employees who participated in the employee share savings plan in 2016.

Outotec runs several pension plans in various countries. These plans are mainly classified as legally defined contribution pension plans. Other post-employment benefits include medical arrangements for retired employees in Germany.

### Collective bargaining agreements (GRI 102-41)

50% of our employees are covered by collective bargaining agreements. This information was collected with a separate questionnaire sent out to all our locations. Binding collective agreements are followed in each country where they are applicable to Outotec employees.

### Benefits provided to full-time employees (GRI 401-2)

BENEFITS BY REGION, % P = PERMANENT, TEMP = TEMPORARY	FINLAND		AUSTRALIA		GERMANY		SOUTH AFRICA		CHILE	
	P	TEMP	P	TEMP	P	TEMP	P	TEMP	P	TEMP
Life insurance	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No
Health care	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Disability/ invalidity coverage	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Parental leave	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Retirement provision	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Stock ownership	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
n=	1364	100	342	43	370	9	265	8	177	1

### Minimum notice periods for significant operational changes (GRI 402-1)

The provisions for consultation and negotiations with employees are included in the collective bargaining agreements in some of the countries where Outotec has operations. In Finland, the collective bargaining agreements include provisions for consultation and negotiations lasting from two to six weeks; in Australia four weeks, in Sweden four weeks, in Chile 30 days, and in Brazil 12 weeks. The minimum notice periods that must be observed in advance of significant operational changes depend on locations and national legislation, and therefore differ significantly. In Finland, the notice periods range from two weeks to six months, and in other countries, the notice periods range from two weeks to one year.

## Occupational health and safety

### Work-related injuries (GRI 403-9)

LOST-TIME INJURIES PER 1 MILLION WORK HOURS, INCLUDING EMPLOYEES AND SUPERVISED WORKERS	2019	2018	2017
LTIR	0.6	2.0*	1.7
Number of employees and supervised workers	6,318	6,762*	6,556*
Total working hours	13,400,000	14,400,000	13,300,000

\*Figures restated due to internal validation.



### Work-related injuries, own employees (rate per 1,000,000 work hours)

	2019, #	2019, RATE	2018, #	2018, RATE	2017, #	2017, RATE
Fatalities	0	0	1	0.1	0	0.0
High-consequence injuries (LTI)	6	0.7	20*	2.4*	19	2.4
Recordable injuries	17	2.0	37	4.5	42*	5.4*
Number of hours worked	8,600,000		8,200,000		7,800,000	
Number of employees	4,088		4,012		4,146	

\* Figures restated due to internal validation.

### Work-related injuries, supervised workers (rate per 1,000,000 work hours)

	2019, #	2019, RATE	2018, #	2018, RATE	2017, #	2017, RATE
Fatalities	0	0	0	0.0	0	0.0
High-consequence injuries (LTI)	2	0.4	8*	1.3*	4	0.7
Recordable injuries	5	1.0	9*	1.4*	9*	1.6*
Number of hours worked	4,800,000		6,300,000		5,500,000	
Number of supervised contractors	2,230		2,750		2,410	

\* Figures restated due to internal validation.

### Average hours of training (GRI 404-1)

Our reporting of vocational, compliance and Code of Conduct training hours covers Outotec's employees. Human rights issues are covered in the Code of Conduct e-learning and classroom trainings. Only the training provided by Outotec is included in this report. Data on training pursued by individual Outotec employees externally is not reported as data is not stored into our systems.

Our learning management system including vocational, compliance and Code of Conduct training does not provide information of the training hours by gender and employee category. It collects the information on Outotec's own global training programs and e-learning modules. Local training data is reported by HR persons in the market area offices.

The health and safety training hours cover employees and supervised workers on project sites. Training hours on health and safety are compiled from the health and safety reporting system.

TRAINING HOURS	2019	2018	2017
<b>Health and safety training</b>			
Number of employees and contractors	6,318	6,762*	6,556*
Hours	84,000	133,000	109,000
Average hours of health and safety training per person	13	20*	17*
<b>Vocational, compliance and code of Conduct training</b>			
Number of employees	4088	4,012	4,146
Hours	24,412	30,288	61,847
Average hours of vocational, compliance and Code of Conduct training per employee	7,5	8	15
<b>Average hours of training per employee</b>	<b>18</b>	<b>27</b>	<b>31</b>

\* Figures restated due to internal validation.



**Percentage of employees receiving regular performance reviews (GRI 404-3)**

PERFORMANCE REVIEWS, %	2019	2018	2017
<b>by gender</b>			
Female	99	99	99
Male	99	99	99
<b>by employee category</b>			
Senior management	99	98	100
Middle management	99	99	100
Specialists	99	99	100
Blue-collar workers	N/A	N/A*	N/A*

n = 2019: 3,086 2018: 3,165, 2017: 3,290, coverage 75%

\*) Performance reviews of blue-collar workers and casuals have not been registered in the data system, and they are not included in the above numbers.

**Diversity and equal opportunity (GRI 405-1)**

EMPLOYEES BY AGE GROUP, %	2019	2018	2017
<b>Executive Board</b>			
< 30 years	0	0	0
31-50 years	67	40	44
> 51 years	33	60	56
<b>Senior management</b>			
< 30 years	0	0	0
31-50 years	56	58	55
> 51 years	44	43	45
<b>Middle management</b>			
< 30 years	1	1	1
31-50 years	65	66	65
> 51 years	34	33	34
<b>Specialists</b>			
< 30 years	19	17	13
31-50 years	61	62	67
> 51 years	20	20	19
<b>Blue-collar workers</b>			
< 30 years	21	23	20
31-50 years	60	61	65
> 51 years	19	15	15
<b>Board of Directors</b>			
< 30 years	0	0	0
31-50 years	0	0	0
> 51 years	100	100	100

Coverage 100%



SHARE OF WOMEN BY EMPLOYEE CATEGORY, %	2019	2018	2017
Board of Directors	50	38	29
Executive Board	33	20	22
Senior management	13	13	13
Middle management	15	15	13
Specialists	30	28	28
Blue-collar workers	3	3	3
<b>All employees</b>	<b>21</b>	<b>20</b>	<b>19</b>

The share of men in the mining and metallurgical industry has traditionally been high, which partly explains the current low share of women.

We have not identified any minority or vulnerable groups amongst our employees, and thus the topic is not relevant to Outotec and not reported.

### Proportion of senior management hired from the local community (GRI 202-2)

When Outotec starts a new operation in a new country, an expatriate employee is typically assigned to integrate the new operation into Outotec. Our goal is nevertheless that senior management should be hired locally. We define local as a person having the nationality of the country of the location in question. Our significant locations are defined as countries with over 170 employees.

% OF LOCALS IN SENIOR MANAGEMENT BY SIGNIFICANT LOCATIONS OF OPERATION	2019	2018	2017
Australia	81	84	84
Chile	71	83	67
Finland	95	96	96
Germany	78	76	76
South Africa	100	100	100

### Ratio of basic salary and remuneration of women to men (GRI 405-2)

RATIO OF BASIC SALARY OF WOMEN TO MEN BY EMPLOYEE CATEGORY (MALE = 1)	FEMALE AUSTRALIA	FEMALE CHILE	FEMALE FINLAND	FEMALE GERMANY	FEMALE SOUTH-AFRICA
<b>2019</b>					
Senior management	0.67	*	0.96	1.17	*
Middle management	0.90	0.98	0.98	0.95	0.80
Specialists	0.82	0.88	0.97	1.02	0.81
Blue-collar workers	N/A	N/A	N/A	N/A	N/A
<b>2018</b>					
Senior management	0.75	*	0.92	1.07	*
Middle management	0.80	0.88	0.97	0.94	0.75
Specialists	0.83	0.93	1.00	1.02	0.78
Blue-collar workers	N/A	N/A	N/A	N/A	N/A
<b>2017</b>					
Senior management	0.74	*	0.94	0.86	*
Middle management	0.76	1.00	0.96	0.86	0.70
Specialists	0.81	0.86	1.00	0.95	0.76
Blue-collar workers	N/A	N/A	N/A	N/A	N/A

\*) No females in senior management

Outotec uses KornFerry's job evaluation system when determining the demand for each job. The average ratio is based on the ratio of each job evaluation grade which are then grouped together to more broader report categories. In 2019, the overall average of the ratio of the basic salary of women to men in significant locations of operations is 0.94 (2018: 0.94). 1,178 white-collar (2018: 1,971) employees are included in the calculation. There is no data available about blue-collar workers.

Our significant locations are defined as countries with over 170 employees.



# GRI







## About this report

Our reporting meets the requirements of the Finnish Accounting Act on disclosure of non-financial and diversity information. The required non-financial information is disclosed in the Review by the Board of Directors in Outotec Financial Statements 2019, whereas this Sustainability Report is prepared to meet the expectations of a wider audience and the requirements of several sustainability indices.

We report our performance on economic, environmental and social sustainability annually in accordance with the Global Reporting Initiative (GRI 102-52). Outotec Sustainability Report 2019 is prepared in accordance with the GRI Standards: Core option (GRI 102-54) and covers the calendar year 2019 (GRI 102-50). Some information relating to developments from January to March 2019 have also been included in the report. The General Disclosures as specified in the GRI Standards are presented in a wider scope than required by the Core option. Topic-specific Standards are reported with respect to the material topics defined in late 2018. We also report the environmental impact of Outotec's own operations and some other indicators that are not material to Outotec but are published to meet stakeholders' expectations using the GRI indicators. A comparison of the contents of the report and the GRI Standards is given in the GRI and [Global Compact Index \(GRI 102-55\)](#).



The report is published in English at [www.outotec.com](http://www.outotec.com). Outotec has reported its sustainability performance annually since 2010. The previous report for 2018 was published in March 2019 (GRI 102-51).

### Global Compact and UN Sustainable Development Goals reporting

This report also describes how Outotec has progressed on the ten principles of the UN Global Compact initiative regarding human rights, labor rights, environment and anti-corruption principles, and the UN Sustainable Development Goals. The GRI index also shows the indicators used by Outotec to evaluate the progress in these areas.

### Report coverage (GRI 102-45)

We report on our global operations including Outotec's premises and employees in full, and partly include information on our contractors working under our supervision on project sites, our products and services, the use of Outotec's technologies by customers, and our supply chain. The legal companies, in which Outotec has 100% ownership and are listed in the [Financial Statements 2019](#), are covered by this report. The information compiled for the report is collected from our local offices, and some local environmental impacts are described in addition to global data.

We continuously aim to improve our internal processes as well as the completeness of data disclosure through developing our data collection systems and more accurate explanation of omissions when the data is not available. We also aim to describe both positive and negative aspects of our performance.

In the report, we use graphics to show trends in our performance and increase clarity. We have also included the data from two previous years in the tables and graphs to improve comparability.





## Report content and boundaries (GRI 102-46)

Outotec's business is based on the company mission, 'Sustainable use of Earth's natural resources', which drives us to work towards overcoming the world's environmental challenges and provides the wider context for our sustainability work. We have also defined our approach to global and local social and economic objectives and committed ourselves to the relevant UN Sustainable Development Goals.

The materiality principle was applied in the materiality analysis [link to Most significant topics] conducted at the end of 2018 so that we considered the interests and expectations of stakeholders, Outotec values, policies, strategy, and targets, the externally assured measurements of our positive indirect environmental impacts, the regulation regarding social license to operate (assumed to be tightening) as well as the main topics and future challenges of the minerals and metals processing sector.

The core team of our Sustainability Working Group reviewed the material topics against GRI Standards and defined the boundaries for each material topic and related indicators that form the contents of this report.

## Material topics (GRI 102-47)

Based on the materiality assessment, Sustainable technologies and innovations, Engaged experts, Responsible supply chain, Health and safety, Financial performance, as well as Ethics, compliance and governance are the most material topics for Outotec.

Health and safety, Financial performance as well as Ethics, compliance and governance were considered as fundamentals that the company must take good care of. Sustainable technologies and innovations, Engaged experts, and Responsible supply chain, together with the environmental impact of our own operations, create Outotec's total impact on the Earth and climate change. These topics are reviewed in this report. Management approaches for all these topics are presented on one [Management approach page](#).

- [Most significant topics](#)

## Stakeholders

As part of the recent materiality assessment, we identified our key stakeholders, namely Employees, Customers, Suppliers and contractors, Investors, analysts and financiers, Academia and students, Authorities, regulators and governments, Potential future employees, Local communities, and Industry associations and NGOs, as the main users of this report.

- [Stakeholder engagement](#)

## Restatements (GRI 102-48)

Our policy for restatements in case of significant changes in our company structure, or changes in the general validity of the data, is that the data is recalculated for previous years if the changes have led to discrepancies of more than 10%. Restatements are indicated in the report.

In 2019, we had approximately 4,400 active suppliers and the figure (2,600) reported in Outotec's Statement of Non-financial information 2019 has been corrected due to internal validation.

## Changes in reporting (GRI 102-49)

There have been no major changes in the reporting scope.

## Contact persons for questions regarding this report (GRI 102-53)

- [Contact information](#)

## Assurance (GRI 102-56)

This report has been verified by an independent third-party assurance provider selected by the Sustainability Working Group. The scope, conclusions, observations and recommendations are presented in the assurance report. A member of Outotec's Executive Board has commissioned the assurance, and the Executive Board has approved the report.

- [Assurance statement](#)



## Management approach

### Management approach (GRI 103-1, 103-2, 103-3)

Outotec Management System defines governance, management principles, operational model, roles, responsibilities and authorities within Outotec. The documentation, based on European Foundation for Quality Management (EFQM) management system and processes framework criteria, defines the compatibility and fulfilment of Outotec systems against such standards as ISO 9001 for Quality Management and ISO 14001 for Environmental Management. Outotec's Code of Conduct, approved by the Board of Directors, sets the company's business conduct for all employees.

Outotec's main impact to the environment is created by our products and services. Our management approach to environmental sustainability is described below in 'Sustainable technologies and innovations'. To a lesser degree, our environmental footprint arises from our own operations. Outotec continuously aims to reduce the impacts of its operations and has annual targets related to CO<sub>2</sub> emissions, and energy consumption. The company also monitors its emissions related to flights. Only a few of Outotec's operations require an environmental permit, and the risks related to these operations are managed by certified environmental management systems.

The Code of Conduct, Supplier Policy, HR policies and Donation and Employee Volunteering Policy, as well as Quality, Environment, Health and Safety (QEHS) Policy, define the basic requirements for Outotec's environmental, social and economic sustainability. The management approaches for the material topics and aspects are presented below according to GRI 103 (2016 Standard). The management approach for Health and Safety is presented using GRI 403 (2018 Standard).





**SUSTAINABLE TECHNOLOGIES AND INNOVATIONS**

**Management approach**

Developing sustainable offering for our customers is at the core of our sustainability work. In line with our Technology Policy, we continuously develop our offering according to the principles of sustainable development. Although the processing of minerals and metals have negative environmental impacts, through advanced technology the negative impacts can be managed. For this reason, R&D has a central role in Outotec's business. Our Product Compliance Management process ensures that our products and services reliably meet all applicable safety standards during all phases of the product life-cycle. We maintain an extensive database of product compliance procedures and documents including the development, sales and delivery of our products and services. We use a gated process as a precautionary principle or approach (GRI 102-11), in which the first phase of product development includes criteria related to risks and especially opportunities to mitigate climate change, i.e. energy savings, emissions reduction, water savings, waste minimization, improved metals recovery and safety improvement.

**Reported topics and indicators**

- Energy (302-1, 302-3, 302-4)
- Water and effluents (303-1, 303-3)
- Biodiversity (304-1, 304-2)
- Emissions (305-1, 305-2, 305-3, 305-4, 305-7)
- Effluents and waste (306-2, 306-3)
- Environmental compliance (307-1)
- Local communities (413-2)
- Customer health and safety (416-2)
- Environmental Goods and Services in order intake (own indicator)
- CO<sub>2</sub> emissions avoided using Outotec's metals-related technologies (own indicator)
- Percentage of reduction of fresh water/tonne of ore by non-ferrous metals concentrators using Outotec technology (own indicator)
- Increase of energy produced using Outotec waste-to-energy solutions (own indicator)

**Topic boundaries**

Our customers' employees and operations (Energy, water and effluents, scope 1 and 2 emissions, effluents and waste, environmental compliance and EGS are reported for Outotec's own operations only.)

**SUSTAINABLE TECHNOLOGIES AND INNOVATIONS**

**Goals and targets**

The most significant environmental impact of our business activities materializes through our products and services that minimize the harmful emissions and indirectly reduce various emissions, including the global CO<sub>2</sub> emissions. We measure our positive impact on the environment (carbon handprint), by the amount of CO<sub>2</sub> emissions avoided using Outotec technologies. Six of these technologies are measured annually. The amount of emissions avoided depend on the actual production amounts of the technologies involved.

**Responsibilities**

Our business process Manage and Develop Products and Technologies guides all the activities from idea and product development to productization as well as technical and commercial product management. Outotec's business lines are responsible for their products and services and following the company's business processes.

**Commitments, policies and standards**

- Outotec Technology Policy
- Outotec IPR Policy
- ISO 12100 and IEC 62061 for the safety of machinery
- All safety-related industrial standards applicable where they are utilized
- Procedures for detecting hazards such as explosion, fire, and lightning, and related IEC 61882 HAZOP studies
- SIL Allocation Assessments (mandatory at Outotec)
- The SafExpert risk assessment tool, which ensures that equipment designed by Outotec fulfills all relevant safety standards.

**Evaluation of the management approach**

We follow negative impacts and incidents through our QEHS management and Product Compliance Management systems, as well as through customer feedback collected after each major delivery and in customer surveys. The Corporate Product Board follows the development work of the business units to ensure that our offering is being developed in line with our mission 'sustainable use of Earth's natural resources'.



**ENGAGED EXPERTS**

<b>Management approach</b>	Competent and engaged employees are key to Outotec’s success and one of the most material topics. Outotec aims to employ the best people in the industry and follows the principle of equal opportunity. All employees are entitled to good leadership and professional growth. Outotec respects and is committed to the principles of the Universal Declaration of Human Rights and the Ten Principles of the UN Global Compact on human rights, labor, environment and anti-corruption, wherever we operate. We see as our basic responsibility to provide decent working conditions and to treat our people in a fair manner. Our Code of Conduct provides the basis for our labor conditions, substantiated by HR policies and HR Handbook that enable fair employment globally. Our HR practices are always compliant with international labor standards and local legislation.
<b>Reported topics and indicators</b>	<ul style="list-style-type: none"> <li>• Employment (401-1, 401-2)</li> <li>• Labor/management relations (402-1)</li> <li>• Training and education (404-1, 404-2, 404-3)</li> <li>• Diversity and equal opportunity (405-1, 405-2)</li> <li>• Employee engagement (own indicator)</li> </ul>
<b>Topic boundaries</b>	Our employees and operations at our own premises and project sites
<b>Goals and targets</b>	Key target is to achieve 0,2-points increase (7,7/10) in the employee engagement index in 2020 compared to the 2019 employee survey results.
<b>Responsibilities</b>	Senior Vice President, HR and Communications is responsible for the human resources and the HR and Communications function globally and reports to the CEO.
<b>Commitments, policies and standards</b>	<ul style="list-style-type: none"> <li>• <b>Code of Conduct</b></li> <li>• HR Handbook</li> <li>• Competence Development Policy</li> <li>• Recruitment and Onboarding Policy</li> <li>• Compensation Policy</li> <li>• Global Mobility Policy</li> <li>• Job Description and Job Title Policy</li> <li>• Grading Policy</li> </ul>
<b>Evaluation of the management approach</b>	The Human Capital Committee of the Board of Directors follows regularly that all employee related topics, such as ethics and values, resourcing, competence and performance management, and compensation arrangements support the strategic aims of Outotec. It also evaluates our performance regarding diversity.

**RESPONSIBLE SUPPLY CHAIN**

<b>Management approach</b>	Because the majority of Outotec’s manufacturing is sourced from external suppliers, responsible sourcing and supply chain management is highly important for Outotec. Our Supply Policy steers supply activities throughout the company, defines ways to enhance supply quality, and provides guidelines for everyone involved in supply-related activities. A parallel Supplier Policy imposes strict requirements on Outotec’s suppliers. It sets out our principles on ethical conduct, compliance with laws and regulations, respecting human rights, environmental impacts, health and safety, labor, intellectual property and improper benefits. Outotec does not tolerate any child labor or forced or compulsory labor as stated in our Code of Conduct and Supplier Policy. Suppliers are expected to ensure compliance with Outotec policy, identify any deviations, manage corrective actions, ensure the transparency of these actions, and communicate with us systematically on such issues.
<b>Reported topics and indicators</b>	<ul style="list-style-type: none"> <li>• Supply chain (102-9, 102-10)</li> <li>• Procurement practices (204-1)</li> <li>• Supplier environmental assessment (308-1, 308-2)</li> <li>• Child labor (408-1)</li> <li>• Forced or compulsory labor (409-1)</li> <li>• Supplier social assessment (414-1, 414-2)</li> </ul>
<b>Topic boundaries</b>	Our direct suppliers and supervised contractors
<b>Goals and targets</b>	Standardization, harmonization and focusing on fewer suppliers are key drivers in establishing a sustainable supplier base. We measure our performance by the percentage of new suppliers screened and key suppliers audited using labor practices, environmental and human rights criteria.
<b>Responsibilities</b>	Senior Vice President, Sourcing and Manufacturing is the Head of Supply. Our Global Supply function manages our supplier base and global sourcing. Operational Supply personnel are involved in day-to-day supplier management during the delivery phase of customer projects. Outotec’s Supplier Relationship Managers work with our most important global or local suppliers. They facilitate collaboration between Outotec and the suppliers across and above individual projects. This procedure enhances visibility, alignment and the management of supplier-related risks, while also improving overall collaboration between Outotec and individual suppliers.
<b>Commitments and policies</b>	<ul style="list-style-type: none"> <li>• <b>Outotec Supplier Policy</b></li> <li>• <b>Code of Conduct</b></li> </ul>
<b>Evaluation of the management approach</b>	The Executive Board reviews regularly the effectiveness of the supply chain management and the work is evaluated also in internal and external audits. Outotec audits its key suppliers on quality, health and safety as well as human rights-related issues regularly. Compliance Helpline and an external feedback channel are available for anyone to raise concerns related to corruption, human rights or any unethical behavior in Outotec’s business activities.



**HEALTH AND SAFETY**

<b>403 (GRI 2018) Management approach</b>	According to Outotec's QEHS Policy, safety is a priority in the company's operations. Outotec's management is committed to continuously enhance safety performance throughout the company's operations. We have globally harmonized procedures and work instructions. Our OHS management system covers 100% of Outotec's employees, contractors working under our direct supervision, locations and project sites. The OHS management is based on risk assessments. The main health and safety risks for Outotec employees occur on roads in different driving cultures and when working at project sites and manufacturing units.
<b>Reported topics and indicators</b>	<ul style="list-style-type: none"> <li>Occupational health and safety (403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8, 403-9)</li> </ul>
<b>Topic boundaries</b>	Outotec's employees and premises, supervised contractors as well as project sites. Regarding health services, our reporting covers Outotec employees only, as these services are typically covered by the employing company. Local Safety Committees are set up in Outotec's permanent locations and largest project sites, and they cover Outotec employees and premises, contractors and visitors.
<b>Goals and targets</b>	Zero harm in occupational health and safety
<b>Responsibilities</b>	The head of each permanent location has the responsibility of the persons working there. Each location has a Safety Committee consisting of employees' representative and company representative, and local Safety Committees report to head of location, who reports to global business owners. If there are less than 10 people working in a location, they are represented in the closest larger location's Safety Committee. Our site managers are responsible for the management of safety at project sites.
<b>Commitments and policies</b>	<ul style="list-style-type: none"> <li>Operations globally certified against ISO 45001 standard</li> <li>Outotec QEHS Policy</li> </ul>
<b>Evaluation of the management approach</b>	The global HSE Steering Group follows the state of OHS and sets targets and the roadmap for the future. The Executive Board reviews regularly the safety performance, and we ensure the quality of our OHS processes through internal and external audits and training. In 2019, external audits were successfully conducted by TÜV Rheinland Cert GmbH at our locations in Finland (Espoo, Lappeenranta, Turku), in South Africa (Centurion), in China (Suzhou), in USA (Coeur d'Alene) and in Germany (Oberursel, Cologne), as well as a construction sites in Peru, South Africa and UK. The certificates can be found on <a href="http://www.outotec.com">www.outotec.com</a>

**FINANCIAL PERFORMANCE**

<b>Management approach</b>	In the recent review of material topics with stakeholders, financial performance was raised a topic having a major impact on employees' wealth and commitment, stakeholder value, jobs available and tax income of local communities. Our financial performance and risk management are comprehensively covered in <b>Financial Statements 2019</b> and <b>Corporate Governance Statement 2019</b> , whereas this report focuses on the value creation, our impacts, and financial implications due to climate change. Outotec management annually evaluates the global megatrends that impact our business. Sustainability related risks are addressed in routine risk management processes. Outotec's approach to economic sustainability is demonstrated by our long-term financial targets involving profitability and continuous growth. We base our decisions on sound business reasons and commercial rationale. Outotec follows all applicable accounting and financial reporting rules. Accurate and objective records and reports support our business decisions and help us meet our responsibilities towards stakeholders. As project deliveries represent the majority of Outotec's sales, project risk management and project control are the key processes for providing information for financial control and reporting. Outotec is committed to being a responsible, compliant tax payer in each country where it operates. We strive for transparency in our operations and fairness in our tax practices, and we do not engage in aggressive tax planning. Our tax management has a proactive approach.
<b>Reported topics and indicators</b>	<ul style="list-style-type: none"> <li>Key impacts, risks and opportunities (102-15)</li> <li>Economic performance (201-1, 201-2)</li> <li>Market presence (202-2)</li> <li>Indirect economic impacts (203-2)</li> </ul>
<b>Topic boundaries</b>	Outotec's legal entities with 100% ownership ( <b>Financial Statements 2019</b> , page 81)
<b>Goals and targets</b>	<p>Outotec's long-term financial targets focus on continuous profitable growth:</p> <ul style="list-style-type: none"> <li>Sales growth faster than the market</li> <li>Annual average service sales growth over 10% (previously 5-15%)</li> <li>Profitability (adjusted EBIT) 10% of sales by 2020</li> <li>Gearing at maximum 50%</li> </ul>
<b>Responsibilities</b>	The general governance principles and Outotec's self-regulatory framework provide the basis for Outotec's operations. Finance & Control function headed by the Chief Financial Officer coordinates the financial management and control, maintains common instructions for financial reporting and controls centrally the reporting platforms. The application and interpretation of accounting standards for group-wide purposes is done by Finance & Control and those principles are documented in the Outotec Accounting Policy and reporting manual, guiding the work of all units globally.
<b>Commitments and policies</b>	<ul style="list-style-type: none"> <li>UN Sustainable Development Goals</li> <li>Outotec Corporate Governance Policy</li> <li><b>Outotec Code of Conduct</b></li> <li><b>Outotec Disclosure Policy</b></li> <li>Outotec Risk Management policies</li> <li>Outotec Accounting Policy</li> <li>Outotec Supply Policy</li> <li>Outotec Export Control Policy</li> <li>Outotec Tax Policy</li> </ul>



**Evaluation of the management approach**

The Board of Directors and its Audit and Risk Committee follow Outotec's internal control and risk management systems and efficiency of the control measures. Outotec's monthly financial reviews forms the key mechanism when measuring the effectiveness of operations and the development of the company versus the set financial targets. Financial performance and outlook are reviewed monthly on all organizational levels. Special emphasis is put on the review of project related contractual risks, project provisions and financial performance. Project related financial performance and risks are reviewed also by the Audit and Risk Committee quarterly.

**ETHICS, COMPLIANCE AND GOVERNANCE**

**Management approach**

In the recent review of material topics with stakeholders, Ethics, compliance and governance were regarded as fundamentals Outotec must take good care of. Outotec's management is based on the principles of good governance and transparency, as well as group-wide policies and globally harmonized business processes. We follow the Finnish Corporate Governance Code issued by the Securities Market Association for listed companies. Our management system documentation is compatible with and audited against such standards as ISO 9001 for Quality Management, ISO 14001 for Environmental Management, and ISO 45001 Safety Management. In addition, the locations in Finland and Germany are certified to ISO 50001 for Energy Management. Outotec endorses ethical business practices and complies with all relevant national and international laws and regulations, which sets the minimum level in the way we operate. The company works against corruption in all its forms. Outotec has zero tolerance against child labor, forced or compulsory labor, harassment or discrimination, anti-competitive behavior or other illegal or unethical business practices. Suppliers and business partners, sales agents and representatives are required to follow the same principles and fully comply with all applicable laws. All Executive Board members and their direct reports have signed specific declarations of compliance related to Outotec's compliance program and policies in 2018.

**Reported topics and indicators**

- Anti-corruption (205-1, 205-2, 205-3)
- Anti-competitive behavior (206-1)
- Non-discrimination (406-1)
- Socio-economic compliance (419-1)

**Topic boundaries**

Outotec's employees, sales representatives and sales agents, suppliers and contractors

**Goals and targets**

Outotec's target is to have employees participate in e-learning on the Code of Conduct or attend related classroom training on a regular basis.

**Responsibilities**

The Chief Executive Officer is responsible for implementing the Code of Conduct with the support of the Executive Board and the Chief Compliance Officer. Our Board of Directors monitors and reviews implementation of the Code periodically. Outotec's Legal, Contract Management & Corporate Responsibility function is responsible for the compliance program and related policies. The Chief Compliance Officer reports the issues raised through grievance mechanisms to the Board of Directors.

**Commitments and policies**

- Universal Declaration of Human Rights
- UN Guiding Principles on Business and Human Rights
- UN Global Compact
- UN Sustainable Development Goals
- Outotec Corporate Governance Policy
- **Outotec Code of Conduct**
- Outotec QEHS Policy
- **Outotec Supplier Policy**
- Outotec Anti-Corruption Policy
- Outotec Anti-Money Laundering Policy
- Outotec Agent Policy
- Outotec Enterprise Risk Management Policy
- Outotec Operational Risk Management Policy
- Outotec Data Protection Policy
- Outotec Trade Secret and Data Policy
- Outotec Donation and Employee Volunteering Policy

**Evaluation of the management approach**

The Audit and Risk Committee of the Board of Directors reviews regularly the compliance of the company and concerns raised through Outotec's compliance helpline and internal and external feedback channels. The Chief Compliance Officer reports directly to the Audit and Risk Committee of the Board in issues raised through grievance mechanisms. Our performance is also followed-up regularly through internal and external audits.





## Stakeholder expectations and our engagement tools

Outotec defined its key stakeholders in connection with the materiality analysis conducted in 2018. The material topics and key stakeholders are reviewed at approximately 2-3 years intervals by our Corporate Responsibility function and Sustainability Working Group. Outotec's key stakeholders, their expectations and engagement tools are presented in the table below.



EXPECTATIONS	OUR ENGAGEMENT TOOLS
<b>EMPLOYEES</b>	
<ul style="list-style-type: none"> <li>• Safe working environment</li> <li>• Company values and a culture that enables professional development</li> <li>• Long-term economic perspective</li> <li>• Compliance and transparency</li> <li>• Fair and competitive compensation</li> <li>• Proper communication and feedback channels</li> </ul>	<ul style="list-style-type: none"> <li>• Regular briefings and info sessions</li> <li>• Regular meetings with employee representatives</li> <li>• Global intranet, collaboration tools and social media</li> <li>• Performance development dialogues</li> <li>• Outotec Round-Table</li> <li>• Employee surveys</li> <li>• Compliance helpline and feedback channels</li> <li>• Young Professionals network</li> </ul>
<b>CUSTOMERS</b>	
<ul style="list-style-type: none"> <li>• Creating value for customers</li> <li>• Sustainable and safe products and services</li> <li>• Social license to operate</li> <li>• Quick reaction to requests</li> <li>• Reliable technology</li> <li>• Knowledgeable experts</li> <li>• Long-term commitment</li> </ul>	<ul style="list-style-type: none"> <li>• Regular meetings held by Outotec's Account Management, and as part of Sell and Deliver processes</li> <li>• Customer satisfaction surveys</li> <li>• Joint R&amp;D projects</li> <li>• Training, user meetings, workshops</li> <li>• Seminars, conferences, trade shows</li> <li>• Asset walks</li> <li>• Newsletters, website, social media</li> </ul>
<b>SUPPLIERS AND CONTRACTORS</b>	
<ul style="list-style-type: none"> <li>• Fair treatment</li> <li>• Long-term partnership</li> <li>• Economic sustainability</li> <li>• Safe working conditions at sites</li> <li>• Proper communication</li> </ul>	<ul style="list-style-type: none"> <li>• Contacts through Outotec's Delivery process</li> <li>• Supplier Policy and Code of Conduct</li> <li>• Supplier assessments and audits</li> <li>• Joint continuous improvement of processes</li> <li>• Outotec Supplier Days</li> <li>• Training events and programs</li> </ul>
<b>INVESTORS, ANALYSTS AND FINANCIERS</b>	
<ul style="list-style-type: none"> <li>• Total shareholder value</li> <li>• Long-term economic perspective</li> <li>• Compliance and transparency</li> <li>• Accurate, consistent and reliable information</li> <li>• Management's views</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly briefings</li> <li>• CEO's mid-quarter Q&amp;A sessions</li> <li>• Audited/assured reporting</li> <li>• Capital Markets Day</li> <li>• Roadshows, one-on-one meetings, industry seminars</li> <li>• Annual General Meeting</li> <li>• Excursions to Outotec sites</li> <li>• Annual surveys</li> </ul>

EXPECTATIONS	OUR ENGAGEMENT TOOLS
<b>ACADEMIA AND STUDENTS</b>	
<ul style="list-style-type: none"> <li>• Relevant technological and scientific challenges for research</li> <li>• Feedback and encouragement from the industry</li> <li>• Operational data</li> <li>• Partnerships</li> <li>• Thesis opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Joint programs</li> <li>• Involvement in university courses</li> <li>• Seminars, lectures, visits</li> <li>• Thesis work</li> <li>• Internships</li> <li>• Networking</li> </ul>
<b>AUTHORITIES, REGULATORS AND GOVERNMENTS</b>	
<ul style="list-style-type: none"> <li>• Compliance and transparency</li> <li>• Employment</li> <li>• Industry insights</li> </ul>	<ul style="list-style-type: none"> <li>• Memberships and chairmanships in EU's and national working groups</li> <li>• Counseling on expert matters</li> <li>• Seminars on sustainable mining and metals processing</li> </ul>
<b>POTENTIAL FUTURE EMPLOYEES</b>	
<ul style="list-style-type: none"> <li>• Information of the company's purpose, values, principles, learning and career opportunities and leadership style</li> <li>• Fair recruitment process</li> <li>• Solid financial performance</li> </ul>	<ul style="list-style-type: none"> <li>• Careers website and social media channels</li> <li>• Recruitment events</li> <li>• Student cooperation</li> <li>• Internships</li> <li>• Hosting visitor groups</li> </ul>
<b>LOCAL COMMUNITIES</b>	
<ul style="list-style-type: none"> <li>• Transparency and proactivity</li> <li>• Employment opportunities</li> <li>• Engagement and local presence</li> <li>• Environmental and social responsibility</li> </ul>	<ul style="list-style-type: none"> <li>• Joint social programs with customers</li> <li>• Support for local initiatives</li> <li>• Volunteering programs</li> </ul>
<b>INDUSTRY ASSOCIATIONS AND NGOS</b>	
<ul style="list-style-type: none"> <li>• Transparency and proactivity</li> <li>• Engagement in joint initiatives</li> <li>• Environmental and social responsibility</li> </ul>	<ul style="list-style-type: none"> <li>• Active membership in industry associations</li> <li>• Employee volunteering work</li> <li>• Dialogue on circular economy and sustainable processing of minerals and metals</li> </ul>
<b>MEDIA</b>	
<ul style="list-style-type: none"> <li>• Transparency and access to information</li> <li>• Accurate and reliable information</li> <li>• Interesting stories</li> <li>• Walk the talk</li> <li>• Management views</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with Outotec managers and experts</li> <li>• Quarterly media briefings</li> <li>• Audited/assured reporting</li> <li>• Success stories on the website</li> <li>• Active use of social media</li> <li>• Excursions to Outotec sites</li> </ul>



## GRI, Global Compact, and SDG content index

Based on our own assessment, Outotec has self-declared this report to be prepared in accordance with the GRI Standards: Core option. Compliance has additionally been checked by a third party, Ecobio Ltd.

In this table, we have applied General Disclosures, Management Approach and topic specific GRI Standards and Disclosures published in 2016, except for the Occupational Health and Safety (GRI 403) and Water and Effluents (GRI 303) for which we have applied GRI Standard published in 2018. Indicators in General Disclosures and Management Approach comply with the European Directive on non-financial and diversity reporting. The table also indicates our progress on the United Nations' Global Compact principles and Sustainable Development Goals (SDG). Some indicators are reported and shown in the index although they are not material to Outotec but reported to meet stakeholders' expectations.



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
101	Foundation				
<b>102</b>	<b>GENERAL DISCLOSURES</b>				
<b>102</b>	<b>Organizational profile</b>				
102-1	Name of the organization	This is Outotec, p.6-7			
102-2	Activities, brands, products, and services	This is Outotec, p.6-7 There were no banned products in 2019			
102-3	Location of headquarters	Espoo, Finland			
102-4	Location of operations	This is Outotec, p.6-7			
102-5	Ownership and legal form	This is Outotec, p.6-7			
102-6	Markets served	This is Outotec, p.6-7			
102-7	Scale of the organization	This is Outotec, p.6-7 Financial performance, p.53-58 Financial Statements 2019			
102-8	Information on employees and other workers	Social data, p.73-79 Health and safety, p.48-50		6	
102-9	Supply chain	Responsible supply chain, p.44-47			
102-10	Significant changes to the organization and its supply chain	This is Outotec, p.6-7			
102-11	Precautionary principle of approach	Management approach, p.84			
102-12	External initiatives	<a href="http://www.outotec.com/sustainability">www.outotec.com/sustainability</a>			
102-13	Memberships of associations	<a href="http://www.outotec.com/sustainability">www.outotec.com/sustainability</a>			
	<b>Strategy</b>				
102-14	Statement from senior decision-maker	CEO's message, p.4-5			
102-15	Key impacts, risks, and opportunities	Financial performance, p.53-58			
	<b>Ethics and integrity</b>				
102-16	Values, principles, standards, and norms of behavior	Ethics, compliance and governance, p.59-62		10	
102-17	Mechanisms for advice and concerns about ethics	Ethics, compliance and governance, p.59-62			



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
<b>Governance</b>					
102-18	Governance structure	Ethics, compliance and governance, p.61-62			
102-19	Delegating authority	Corporate Governance Statement 2019 (www.outotec.com/cg)			
102-22	Composition of the highest governance body and its committees	Corporate Governance Statement 2019 (www.outotec.com/cg)			
102-23	Chair of the highest governance body	Corporate Governance Statement 2019 (www.outotec.com/cg)			
102-24	Nominating and selecting the highest governance body	Corporate Governance Statement 2019 (www.outotec.com/cg)			
102-32	Highest governance body's role in sustainability reporting	Ethics, compliance and governance, p. 61-62			
102-35	Remuneration policies	Corporate Governance Statement 2019 (www.outotec.com/cg)			
102-38	Annual total compensation ratio	Social data, p.75	Blue-collar workers are not included in the calculation.		
102-39	Percentage increase in annual total compensation ratio	Social data, p.75	Blue-collar workers are not included in the calculation.		
<b>Stakeholder engagement</b>					
102-40	List of stakeholder groups	Engaging with stakeholders, p.25			
102-41	Collective bargaining agreements	Social data, p.76		3	
102-42	Identifying and selecting stakeholders	Engaging with stakeholders, p.42-43			
102-43	Approach to stakeholder engagement	Engaging with stakeholders, p.25			
102-44	Key topics and concerns raised	Engaging with stakeholders, p.25			17
<b>Reporting practice</b>					
102-45	Entities included in the consolidated financial statements	Financial Statements 2019, p.80 (www.outotec.com/investors) About this report, p.82			
102-46	Defining report content and topic boundaries	About this report, p.83 Most significant topics, p.12-14			
102-47	List of material topics	Most significant topics, p.12-14			
102-48	Restatements of information	About this report, p.83			
102-49	Changes in reporting	About this report, p.83			
102-50	Reporting period	About this report, p.81			
102-51	Date of most recent report	About this report, p.82			



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
102-52	Reporting cycle	Annually			
102-53	Contact point for questions regarding the report	Contacts, p.101			
102-54	Claims of reporting in accordance with the GRI Standards	About this report, p.81			
102-55	GRI content index	GRI, Global Compact, and SDG content index, p.91-99			
102-56	External assurance	External assurance statement, p.100			
<b>103</b>	<b>MANAGEMENT APPROACH</b>				
103-1	Explanation of the material topic and its boundary	Management approach, p.84-88			
103-2	The management approach and its components	Management approach, p.84-88			
103-3	Evaluation of the management approach	Management approach, p.84-88			
	<b>TOPIC-SPECIFIC DISCLOSURES</b>				
	<b>Sustainable technologies and innovations</b>				
<b>302</b>	<b>Energy</b>				
302-4	Reduction of energy consumption	Environmental impact of own operations, p.69 Sustainable technologies and innovations, p.32-36		8, 9	13
<b>305</b>	<b>Emissions</b>				
305-5	Reduction of GHG emissions	Climate action, p.21 Sustainable technologies and innovations, p.33			9, 13
<b>307</b>	<b>Environmental compliance</b>				
307-1	Non-compliance with environmental laws and regulations	Outotec has not identified any non-compliance with environmental laws, regulations or voluntary codes, neither has the company paid any fines in the environmental area.			
<b>413</b>	<b>Local communities</b>				
413-2	Operations with significant actual and potential negative impacts on local communities	Outotec has not identified any significant negative impacts of its operations, products or suppliers on local communities. No issues emerged concerning the rights of indigenous people.			1



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
<b>416</b>	<b>Customer health and safety</b>				
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Outotec has not identified any significant negative impacts of its products on customers' health and safety. No fines were imposed in relation to non-compliance with laws and regulations or voluntary codes regarding the use of Outotec products.			
OWN	Environmental Goods and Services in order intake	Sustainability agenda, p.17-18			9
OWN	CO <sub>2</sub> emissions avoided using Outotec's metals-related technologies	Sustainability agenda, p.17-18 Sustainable technologies and innovations, p.33 Climate action, p.21			13
OWN	Percentage of reduction of fresh water/tonne of ore by non-ferrous metals concentrators using Outotec technology	Sustainability agenda, p.17-18			6
OWN	Increase of energy produced using Outotec waste-to-energy solutions	Sustainability agenda, p.17-18			7
<b>Responsible supply chain</b>					
<b>204</b>	<b>Procurement practices</b>				
204-1	Proportion of spending on local suppliers	Responsible supply chain, p.47			12
<b>308</b>	<b>Supplier environmental assessment</b>				
308-1	New suppliers that were screened using environmental criteria	Responsible supply chain, p.45		8	
308-2	Negative environmental impacts in the supply chain and actions taken	Responsible supply chain, p.45		8	
<b>408</b>	<b>Child labor</b>				
408-1	Operations and suppliers at significant risk for incidents of child labor	Responsible supply chain, p.46		5	
<b>409</b>	<b>Forced or compulsory labor</b>				
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Responsible supply chain, p.46		4	
<b>414</b>	<b>Supplier social assessment</b>				
414-1	New suppliers that were screened using social criteria	Responsible supply chain, p.46		2	12
414-2	Negative social impacts in the supply chain and actions taken	Responsible supply chain, p.46-47		2	



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
<b>Engaged experts</b>					
<b>401</b>	<b>Employment</b>				
401-1	New employee hires and employee turnover	Social data, p.75			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Social data, p.76			
<b>402</b>	<b>Labor/management relations</b>				
402-1	Minimum notice periods regarding operational changes	Social data, p.76		3	
<b>404</b>	<b>Training and education</b>				
404-1	Average hours of training per year per employee	Social data, p.77	Our learning management system does not provide data by gender and employee category.	6	
404-2	Programs for upgrading employee skills and transition assistance programs	Engaged experts, p.43		1	4
404-3	Percentage of employees receiving regular performance and career development reviews	Social data, p.78		6	
<b>405</b>	<b>Diversity and equal opportunity</b>				
405-1	Diversity of governance bodies and employees	Social data, p.78	Data of minority groups is not relevant and thus not collected.		5
405-2	Ratio of basic salary and remuneration of women to men	Social data, p.79	Data is not available about blue-collar workers.		
OWN	Employee engagement index	Engaged experts, p.42			4
<b>Health and safety</b>					
<b>403</b>	<b>Occupational health and safety (2018 Standard)</b>				
403-1	Occupational health and safety management system	Health and safety, p.49 Management systems, p.87			
403-2	Hazard identification, risk assessment, and incident investigation	Health and safety, p.49			
403-3	Occupational health services	Health and safety, p.49-50			
403-4	Worker participation, consultation, and communication on occupational health and safety	Health and safety, p.50			





GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
403-5	Worker training on occupational health and safety	Health and safety, p.50 Social data, p.77			
403-6	Promotion of worker health	Health and safety, p.50			
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationship	Health and safety, p.50			
403-8	Workers covered by an occupational health and safety management system	Health and safety, p.49		1	
403-9	Work-related injuries	Health and safety, p.50 Social data, p.76-77			3
<b>Ethics, compliance, governance</b>					
<b>205</b>	<b>Anti-corruption</b>				
205-1	Operations assessed for risks related to corruption	Ethics, compliance and governance, p.61	Number and percentage of operations not reported because we assess projects only.	10	
205-2	Communication and training about anti-corruption policies and procedures	Ethics, compliance and governance, p.61 Social data	Anti-corruption communication not separately reported, it is part of Code of Conduct trainings. Our learning management systems does not provide information of the training hours by gender and employee category.	10	8, 16
205-3	Confirmed incidents of corruption and actions taken	Ethics, compliance and governance, p.61		10	
<b>206</b>	<b>Anti-competitive behavior</b>				
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Outotec was not subject to any legal actions for anti-competitive behavior, anti-trust cases or monopoly practices.			
<b>406</b>	<b>Non-discrimination</b>				
406-1	Incidents of discrimination and corrective actions taken	Ethics, compliance and governance, p.59-62	Data of minority groups is not relevant for Outotec and thus not collected.	6	10
<b>419</b>	<b>Socio-economic compliance</b>				
419-1	Non-compliance with laws and regulations in the social and economic area	Outotec did not have to pay any fines or fulfil any non-monetary sanctions for non-compliance with anti-corruption laws. We have not identified any non-compliance with laws and/or regulations or voluntary codes, neither has the company paid any fines in the social or economic area.		8	



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
<b>Financial performance</b>					
<b>201</b>	<b>Economic performance</b>				
201-1	Direct economic value generated and distributed	Financial performance, p.54	Country-specific tax information not fully reported as it would not give a comprehensive picture of the fairness of the tax distribution.		
201-2	Financial implications and other risks and opportunities due to climate change	Financial performance, p.57		7	
<b>202</b>	<b>Market presence</b>				
202-2	Proportion of senior management hired from the local community	Social data, p.79			
<b>203</b>	<b>Indirect economic impacts</b>				
203-2	Significant indirect economic impacts	Financial performance, p.54			
<b>Environmental footprint of Outotec's own operations</b>					
<b>302</b>	<b>Energy</b>				
302-1	Energy consumption within the organization	Environmental impact of own operations, p.68		7, 8	
302-3	Energy intensity	Environmental impact of own operations, p.69		8	
302-4	Reduction of energy consumption	Environmental impact of own operations, p.69		8, 9	13
<b>303</b>	<b>Water and effluents (2018 Standard)</b>				
303-1	Interactions with water as a shared resource	Environmental impact of own operations, p.69-70		7, 8	
303-3	Water withdrawal by source	Environmental impact of own operations, p.70	Information about the amount of fresh water not available and water withdrawal not specified for areas with water stress.		
<b>304</b>	<b>Biodiversity</b>				
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Environmental impact of own operations, p.68			
304-2	Significant impacts of activities, products, and services on biodiversity	Sustainable technologies and innovations, p.33-34			13



GRI STANDARD	DESCRIPTION	DISCLOSURE OR LINK TO RELATED PAGE	COMMENT/ OMISSION	GLOBAL COMPACT PRINCIPLE	SDG
<b>305</b>	<b>Emissions</b>				
305-1	Direct (Scope 1) GHG emissions	Environmental impact of own operations, p.70		7, 8	
305-2	Energy indirect (Scope 2) GHG emissions	Environmental impact of own operations, p.70-71		7, 8	
305-3	Other indirect (Scope 3) GHG emissions	Environmental impact of own operations, p.71-72		7, 8	
305-4	GHG emissions intensity	Environmental impact of own operations, p.72		8	
305-7	Nitrogen oxides, sulfur oxides, and other significant air emissions	Environmental data, p.72	Only VOCs are reported as the other emissions are not relevant in our operations.	8	
<b>306</b>	<b>Effluents and waste</b>				
306-2	Waste by type and disposal method	Environmental impact of own operations, p.72		8	
306-3	Significant spills	Environmental impact of own operations, p.72		8	



# Independent Assurance Report – Outotec Sustainability Report 2019

## To the Management of Outotec Oyj

Ecobio Oy (hereafter Ecobio) has been commissioned by Outotec Oyj (hereafter Outotec) to perform a limited third-party assurance engagement regarding the content of Outotec’s Sustainability Report for 2019.

## Outotec’s Responsibility

Outotec was responsible for the collection, preparation and presentation of the information in the Sustainability Report (hereafter Sustainability Information) according to GRI Sustainability Reporting Standards (GRI Standards) set up by the Global Reporting Initiative (GRI). Ecobio, as an independent assessor was not involved in the data gathering and preparation of the Sustainability Information, apart from the Independent Assurance. The Management of Outotec has approved the information provided in the Sustainability Report.

## Practitioner’s Responsibility

Ecobio’s responsibility was to present a conclusion on the Sustainability Information subject to the assurance performed by Ecobio.

The scope of work included assurance of completeness and correctness of information presented by Outotec in the Sustainability Report 2019. The assurance engagement was limited to the non-financial performance data disclosed in the Sustainability Report for the reporting period of January 1st 2019 to December 31st 2019.

The Sustainability Information assured covered the Standard Disclosures in accordance with the core-level option, including the reported Environmental and Social Performance Indicators. In addition, the level of the consistency of the Economic Performance Indicators reported was checked against the GRI Standards.

Ecobio disclaims any liability or responsibility for any third-party decision based upon this assurance report.

## Methodology

Ecobio based the assurance process on the following guidelines and standards: the GRI Sustainability Reporting Standards, the International Standard on Assurance Engagements

(ISAE) 3000 (Revised) Assurance Engagements Other than Audits or Reviews of Historical Financial Information, and Outotec’s internal reporting guidelines. The assurance process was performed utilizing Ecobio’s internally developed GRI assurance tool, covering the principles, standard disclosures and indicators of the GRI Standards. The Standard Disclosures were assessed based on a sampling plan composed by Ecobio.

Concerning limited assurance engagement, the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained. This assurance engagement was conducted from November 2019 to February 2020. The assurance process included:

- Interviewing employees responsible for data collection and reporting at Outotec’s group level.
- Evaluating procedures for gathering, analyzing, and aggregating quantitative data for the Sustainability Report 2019 as well as performing cross-checks on a sample basis concerning the reported sustainability data.
- Checking the internal guidelines of the data collection.
- Checking the sufficiency of the documentation of the data gathering process.
- Checking the consistency of the Sustainability Report 2019 compared to the GRI Standards.

## Conclusions

Based on the work described in this report, nothing has come to our attention that would cause us to believe that the information presented in Outotec’s Sustainability Report 2019 is not fairly stated, in all material respects, or that it would not comply with the Reporting Criteria stated before.

## Practitioner’s Independence and qualifications

Ecobio is an independent consulting company that specializes in environmental, health and safety management with 30 years of history. Ecobio provides corporate sustainability and environmental consultancy services, combined with training, modelling, research and planning, for companies in the infrastructure, industry and service sectors. Ecobio’s assessors are skilled and experienced within non-financial assurance and have good knowledge of industry-related sustainability issues.

As an independent consultancy, Ecobio has no financial dependencies on Outotec beyond the scope of this engagement. Ecobio has conducted this assurance independently and objectively, and there has been no conflict of interest.

Helsinki, 2nd of March 2020

Ecobio Oy

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## Outotec

Outotec develops leading technologies and services for the sustainable use of Earth's natural resources. Our 4,000 top experts are driven by each customer's unique challenges across the world. Outotec's comprehensive offering creates the best value for our customers in the mining, metal, and chemical industries. Outotec shares are listed on NASDAQ Helsinki. [www.outotec.com](http://www.outotec.com)