

Sustainability review 2019

Outokumpu contributes to a more sustainable world by producing stainless steel – a material with superior durability, longevity and recyclability. But it is not only what we produce, but how we produce it.

Sustainability at Outokumpu

Outokumpu is a leading producer of sustainable stainless steel globally. The cornerstone of our business is enabling growth and innovation through sustainable stainless steel solutions to benefit modern society for generations to come.

Outokumpu is committed to carbon neutrality by 2050

During 2019, we took steps to further strengthen our sustainability agenda and our sustainability strategy was updated to reflect the growing importance of sustainability and the possibilities it offers to our business. Our sustainability strategy is based on three pillars:

- Climate
- Environment
- Society

Our product is at the very core of our sustainability strategy. Stainless steel is a superb material for sustainable solutions as it is 100% recyclable, efficient and long-lasting.

However, it is not only what we do, but also how we do it. We are the industry leader in sustainability as according to internal estimates our stainless steel has the lowest carbon footprint of the industry when taking into account all indirect emissions, including raw materials. We are committed to reach carbon neutrality by 2050. We also lead the industry in terms of contribution to the circular economy. The recycled steel content of our stainless steel is about 85% and we are continuously looking for ways to minimize our environmental impact.

Materiality analysis and global frameworks

To map our key sustainability topics, we conducted a materiality analysis in 2018. The analysis is reflected in our updated sustainability strategy. We maintain a continuous dialog with our key stakeholder groups – customers, employees, suppliers,



and investors – to follow emerging sustainability trends and topics within the stainless steel industry. Key topics discussed in 2019 include climate change mitigation with lower carbon footprint, improving energy efficiency, ensuring the safety, well-being, and development of our personnel and strengthening supply chain sustainability with further assessing environmental, social and governance compliance. Our strategy is aligned with global initiatives such as ResponsibleSteel.

We are committed to the United Nation's Sustainable Development Goals (SDGs) and our focus was realigned with the updated strategy during 2019. [We have selected six SDGs](#) that are the most relevant to us in terms of our contribution.

Principles and standards

Sustainability is integrated into all of our operations, activities, and decision making. Outokumpu's operations are guided by our Code of Conduct, Ethical Principles, Corporate Responsibility Policy, and Environment, Health & Safety and Quality Policy. We expect our business partners and suppliers to follow similar standards. All of our policies are available at outokumpu.com.

All of Outokumpu's sites are certified according to quality ISO 9001 and environment ISO 14001 management systems, including energy efficiency targets. The functioning of the systems is monitored by both internal and external audits. These management systems are used to implement sustainability issues on the local level. No fines or non-monetary sanctions occurred in 2019. ■

Sustainability performance in 2019

Outokumpu has set challenging goals and key sustainability performance indicators. The company also follows up and measures other selected economic, social and environmental indicators.

All sustainability figures are available on our sustainability data tool [↗](#)

Organizational health continues to improve

We achieved our target for the Organizational Health Index and improved our score toward the first quartile of the evaluation.

[More on our people ↗](#)

TARGET **>67%** / RESULT **71%**

Work-related injuries continued to decline

Our total recordable injury frequency rate (TRIFR, per million working hours) continued to decline and was 3.2 compared to 4.1 in 2018.

[More on safety and health ↗](#)

TARGET **<3.5** / RESULT **3.2**

Energy efficiency remained stable

Our target is to improve energy efficiency by 1% annually. It is reported as an improvement compared to the baseline 2007–2009.

[More on energy efficiency ↗](#)

TARGET 2020 **12.9%** / STATUS **6.0%**

No significant environmental incidents

Outokumpu's target is to have no significant environmental incidents, and the company has had no such incidents for many years.

[More on our environmental impact ↗](#)

TARGET **0** / RESULT **0**

Recycled content continued to be high

Our stainless steel contains the highest rate of recycled content in the industry. Recycled content includes steel scrap and recycled metals from other residuals.

[More on resource efficiency ↗](#)

TARGET 2020 **90%** / STATUS **89.6%**

Reduced CO₂ emissions intensity

Our long-term target is to reduce our CO₂ emissions by 20% by 2023 compared to the baseline of 2014–2016.

[More on our actions on climate change ↗](#)

TARGET 2023 **20%** / STATUS **13.8%**

Safety is our highest priority



Safety is our highest priority. Everyone who works or visits Outokumpu's premises – employees, customers, contractors, and other visitors – has the right to a safe and healthy working environment.

Safety is one of the cornerstones in Outokumpu's strategy. We believe that strong safety performance correlates with improved quality and operational efficiency. We aim to be among the industry leaders in safety with the vision of zero accidents.

Our safety management system supports us in striving toward this goal through various preventive activities. Safety audits are performed regularly at our production sites according to a standardized audit program. Our daily work is guided by common safety principles, standards, guidelines, and our ten Cardinal Safety Rules. Hazard observations and Safety Behavioral Observations (SBOs) are utilized to flag potential risks and unsafe behaviors before they lead to accidents. Lessons from past incidents are shared with other sites in the monthly Safety Call hosted by the CEO.

Preventive and positive safety culture

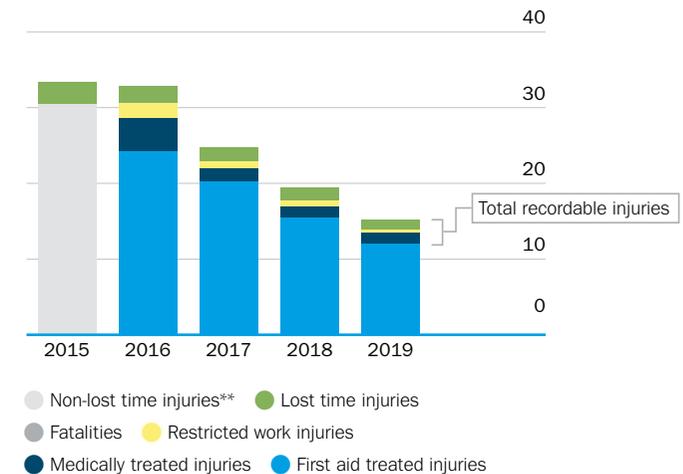
Strengthening our safety culture across the organization was one of our focus areas for 2019. The company-wide behavioral safety training program SafeStart has been executed at most of our sites with approximately two thirds of the employees having completed the training. The feedback questionnaire filled out by participants at the end of the training has given a good indication that the program has met expectations with positive feedback for the trainers who held the trainings. One site has received a Gold award from SafeStart organization as a result of the follow-up process.

In addition to the safety awareness training and the regular task and location specific safety education, a new e-learning course about risk assessments was launched to increase awareness and understanding of workplace hazards, risks and control measures.

As a part of building a positive and preventive safety culture, Outokumpu launched a global Safety Awards program in 2019. The initiative aims to encourage and recognize both individual employees and teams for their efforts to improve safety performance and culture.

The annual Safety Week was held in April with a continued focus on hand safety and preventing hand injuries as these types of accidents have still represented a high percentage of our accidents. In 2019, the theme was taken further by linking it with known high-risk areas in our production sites, combining hand safety with risk assessments – another safety priority.

Work-related injuries*



* Per 1 million working hours.

** Split between non-lost time injury types is not available before 2016.

Safety performance

Proactive safety actions and incidents were reported and monitored on a monthly basis. The definitions of safety performance indicators are based on international standards. Incident rates and the rate of proactive safety actions (leading indicators) were reported per million working hours.

Outokumpu uses total recordable injuries per million working hours of employees and contractors (TRIFR) as the main safety performance indicator. Group TRIFR declined from the previous year and was 3.2 against the target of <3.5 (2018: 4.1). Group LTIFR (lost time injuries per million working hours) was 1.4 against the target of <1.3 (2018: 1.7).

The rate of all work-related accidents (total recordable injuries and first aid treated injuries per million working hours) was 15.3 (2018: 19.5). Lost-day rate (more than one calendar day absence from the day after the accident per million working hours) was 63.2 (2018: 84.2).

Proactive safety action frequency was 3,810 (2018: 3,330). This includes reported near-misses, hazard observations, SBOs and other preventive safety actions per million working hours.

Work-related injuries by region, accident and employee type

	Group	Europe	Americas	Asia and rest of the world	Female	Male	Employees	Contractors
TRIFR ¹⁾	3.2	3.8	1.8	0.0	0.2	3.0	3.1	3.6
LTIFR ²⁾	1.4	1.7	0.6	0.0	0.1	1.3	1.6	0.9
Total recordable injuries ³⁾	75	64	11	0	4	71	56	19
Fatalities	0	0	0	0	0	0	0	0
Lost time injuries	33	29	4	0	2	31	28	5
Restricted work injuries	8	7	1	0	1	7	6	2
Medically treated injuries	34	28	6	0	1	33	22	12
Lost-day rate	63.2	68.4	50.5	0.0	0.9	62.3	53.6	37.6

¹⁾ Total recordable injury frequency includes fatalities, lost time injuries, restricted work injuries and medically treated injuries, per million working hours.

²⁾ Lost time injuries including fatalities and lost time injuries, per million working hours.

³⁾ Includes fatalities, lost time injuries, restricted work injuries and medically treated injuries.

Health and well-being

Good health and well-being of our personnel are essential values on their own. In addition, we believe that a healthy and thriving team of professionals is an asset to the company's success. We want all employees to return home healthy, safe and sound every day.

Outokumpu encourages its employees to take care of their physical health by offering various exercise benefits and discounts to sports and well-being services. Different health support programs are also run across our sites.

Regular health checks and other preventive medical care activities such as influenza immunization were carried out in many countries. Employees were offered screenings for common diseases, for example, in Germany for skin cancer and in the US for heart and vascular blockages.

In addition, occupational hygiene measurements are being carried out at Outokumpu sites to ensure a healthy working environment.

The number of occupational diseases diagnosed in the Group was 0 (2018: 0). Total absentee rate was 4.2% (2018: 4.2%). ■



Hands are not tools – success at reducing hand injuries

Since 2017, Outokumpu's site in Mexico has had a safety program aimed at reducing hand related injuries. The program started with releasing a Hands Off Policy that sets the rules and principles for hand safety at the site.

The policy was followed by a safety campaign, Hands are not tools, and several other initiatives. The program has proven to be a success: in two years, the number of hand injuries decreased from 21 to 2 in 2019. The key for achieving success with the campaign has been in the safety commitment at all levels as well as sharing best practices and emphasizing safe behaviors.



Organizational health continues to improve

We aspire to develop a high performing organization and make Outokumpu an even better place to work. We want our people to feel motivated, respected, and proud to be part of the Outokumpu team.



Improving our workplace and organizational health continued during 2019 with an emphasis on the selected focus areas: empowerment, role clarity, and inspirational leadership.

We measure and manage our organizational health in a consistent and comprehensive manner to succeed in the long-term as a high performing organization. To assess our strengths and improvement areas and to initiate the needed development efforts, Outokumpu conducts annually an Organizational Health Index, OHI survey.

Strategy and vision better connected to daily operations

As a tool, OHI survey connects the day-to-day behaviors and mindsets of employees to the company strategy. In 2019, our target was to improve our overall OHI score toward the first quartile of the evaluation. The Outokumpu team's participation in the OHI survey was once again outstanding and the overall response rate reached 87% (2018: 86%), which is exceptionally high for an industrial company. More than 17,000 individual open comments, recommendations, and opinions were given by employees at all levels of the organization. The engagement of our personnel to Outokumpu and to improving the company is shown in the active participation in our annual organizational health survey and in shared development initiatives.

Above all, our organizational health continued to improve. In three years, our OHI score has improved significantly, from 50 points in 2016 to 71 in 2019. The overall score for all of Outokumpu improved by 4 points, only 2 points from reaching the top quartile.

According to the OHI survey results, employees are now much more involved in continuous improvement activities. Outokumpu's strategy and vision are better connected to daily operations, and the sense of empowerment has increased among our employees. By supporting, challenging, involving, and inspiring employees, leadership is becoming more effective and visible. The relentless work in our shared development initiatives has resulted in this progress and the improvements demonstrate that we have taken the right actions to develop our organizational health, thereby making Outokumpu an even better place to work. After thorough analysis, we will initiate action planning and the necessary development activities.

Based on the survey results, we have identified that our key development areas for 2020 will remain similar as the previous year: leadership, role clarity, and empowerment.

Our people

During 2019, there were no significant changes to the total number of employees. The number of employees decreased by 59 globally. We started actions including personnel negotiations in Germany and business area Long Products to enhance the productivity and efficiency of our European operations.

In Europe, continuous collaboration with the personnel takes place in a joint consultative body, Personnel Forum, which is an information channel between our personnel and corporate management. Outokumpu is committed to informing and consulting its employees and their representatives to ensure a greater understanding of the company and the competitive situation in which we operate. The Personnel Forum discusses issues concerning transnational interests, such as financial performance, employment issues, reorganization, health and safety, and technology and research. In 2019, the Personnel Forum meeting focused on two main topics, safety and digital transformation. The forum has 33 representatives from European countries, elected according to the national legislation and local practices in each country. The forum appoints the Group Working Committee, which is responsible for the ongoing cooperation between management and employees. Eight members represent employees and three represent the management. In 2019, the Personnel Forum met once, and the Working Committee convened four times.

Outokumpu’s working hours, minimum notice periods, vacation times, wages, and other working conditions are consistent with the applicable local laws. Outokumpu maintains a consistent policy of freedom of association. All Outokumpu employees are free to join trade unions according to the local rules and regulations, and in 2019 altogether 79% of the Group’s employees were covered by collective agreements (2018: 80%). 5,424 days in 2019 were lost due to strikes (2018: 1,607).

Outokumpu’s Code of Conduct sets the way of operating in the Group, built on the equal treatment of all people: there is zero tolerance for any kind of discrimination, whether it is based on

ethnic origin, nationality, religion, political views, gender, sexual orientation, or age.

Our people by region

	2019	2018	2017
Germany	2,555	2,667	2,744
Finland	2,502	2,437	2,377
Sweden	1,975	1,940	1,619
The United Kingdom	560	571	538
Other Europe	727	698	624
Europe	8,319	8,313	7,902
The United States	1,064	1,072	1,077
Mexico	859	903	1,000
South America	87	86	85
Americas	2,010	2,061	2,162
Asia/Rest of the world	61	75	77
Group total	10,390	10,449	10,141

Organizational Development

As a High Performing Organization, we aim for a lean, simple, and flat organizational structure with clear roles and responsibilities creating a high level of individual accountability. Several actions and initiatives were ongoing during 2019 as we continued enhancing personal ownership, empowerment, and role clarity.

Enhancing the must-win battle High Performing Organization has encompassed various group functions preparing organizational process blueprints with the first implementation phase taking place in the first half of 2019. Well-defined role clarity has been in focus during the rollouts of the organizational blueprints and the business transformation program Chorus.

Implementation of the new HR organization was launched with the aim to create a shared employee experience across the organization. The new HR organization and service model emphasizes employee and manager empowerment and creates

consistent and standardized HR processes, common ways of working as well as improved efficiency and effectiveness through the better utilization of technology.

Capability building

In 2019, we had a strong focus on leadership as we improved our talent management and leadership development. In addition to leadership development programs, we are continuously improving day-to-day leadership skills, e.g. using calibration sessions to discuss and align to the performance management results.

During 2019, a specific emphasis was on supportive leadership behavior, and to advocate the change, our Leadership Excellence program was launched to the full extent in the first two locations, where all levels of managers were trained. To enhance the capabilities of our first line managers, the License to Lead training continued in several locations. In 2020, the program will be modified, as the Leadership Pipeline methodology will be implemented into the program.

To reinforce the implementation of the new HR organization and service model, a training program for all new roles in HR has been piloted and was being rolled-out. The role-based customized training program, HR Academy, supports role clarity and enables and empowers HR team members to perform their future roles by leveraging capabilities and creating a common mindset.

In addition, we revised our Sales Academy, piloting new modules. Other specific programs include Reliability Engineering Academy for operations and maintenance, and Digital Manufacturing Academy for IT enablement to prepare for digital manufacturing. Capability building has included multiple activities and training programs in the Manufacturing Excellence initiative. Several of our Black Belt level experts in Lean Six Sigma methods have been certified to assist in coaching and supporting our Green Belt community in delivering improvement projects.

Personnel

The implementation of the Chorus program also comprised extensive learning and training: over 1,600 employees were involved in the Chorus related training sessions. Furthermore, the SafeStart behavioral safety awareness program continued and spread to new locations. The global e-learning curriculum included safety related Risk Assessment course, compliance focused Knowing Your Business Partner course as well as Welcome to Outokumpu onboarding course for newcomers.

In total, over 84% of Outokumpu employees participated in training sessions and programs. Overall, the number of training and development days amounted to 18,004 (2018: 17,860) and 144,036 hours (2018: 142,845) during the year.

Developing global talent management

Our global talent management process is owned by the Outokumpu Leadership Team. During 2019, succession planning became more systematic, as better use of technology and our common HR platform PeopleDrive enabled the change and provided more efficiency.

Young talents and employees identified as potentials form the foundation of our talent base. We have intensive programs to develop these talent pools along with our graduate programs. Form your Future is an international development program for newly hired graduates that sets the basis for an international career growth in Outokumpu. We have continued building our development programs and Development Center events, where the individual strengths and development areas of each talent are identified. Young talents and high potentials are offered individual development plans for target-oriented and systematic development, and the aim is to assess the potential for positions at a higher level.

As part of the talent review process, Outokumpu builds succession plans for several levels of the organization, and the Excellerate program presents leadership development reviews and management audits. Moreover, our onboarding program has been upgraded and taken into use across the company to ensure a uniform onboarding experience.

Performance review process

Our aim for a high performing organization is enforced through active performance management, processes and systems for the whole organization.

Improving performance management has included access to participation in the performance management process to everyone, both production and administrative employees. Regular performance review discussions enhance role clarity in the organization and form an essential development tool. In 2019, 94% of production employees and 95% of administrative employees in applicable countries had a regular performance development discussion with their respective manager. In those countries where local contracts or regulations do not make it possible to have performance development discussions, Outokumpu follows the local procedures.

To ensure high performance for the whole organization, we are improving efficiency and effectivity through better utilization of technology. We have a common HR platform, PeopleDrive, which enables effective alignment of our HR processes. With our vision to become the best value creator in our industry for our employees, we aim to use this opportunity to create a common employee experience across the whole organization. In addition, development was ongoing in 2019 to enable the mobile use of PeopleDrive. The mobile PeopleDrive will improve user experience, transparency and on time delivery for both managers and employees.

In 2019, Outokumpu continued its efforts to increase alignment and transparency in remuneration topics by means of the wider use of its global HR system as well as updated policies and documentation in several remuneration areas and by providing further training to all managers. Outokumpu's remuneration principles and framework are largely unchanged from the previous year meaning incentive plans remained the same while salary increases were on a moderate market-based levels. The long-term incentive programs continue to focus on emphasizing shareholder value creation and ownership culture and to incentivize the achievement of the 2020 vision.



Establishing leadership excellence

With the extensive Leadership Excellence program, we are bringing leadership skills to a new level. The program was piloted at our locations in Tornio and Kemi and rolled out also in Avesta and Nyby, triggering development and leveraging team performance. Topics that leaders have started to practice during the program include how to create value in leadership roles and what the main responsibilities are in leading people: is the manager leading other individuals or other leaders. Empowerment is linked with the leadership development activities, incorporating the idea of helping others to succeed and gaining results through others. The new mindset generates more role clarity, well-being and tools to focus on adding value.



Focus areas for 2020

We strive to improve our organizational health further, as we want to offer our employees the best work environment. We will continue enhancing leadership, role clarity and empowerment. In 2020, our target is to move to the first quartile among the 1,700 other companies using the Organizational Health Index methodology.

Our professional training program will be aligned according to the future needs and qualifications and, furthermore, educating and increasing the competencies of employees continue as an essential part of capability development. For example, profiling the skillset of a future operator is linked with Digital Manufacturing program at our site in Tornio.

Our academy programs ensure that employees have the skills and knowledge to perform value adding tasks, and for example HR Academy and Sales Academy continue in 2020. To prepare for Digital Manufacturing, a program focused on IT enablement

will continue in 2020. In addition, Finance Academy is in preparation for 2020, and the QualityApplied program will be launched for operations and sales to raise awareness of the product quality requirements. In connection to creating the step-change in leadership, we will proceed in rolling out the Leadership Excellence program in 2020.

Our talent management will be developed further, e.g. by ensuring high potentials have the capability to develop into higher-level roles or more advanced work. Our talent pools are continuously reviewed and updated, and they produce the foundation for finding successors within the organization.

As planned, the transition toward the complete implementation of our new HR service model will last until the end of 2020. By that time, we will have implemented common processes, supported by the required technology, and we will have centralized, streamlined, and automated all of the process steps in scope.

We will continue to standardize our processes and improve PeopleDrive, which will allow managers and employees to complete more tasks efficiently by using the self-service options. For example, the execution of succession module in our common HR platform PeopleDrive will underpin our talent review process. In the coming 12 months, we will continue our HR digitalization journey and focus on delivering efficiency, transparency, standardization, and improved user experience.

To increase transparency and understanding, we have prepared a new compensations and benefits guideline to all managers and we will offer training on compensation and salary management processes, consisting of salary policy and incentives, for example. ■

Sustainability in the supply chain

Outokumpu is a part of a global supply chain by producing stainless steel for leading brands in demanding industries around the globe. Our customers expect us to provide a traceable supply chain and, therefore, we have in place stringent requirements on our suppliers, too.



Our customers require assurance that the materials for their applications are produced and procured in an ethical and responsible manner. We are one of the few companies in the stainless steel industry with an integrated production – covering the production from the mining of chromite and ferrochrome production to the melting, hot rolling, cold rolling, and finishing of stainless steel.

Our most important raw material is recycled steel, which originates mainly from Europe and the US where our melt shops are located. The main alloying element, chromium, originates from our own chromium mine that differentiates us from our competitors. Our mine in Kemi, Finland is the only chromium mine in the EU and we produce ferrochrome for all our steel melt shops.

We place stringent requirements on ourselves and our suppliers

As our customers require a lot from us, we place the most stringent requirements on ourselves, and require the same from our suppliers. All suppliers and subcontractors are expected to comply with our Code of Conduct or similar standards and meet our supplier requirements, which require our suppliers to act according to the applicable laws and regulations, maintain a quality management system, sign general terms and conditions, and be able to clearly define, document, and share their supply and production control processes including material traceability.

We assess our new and existing suppliers and if there is evidence of any kind of violation of our requirements, the

suppliers are requested to provide an improvement plan and evidence of improvement. If the situation continues without progress, Outokumpu will discontinue purchasing from the supplier. There were no cases of restricting supply in 2019. Outokumpu has declined business opportunities in cases where it has been established that the business partner is not following our Code of Conduct.

Outokumpu monitors its suppliers through self-assessment, screenings, and audits. Most of the suppliers are going through a monthly compliance screening for sanctions. In 2019, 11 suppliers were invited for a self-assessment and 11 suppliers were audited on site. The suppliers audited on-site were partially the same suppliers who participated in the self-assessment. As a result, improvement opportunities and improvement requirements were identified and communicated to the suppliers. The supplier assessment is based on Outokumpu's supplier requirements and focused to evaluate suppliers' social and environmental responsibility, safety and quality management.

Global supply chain

In 2019, Outokumpu had over 9,000 suppliers. Vast majority (93%) of the suppliers are located in Finland, Germany, Sweden, the UK, the US, and Mexico, where Outokumpu has its production units. In those locations where we have significant production sites, the proportion of spending on local suppliers was on level of 80%–90%*. There were no major changes in the

* Figure not comparable with 2018 as definition of local supplier has changed.

Responsible supplier

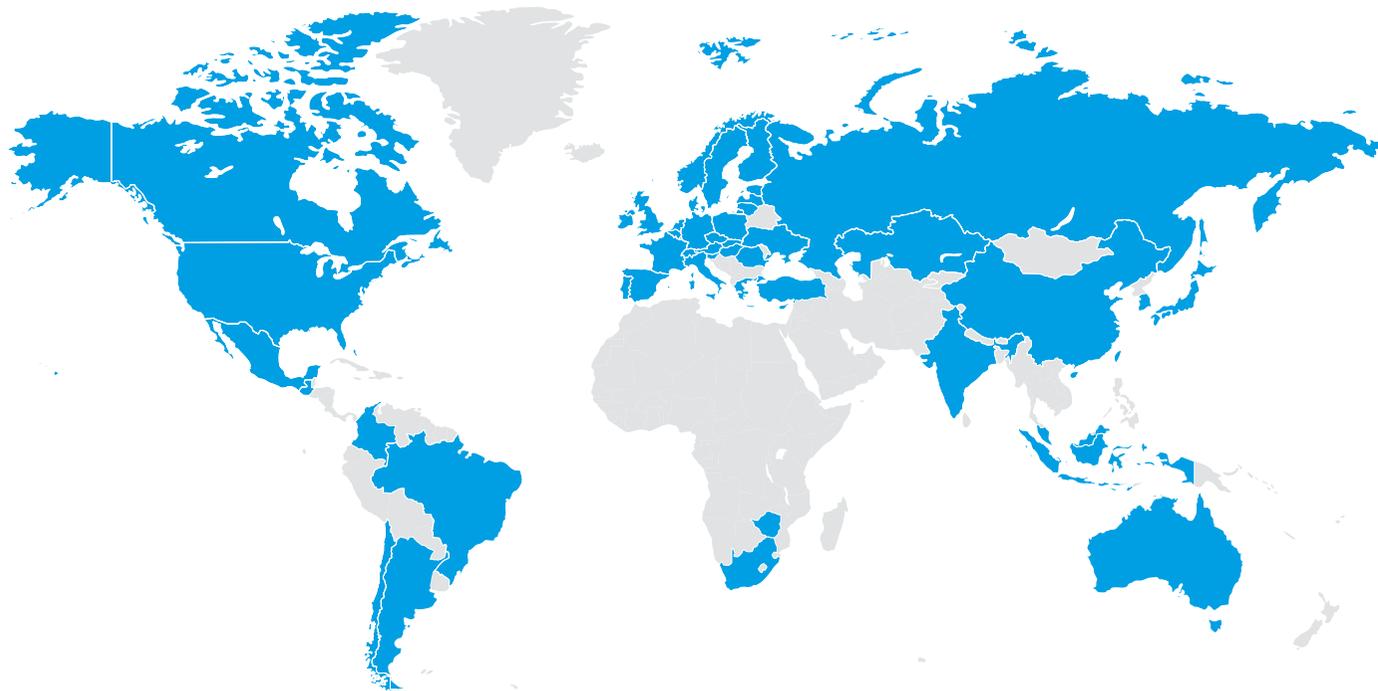
supplier base during the year. Some purchase volumes between the raw materials suppliers shifted, but no new major suppliers were introduced.

We take into account the OECD Due Diligence Guidance for Responsible Supply Chain. In 2019, we screened our direct material suppliers on the environmental, social, and governance (ESG) risks in countries of origin. The ESG country risk assessment was based on the following seven criteria:

regulatory quality, rule of law and corruption from the World Bank, Environmental Performance Index, conflict minerals, child labor, and forced labor. The top 20 suppliers cover 80% of the total direct material spending. Six suppliers out of this group are located in countries with ESG risks. Those were requested for a self-assessment and all of the requested companies replied. Analysis of self-assessment showed that no ESG risk was taken up in the answers. In 2020, we will start to audit the top 20 suppliers also under ESG criteria.

Environmentally sustainable transportation

Outokumpu's target is to transport as much of our products by rail and ship as possible. Our mills have various programs and targets to make transportation more environmentally friendly. In 2019, the total transport emissions decreased by about 17% mainly due to production decrease. ■



Material and service suppliers

● Outokumpu supplier countries, including the most important supplier countries with purchases of more than 50,000 euros.

Mitigating climate change with stainless steel

Stainless steel helps to mitigate climate change. It is fully recyclable, efficient, and long-lasting. In addition to offering solutions for low carbon society, we work continuously to reduce our carbon profile.



During 2019, we revised environmental product declarations (EPDs) on our main products with life-cycle inventory data, making it possible for our customers to calculate sustainability performance over their products' life cycle. EPDs are standardized and verified externally.

Where do our emissions come from?

The greenhouse gas emissions from Outokumpu operations are limited to CO₂ emissions. These emissions come directly from production (scope 1), indirectly from the use of electricity (scope 2) and mainly from upstream emissions from the use of materials (scope 3).

Direct emissions originate from the carbon content of our raw materials and from the use of fuels. Indirect emissions are caused by the use of electricity. These emissions are followed by market-based emission factors from suppliers of Outokumpu's electricity mix. Electricity emissions are also published as [location-based emissions](#) .

Other indirect emissions for steel productions are mainly upstream emissions of material use such as ferroalloys (except ferrochrome which is included in direct and indirect emissions of scope 1 and 2) as well as lime and dolomite, transportation and to a lesser extent from some other scope 3 emissions. At the moment, there are no estimation methods for the complex downstream emissions of stainless steel available. Case studies from consultants indicate CO₂_{eq.} net savings of steel use from life cycle assessment.

Towards lower company footprint

Our total company carbon footprint, including upstream emissions, is the lowest in the industry according to internal estimates. We continuously strive to make our operations more energy efficient and to maximize the use of low carbon electricity in our operations. Increasing the recycled content of our products and improving resource efficiency are also factors in reaching even lower CO₂_{eq.} emissions and reducing upstream emissions.

In 2019, the total specific CO₂_{eq.} emissions were reduced by 13.8% compared to baseline 2014–2016. Scope 3 emissions could be reduced by higher recycling. Ferrochrome production increased and we sold more ferrochrome outside the company compared to 2018. The emissions allocated to sold ferrochrome were not included in the target report for the stainless steel.

In 2019, Outokumpu consumed overall 28,254 TJ of primary fuels and electricity decreasing by 4% due to lower stainless steel production. However, the intensity figure increased by 7% to 10.9 GJ per ton steel due to increased ferrochrome production. [See all data on CO₂ emissions](#) .

Our climate targets are science-based

Outokumpu is committed to the Science Based Targets initiative. The initiative considers companies' greenhouse gas reduction targets science-based if they are in line with the level of decarbonization required to keep global temperature

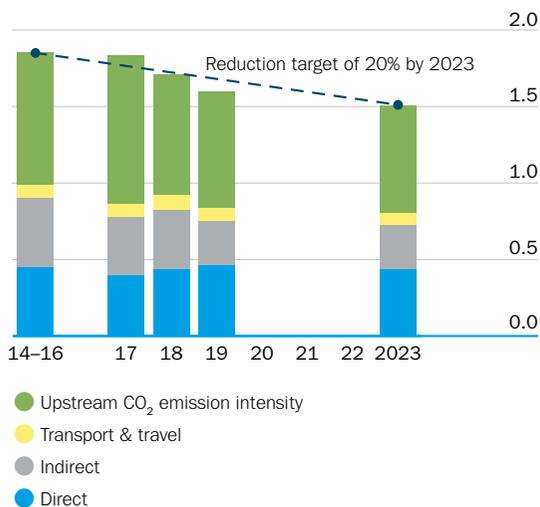
Environment

increase well below 2°C compared to the pre-industrial temperature.

Our target is to reduce scope 1, 2, and 3 greenhouse gas emissions by 20% per tonne of stainless steel by 2023 from a 2014–2016 base-period. The baseline of the three years was chosen to get the most recent baseline after the restructuring of the company and to avoid influence of yearly fluctuations. Emission intensity refers to emissions per tonne of produced steel.

Target for Science Based Target criteria

Outokumpu's CO₂ eq. emission intensity, tonnes of CO₂ eq. per tonne steel



We also follow the 2°C scenario convergence criteria of steel industry's decarbonization approach: to reduce emission intensity to 0.92 t CO₂ per tonne of crude steel by 2050. Specific electricity emissions follow the electricity decarbonization approach, where the specific emission reduction target is 95% by 2050.

In 2019, as a part of the new sustainability strategy, a new working group was created to prepare steps for long-term carbon reduction to achieve carbon neutrality in 2050. Electric arc furnace is the best available technique for stainless steel production. Emission reduction comes from further energy efficiency strain, increasing recycling and transitioning to carbon neutral electricity. For ferrochrome, Outokumpu is conducting research on new low carbon technologies. Our processes are already connected with the lowest CO₂ eq. emissions as we have an integrated site using ferrochrome in a liquid phase and using process gas to replace primary fuels.

Opportunities of a low-carbon society

Climate change is one of the three megatrends driving our business. The life cycle of a stainless steel solution can have a lower climate impact compared to carbon steel, for example. As stainless steel is corrosion resistant and a long-lasting material, it stands out in many applications of renewable energy production such as in high temperature power plants, solar farms, and biofuel plants. This growing market in the transition to a low-carbon society gives Outokumpu the opportunity to increase the revenue.

Emissions trading and fair competition

80% of Outokumpu's all direct emissions fall under the European Union Emissions Trading Scheme (ETS). The total phase allocation of 2012–2020 will be sufficient for the rest of the trading period, although individual plants are in deficit. Total free allocation for 2019 was below emissions.

The ETS is continuing by the third trading period 2013–2020 remaining to receive free emissions allocations according to efficiency-based benchmarks and historical activity. The main risk of the emissions trading system to Outokumpu involves the pass-through costs of allowances to the electricity price, reduction of electricity price compensations and of free allocation. Outokumpu collaborates with industry associations to mitigate the risks.

The next trading phase from 2020–2030 will continue with the general rules. Outokumpu will need to buy allowances and use some surplus allocations available from production decrease in the past and fall in short position as the product benchmark significantly reduces. Electricity and allowance prices are expected to increase. Read about risks related to emissions trading in Key risks section. The EU Emissions Trading Scheme does not take into account the product life span. This is misleading for metal and steel products because they decrease CO₂ eq. emissions during their life span more than their production phase causes. ■

Focus on energy efficiency improvements



Outokumpu's operations are energy intensive. For the recycled steel to melt, it is heated to over 1,400°C. The process requires a high amount of electricity as the best available technique for melting recycled steel is to use electric arc furnaces.

Outokumpu is continuously striving to make its production operations more energy efficient and minimize its environmental impacts. Although the melting of recycled steel and the production of stainless steel consume a lot of energy, stainless steel enables energy efficient solutions from a life-cycle perspective by saving energy during its use phase.

Our target is to improve the energy efficiency of our operations by 1% each year until 2020. In 2019, our energy efficiency was affected by low production volumes. Our improvement of energy

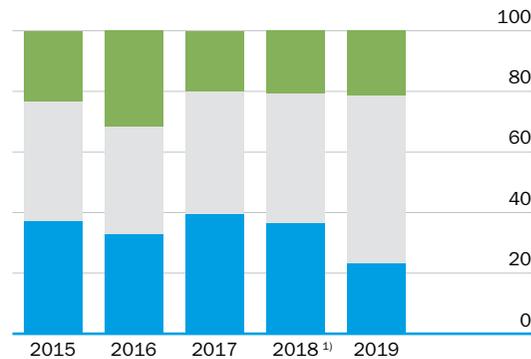
efficiency calculated as a sum of different process steps was 6.0% compared to the baseline 2007–2009. This was below our target, but it corresponds to a yearly saving of 0.55 million MWh in 2019.

Yield optimization improves energy efficiency

The biggest energy-saving potential lies in the optimization of yield. Yield refers to how much sellable product we can make of the metal raw materials inserted in the process. Energy reduction and efficiency plans are included in environmental management systems at all our sites. Over the past years, we have been able to improve our overall energy efficiency by reorganizing production sites, optimizing our internal supply chain and increasing our capacity utilization globally. During 2019, energy efficiency projects and improvements were discussed and reported in an internal working group.

As energy sources, we use natural gas, propane, or some other fuels, such as diesel. Fossil fuels cover about 80% of our total fuel consumption. Outokumpu does not consume renewable fuels in production processes but we utilize our own recovered carbon monoxide process gas with 20% of our total fuel. Process gases and waste heat are also used to heat buildings on sites.

Origin of electricity, %



- Renewable sources
- Nuclear
- Fossiles

¹⁾ Includes electricity mix of Mexico for the first time.

Environment

Toward low-carbon electricity

Outokumpu has centralized energy procurement in order to secure sufficient energy supply, to ensure predictable, competitive, and stable energy prices, and to optimize the energy portfolio also on low-carbon electricity.

Outokumpu participates in several programs that promote the use of low-carbon electricity such as wind power, hydropower, combined heat and power as well as nuclear power. For example, the combined heat and power plant in Tornio produces heat for the Tornio site out of recovered process gases, and in Dahlerbrück, Germany, we have our own hydro power plant to generate some 10% of the electricity needed in the production. Outokumpu is a shareholder in a wind power park in Tornio, in a hydro-power plant in Norway and in a new nuclear power plant project in Finland. In 2019, 77% of our electricity sources came from low-carbon (renewable and nuclear) sources (2018: 64%). We succeeded to increase the level of low-carbon electricity as we have allocated higher nuclear power to the Finnish electricity supply. See more details in the data tool.

Energy used in operations

Terajoules, TJ	2019	2018	2017
Electricity	16,167	17,189	16,325
Carbon monoxide gas	2,412	2,275	2,003
Natural gas	6,983	4,623	4,241
Propane	2,024	4,754	5,016
Diesel, light and heavy fuel oil	688	662	580
Energy	28,254	29,502	28,164

Energy use in GJ per tonne crude steel	10.9	10.1	9.3
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Data includes the acquired site in Fagersta, Sweden for July–December 2018.

In 2019, our site in Tornio fully transitioned to use LNG instead of propane in production. During 2019, the use of LNG reduced Tornio site's CO₂ eq. emissions by 4% compared to corresponding propane emissions. Natural gas has already been in use at our sites in Germany, Mexico, the US, and the UK. Compared to propane, LNG has also lower and more stable prices improving our cost-competitiveness. ■



New LNG terminal inaugurated

The new LNG terminal in Tornio is operated by Manga LNG, a joint venture by Outokumpu, EPV Energy, SSAB Europe, and Skangas. The terminal is the largest LNG terminal in the Nordic countries and the second LNG terminal operating in Finland. Overall, liquefied natural gas is an environmentally friendly fuel that can replace petroleum-based fuels in industry, energy production and heavy transport, and it can help reduce shipping emissions as it meets the Sulphur Directive regulations. Outokumpu's Tornio site's emissions can be reduced by approximately 4% due to transition to LNG.

Operating at the heart of the circular economy

We operate at the core of the circular economy as we use high amounts of recycled materials and at the end of its life-cycle stainless steel is endlessly recyclable without any loss of quality.



In fact, our stainless steel mills are significant recycling facilities, producing new products out of recycled steel, recovering and recycling everything reasonable in our production, and finally selling by-products from the manufacturing process to replace natural resources.

High recycled content

Recycled steel from both stainless and carbon steel is our most important raw material. The steel recycled content according to ISO 14021 was 85%. This includes pre- and post-consumer scrap. Including the use of recycled metal from our waste streams, the recycled content of our products was 89.6% in 2019.

One key factor in reaching such a high level of recycled content is the recovery and recycling of metals from the production processes, e.g. from dust. Dust is either treated on site or by an external facility for recycling in our melt shops.

In addition to metals, other raw materials, such as slag formers, acids, and gases, are needed in the production process although they do not become part of the stainless steel products. Some of these input materials are needed to minimize or prevent emissions to the environment. As far as reasonable, these are also recovered and recycled in the process. For instance, used acids are continuously regenerated for reuse and hydrogen from bright annealing process are recovered in the incineration of the process furnace.

Total waste

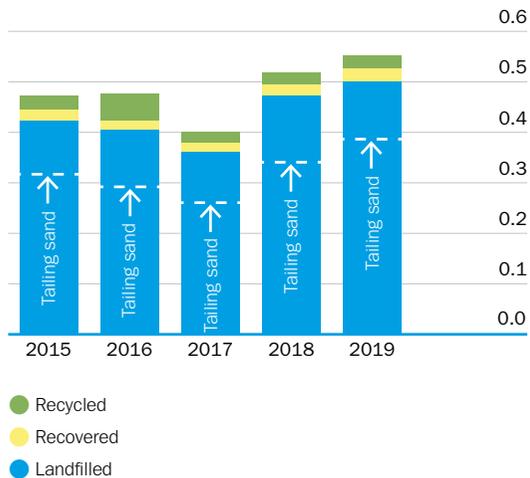
Tonnes	2019	2018	2017
Total non-hazardous waste	281,646	356,230	289,502
Recycled	49,227	52,736	50,972
Recovery	17,138	19,256	11,875
Landfilled	215,281	284,239	226,655
Total hazardous waste	146,765	163,555	144,621
Recycled	12,988	15,414	14,506
Recovery	53,252	47,700	41,171
Landfilled	80,525	100,442	88,939
Tailing sands	1,006,590	991,391	784,585

Aim to reach zero waste to landfill

Our approach to reaching zero waste is twofold: we aim to reduce the total volume of landfill waste from our own operations and increase the proportion of materials sold as by-products.

The biggest waste items at Outokumpu are slag that are not used, tailing sand from the mining operation and sludges, dust and scales from the stainless steel production. While waste is recycled whenever possible in our own production, our production still generates landfill waste. We strive further to reduce this, and our long-term goal is to generate zero landfill waste. In 2019, the total amount of waste from stainless steel production was 0.43 million tonnes and the landfilled waste decreased to 0.3 million tonnes (2018: 0.38) as production decreased.

Total waste development, tonnes per tonne steel



The amount of tailing sands from the mining operation increased in 2019 compared to the previous year, as the production of chrome concentrate increased, and the ore quality changed. 14.5% of waste from stainless steel production was recycled and 16.4% recovered. Other recovered material like lime, bricks, and some sludges were mostly used in our melting shops to substitute virgin additive materials like slag formers. Tailing sand is deposited in the pond of mining area itself.

[Total waste development](#)

Turning slag into by-products

Outokumpu sold or used 1.4 million tonnes of slag as the main by-product of operations. Slag is essential material in the steel melting process, and it is made from limestone or other natural minerals.

Outokumpu has developed slag-based mineral products for road construction, refractory, and concrete production, and for water treatment. The use of our slag by-products reduces the amount of waste, saves virgin materials, and leads to lower CO₂ eq. emissions. For example, in road construction, slag use is an environmentally and economically sustainable solution.

In 2019, the use rate (including use, recovery, and recycling) of all slag was 90.6%. The remaining 300,000 tonnes of slag were sent to landfill. The use rate depends on the local market for construction materials and on the acceptance of secondary material instead of virgin materials.



New slag furnace in Tornio could improve resource efficiency

In September, Outokumpu announced it is assessing options to build a new slag furnace in Tornio, Finland. The planned unique production facility would produce ferrochrome-nickel (FeCrNi) alloy from slag and side streams primarily from production processes. The slag furnace would enable efficient utilization of various side streams, which would improve resource efficiency of Outokumpu's production significantly. The new slag furnace would be the most energy-efficient ferrochrome-nickel alloy producer in the world, as energy consumption in the new facility would be 30 percent lower than in the current ferrochrome production processes enabled by the new metallurgical process invented by Outokumpu. Furthermore, the new facility would strengthen Outokumpu's competitiveness in the global ferrochrome market.

Minimizing environmental impacts

We aim to reduce our impact on the environment by proactively developing our production processes, energy and material efficiency, and solutions for the by-products from our operations.



The biggest environmental impacts of stainless steel production are dust emissions into the air, water discharges from production, use of direct and indirect energy, and the waste created in the production process.

Dust emissions at low levels

Steel melting and rolling processes generate dust and scales that are collected, treated and, whenever possible, recycled in our own production. For example, raw material metals (chromium, nickel and molybdenum) are recovered from dust, sludges and scales through specialist recovery plant.

Our dust filtering systems are extremely efficient and remove 99% of the particles. The measured particle emissions from all of our production processes were 266 tonnes in 2019 (388 tonnes). The majority of particles were emitted from the ferrochrome production process at 130 tonnes (313 tonnes). However, emission measurement campaign results in this process include high uncertainty causing remarkable fluctuation in results year by year. The level of dust emissions from the melt shops is well within the limits of environmental permits. No significant further reduction is expected.

As our main raw material is recycled steel, we take all possible precautionary measures to check the input material for any unwanted content, such as mercury and radioactive contaminated material. In 2019, there were four incidents involving radioactivity. All incidents were dealt in accordance with authority guidance and did not cause exposure. We work together with our suppliers to decrease the amount of

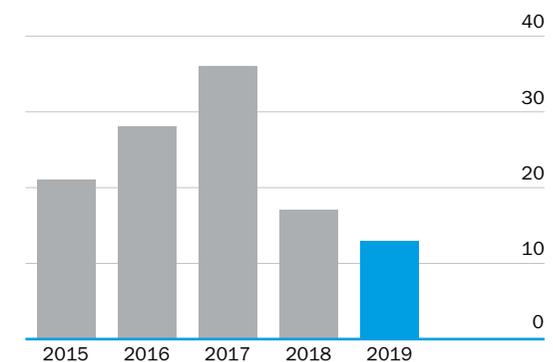
unwanted materials in our production processes. All input material, the liquid steel and waste gas of melting process, is controlled regarding radioactive contamination.

Water is reused in production

Water is used in our production process in annealing, pickling, and cooling. The withdrawal of water is metered and rainwater is estimated by average rainfall and the surface of used rainwater. It is treated and recycled as much as possible, and only some is discharged to the municipal wastewater system.

All wastewater is treated in the company's own treatment plants or in municipal water treatment systems before it

Steel melt shop particle emissions, grams/t



Environment

is discharged. The main discharges into water are metals and nitrates. The discharge is measured and supervised by authorities. Wastewater treatment depends on the contamination of the wastewater. The water is treated directly in the water circle at the process step and/or before discharge. According to the needs, treatments are oil skimming, neutralization, flocculation, and sedimentation to extract metals and, when necessary, a Cr(VI) reduction process. Nitrate is often treated in the municipal water treatment to reduce discharge. In these cases, the steel allocated discharge cannot be monitored. Water impact is managed by the municipal treatment operators.

Water used in the production is mainly surface water. In 2019, the withdrawal of water increased as a full year reporting of the

Water withdrawal and discharges

Million m ³	2019	2018	2017
Surface water	45.4	44.6	38.2
Municipal water	1.2	1.4	1.2
Groundwater	2.4	2.5	1.2 ¹⁾
Rainwater	1.8	1.2	2.4 ¹⁾
Water withdrawal by source	50.7	49.7	43.1

Water discharges by type and destination

Cooling water out	13.7	13.4	12.5
Wastewater out	22.4	23.4	20.5
Discharge to surface water	21.1	22.2	19.2

Emissions to water

Metal discharges to water, tonnes	34	25	24
Nitrogen in nitrates, tonnes ²⁾	1,046	1,443	1,308

¹⁾ Refined reporting on mining water resulted in change from rainwater to groundwater in 2018.

²⁾ Data restated to give the discharged nitrate. Part of the nitrates are treated in a municipal treatment plant.

Swedish site Fagersta is included. Impact of water withdrawal is evaluated at sites where river water is used, and data of the river water is available. The impact was screened by the percentage of withdrawn water compared to the river flow on a yearly base in 2017. All of the sites resulted in no impact on the river and that means the withdrawal was below 5%. In 2019, the assessment was revised for one site and resulted in no impact. In addition, our site in Avesta, Sweden conducted a water impact study on the river. Analysis of results are still ongoing.

Outokumpu operates a cold rolling mill in San Luis Potosí, Mexico, in a dry, arid area, where groundwater is a scarce resource for people. The water withdrawal of this site is 0.5% of Outokumpu's total water withdrawal. Water recycling and treatment at this site are especially ambitious to minimize the groundwater impact.

Impacts of the mining operation are limited

Outokumpu operates a chrome mine in Kemi, Finland. We are a member of The Finnish Network for Sustainable Mining and Kemi mine is committed to the Finnish sustainability standard for mining.

The environmental impacts of the mine are very limited due to the nature of the process. The minerals are in oxide form and very stable with only minimal amount of sulfur compounds. Chemicals are not used in the beneficiation process, which is based on gravity separation. Kemi mine is almost self-sufficient with water as it recycles water on site and collects rainwater. Underground mine takes drilling water from old open pits (rainwater) and drilling water is also recycled inside the underground mining process. All dewatering from mine is pumped to the closed circuit of the tailings site and concentrator plant on surface level. Furthermore, a significant amount of rain and snow melting waters are collected to the process. Kemi mine is discharging 2,000,000 m³ waters from area whereas the water intake from municipal supply is only 30,000 m³.

During 2018–2021, Kemi mine is carrying out a Deep Mine project to increase the resource efficiency of the mine. The project is about the depth extension and building underground mine infrastructure from 500-level to 1,000-level below surface. Due to the expansion, there has been more use of explosives and quarrying in 2019 than on average. The area of the mine site has not been expanded.

The biggest impact on environment from the mine is nitrates in the discharge water which originate from explosives. However, the amount of nitrates is reduced by natural processes in the internal water recycling system of the mine site. Another environmental aspect is chlorites from underground mine water which originates from natural geological formations. Land use of mining is limited to the existing mining area as mining is underground. Tailing sand is deposited in tailing ponds of the mine area which will be landscaped as forest when full.

Biodiversity

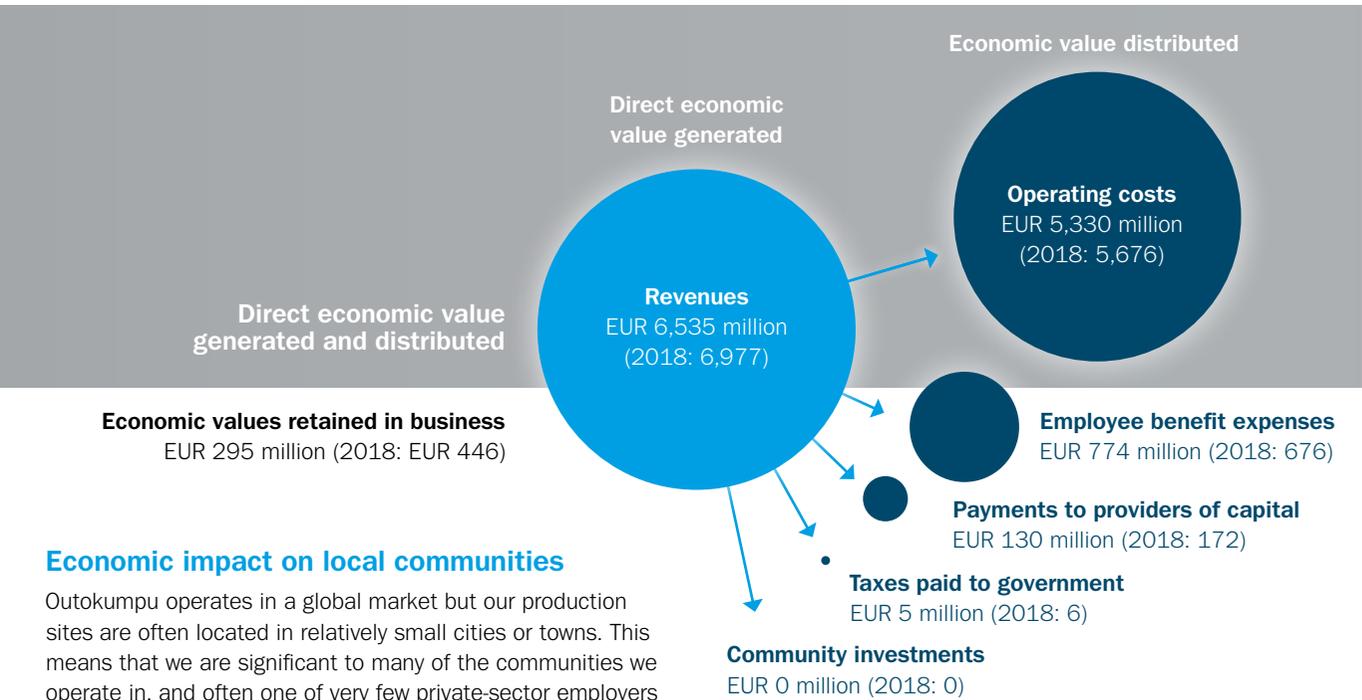
The production of stainless steel does not occupy or reserve large areas of land or have a significant effect on the biodiversity of the surrounding natural environment. Outokumpu's production sites are not located in sensitive areas. However, Outokumpu has identified areas of high biodiversity value that are owned by the company or adjacent to our sites in Calvert, Alabama in the US, Dahlerbrück, Germany and in Kemi and Tornio, Finland. These sites count for 80% of total owned land. There is no negative impact on the mentioned sensitive areas according to impact studies.

Site	Area in km ²	Percentage
Calvert, US	4.69	18.8%
Dahlerbrück, Germany	0.063	0.3%
Kemi, Finland	9.16	36.7%
Tornio, Finland	6	24.0%
Total		79.7%

Outokumpu regularly monitors the environment of its production sites. Areas once utilized by production are remediated for further use. [More information on biodiversity on our website.](#) 

Outokumpu and society

Our operations have impacts on the local, national, and global communities in which we operate. We contribute to the well-being of the communities we operate in through the economic impact and other ways of community involvement.



Economic impact on local communities

Outokumpu operates in a global market but our production sites are often located in relatively small cities or towns. This means that we are significant to many of the communities we operate in, and often one of very few private-sector employers in the area. We recognize that our decisions might have a major impact on communities, our personnel as well as local suppliers and service providers.

Our main areas of direct economic impact are our financial interactions with customers, suppliers, employees, the public sector, investors, and shareholders. [See taxes by country in our sustainability data tool.](#)

We maintain continuous cooperation with community officials and representatives, other companies, schools, and universities. Every year, there are numerous local engagement projects at our production sites. Typically, sites have yearly discussions with local community representatives on relevant topics such as employment, the environment, energy, or sponsoring of local events.

Outokumpu also organizes open-door events at its production sites for neighbors and families of our employees. In 2019, we organized Family Day events at several sites gathering thousands of attendees.

As part of their community engagement, some Outokumpu sites also continued their dialogue with environmental NGOs related to ongoing permit processes or other environmental issues. In 2019, Outokumpu initiated an Environmental Impact Assessment in Tornio, Finland, regarding a possible investment in a new slag furnace.

Public sector and sponsoring

In sponsorships, Outokumpu prioritizes connections to stainless steel, sustainability, talent, and education. Locally Outokumpu has sponsored, for example, artworks by donating stainless steel, significant local projects, and sports associations.

During 2019, Outokumpu sponsored over 100 local projects as a part of a social responsibility campaign set up to celebrate the remarkable response rate of 86% in our organizational health survey. Employees were invited to nominate local projects for sponsorships.

Outokumpu and society

We support research related to our field of industry and maintain close cooperation with educational institutes. Apprenticeships have been offered to local colleges and student placements have been made available in the form of one-year programs.

Associations and public affairs

Outokumpu is a signatory to the International Chamber of Commerce (ICC) charter and the United Nations Global Compact. Outokumpu has signed the World Steel Association's Sustainable Development Charter and the ISSF's Sustainable Stainless Charter. In 2019, Outokumpu joined ResponsibleSteel which is a global standard and certification initiative for the steel industry. Our total spending on association memberships is around EUR 2 million.

Outokumpu is a member of several international organizations and provides relevant information to decision-makers and experts relating to the development of the business environment and legislation. The Group also participates in the work of trade organizations. Our public affairs approach is to communicate via industrial associations like Eurofer toward governing bodies and regulators. See the list of our memberships on our website.

Compliance

Outokumpu is strongly committed to legal compliance and an ethical way of conducting business. Outokumpu's Code of Conduct sets out these ethical standards and provides guidelines for a common way of working. The objective of Outokumpu's compliance program is to ensure that Outokumpu and its employees comply with laws, regulations as well as Outokumpu's internal policies and instructions. The program also aims to mitigate compliance risks by a set of preventive and supervisory measures.

Raising awareness of and training on the Code of Conduct and its topics are central elements of the program. Anti-corruption and competition law compliance are important parts of this. Outokumpu's Code of Conduct sets zero tolerance for corrupt

practices and requires compliance with applicable competition laws. Outokumpu has also an Anti-Corruption Instruction providing more detailed guidance on responsible business practices. In 2019, Outokumpu issued a Know Your Business Partner Instruction detailing the principles and rules related to establishing and monitoring relationships with business partners and managing related risks.

Outokumpu regularly communicates on compliance related topics internally and trains employees both through e-learning and face-to-face trainings. E-learning courses in 2019 included a Knowing Your Business Partner e-learning, a re-issue of the Competition law compliance e-learning and an e-learning on competition law compliance in trade associations. The Knowing Your Business Partner e-learning, mandatory for all administrative employees, achieved a completion rate of 96%. The Competition law compliance e-learning achieved a completion rate of 97% and the e-learning on competition law compliance in trade associations achieved a completion rate of 96%. Furthermore, The Code of Conduct e-learning issued in 2018 for blue-collar employees was trained site by site in 2019 with last sites to be completed in 2020. Compliance efforts in 2019 also included continuous targeted trainings on selected compliance topics.

In 2019, compliance communication was implemented through different channels on various topics, including data protection (EU GDPR), fair competition practices and compliance with internal policies and instructions. In 2019, within the area of trade compliance, Outokumpu developed further its business partner onboarding, screening and monitoring processes, including the risk-based approach to control and mitigate third party risks to ensure compliance with sanctions regulations, anti-money laundering laws and other relevant regulations.

Compliance risks, including risks related to corruption, are assessed and reviewed annually and described in the Corporate Governance statement 2019 and Key risks section in our Annual report. More information regarding our misconduct reporting in our BoD review, Corporate Governance statement and website. ■



Supporting employees in their community activities

As part of our social responsibility, Outokumpu designed a global project to support our employees in their community activities in 2019. To celebrate the remarkable response rate in the previous Organizational Health Index (OHI) survey, Outokumpu sponsored altogether 140 projects, which our employees were actively involved in. The diverse voluntary projects in our neighboring communities included charitable organization projects, community projects, and local voluntary initiatives, e.g. replacing batteries in fire alarms in Torshälla, Sweden, supporting group of volunteers knitting woolen socks for the elderly in Tornio, Finland and partnering with the community to support public art in Mobile, Alabama.

Scope of the report

Outokumpu has published its sustainability review as part of the Annual Report 2019. Sustainability information is also available at www.outokumpu.com/sustainability.

Outokumpu reports on the material developments of continuing sites and changes in 2019 as part of the Annual Report. The reported data includes all continuing sites. Additional information is published on the company's website. The Annual Report 2019, including Sustainability Review, was published in February 2020.

Outokumpu's report has been prepared in accordance with the GRI Standards: Core option according to the GRI Standards reporting requirements. The materiality assessment from 2018 and continuous communication with stakeholders were the basis for the decision on material topics and relevant disclosures.

[Full GRI disclosure](#) 

The independent practitioner's assurance report on the limited assurance conclusion is available on page 24 in the Sustainability review. The Financial Statements 2019 have been audited, and the auditor's report is available on page xx in the Review by the Board of Directors and Financial statements section.

Measurement and estimation methods

Economic responsibility

Most figures relating to economic responsibility presented in this report are based on the consolidated financial statements issued by the Outokumpu Group and collected through Outokumpu's internal consolidation system. Financial data has been prepared in accordance with International Financial

Reporting Standards (IFRS). Outokumpu's accounting principles for the Group's consolidated financial statements are available in note 2 to the consolidated financial statements.

All financial figures presented have been rounded, and consequently the sum of individual figures may deviate from the presented aggregate figure. Key figures have been calculated using exact figures. Using the GRI guidelines as a basis, economic responsibility figures have been calculated as follows:

Direct economic value generated

Direct economic value generated includes all revenues received by Outokumpu during the financial year. The sources of revenue include sales invoiced to customers, net of discounts and indirect taxes, revenues reported as other operating income (including gains from the disposal of Group assets), and revenues reported as financial income, mainly dividend and interest income.

Economic value distributed

Operating costs include the cost of goods and services purchased by Outokumpu during the financial year. Employee benefit expenses include wages and salaries, termination benefits, social security expenses, pension and other post-employment and long-term employee benefits, expenses from share-based payments and other personnel expenses. Taxes paid to the government include income taxes. Deferred taxes are excluded from the figure. Payments to providers of capital include interest costs on debt and other financial expenses during the financial year. Capitalized interest is deducted from this figure. The dividend payout is included in the payments to providers of capital according to the proposal by Outokumpu's Board of Directors.

Community investments consist of donations to and investments in beneficiaries external to the company.

Local suppliers

In this report, vendors are defined as local if they are located in the same country as the Outokumpu location. Significant locations for suppliers are production units that have a melt shop, ie. Avesta, Sweden; Calvert, the US; Sheffield, the UK and Tornio, Finland.

Environmental responsibility

Outokumpu's climate change target is based on science and approved by the Science Based Target initiative. The target includes CO₂ eq. intensity of direct and indirect emissions of electricity and upstream emissions. Emissions are consolidated on production control.

CO₂ eq. emissions of electricity are calculated and monitored by the emissions factor of Outokumpu's electricity mix of 167 kg CO₂ eq./MWh (2018: 239 kg CO₂ eq./MWh), given by the electricity supplier for the used electricity and calculated as weighted average. In addition, the location-based electricity emissions are disclosed. They are calculated by the published country-specific emissions factors of the electricity generation of 2017 or 2018 if available.

CO₂ eq. emissions outside the company (scope 3), except electricity, are covered by more than 96%. They are calculated as follows:

- For alloys: by emissions factors of the life-cycle assessment of relevant association.
- For used gases, lime and dolomite, electrodes and coke: by emissions factors of ISO 14404.
- For upstream emissions of coke and oil: by emissions factors of World Steel Association.
- For internal and product transport: by typical distances and type of transport with the corresponding emissions factors. The coverage of reporting includes all modes of transport.

Scope of the report

- For business travel: by estimated driven kilometers with emissions factors for the car, and for flights by CO₂ eq. reports of the flight companies. Rental car emissions are included by the rental car company report.

Upstream transport was assessed on data of environmental product declaration of 2019 but excluded from scope 3 emissions.

The recycled content is calculated as the sum of pre and post consumer scrap related to crude steel production. Additionally, we report on the recycled content including all recycled metals from own treated waste streams entering the melt shop.

Energy efficiency is defined as the sum of specific fuel and electricity energy of all processes calculated as energy consumption compared to the product output of that process. It covers all company productions: ferrochrome, melt shop, hot rolling and cold rolling processes. Used heat values and the consumption of energy are taken from supplier's invoices.

Water withdrawal is measured for surface water, taken from municipal suppliers and estimated for rainwater amount.

Waste is separately reported for mining and stainless production. In mining, amount of non-hazardous tailing sands is reported. For stainless production hazardous and non-hazardous wastes are reported as recycled, recovered and landfilled.

Waste treated is counted as landfilled waste.

Social responsibility

Health and safety figures

Health and safety figures reflect the scope of Outokumpu's operations as they were in 2019.

Safety indicators (accidents and preventive safety actions) are expressed per million hours worked (frequency). Safety indicators include Outokumpu employees, persons employed by a third party (contractor) or visitor accidents and preventive safety actions. A workplace accident is the direct result of a

work-related activity and it has taken place during working hours at the workplace.

Accident types

- Lost time injury (LTI) is an accident that caused at least one day of sick leave (excluding the day of the injury or accident), as the World Steel Association defines it. One day of sick leave means that the injured person has not been able to return to work on their next scheduled period of working or any future working day if caused by an outcome of the original accident. Lost-day rate is defined as more than one calendar day absence from the day after the accident per million working hours.
- Restricted work injury (RWI) does not cause the individual to be absent, but results in that person being restricted in their capabilities so that they are unable to undertake their normal duties.
- Medically treated injury (MTI) has to be treated by a medical professional (doctor or nurse).
- First aid treated injury (FTI), where the injury did not require medical care and was treated by a person himself/herself or by first aid trained colleague.
- Total recordable injury (TRI) includes fatalities, LTIs, RWIs and MTIs, but FTIs are excluded.
- All workplace accidents include total recordable injuries (TRI) and first aid treated injuries (FTI)

Proactive safety actions

Hazards refer to events, situations or actions that could have led to an accident, but where no injury occurred. Safety behavior observations (SBOs) are safety-based discussions between an observer and the person being observed. Other preventive safety action includes proactive measures.

Sick-leave hours and absentee rate

Sick-leave hours reported are total sick leave hours during a reporting period. Reporting units provide data on absence due

to illness, injury and occupational diseases on a monthly basis. The absentee rate (%) includes the actual absentee hours lost expressed as a percentage of total hours scheduled.

Total personnel costs

This figure includes wages, salaries, bonuses, social costs or other personnel expenses, as well as fringe benefits paid and/or accrued during the reporting period.

Training costs

Training costs include external training-related expenses such as participation fees. Wages, salaries and daily allowances for participants in training activities are not included, but the salaries of internal trainers are included.

Training days per employee

The number of days spent by an employee in training when each training day is counted as lasting eight hours.

Bonuses

A bonus is an additional payment for good performance. These figures are reported without social costs or fringe benefits.

Personnel figures

Rates are calculated using the total employee numbers at the end of the reporting period. The calculations follow the requirements of GRI Standards. The following calculation has been applied e.g.

Hiring rate = New Hires / total number of permanent employees by year-end

Average turnover rate = (Turnover + New Hires) / (total number of permanent employees by year-end × 2)

Days lost due to strikes

The number of days lost due to strikes is calculated by multiplying the number of Outokumpu employees who have been on strike by the number of scheduled working days lost. The day on which a strike starts is included. ■

Independent Practitioner's Assurance Report

To the Management of Outokumpu Oyj

We have been engaged by the Management of Outokumpu Oyj (hereinafter also the Company) to perform a limited assurance engagement on selected sustainability disclosures for the reporting period 1 January to 31 December 2019, disclosed in Outokumpu Oyj's Sustainability Review 2019 and in Outokumpu Oyj's online sustainability tool. In terms of the Company's GRI Standards reporting and GRI Standards Content Index, the scope of the assurance has covered economic, social and environmental sustainability disclosures listed within the Topic-Specific Disclosures as well as General Disclosures 102-8 and 102-41 (hereinafter Sustainability Information).

Management's responsibility

The Management of Outokumpu Oyj is responsible for preparing the Sustainability Information in accordance with the Reporting criteria as set out in the Company's reporting instructions and the GRI Sustainability Reporting Standards of the Global Reporting Initiative. The Management of Outokumpu Oyj is also responsible for such internal control as the management determines is necessary to enable the preparation of the Sustainability Information that is free from material misstatement, whether due to fraud or error.

Practitioner's independence and quality control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

PricewaterhouseCoopers Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the Sustainability Information based on the procedures we have performed and the evidence we have obtained. Our assurance report has been prepared in accordance with the terms of our engagement. We do not accept, or assume responsibility to anyone else, except to Outokumpu Oyj for our work, for this report, or for the conclusions that we have reached.

We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 "Assurance Engagements Other than Audits or Reviews of Historical Financial Information". That standard requires that we plan and perform the engagement to obtain limited assurance about whether the Sustainability Information is free from material misstatement.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other disclosures in the Sustainability Information. The procedures selected depend on the practitioner's judgement, including an assessment of the risks of material misstatement of the Sustainability Information.

Our work consisted of, amongst others, the following procedures:

- Interviewing senior management of the Company.
- Visiting the Company's Head Office as well as one site in Finland.
- Conducting two video interviews with sites in the United Kingdom and in the United States of America.
- Interviewing employees responsible for collecting and reporting the Sustainability Information at the Group level and at the site level where our site visits and video interview were conducted.

- Assessing how Group employees apply the Company's reporting instructions and procedures.
- Testing the accuracy and completeness of the information from original documents and systems on a sample basis.
- Testing the consolidation of information and performing recalculations on a sample basis.

Limited assurance conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Outokumpu Oyj's Sustainability Information for the reporting period ended 31 December 2019 is not properly prepared, in all material respects, in accordance with the Reporting criteria.

When reading our assurance report, the inherent limitations to the accuracy and completeness of sustainability information should be taken into consideration.

Helsinki, 24 February 2020

PricewaterhouseCoopers Oy

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