


Outotec Sustainability Report 2016

Resource efficiency
to the forefront

 Sustainable use of
Earth's natural resources

Outotec

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55 INDEPENDENT ASSURANCE

More from less with Outotec's expertise

I have met many of Outotec's customers since taking on the position of CEO in October, and issues concerning productivity improvement come up in almost every conversation. Our customers often want also to discuss the challenges they face relating to the use of raw materials and energy, the need to reduce emissions, and water management, for example. In such contexts I am very happy to hear them describe Outotec as an expert high tech company that can offer sustainable, resource-efficient solutions to improve their productivity and profitability. In addition to investment costs, the entire life-cycle costs of facilities are now receiving more and more attention.

Outotec's extensive positive ecological handprint is created when our customers use the environmentally preferable technologies and solutions we have developed. The negative impacts of our own operations – our own ecological footprint – are considerably smaller than this handprint.

In 2016, Outotec earned one of the top positions in the Corporate Knights' index of the Global 100 most sustainable companies for the second time. This is welcome recognition of the work we do and the results we have accomplished.

MORE EFFICIENT METAL RECOVERY

As the metal content of mined ores decreases, and since in many places the best mineral deposits have already been exhausted, resource efficiency and recycling are taking on

an ever more important role. Much has been done in these areas, but many opportunities still exist.

In addition to the solutions needed in primary production, Outotec has the top class expertise and technology to enable the effective use of materials extracted earlier, such as tailings, side streams and slag. This can result in more valuable materials, less waste and better efficiency.

Our work with our customer AMG in Brazil provides a good example of this. Outotec helps AMG to process tailings and extract previously unutilized lithium from them. Lithium is a very important metal, for instance in the manufacture of batteries.

In many countries investments are currently being made in sulfuric acid plants. The sulfur dioxide created during metallurgic smelting processes can be almost fully recovered and transformed into sulfuric acid. Each new sulfuric acid plant is a very positive thing for the environment, as well as for all the people involved.

WATER – A UNIQUELY PRECIOUS RESOURCE

The poor availability of process water and the insufficient quality of untreated water are problematic in many areas. In some locations fresh water must be created by extracting the salt from seawater, which is an expensive process. Outotec has a wealth of experience in solutions enabling the purification and recycling of process water.



RECYCLED PHOSPHORUS FOR FERTILIZER USE

Phosphorus is a vital fertilizer for agriculture, but global phosphorus reserves are dwindling. The recovery and recycling of phosphorus is an important new area for Outotec. In a pilot facility in Skellefteå, Sweden, for instance, sludge from municipal sewage is efficiently dried using our technology, after which the remaining solid matter is used to produce energy applying fluidized bed technology. Detrimental elements can then be removed from the resulting ash, enabling the remaining ash, which is rich in phosphorus, to be used as a fertilizer.

CO₂ EMISSION REDUCTIONS ON THE AGENDA

The Paris Climate Agreement has drawn the world's attention to carbon dioxide emissions. For Outotec, this is a business opportunity – after all, our technologies are widely known for minimizing environmental impacts.

The steel industry is actively striving to reduce emissions around the world, with help from Outotec. Completely CO₂-emission-free, hydrogen-based direct reduction is a technological vision that could reshape the industry's future. However, getting there will require extensive development work.

PROFITABILITY AND DIVERSITY AT OUTOTEC

2016 was a challenging year for Outotec. Although order volumes in our Minerals Processing segment began to grow, and profitability was good thanks also to cost savings; order volumes in the Metals, Energy & Water segment remained weak, and results were

negative. We were therefore forced to cut down our expenses, reduce 650 jobs, and continue cost saving actions.

Our focus was on improving profitability and clarifying our modes of operation. Despite many challenging years, our personnel and our investors have shown great commitment to the company.

We are now building the future. This involves striving to serve our customers even better, and develop our service portfolio with our new Services business unit, which begins its operations in April 2017. Our task is to give our customers insights into new possibilities, and to keep one step ahead.

Our skilled and talented people are motivated by success. Excellence in workplace safety is an example of what we can achieve by working together. In our project site at an ilmenite smelter in Jazan, Saudi-Arabia, for instance, more than 11 million hours have now been worked without any accidents resulting in sick leave.

I place great importance on promoting diversity and equality. More than 60 different nationalities are represented in our personnel. We strive to promote teamwork that brings together colleagues from different parts of the world. We have also set a goal to increase the share of women in management positions.

WORKING TOWARDS THE UN'S SUSTAINABLE DEVELOPMENT GOALS

Outotec is committed to support and implement the principles of the UN Global Compact concerning human rights, working life, environmental affairs, and anti-corruption. Through our own actions the company also

supports the realization of the UN Agenda 2030, which promotes sustainability. The UN aims for development that takes into account the environment, the economy, and people in a balanced way. I hope you will enjoy reading more in this report about how our goals are linked with those of the UN.

Finally, I would like to sincerely thank our personnel, our investors, our customers and our partners for their commitment to Outotec, and for the valuable feedback we have received through various forums. This greatly helps us to further develop our company – with the sustainable use of natural resources as our common goal.

Markku Teräsvasara

President and CEO

This is Outotec

Outotec designs and delivers sustainable technology and service solutions for processing minerals and metals, for water treatment, and for producing energy from biomass and wastes. The company has a strong position along the entire value chain from ores to metals.

Outotec's unique position at the forefront of the mineral processing and metallurgical industry is founded on a century of scientific knowledge and operational experience, which have resulted in a wide range of applications, particularly for processing virtually all types of ores and minerals.

Our customers include businesses who are investing 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. In line with our mission targeting the sustainable use of Earth's natural resources, Outotec works to optimize customers' return on investment with minimal ecological impact. The innovative research done at our in-house R&D centers and our continuous development work realized together with our customers have made us the leading developer of technology in our field.

Outotec operates globally, with offices or operative units in 34 countries, including our headquarters in Finland. We sell products and services to over 80 countries. Our customer centers provide full support for our customers' businesses – both in the everyday running

of their operations and when they make new investments. Our two business units – Minerals Processing; and Metals, Energy & Water – are dedicated to the creation of sustainable technology solutions and life-cycle services for our customers. As of April 1, 2017, a third business unit, Services, will focus on developing our service offering and competences as well as delivering services for our customers. Our product portfolio covers hundreds of various plant concepts, processes, pieces of equipment and services.

Outotec has been listed on the NASDAQ Helsinki since 2006, and the company was rated in the Mid Cap category in 2016. There were no major changes in Outotec's company structure or the ownership during 2016.

Read about Outotec's financial performance, legal entities and shareholders in our Financial Statements 2016 at www.outotec.com/investors.

We create a significant positive handprint

Key figures	2016	2015	2014
Sales, EUR million	1,058	1,201	1,403
Adjusted operating profit*, EUR million	-23	56	56
R&D expenses, EUR million	55	61	57**
Priority applications	57	93	62
Average number of employees	4,344	4,855	4,845
Employee engagement index, %	42	56	-
Wages and salaries, EUR million	329	353	363
Share of environmental goods and services in order intake, %	90	90	90
GHG emissions avoided through the use of Outotec technologies, thousand tonnes of CO ₂ e	5,870	5,469**	5,067**
Lost time injury rate (LTIR) per 1 million working hours	1.8	2.8	1.5
Total GHG emissions, tonnes of CO ₂ e per EUR 1 million sales	24.7	28.2	24.8
Total energy consumption, TJ	165.5	164.5	152.9

*) excluding restructuring and acquisition-related costs and purchase prize allocation amortizations

***) restated figure

Our strategy

Outotec's strategy is to provide customers with the best tools for improving their productivity, by using our leading technologies combined with life-cycle services that enhance the performance of our customers' plants and processes.

With our mission aiming for the 'sustainable use of Earth's natural resources' we strive to meet our customers' needs and priorities. While safety has long been a top priority for our industry, environmental performance and social license to operate are also increasingly at the forefront of our customers' minds, not least because of tightening regulation.

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. These trends, coupled with a prolonged decline in the industry's productivity, as well as declining ore grades, all mean that there is a clear market for a premium technology provider like Outotec.

In 2016, we also defined our own strategic approach to climate change, which will henceforth be an important part of Outotec's wider strategy.

We have led the industry in terms of environmental efficiency in most of the markets we serve for decades – with many of our products being industry benchmarks. We now increasingly need to develop digital offerings to further improve productivity. Together with our customers we are already realizing several interesting related pilot projects. Building

up these strengths requires broad expertise, so we must purposefully hire and retain people with the right process knowledge.

CHALLENGES – IMPROVING COST COMPETITIVENESS AND EXPANDING SERVICES

One current challenge is the subdued level of investment in our industry, coupled with increased competition. After a prolonged mining and metals boom, which lasted until 2012, we have seen investment levels coming down, finally leveling off and turning upwards during 2016, but current levels are still low. At the same time, the recent boom encouraged several new competitors to enter our markets. In tighter markets, customers typically prioritize upfront CAPEX costs and payback times rather than full life-cycle costs, where we have our competitive edge.

As is typical for cyclical industries, lowered investment levels have had a significant impact on our profitability. We have recently had to adjust our operating model and re-sourcing accordingly. In December 2016, we finalized a new EUR 70 million cost structure program, which led to a reduction of 650 employees globally.

GOING INTO THE NEXT CYCLE, WE HAVE FIVE STRATEGIC FOCUS AREAS

1) Customers

Due to increased competition, we need to act in a customer-centric way to differentiate. This requires developing our own competences to even better understand our customers' needs, by ensuring that we measure and actively manage customer satisfaction. It also means improving

our responsiveness and focusing on businesses, specific projects and geographies where we can really make a difference for our customers.

2) Service business

Reigniting the growth of our service business is the key to achieving profitability over the cycle. Our services are based on our technological knowledge. They span from spare parts and technical maintenance services through to plant shut-downs and full scale modernizations. Outotec has a very long history, and with thousands of plants and pieces of equipment delivered to customers worldwide, our own installed base is our primary focus. At the same time, as technologies have evolved, we still have work to do to productize our offerings, so as to improve responsiveness and achieve economies of scale. Our newly established Services business unit, due to start up on April 1, 2017, is being shaped to provide sufficient management focus for developing our service offering and delivering the growth necessary to improve our profitability and customer intimacy.

3) Competitiveness of our products

With fewer opportunities in the market, competition is fierce. We have two primary methods of improving our competitiveness:

a) further differentiation through digitalization and improvements in energy and environmental performance with a specific focus on carbon emissions, for instance;

b) reductions in product costs, which can be achieved by redesigning products specifically to reduce sourcing costs, by changing components without compromising on quality, and by searching for lower cost supply alternatives.

4) Profitability

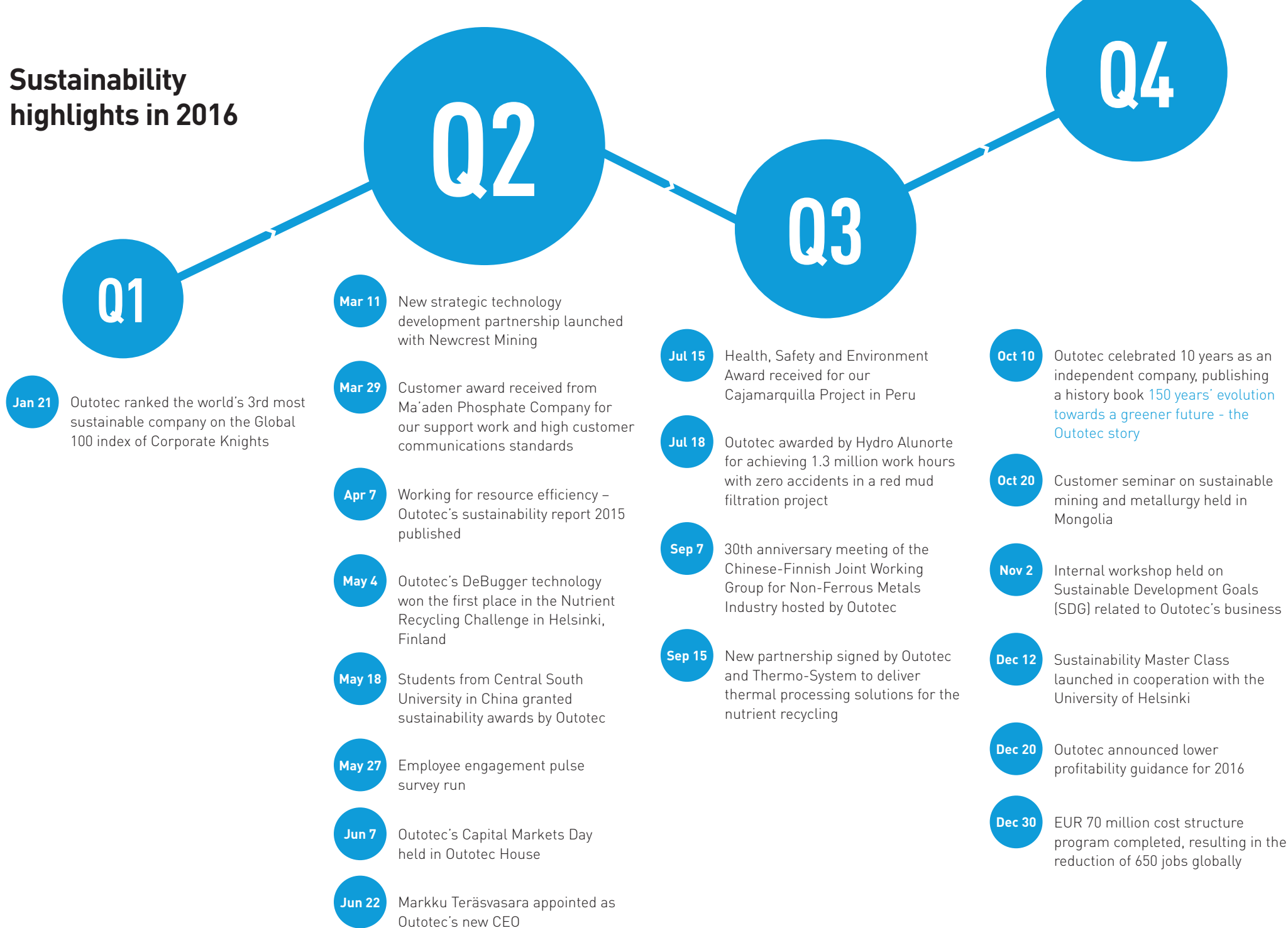
We have taken stringent action in recent years to improve our fixed cost efficiency, leading to significant improvements. We now aim to continue spreading a cost conscious attitude within our company, so as to limit fixed cost increases as much as possible as volumes start to grow.

5) Our people

Since we are an expertise-based company, people are our most valuable asset. In recent years we have unfortunately seen a dip in our employee satisfaction and engagement. We are working to fix this firstly by creating a clearer organization to enable people to work more effectively. We are also examining our leadership culture. This involves stepping up internal job rotation further and promoting more open and transparent decision-making. The safety of our employees has long been a top priority, and we are able to show ever-improving results on that front.

[Read also about long-term financial targets, page 13.](#)

Sustainability highlights in 2016



Direct and indirect financial impacts

Our long-term financial targets involve profitability and continuous growth. The challenging market environment in 2016 has, however, weakened our financial performance. We strive for transparency in our operations, and we base our decisions on sound business reasons and commercial rationale.

Outotec's approach to economic sustainability is demonstrated by our long-term financial targets involving profitability and continuous growth. Our approach is also reflected in our three material themes:

- Responsible business practices
- Sustainable supply chain
- Stakeholder dialogue

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED

Outotec's financial performance deteriorated in terms of order intake, sales and profitability in 2016. Our order intake in the Minerals Processing segment started to increase from the second quarter, which together with related cost savings contributed to the segment's good profitability. Our Metals, Energy & Water segment's order intake remained weak, however. A lack of major orders and increased risk provisions especially in one large project significantly weakened the segment's result.

To adapt our operations to the weak markets, Outotec launched a new cost structure program in November 2015, aiming to reduce fixed costs by EUR 70 million during 2016. The

targeted savings were achieved, and the program was closed in December 2016. However, cost saving actions will continue, particularly in the Metals, Energy & Water business unit, to improve profitability.

The total wealth created by Outotec in 2016 was EUR 344 million (2015: 456 million) (G4-EC1). Our total procurement spend was EUR 714 million (746 million).

Outotec provides employment for approximately 4,200 people in 34 countries. Wages and salaries in 2016 amounted to EUR 329 million (353 million). In 2016, Outotec had to reduce 650 jobs globally due to weakened market situation, which had negative direct impacts on the communities concerned.

As the company's result before taxes was negative, no dividends were paid to shareholders from 2015. Neither were there any contributions to charities.

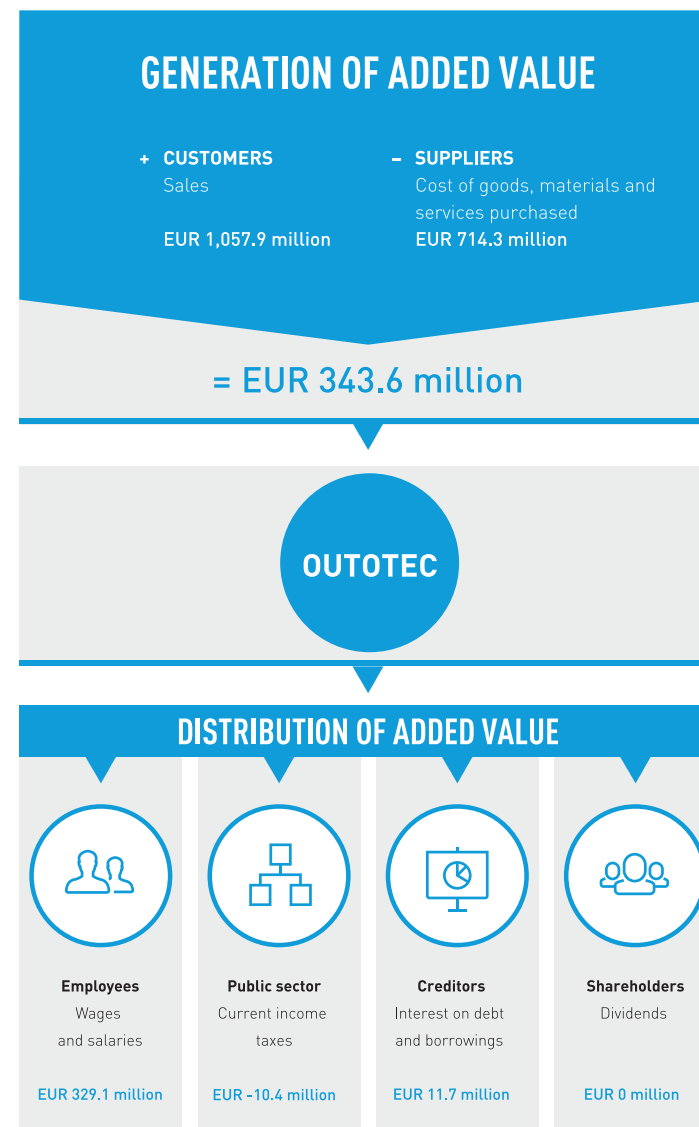
At the end of 2016, Outotec's market capitalization was EUR 914 million (623 million).

[Read also about impacts of megatrends on our business on page 10.](#)

INDIRECT ECONOMIC IMPACTS (G4-EC8)

As a large-scale buyer of goods and services, we play an important role in supporting local businesses. This generates employment and drives socio-economic development in local communities. In large projects, as many as several hundred local engineers and other specialists, contractors and service providers may work for us as suppliers or subcontractors.

Outotec's project implementation can consist of over 10 million working hours at customer's site. Most of this work is done by local suppliers or subcontractors. Where Outotec



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

Large mines and processing plant investments – built with Outotec technology – considerably boost the development of the host country and its economy. They may create 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 to finished products. In such green-field plant deliveries by Outotec, the indirect economic impacts are considered significant. In 2016, although we received fewer large plant orders than previous years, Outotec used approximately the same amount of subcontractors, over 2,200, working under our supervision at the project sites.

The fact that Outotec's financial result was negative had indirect negative impacts on societies in the form of less taxes paid. As some customers postponed their new investments, there were lower local employment rates in those locations. The reduction of 650 jobs globally by Outotec had indirect negative impacts, which, however, were not considered significant in any of Outotec's locations.

80% of Outotec's manufacturing calculated by value is sourced from external suppliers. Most of our suppliers in 2016 were based in Finland, Germany, Brazil, Australia, and South Africa; though Outotec has also developed best-cost-country sourcing in China, India, Eastern Europe and Mexico. Our spending on local suppliers contributes to local employment and regional development. In 2016, 64% (43%) of our customer-related purchases were sourced locally (G4-EC9).

R&D activities generate jobs and enhance skills

Outotec also contributes indirectly to society through R&D activities. Ongoing research and

development activities run together with our external partners received EUR 2.3 million (3.0 million) in public funding. We additionally subcontracted work packages out to universities and mainly small and medium sized enterprises for more than twice this sum (over EUR 5 million). This generates many local jobs, while also enhancing skills and knowledge development.

Fair and non-discriminatory tax policy

As a globally operating company, Outotec faces a variety of tax laws, regulations, practices and interpretations. The international tax environment is sometimes challenging to navigate, but we are committed to being a responsible and compliant taxpayer in each country where we operate. We pursue transparency and non-discrimination in our tax practices, and do not engage in aggressive tax planning. Our tax management has a proactive approach.

In 2016, Outotec paid a total of EUR 6.4 million in corporate income taxes (3.3 million). The table below lists the tax rates affecting us in the countries where we were subject to corporate income taxation in 2016.

In addition to local corporate income taxes, we pay, collect and remit many 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 promote open communication with the local tax authorities wherever we operate.

Outotec delivers large projects, and in some countries there may be only one project ongoing. For this reason, we cannot disclose country-specific financial information as it could breach our commitments concerning access to project-related confidential information. Also, the destinations of our sales typically do not correspond with the places in

which the work and sales activities are performed, value created and where the income must be reported and taxes paid. Providing country-specific tax information would not give a comprehensive picture of the fairness of the tax distribution in Outotec's case.

OUR POLICIES

- Outotec Corporate Governance Policy
- Code of Conduct
- Outotec Risk Management Policies
- Supplier Policy
- Supply Policy
- Tax Policy

Country	Effective income tax, %
Australia	30.0
Austria	25.0
Brazil	34.0
Bulgaria	10.0
Canada	25.8
Chile	35.0
China	25.0
Finland	20.0
Germany	29.2
Ghana	25.0
Greece	29.0
India	30.9
Indonesia	25.0
Kazakhstan	20.0
Mexico	30.0
Mongolia	10.0 – 25.0
Morocco	10.0 – 31.0
Mozambique	32.0
Namibia	32.0

Country	Effective income tax, %
Netherlands	20.0 – 25.0
New Caledonia	30.0
Norway	25.0
Peru	28.0
Philippines	30.0
Poland	19.0
Qatar	10.0
Russia	20.0
Saudi Arabia	20.0
Serbia	15.0
South Africa	28.0
Spain	25.0
Sri Lanka	28.0
Sweden	22.0
Turkey	20.0
United Arab Emirates	0.0
United Kingdom	20.0
United States	38.0
Zambia	35.0

Impacts of megatrends on our business

Three billion new middle-class consumers will need vital resources such as metals and water in the coming decades. This makes it essential to optimize resource usage. Greater production capacity and more resource-efficient, sustainable technologies will be needed. We feel that technology can change everything.

Our management annually evaluates the global megatrends that impact Outotec's business, examining related risks and opportunities to create the basis for our strategic planning. Sustainability-related risks and opportunities are addressed in Outotec's routine risk management processes.

The megatrends with the greatest impact on Outotec today, as set put below, were first listed in our 2014 evaluation. In our 2016 review, the previously listed megatrend Decoupling wealth and ecological footprint has been included in the Resource efficiency imperative, as they both relate to growing demand for metals and minerals, and the excessive resource use that is causing some of the most serious problems in the world, such as the climate change.

Other megatrends identified as impacting Outotec's business are: Urbanization and the growing middle class, the Drive for social sustainability, the Digitalization of the world, and a More volatile macroeconomy.

Overall, these global megatrends appear to bring Outotec more opportunities than threats (G4-EC2).

MEGATREND

URBANIZATION AND THE GROWING MIDDLE CLASS

Growing demand for minerals and metals to satisfy the needs of the new middle class requires greater processing capacity and more resource efficient methods.

RESOURCE EFFICIENCY IMPERATIVE

Valuable metals and minerals must be more effectively recovered, and the tailings and the waste must be recycled and processed better to enhance the efficient use of resources.

DRIVE FOR SOCIAL SUSTAINABILITY

To maintain their social license to operate, our customers are paying more attention to health, safety and social responsibility with regard to their employees and the local communities.

IMPACT ON OUTOTEC

(RISKS – / OPPORTUNITIES +)

- ul style="list-style-type: none;">
- Outotec's cost structure may be too high for emerging countries
- + New interest for Outotec's technologies; efficient ore processing, higher yields and advanced process control
- + Increased cost-competitiveness with modular products, local suppliers and best-cost-country sourcing
-
- Ores become more complex and difficult to process
 - Tighter regulation affects customers' operations
 - Changes in the availability or price of water, fossil fuels, power and mineral resources affect customers' operations
 - + Increased demand for Outotec's new energy and water-efficient solutions
 - + Increased demand for new production of metals from end-of-life secondary materials; electronic waste, metallic scrap, cabling, and battery paste or scrap.
 - + Requirements for the efficient use of biomass and waste increase
-
- Customers' disregard for social acceptability and regulation concerning the hazardous emissions
 - + Outotec's strong track record as a responsible partner helps customers gain social acceptance and financing for their projects
 - + Possibilities for Outotec's modern and safe technologies to solve the environmental challenges in mining
 - + Customer and supplier collaboration provide new possibilities for improving the well-being of local communities

MEGATREND

IMPACT ON OUTOTEC

(RISKS – / OPPORTUNITIES +)

DIGITALIZATION OF THE WORLD

Digitalization will impact on how business is conducted, how groups of people function, and what we offer our customers. The world is increasingly driven and characterized by connectivity, data, and software. Cloud computing, combining big data sets, advanced analytics methods, new ways of interactions with machines, user experience requirements drawn from consumer applications and autonomous systems will also become a commonplace in our business.

- Increasing competition and new players breaking the traditional market boundaries due to the development of digital services
- + Increasing possibilities for product and service development
- + New possibilities for cost-efficient, flexible and highly responsive partnership models and closer engagement with customers
- + New business benefits with advanced ICT systems and data management throughout Outotec's international network

MORE VOLATILE MACROECONOMY

Volatile investment activity rates, the speed of global GDP growth, metal consumption rates, and the balance or imbalance between supply and demand, capacity utilization rates and metal prices all greatly influence Outotec's business.

- Customers minimizing or postponing investments during downturns
- Significant changes in commodity prices, currency rates or the availability of financing
- Volatile resource planning
- + 72% of Outotec's business comes from the cyclical mining and metals industry
- + Business opportunities during uptrends
- + Outotec's global operations and solution offering for virtually all types of minerals and metals reduces dependence on any single commodity or geographical market
- + Outotec's wide range of long-term service contracts balance the risks posed by the highly cyclical markets

Most significant topics

Based on stakeholder dialogue, and considering the economic, environmental, and social impacts of our operations, we have defined nine sustainability topics that we see as important for Outotec in relation to risk management or value creation.

Outotec conducted a wide-ranging review of material sustainability topics in 2014. Potential topics were first identified together with an external partner, based on a previous materiality assessment run in 2011, as well as management interviews, a review of sustainability trends impacting the industry, and stakeholder feedback. Next, we mapped all of the relevant economic, environmental and social impacts that can influence stakeholders' perceptions of Outotec.

Our Sustainability Working Group prioritized the identified significant topics in a workshop, which were then validated by the Outotec Leaders' Forum, where about 100 of Outotec's leaders shared their views on the topics. The results of the materiality assessment were also reviewed and verified by Outotec's Sustainability Advisory Council, representing our key stakeholders.

Outotec's sustainability specialists evaluated the scope and aspect boundaries for the material topics, and chose the relevant GRI indicators. Finally, the Executive Board validated the results of the materiality assessment in 2015.

At the end of 2016, the core team of the Sustainability Working Group reviewed the material aspects and related GRI indicators against G4 guidelines. The list of material as-

pects was complemented, and some indicators were left out from reporting to improve compliance with the G4 guidelines for the 'core' level reporting framework.

Based on the materiality assessment, the topics that matter most for Outotec are:

- 1 Safety
- 2 Sustainable offering for customers
- 3 Responsible business practices
- 4 Sustainable supply chain

- 5 Development of our people
- 6 Equal opportunities and diversity
- 7 Stakeholder dialogue
- 8 Community involvement
- 9 Minimizing our own environmental impact

The first five of these nine most material topics, together with the below G4 aspects identified as material, were chosen as the most significant issues for Outotec's business.

These topics are all reviewed in this report.

Topics material to Outotec	G4 material aspects	Aspect boundaries
1 Safety	Occupational health and safety	Outotec's premises and employees, Contractors working under Outotec's supervision, Outotec's project sites
2 Sustainable offering for customers	Products and services, Customer health and safety, Energy, Emissions	Outotec's premises and employees, Outotec's products and services at customers' operations
3 Responsible business practices	Economic performance, Indirect economic impacts, Compliance, Environmental grievance mechanisms, Labor practices grievance mechanisms, Human rights grievance mechanisms, Freedom of association, Non-discrimination, Anti-corruption, Anti-competitive behavior	Outotec's premises and employees, Outotec's products and services, Suppliers
4 Sustainable supply chain	Procurement practices, Supplier environment, Supplier assessment for labor practices, Supplier assessment for impacts on society, Child labor, Forced or compulsory labor, Supplier human rights	Suppliers' operations, Contractors working under Outotec's supervision, Outotec's project sites
5 Development of our people	Training and education, Employment	Outotec's employees
6 Equal opportunities and diversity	Diversity and equal opportunity	Outotec's employees, Suppliers
7 Stakeholder dialogue	Product and service labelling, Labor/management relations, Local communities	Outotec's key stakeholders
8 Community involvement	Grievance mechanisms for impact on society	Outotec's premises and employees, Outotec's project sites, Outotec's stakeholders
9 Minimizing our own environmental impact	Materials, Energy, Water, Emissions, Effluents and waste	Outotec's premises and employees, Contractors working under Outotec's supervision at project sites

Sustainability Agenda 2020

Our Sustainability Agenda is built on the five most material topics to our stakeholders and Outotec's business. We measure our sustainability performance with regard to long-term targets set for each theme.

We have partially revised our Sustainability Agenda and long-term goals, as we reached our supply chain goals ahead of time. A new long-term target was approved by the Executive Board in February 2017. Five of the nine most material areas remain as the building blocks of our Sustainability Agenda: safety, our offering, business practices, supply chain, and our people. Our annual targets are linked to both our long-term goals and the nine most material topics. Based on an internal evaluation, we have also integrated the most relevant UN Sustainable Development Goals into our Sustainability Agenda, as well as our own annual targets.

DEVELOPMENT WORK DRIVEN BY LONG-TERM GOALS

Safety arose as the most material theme in our recent materiality analysis, partly as a result of deeper stakeholder dialogue, and partly because our top management saw a need to improve our safety performance and culture. Zero accidents was set as the ultimate high-level target for our development work, though this is a very ambitious target that is seldom achieved by any company. Outotec's management believes that this level of commitment to a safe working environment is nevertheless a necessity in the challenging

project circumstances in which our employees, customers and suppliers work.

Our technologies and R&D have a central role in our operations, since they represent the key means of improving the resource efficiency of our customers' operations. For this reason, developing sustainable offering for our customers is also at the core of our sustainability work. Our second long-term goal relates to providing customers with even more sustainable technologies and services, to help them reduce their ecological footprint. The baseline year for our long-term technology-related targets is 2012.

In the area of responsible business practices, 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 our Code of Conduct is also implemented in accordance with our values.

Because the majority of Outotec's manufacturing is outsourced, sustainability along our supply chain is highly important to us. Global supply chain management has been a prioritized development area for Outotec since 2010. In 2015, we defined a new long-term goal for our supply chain: to have all our major suppliers committed to Outotec's Supplier Policy by 2020. We reached this long-term goal already in 2016, and have now set a new long-term and annual target for supply chain development and auditing.

Outotec's business is dependent on our people. We want to make Outotec the most desirable place to work in our industry, and to keep great talent with us. This means we need to offer opportunities for continuous professional growth through job and task ro-

We have also integrated the most relevant UN Sustainable Development Goals into our Sustainability Agenda

tation. The key motivation for many experts today is a sense of fulfillment.

As an enabling and engaging culture is a key differentiating factor for Outotec, we aim to achieve a five per cent improvement in the employee engagement and performance enablement indices calculated on the basis of our employee surveys. The figures will be compared with results from the base year 2013, when our employee engagement index was 69 percent, and our performance enablement index was 67 percent.

We see engagement as a combination of perceptions that have a positive impact on behavior, such as satisfaction, commitment, pride, loyalty, a strong sense of personal responsibility, and a willingness to be an advocate for the organization.

Another key element is performance enablement, which focuses on customer service and quality, involvement, training and teamwork. Performance enablement is a good predictor of customer satisfaction and business performance in the form of sales growth, market share, productivity, and profitability. These parameters are measured at least every second year in our employee surveys.

Our annual targets are linked to our Sustainability Agenda. We have set annual targets for all nine identified material themes, includ-

ing for the first time the theme Equal opportunities and diversity.

LONG-TERM FINANCIAL TARGETS

In addition to the long-term goals related to our Sustainability Agenda, Outotec aims to achieve continuous profitable growth. Outotec's Board of Directors set the following long-term financial targets for the company in June 2016:

- Sales growing faster than the market
- Annual average service sales growth 5–15%
- Reach 10% adjusted EBIT margin by 2020
- Gearing at maximum 50%

We reached our supply chain goals ahead of time

LONG-TERM TARGETS FOR 2020

RELATED SDG

SAFETY:

Zero accidents



SUSTAINABLE OFFERING:

EGS in order intake permanently over 90%



Customers generate 20% less CO₂ when using Outotec's metals related technologies compared to annual baselines



50% reduction in fresh water intake per tonne of ore in non-ferrous metal concentrators compared to 2012



Double the energy produced through our waste-to-energy solutions compared to 2013



RESPONSIBLE BUSINESS PRACTICES:

Strong common values and Code of Conduct; solid governance structure



SUSTAINABLE SUPPLY CHAIN:

100% of our key suppliers audited regularly with supplier development actions drawn up according to audit findings



DEVELOPMENT OF OUR PEOPLE:

5% improvement in employee engagement and performance enablement indices compared to 2013



FINANCIAL PERFORMANCE:

Continuous profitable growth

Resource efficiency to the forefront

Three billion new middle-class consumers will need vital resources such as metals and clean water in the coming decades. To cope with these global challenges related to resources, we offer technologies and services that reduce the consumption of energy and water by increasing material efficiency, recycling metals and reprocessing tailings and wastes.

Outotec's technologies have always been known for their resource efficiency, and this is what gives the company its competitive edge. In today's market environment, characterized by declining ore grades and increased operating costs, our customers are increasingly emphasizing resource efficiency among their requirements.

For this reason, Outotec is focusing more than ever before on improving the systemic resource efficiency of its technologies, and also to enable economically viable metal production in smaller capacity plants. Our offering encompasses favorable solutions for resource extraction, primary production, the processing of secondary raw materials, waste-to-energy schemes, and renewable energy production.

MINED METALS

Ore grades are becoming more complex and more difficult to process. Although raw minerals are non-renewable resources, metals – once mined and processed – are 100 per cent recyclable. Moving towards the circular economy has two essential implications for our

industry. Primary production chains must become much more efficient; while more metals must be recovered from residues, scrap and products at the end of their life-cycle.

At Outotec, we have the right expertise for both these developments. Using our technology mix and our deep knowledge, we can tailor systemic solutions to treat a wide range of feed materials, including both primary minerals from geological mines, and secondary materials containing minerals sourced from urban mines. We can help our customers to maximize metal yields by using advanced technologies that involve digitalization, automation, closed material loops, efficient water management and paste backfill solutions.

One of Outotec's recent developments is the introduction of a rigorous analysis framework of Outotec's solutions. This framework can be adapted to each customer's process requirements, enabling us to assess resource efficiency and specific flows of raw materials, water, energy and wastes in the context of the circular economy and focusing on the direct and indirect environmental impacts of Outotec's solutions. Customers can use this information in their decision-making, enabling them to choose the most environmentally sound option and understand the tradeoffs between different process options.

Although mining companies typically invest in large equipment and processing units, using the economics of scale to seek profitability and low unit costs, they are still increasingly putting resource efficiency and environmental sustainability high on their agenda. The current business environment does not encourage companies to make large investments to increase their metal processing capacities.

In response to this trend, Outotec has launched alternative, modular plant concepts. Such plants are mainly small in scale, but at the same time flexible and resource efficient. Our recently launched modular solvent extraction and flotation plants are very agile. They can easily be adjusted to various production volumes by adding further modules, and they can also be reused in other sites with relatively light additional structures after production ceases at their original site. Simplified design and modularization gives products a longer life-cycle and a higher end-of-life value.

BY-PRODUCTS

By-products from metallurgical processes, such as minority metals, acids, salts, chemicals and slag, can be recovered to create saleable products usable as raw materials in other industries. Another type of by-product is energy recovered from the processes, typically in the form of steam, which can be used in the process itself, in other processes, or even in electricity generation. It is essential to find ways to use such surplus energy in order to reach high energy efficiency. The heat generated in processes should be recovered and used in other processing phases.

SECONDARY RAW MATERIALS

Metals are different from other materials in that they are inherently recyclable. Metals have already been recycled for thousands of years. In addition to providing environmental benefits, recycling is often also less costly.

However, the challenge of using secondary raw materials is the complexity of the raw material, which may include a mixture

Creating greater value from less input

of alloys in different physical forms, as well as electronics, plastics, oil, fluids, textiles, metals, glass, sand etc. Outotec has plenty of experience integrating several different technologies intelligently to maximize the economically viable recovery of multiple materials, and to utilize the energy contained in the feed in the processing. In secondary smelting, it is also essential to capture emissions generated during the process, and Outotec has several alternatives for cleaning gases before releasing them into the atmosphere.

WATER

Clean fresh water is a scarce resource in many parts of the world. Demand and supply can be brought into a sustainable balance only by changing the pattern of demand or by introducing new sources of supply. Above all, water losses should be minimized, and water must be used much more efficiently.

Outotec's solutions can optimize water management in entire mines, including concentrator sites. The target is to minimize fresh water consumption by implementing water reuse, recycling and cleaning practices.

Our paste plant technology for mineral concentrators and effluent treatment of metallurgical processes are proven solutions. Another viable solution for waste material storage is the dry stacking of concentrator sand, which is a far safer method than the tailings dams that are still widely used. For waste water treatment, we have developed a process for managing sulfate, which is a common and growing challenge in the industry.

MUNICIPAL AND INDUSTRIAL WASTES

Resources that can be recovered from municipal waste water treatment sludge include energy, a range of metals, nutrients, and other salts and chemicals. A state-of-the-art Sewage Sludge Incineration Plant typically operates through a self-sustaining process, with no need for adding external fuel. Such plants can produce a surplus of heat or even electrical power or heat, and comply with all emission standards. In addition, Outotec can help communities and companies to move on from merely cleaning water to minimizing of wastewater streams and establishing of practical resource recovery concepts.

A wide range of fuels, such as agricultural waste, municipal solid waste, wood waste, industrial and municipal sludge, plastic, and tires, may be used for energy production with Outotec technologies. Such processes can close critical metal and nutrient cycles by turning waste ash into a raw material or even a ready product such as phosphate or fertilizer.

NEW BUSINESS FROM RESOURCE EFFICIENCY

One of the key drivers behind resource efficiency is the notion that it plays an important role not only from an environmental perspective, but also by securing a competitive advantage.

During the prevailing market situation, when companies are looking for all possible ways to boost profits without making large capital investments in new plants, we have found new business opportunities in the quest to improve resource efficiency. After analyzing each link of our customers' operations, we

can suggest services and alterations that will improve their performance, recommending models that include novel ways of capturing value. Such changes can enable customers to reduce the amounts of energy, chemicals and other inputs they use, for instance.

Outotec is a member of many international organizations who are working to create initiatives that can replace 'end-of-pipe' solutions with more systemic processes promoting resource efficiency and clean technologies.

This report introduces several business cases demonstrating how we can help our customers to improve their resource efficiency.

- Optimal water management for mine sites, page 30
- Innovative technologies for nutrient recycling, page 31
- Flotation retrofit boosts performance at Yamana Gold, page 32
- Sustainability Master Class, page 33

Committing to Sustainable Development Goals

We have defined our most significant impacts with regard to the UN Sustainable Development Goals. Our environmentally sound technologies can make our customers' operations more sustainable, and we take action every day to combat climate change. We have integrated the SDGs into our Sustainability Agenda 2020 and GRI Index.

In September 2015, the United Nations launched the 2030 Agenda for Sustainable Development as a framework for shared action for all countries, companies, NGOs and other stakeholders. The Agenda includes 17 Sustainable Development Goals (SDGs), which set out a global development agenda for 2030, with objectives for social, economic and environmental dimensions. As part of our commitment to the Agenda 2030 and the SDGs, we have identified the most relevant goals for us and examined our impacts on them.

DEFINING OUR IMPACTS

Outotec's impacts on the SDGs were analyzed through an internal workshop, involving members of our extended Sustainability Working Group. The team identified the most important SDGs for each of Outotec's most material topics. The core Sustainability Working Group summarized the results based on the aggregated outcome and voting at the workshop. Eleven of the SDGs were identified as most relevant overall, with two SDGs where we have indirect impact. The analysis and approach to the SDGs were presented to

the Executive Board, who approved our commitment.

OUR CONTRIBUTION

Outotec's most significant impacts on the SDGs are created by our technologies. By putting safety first, we reduce the risk of accidents relating to the use of our technologies. Applying our technologies also reduces the pollution and contamination of air, water and soil (Goal 3).

In line with the goals set by the UN General Assembly, we upgrade our customer's operations to make them more sustainable (Goal 9), while also improving energy efficiency (Goal 7), keeping resource efficiency at the forefront. Through our offering and the development of our technologies, we support actions to combat climate change every day (Goal 13). We also increase the efficiency of water use by reducing the amounts of fresh water needed in our processes and by increasingly recycling and safely re-using water, thus decreasing the amounts of wastewater (Goal 6). With our solutions for renewable energy, we help to make cities more sustainable by enhancing sustainable urbanization (Goal 11). With equal opportunities as one of our most material topics, our sustainability targets aim to increase women's opportunities for leadership to promote gender equality (Goal 5).

We also cooperate with universities on R&D (Goal 4) and drive technological upgrades and innovations that will improve resource efficiency in production (Goal 8). By requiring sustainable practices along our supply chain, we promote the wider adoption of sustainable management practices, thus

enabling our clients to use natural resources efficiently (Goal 12). We have zero tolerance for corruption and continuously train our own employees on anti-corruption topics, while also requiring compliance from our business partners (Goal 16).

In addition to the above, we have identified an indirect impact of our partnerships with our customers, suppliers, and other business partners (Goal 17) towards two SDGs in connection with our business operations. Further, Outotec is firmly committed to the principle of equal opportunities, and implements non-discriminatory company policies and practices globally (Goal 10).

OUR TARGETS TOWARDS SDGS

To measure our commitment and contribution to the SDGs, we have integrated the SDGs into our own Sustainability Agenda. Our long-term targets reflect our core value 'Commitment to sustainability', and we have found that our most material topics also closely reflect the goals set in the UN's global 2030 Agenda for Sustainable Development:

- Safety (Goal 3)
- Offering (Goal 9)
- Responsible business practices (Goal 8)
- Supply chain (Goal 12)
- Our people (Goal 4)

We plan to update our Sustainability Agenda 2020 in 2017 to include longer-term goals in line with the SDGs.

In addition, we have integrated SDGs into our Annual Targets, which are structured to support our long-term goals and in the same way also reflect the SDGs.

By developing and delivering our technologies we take action to combat climate change every day

Engaging with stakeholders

Stakeholder dialogue was identified as one of the important topics in our materiality analysis. We aim to enhance transparency by maintaining continuous dialogue with our key stakeholders.

We have defined the following groups as our key stakeholders:

- Customers
- Employees
- The academic community
- Investors and financiers
- Suppliers
- NGOs and media

We also consider our planet and future generations as stakeholders when evaluating whether Outotec's offering and operations are future-proof.

To measure our success in engaging with stakeholders, we have set targets related to customer surveys, employee engagement and local community engagement initiatives.

Outotec's Sustainability Advisory Council, established at the end of 2014 to advise the company on sustainability trends, strategies and reporting, gives input on how stakeholders view the economic, social and environmental impacts of our decisions. The six Council members represent customers, investors, suppliers, NGOs and academia. In 2016, the Sustainability Advisory Council was consulted twice in e-mail correspondence for feedback on our Sustainability Report and for views on Outotec's sustainability agenda with respect to the challenging business environment.

We have also asked our employees' feedback about the report and topics of interest in sustainability communication in internal social media. The other forms of stakeholder engagement were not undertaken specifically as part of the report preparation process.

To collect open feedback from our stakeholders we have published a form on our website

LISTENING TO CUSTOMERS

Customer satisfaction is high on our agenda. We build 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.

Key parameters used by Outotec to measure global customer satisfaction are our Net Promoter Score (NPS) and Customer Satisfaction ratings. Our NPS has shown an upward trend since global surveys started in 2015. The key drivers behind customer recommendations (NPS) and satisfaction include our state-of-art technologies, product reliability and expertise. Our customers tend to be more critical concerning our response and delivery time. Our focus on service development is something our customers clearly appreciate (G4-PR5).

In 2016, we introduced a shorter and simpler feedback survey. Customers are asked to comment on the most important factors behind the scores they give. This focus on open comments helps us to tune in to customers' true feelings and hear their voices. The 355 feedback records sent to us in 2016 included

some 1,400 individual comments. These comments form the basis for actions designed to achieve improvements at all levels from individual accounts to the global level.

ENGAGING WITH EMPLOYEES

The year 2016 continued to be challenging in terms of employee relations. Due to our cost savings, restructuring and related reductions in our workforce, our employee engagement index further declined[link to Towards employee engagement], as measured in the Pulse employee survey conducted in May.

To deploy our changed operating model, 'Outotec '16' events were held in each market area office. Employees were invited to a 'town hall meeting' to discuss Outotec's overall plan for the present market situation, and workshops were held to clarify how we work together in the new organization. The feedback gathered from each market area about these events was very positive.

We continued the CEO's quarterly internal briefings. Employees have the opportunity to ask questions during briefings, and they can also watch a video recording afterwards. Markku Teräsvasara was appointed Outotec's new CEO in June, and he joined the company in October. To minimize uncertainty during the transition period, internal video communication was increased on the Outotec News Channel and more town hall meetings were organized in various locations to introduce the new CEO to our employees.

Our global intranet serves as a platform for day-to-day information sharing. To complement it, Outotec News Channel for video communication and the new Office365 collab-

oration tools were taken in full use in 2016. The new internal social media tool Yammer was quickly adopted for discussion and dialogue. At the end of 2016, over 3,400 employees were sharing their opinions in Yammer in over 400 discussion groups.

Two Outotec Round Table events were held during 2016 to bring together 21 personnel representatives and top management. The topics discussed included our strategy, acquisitions, rewards, organizational changes, and internal development programs.

Employees as owners

Many Outotec employees are also shareholders through O'Share, Outotec's Employee Share Savings Plan, which was launched in 2013. O'Share rewards employees for long-term commitment to the company. Approximately 27% (2015: 27%) of employees participated in this program in 2016.

The approximately 1,600 employees, who participated in O'Share during 2013, and kept the shares bought with their savings until May 2016, received the first free shares as a reward for their commitment and investment in Outotec. Outotec offered beneficiaries one free share (gross, with cash payments for taxes deducted) for each share bought with the 2013 savings.

Enhancing feedback culture

In November, we launched a new portal for internal feedback internal feedback such as improvement requests and ideas, reported non-conformities and other observations to be submitted and processed smoothly. The portal will be deployed step by step. In the

Stakeholder expectations and our engagement tools

Expectations	Our engagement tools
CUSTOMERS	
<ul style="list-style-type: none"> • Creating value for customers • Sustainable and safe products and services • Social license to operate 	<ul style="list-style-type: none"> • Regular meetings according to Outotec Account Management, Sell and Deliver processes • Customer satisfaction surveys • Joint R&D projects • Training, user meetings, workshops • Seminars, conferences, trade shows
EMPLOYEES	
<ul style="list-style-type: none"> • Company values and a culture that enables professional development • Long-term economic perspective • Compliance and transparency 	<ul style="list-style-type: none"> • Regular briefings and info sessions • Global intranet, collaboration tools and social media • Performance development dialogues • Outotec Round Table • Employee surveys • Compliance helpline and feedback channels • Young Professionals network
SUPPLIERS	
<ul style="list-style-type: none"> • Fair treatment • Long-term partnership • Economic sustainability 	<ul style="list-style-type: none"> • Working according to Outotec's Deliver process • Supplier Policy • Supplier assessments and audits • Joint continuous improvement of processes • Outotec Supplier Days
ACADEMIC COMMUNITY	
<ul style="list-style-type: none"> • Relevant technological and scientific challenges for research • Feedback and encouragement from industry • Operational data • Partnerships 	<ul style="list-style-type: none"> • Joint programs • Seminars, lectures, visits • Thesis opportunities for students • Internships • Networking

Expectations	Our engagement tools
INVESTORS AND FINANCIERS	
<ul style="list-style-type: none"> • Return on investment • Long-term economic perspective • Compliance and transparency 	<ul style="list-style-type: none"> • Quarterly briefings • CEO's mid-quarter Q&A sessions • Capital Markets Day • Roadshows, one-on-one meetings, industry seminars • Annual General Meeting • Excursions to Outotec sites • Annual surveys
NGOS AND LOCAL COMMUNITIES	
<ul style="list-style-type: none"> • Transparency and proactivity • Engagement and local presence • Social responsibility and respect 	<ul style="list-style-type: none"> • Joint social programs with customers • Support for local initiatives • Joint seminars and events • Active use of social media
MEDIA	
<ul style="list-style-type: none"> • Transparency and access • Interesting stories • Walk the talk 	<ul style="list-style-type: none"> • Media briefings and interviews • Success stories and blog postings on website • Active use of social media • Excursions to Outotec sites

first phase, people can give general feedback related to global issues, processes and applications or propose local initiatives related to facilities, wellbeing and culture. During November and December, altogether 31 observations and suggestions for improvements were received through the new portal.

COOPERATION WITH THE ACADEMIC COMMUNITY

Partnerships and networks with universities and research institutions are an important part of Outotec's everyday business. In 2016, Outotec cooperated with more than 30 universities and research institutions worldwide.

The scope of these partnerships varies, but they are primarily related to technology development, digitalization and IoT development, systems integration, the circular economy, hybrid materials, and water issues. Outotec's closest research partners in 2016 were Aalto University, the Technical Research Center of Finland, Lappeenranta University of Technology, Oulu University, and the Geological Survey of Finland.

Partnering with universities or other educational institutes also involves contributing to educational steering committees, guest lecturing, software licensing, hosting student groups, and collaborating on master's and PhD theses.

One example of educational cooperation during 2016 is the Sustainability Master Class program, run for students, young researchers and professionals interested in new approaches to innovation. The four-month multidisciplinary program is organized together with the University of Helsinki. Read also the Case: Sustainability Master Class.

Outotec has also established sustainability prizes to encourage university students to apply their ideas to create practical innovations at:

- Central South University in China, where Outotec has awarded the ten best projects

promoting sustainable design in an annual competition run since 2013. In 2016, a decision was made to continue this cooperation for at least four more years.

- The University of Melbourne, Australia
- The South African Institute of Mining and Metallurgy's Mineral Processing Symposium

REGULAR DIALOGUE WITH INVESTORS

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 2016, Outotec had 29,686 (33,830) shareholders. Shares held in 10 nominee registers accounted for 30.6% (27%) of all Outotec shares, while private Finnish investors held 25.6% (30.9%). Fifteen analysts conducted research focusing on Outotec.

The annual Capital Markets Day event was held on June 7 at Outotec House in Espoo, Finland.

In addition to our interim reports and annual financial statements, the CEO's Q&A sessions continued to be an important channel for maintaining dialogue. These audio casts aim to further clarify information already made public.

In order to serve the capital market efficiently, to ensure equal access to company-related information, and to comply with disclosure requirements, all our audio casts are recorded and available for on-demand viewing at the webcast center.

COLLABORATION WITH THE 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 prod-

ucts 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, in order 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.

WORKING WITH NGOS AND LOCAL COMMUNITIES

Outotec contributes to community wellbeing by paying taxes, providing direct and indirect employment, and cooperating with educational institutions. We also participate in local initiatives to increase welfare in the countries where we operate.

Outotec aims to support local projects that benefit communities where our major customers operate. These community projects are based on local needs and are 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 – both during and outside working hours. All community projects must bring measurable benefits to the local community.

One such project was run at Westbury Youth Center in Johannesburg, South Africa, in collaboration with several other companies. Outotec donated a freight container and steel structures to be used in building entertainment facilities at the center. In addition, Outotec employees donated their time to participate in a community activation day at the youth center, designed to empower young people by encouraging creative and entrepreneurial engagement.

Another example of local community engagement is in Australia: Our employees in Sydney and Perth took part in an initiative

by Salvation Army – bringing in gift and food items to help needy families over the Christmas period.

Outotec continued to support the Baltic Sea Action Group's initiatives for the rehabilitation of the Baltic Sea, and sponsored the Millennium Technology Prize. We also see the Sustainability Awards we give to students in South Africa, China and Australia as a means of engaging with local communities.

Charitable financial donations were frozen after Outotec's Board of Directors proposed to the Annual General Meeting of shareholders in April that there would be no budget for such donations for 2016.

In 2016, 24% (33%) of our operations ran local community engagement programs (G4-SO1). Such activities had to be reduced due to the weak financial performance of the company. We did not make impact assessments in these programs or development plans due to reduced resources.

Our target for 2016 was to start one new community project. This was achieved through our involvement in the Sustainability Master Class program at the University of Helsinki in Finland.

OUR POLICIES RELATING TO STAKEHOLDERS:

- Disclosure Policy
- Social media guidelines
- Donation Policy
- Code of Conduct
- Supplier Policy

Safety – our number one priority

Zero accidents is the ultimate target for Outotec's work on occupational health and safety, as well as product safety. Our lost-time injury rate improved in 2016.

Safety has been chosen as the most material theme for Outotec, partly as a result of deeper stakeholder dialogue and partly because our top management saw a need to improve our safety performance and culture.

Outotec's management remains committed to continuously enhance safety performance throughout the company's operations. We enable all employees and subcontractors working under our responsibility to work safely by providing the necessary procedures, instructions, training and personal protective equipment.

Our reporting on health and safety covers Outotec's premises and employees, contractors working under our supervision, and Outotec's project sites. It also encompasses Outotec products and services, with regard to compliance issues and incidents over their entire lifetime. We primarily measure our safety performance through the lost-time injury rate (LTIR), while also collecting data on near misses and hazards. Our LTIR in 2016 was 1.8 (2015: 2.8) (G4-LA6, see also Social data). This significant improvement was achieved mainly thanks to active safety training, intensified risk management for high-risk work, and the wider identification and elimination of unsafe conditions and procedures.

In 2016, we created a new lost-time incident management system, which documents incident investigations and the actions required to remove the root causes of the inci-

dents. The new system makes it easy to follow up corrective actions. It already operates in combination with a company-level feedback management system, and further complementary measures will be realized during 2017.

Outotec's certified, globally harmonized quality, environment, health and safety (QEHS) management system covers our 40 main locations (38). It includes procedures, work instructions and form templates to be used throughout our global business processes. Key elements in our QEHS management system include:

- compliance with legislation
- identifying and minimizing health and safety risks
- preventing incidents
- recording and investigating incidents
- personnel training
- continuous improvement of our QEHS performance

A global QEHS committee including members from the top management was established in 2015, but it did not convene in 2016, due to various organizational and management changes. Instead, targets and development agenda were defined by our global QEHS team. It has been decided that a new Global Health & Safety committee will be established in 2017.

Our local health and safety committees monitor actions, collect feedback and discuss health and safety issues in their respective locations or projects. Our entire workforce (100%) is duly represented in these committees (G4-LA5).

During 2016, Outotec internally audited

safety practices at our permanent units and main site activities. Safety performance was found to be generally at a good level. Safety systems at construction sites duly follow best international practices.

External audits were successfully conducted in 2016 by TÜV Rheinland Cert GmbH at our locations in Espoo, Lappeenranta, Pori, Turku, Suzhou, Cologne, Oberursel and Frankfurt, and at our construction sites in Dubai and Abu Dhabi. The relevant documentation on all of our certified locations was also audited.

SAFETY IN FIELD OPERATIONS

The safety of our employees and contractors is an important aspect of Outotec's field operations at customers' sites. Our project managers are responsible for the site activities of Outotec and our sub-contractors, including the management of environmental issues, safety, systematic practices, and cleanliness.

Outotec's specialists also follow our customers' own safety regulations when working on site. The greatest safety risks arise in countries where awareness of safe working practices is low, and occupational safety culture is underdeveloped. In such countries, our employees are instructed to additionally follow Outotec's own safety principles.

Outotec has a good track record of QEHS performance in large customer projects, and the company has received several safety-related awards from customers.

Employees working on site operations are trained regularly in health and safety matters, the use of protective equipment, hazard identification, risk assessment and required control actions.

Hydro Alunorte recognized Outotec for achieving
1.3 million hours with zero accidents in the
company's Red Mud Filtration Project in Brazil

Outotec's employees often travel in high-risk countries. In 2016, 175 Outotec employees or persons working under our supervision traveled in countries with high medical or security risks (G4-LA7). Outotec has a medical and security services agreement with the global service provider International SOS. This 24/7 service covers all Outotec employees and service providers for emergencies occurring during business trips. Through the related Medical Alerts and Travel Security Online service our employees can find information about endemic diseases and other health, safety and security issues, as well as country-specific risk ratings. Before any trip, employees should check risk levels and find out what actions may be needed to reduce security and health risks.

OUR POLICIES

- Code of Conduct
- Quality, Environment, Health and Safety (QEHS) Policy

Safe products for our customers

Outotec's mandatory Product Compliance Management process ensures that all products engineered and delivered by the company meet all applicable safety standards during each phase of their life-cycle.

Outotec has a Product Compliance Management process in place to make sure that the products and services designed and supplied by the company worldwide reliably meet all applicable safety standards during all phases of the product life-cycle. We follow negative impacts and incidents through our QEHS management system and product compliance management system, as well as through customer feedback collected after each major delivery and in customer surveys.

Compliance with legal requirements is the prime concern in Outotec's product compliance management work. We maintain an extensive database of product compliance procedures and documents used during business processes, including the development, sales and delivery of our products and services.

Outotec's products include equipment,

processes, entire plants and services. Equipment and services delivered by Outotec fulfill safety-related industrial standards such as:

- 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.

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.

Safety issues form an integral part of our operational manuals for industrial processes. Outotec manuals cover the entire life-cycles of the products delivered, in line with the IEC 82079-1 standard. This means they contain information on transport, installation, op-

eration, maintenance and decommissioning. In addition, we offer our customers maintenance services as part of a wider package. We also routinely provide safety training for our customers as part of our product training services.

The majority of our offices already use harmonized product compliance management procedures. Our target for 2016 was to take such procedures into use globally. We continued to replace existing local procedures with harmonized ones (G4-PR1), but we did not fully achieve our target. In 2017, we plan to review and simplify our harmonized product compliance management procedures, and implement the new procedures globally.

Outotec has not identified any significant negative impacts of its products on employees' or suppliers' health and safety (G4-PR2) or local communities. No fines were imposed in relation to non-compliance with laws and regulations regarding the use of Outotec products in 2016.

However, the possibility remains that information on indirect negative impacts occurring after the completion of any project delivery may not have been disclosed to Outotec by customers or local communities.

Sustainable offering for customers

Our contribution towards overcoming the world's environmental challenges is made through our products and services, which enable our customers to run environmentally sound, profitable and socially acceptable businesses.

Outotec's customers are increasingly looking for safe solutions to produce more with less. Our solutions utilize primary resources efficiently and minimize ecological impacts by reducing energy and water consumption, and producing less waste to landfill and emissions – while also cutting operating costs. We additionally offer solutions for processing secondary resources and turning side streams into saleable products. Our ecological handprint which we define as our positive overall impact in terms of sustainability – is considerably bigger than the ecological footprint of our own operations and our suppliers' operations.

A plant's sustainability can be significantly enhanced through life-cycle services and technological improvements. Based on site-specific performance assessments, Outotec identifies areas for improvement and offers solutions that will optimize plant performance and return on investment. Equipment upgrades, plant modernization projects, and our long-term operation and maintenance services all ensure that plants will run smoothly, safely and efficiently, with minimum environmental impact at all times.

Our long-term targets (link) relate closely to our handprint – we aim to offer more sustainable technologies and services to our customers, resulting in less harmful impacts on

the environment. We measure our efforts to mitigate the impacts of our products and services by our R&D work and the proportion of recognized Environmental Goods and Services (EGS) in our order intake (G4-EN27). Our reporting related to our offering covers Outotec's premises and employees as well as our products and services at customers' operations.

We also used four additional indicators of our own to measure our achievements in 2016:

- The share of Environmental Goods and Services (OECD criteria) in our order intake, where we have reached our target (over 90%) for several consecutive years.
- 20% reduction in CO₂ emissions achieved through the use of Outotec's metals-related technologies compared to industry averages. These technologies include: our ferrochrome process; copper flash smelting; alumina calcination; ceramic filters; the co-generation of electricity in the ferrochrome process; and as of 2016 also coated titania anodes; and TankCell 300 flotation cells. Emission reductions are directly proportional to energy savings. In 2016, the emissions avoided by the metallurgical industry through the use of seven Outotec technologies amounted to 5.9 million tonnes of CO₂ equivalent (2015: 5.5 million) (G4-EN19). This equals 27% reduction.
- Implementation and commercialization of our water recycling concepts. In 2016, we piloted our first electrochemical water treatment and recycling solution.
- Reductions in the use of fossil fuels resulting from Outotec waste-to-energy

plants, with targets of 60 MWe and steam boilers that equal 60 MWth. The plants ordered in 2015 were under design and construction in 2016 but not yet in operation.

REDUCTION OF ENERGY CONSUMPTION (G4-EN6)

In 2016, Outotec partnered with Thermo-System GmbH, whose low-energy drying method will be used with our waste-to-energy and sludge incineration technologies in Outotec's thermal processing solutions.

Municipal energy and sewage treatment companies will benefit from Outotec's thermal processing solutions because instead of composting the sludge, they can recover valuable nutrients and sell the resulting materials to fertilizer producers. Low-energy drying technology is typically used to pre-dry the sewage sludge or wet peat before incineration, using waste heat from district heating as an energy source. Part of the pre-dried sludge will be mixed with the incineration ashes to produce valuable raw material rich in phosphorus, nitrogen and potassium for the fertilizer industry.

In 2016, Outotec also continued building seven new waste-to-energy plants in the United Kingdom and Canada, based on bubbling fluidized bed combustion technology. This method is a proven solution for turning waste into energy and disposing of solid or liquid by-products. To ensure that strict emission limit values set by municipal and federal governments are met, we can apply a combination of gas cleaning measures adjusted according to the fuel designated in the overall process design.

ENHANCING OUR OFFERING

R&D plays a central role in reducing the environmental impacts of our customers' operations. In technology development, Outotec particularly focuses on increasing resource efficiency – aiming to reduce energy and water consumption, emissions, effluents and waste.

Our R&D activity describes the extent of mitigation of environmental impacts of our product and services (G4-EN27). Some 66% of our R&D expenditure was related to initiatives targeting improved metals recovery, energy

Efforts to mitigate the environmental impacts of our products and services	2016	2015	2014
R&D expenditure, EUR million	55.2	61.2	56.9*
R&D expenditure, % of sales	5.2	5.1	4.1*
Number of new patent applications filed	57	93	62
New national or regional patents granted	630	531	370
Number of patent families	786	824	749
Proportion of EGS in order intake, %	90	90	90

*) restated figure

saving, waste minimization, emission reduction and/or safety improvement.

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 20 related projects, aiming to create new business by upscaling technologies, while also generating new educational programs and strengthening Europe's infrastructural network. Outotec also participates in the technical secretariat of the EU's Operational Environmental Footprint Sectoral Rules (OEFSR), piloting for copper.

Outotec took over the Presidency of the European Sustainable Phosphorus Platform (ESPP) in December.

[Read more about our representation in industry associations and commitment to external initiatives at \[www.outotec.com/sustainability\]\(http://www.outotec.com/sustainability\).](http://www.outotec.com/sustainability)

Progress on product development

In 2016, Outotec successfully delivered a new type of mine backfill system together with operational, maintenance and management services to OZ Minerals for their Prominent Hill copper-gold mine in South Australia.

We also introduced a cost-effective modular product for water treatment – the Outotec® EWT-40. This Electrochemical Water Treatment process is highly automated, and able to handle contaminated wastewater and effluents even in remote mining and metallurgical operations.

Our recently published Outotec Flotation Modernization Guidebook reveals how Outotec's services can improve grade and recovery, enhance process stabilization and process control, boost capacity, reduce maintenance costs, increase availability, cut energy consumption, extend wear life, and enhance safety.

Partnerships and networks with universities and research institutes also form an important part of Outotec's product development. In 2016, such cooperation focused on developing a minimum impact concentrator



Our handprint – which we define as our positive overall effect in terms of sustainability – is considerably bigger than our ecological footprint

concept, aiming to minimize harmful local environmental impacts. Special attention was paid to isolating process waters from adjacent water systems, thus closing industrial water cycles.

Another focus area for our R&D work has been the development of monitoring, controlling and optimization capabilities for complex industrial processes, together with digital platform development, through several programs run in collaboration with various research partners.

OUR POLICIES

- Outotec Technology Policy
- Outotec Intellectual Property Rights Policy

Responsible business practices

In line with our core value, 'committed to sustainability', we aim to incorporate social, economic and environmental sustainability into all aspects of our operations. We foster good governance and ethical business practices through thick and thin, valuing integrity in all contexts, and striving to protect Outotec's good reputation.

Outotec's governance is based on the principles of good governance and transparency, as well as our own group-wide policies and processes. We follow the Finnish Corporate Governance Code issued by the Securities Market Association for listed companies. Outotec's management system documentation is compatible with and audited against such standards as ISO 9001 for Quality Management and ISO 14001 for Environmental Management. Outotec's corporate governance is described in more detail in our Corporate Governance Statement 2016 [www.outotec.com/cg]. Our reporting covers Outotec's premises and employees, our products and services, and our suppliers' operations.

Outotec's values and Code of Conduct define our common way of working. Outotec endorses ethical business practices and complies with national and international laws and regulations. We are committed to work-

ing against corruption in all its forms. We similarly expect our suppliers and business partners to follow the same principles and to fully comply with all applicable anti-corruption laws.

CODE OF CONDUCT

Our Code of Conduct summarizes our key corporate policies. All Outotec employees are expected to know and follow the Code.

We reviewed our Code of Conduct during 2016, and its revised version was approved by the Board of Directors in February 2017. The focus of the revised code remains largely the same: commitment to responsible business practices, compliance with laws and regulations, solid governance, and the effective management of sustainability and risks.

The Code of Conduct has been designed to give everyone at Outotec ethical guidance on various issues. Line managers are responsible for ensuring that their team members know the Code of Conduct and receive any necessary e-learning or classroom training. In 2016, a total of 1,223 employees completed Code of Conduct training, corresponding to 30% of our personnel. In addition, a total of 131 employees completed virtual training on anti-corruption topics (G4-S04).

Outotec was not subject to any corruption-related investigations in 2016 (G4-S05), nor did we have to pay any fines, or fulfil any non-monetary sanctions for non-compliance with anti-corruption laws (G4-S08) or environmental laws (G4-EN29). Furthermore, Ou-

totec was not subject to any legal actions for anti-competitive behavior, anti-trust cases or monopoly practices (2015: one reported case) (G4-S07).

PRODUCT COMPLIANCE

Read about how our products comply with all relevant regulations in Safe products for our customers, page 21.

OUR BOARD OF DIRECTORS

A knowledgeable and engaged Board of Directors is a significant resource that can help us to reach our short- and long-term goals, and create sustainable increases in the value of the company for its shareholders. The work, duties, composition and committees of the Board of Directors are described in our Corporate Governance Statement 2016.

The remuneration of Board members is described in Outotec's Corporate Governance Statement on pages 13-15. There is no correlation between the compensation for Board members and Outotec's social or environmental performance.

New principles on diversity for the Board of Directors

During 2016, the Board of Directors defined a new set of principles on diversity. Based on these principles, the members of our Board of Directors must have the necessary knowledge and experience with regard to 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 will aim 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 Outotec's strategic goals.

COMPLIANCE HELPLINE FOR RAISING CONCERNS

Outotec's Chief Compliance Officer (CCO) reports directly to the Board's Audit and Risk Committee on a quarterly basis regarding any material compliance cases and developments.

Outotec's compliance helpline is available to both internal and external stakeholders. This helpline enables anyone to raise concerns or seek advice regarding ethical behavior or Outotec's Code of Conduct. All of the concerns raised are treated confidentially, and there is a clear no retaliation policy against anyone raising a question or concern in good faith. More severe compliance cases may be submitted to Outotec's Compliance Board, whose members are the Chief Compli-

ance Officer, the General Counsel, the Chief Financial Officer, and the Head of Human Resources.

INTERNAL AUDIT AND RISK MANAGEMENT

Outotec's strategic and operational risks are described at www.outotec.com/investors, and the company's risk management policy, responsibilities and processes are set out in our Corporate Governance Statement 2016 on pages 9–10.

In 2016, a company-wide sales process audit was conducted. In addition, specific audits were conducted in China and in Brazil as well as follow-up audits of the market areas Sub-Saharan Africa and Middle East.

Outotec's internal and external audit processes take into account any corruption suspicions and fraudulent acts that may occur. Training sessions are held in connection with audit activities at our market area operations to train employees in anti-corruption policies and procedures for the purpose of preventing misconduct and crimes. Virtual training sessions on anti-corruption are also available to all employees.

Outotec uses a project risk assessment tool to assess project-related risks within 10 key categories, including compliance, ethics and sustainability. Risk assessments must be carried out for all projects worth at least one million euros (G4-SO3). Identified risks and mitigation measures are documented in the risk assessments, and appropriate follow-up actions are duly defined on the basis of these findings.

In product management, we utilize a Stage Gated Product development process, in which the first phase includes business risk and opportunity checks. It also includes criteria, which are related to a new product's risks and especially opportunities to precautionally mitigate the climate change, i.e. energy savings, emissions reduction, water savings,

waste minimization, improved metals recovery and safety improvement (G4-14).

EQUAL OPPORTUNITIES AND LABOUR PRACTICES

Our approaches to equal opportunities and labor practices are described in Enhancing employee engagement, page 28.

RESPECTING HUMAN RIGHTS

Outotec is committed to support and respect the protection of internationally proclaimed human rights. This commitment is reflected in our revised Code of Conduct and in our company policies. We remain committed to treat all people with dignity, and we recognize that every individual is equally entitled to enjoy human rights. We do not provide goods or services that we know will be used to carry out human rights abuses, and we work towards the effective abolition of the use of compulsory, forced or child labor.

Outotec joined the United Nations Global Compact Initiative back in December 2010, and we remain committed to its principles and the principles of the Universal Declaration of Human Rights. These commitments are restated in our revised Code of Conduct.

In 2016, two reported incidents of discrimination were filed through formal grievance mechanisms within Outotec (G4-HR3, G4-HR12). These incidents were reviewed locally, in cooperation with Global Human Resources function and the Chief Compliance Officer. Remediation action plans were implemented and results reviewed through our routine management review processes. These incidents are no longer subject to action.

There were no incidents filed through formal grievance mechanisms related to our suppliers' human rights impacts (G4-HR11), impacts on society (G4-SO11), or labor practices (G4-LA16).

In 2016, we reviewed our Code of Conduct including the human rights perspective. We also initiated a human rights assessment of our own operations at the end of 2016. As the first phase of this assessment, our company policies and guidelines relating to human rights were examined in comparison with the UN Guiding Principles on Business and Human Rights (UNGPR) by an external consultant. This analysis resulted in policy-specific recommendations that will help us to further align our policies with the UNGPR. The results will be taken into consideration in our future policy revisions. We plan to continue the human rights assessment of our own operations in 2017.

Furthermore, as a new annual target with the theme Responsible business practices, we will conduct working condition assessments in our main manufacturing and services sites. These will include audits of physical working conditions as well as certain labor rights topics.

Outotec has not identified, through formal grievance mechanisms or in its risk assessments, any significant negative impacts of its operations, products or suppliers with regard to health and safety (G4-PR2), or local communities (G4-SO2). During 2016 no issues emerged concerning the rights of indigenous people.

In product management, we utilize a Stage Gated Product development process, in which the first phase includes business risk and opportunity checks. It also includes criteria, which are related to a new product's risks and especially opportunities to precautionally mitigate the climate change, i.e. energy savings, emissions reduction, water savings, waste minimization, improved metals recovery and safety improvement (G4-14).

MANAGING SUSTAINABILITY

Outotec's Executive Board is responsible for our sustainability agenda (G4-34). The Executive Board additionally approves our sustainability strategy, targets and reporting. Our General Counsel, who is a member of the Executive Board, has overall accountability for corporate responsibility. Responsibility for the sustainability of our products and services lies with the Technology and Product Board, chaired by the CTO. Related decisions, actions and commitments are duly reported to the Board of Directors.

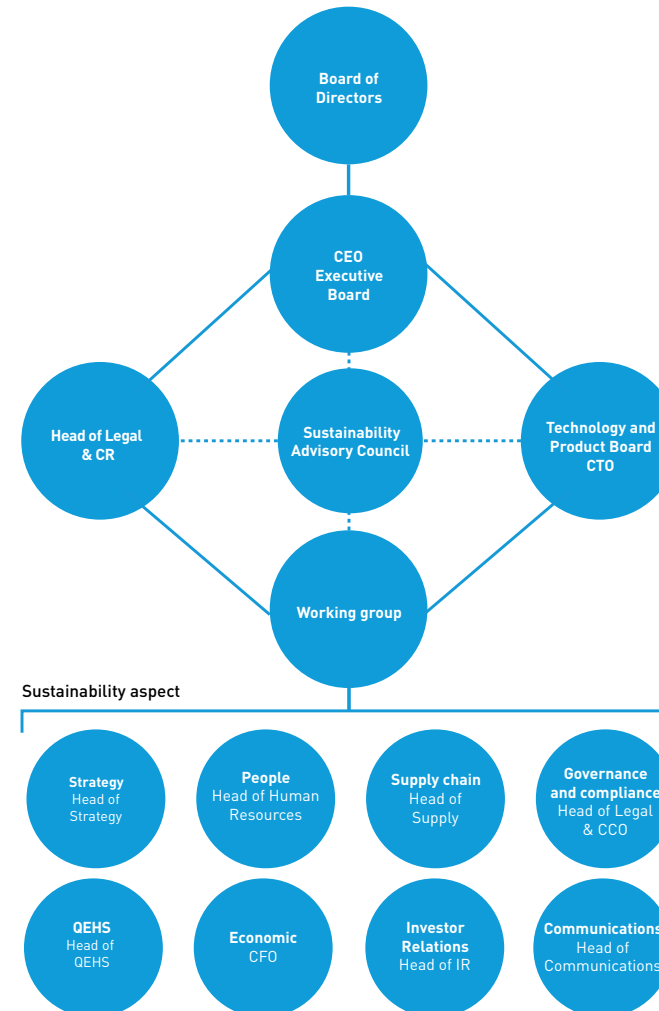
Sustainability is integrated into all relevant organizational functions, such as Quality, Environment, Health and Safety (QEHS), Supply, Human Resources & Communications, and Legal & Contract Management. We have a Sustainability Working Group, whose core team coordinates sustainability work and meets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

Outotec's Sustainability Advisory Council, established at the end of 2014, advises the company regarding sustainability trends, strategies and reporting, and gives input on how stakeholders view the economic, social and environmental impacts of our decisions. The Council is not part of Outotec's formal governance, however. In 2016, the Sustainability Advisory Council was consulted in e-mail correspondence for feedback on our Sustainability Report and for views on Outotec's sustainability agenda and focus, with respect to the challenging business environment.

Sustainability-related personal targets are included in the annual bonus plans of Outotec's 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.

OUR POLICIES

- Code of Conduct
- Donation Policy
- Supplier Policy
- Risk Management Policy
- Disclosure Policy



Building a sustainable supplier base

Our wide product range and a high number of different delivery locations make our supply chain development and management challenging. Standardization and harmonization are key drivers in establishing a sustainable supplier base.

Our supply chain management covers Outotec's own operations and often also those of our suppliers. Our Global Supply function manages our supplier base and global sourcing. Operational Supply personnel are involved in day-to-day supplier management during the project delivery phase.

Outotec has two main policies serving as the basis for collaboration with suppliers. 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.

Our parallel Supplier Policy imposes strict requirements on Outotec's suppliers, by clearly setting out our principles on ethical conduct, compliance with laws and regulations, environmental impacts, health and safety, labor, intellectual property and improper benefits. 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. As all of our major suppliers (2015: 92%) were committed to Outotec's Supplier Policy in 2016, we achieved our annual target.

Our reporting covers our suppliers' operations, contractors working under Outotec's supervision, and our project sites. We

measure our performance by calculating the percentage of new suppliers screened using criteria on labor practices, environmental impacts and human rights.

OUR SUPPLIER BASE

Our manufacturing facilities are relatively small. They all have local quality, health and safety systems in place, and they duly manage, sort and process their wastes. Since some 80% of Outotec's manufacturing is sourced from external suppliers (by monetary value), supplier selection is of key importance to our business.

Outotec had approximately 3,300 (3,400) active direct suppliers in 2016. Most of our suppliers were based in Finland, Germany, Brazil, Australia, and South Africa. Outotec has also developed best-cost-country sourcing in China, India, Eastern Europe, and Mexico.

The majority 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.

Our total spend on customer-related purchasing in 2016 was EUR 586 million (629 million). Total spend decreased due to declining order intake and sales.

SELECTING NEW SUPPLIERS AND SUPPLIER AUDITS

Of the potential 1,435 new suppliers in 2016, Outotec screened 164 suppliers, corresponding to 11% of all potential suppliers (2015: 70; 18%), using criteria related to environmental

impacts (G4-EN32), human rights (G4-HR10), and labor practices (G4-LA14, G4-LA15). The remaining potential new suppliers were in categories that we do not normally screen, such as one-time indirect suppliers who are normally approved by default. Some of these non-screened suppliers have, however, also signed our Supplier Policy. No potential new suppliers were screened using criteria for impacts on society (G4-SO9).

Human rights impacts were assessed as part of the screening of potential new suppliers. All the screened companies qualified as new suppliers as none of them were identified as having significant potential negative human rights impacts (G4-HR11).

Outotec has not identified any significant actual or potential negative impacts with regard to labor practices in its supplier screening (G4-LA15).

In addition to screening new suppliers, Outotec audited over 20 major suppliers during 2016. In our supplier audits, 8% of the audited suppliers were identified as having negative environmental impacts (G4-EN33). These impacts were relatively small and related to operational eco-efficiency, and none of these impacts were considered as potentially significant in Outotec's assessment. Common development topics and improvement measures were subsequently discussed and agreed with these suppliers. No relationships have been terminated as a result of our supplier audits.

WORKING TOGETHER WITH OUR SUPPLIERS

Outotec's Supplier Account Managers work with our most important global or local sup-

We strive to improve cost efficiency without compromising on product quality, safety and sustainability

pliers. They are responsible for facilitating collaboration between Outotec and our 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.

The main challenge for our supply chain management in 2016 concerned the need to improve cost efficiency without compromising on product quality, safety and sustainability. The allocation of more business to fewer suppliers enables better management and development partnerships, in turn enhancing delivery excellence and cost competitiveness.

During 2016, we continued to train our sales and project implementation personnel on our project risk assessment process and tool, which were then tested in larger sales cases. The resulting risk assessments have provided our management with important information about major risks and planned mitigation actions.

SPENDING ON LOCAL SUPPLIERS

Outotec's supply chains often combine global project deliveries and purchases from local suppliers. We define 'local suppliers' as suppliers who we do not manage globally from our offices in Finland, Germany, and Sweden. However, even in projects that are man-

aged globally, the supply defined as 'global' includes some local subcontracting in the countries concerned.

Our spending on local suppliers in 2016 amounted to EUR 310 million (EUR 270 million), equivalent to 64% of our total supply spend (G4-EC9). The largest shares by country – each amounting to EUR 10–50 million – were spent in the USA, China, Australia, the UAE, Sweden, South Africa, Mexico, Chile, and the UK. The remaining local spend was distributed among 45 countries.

ACTUAL AND POTENTIAL NEGATIVE IMPACTS IN THE SUPPLY CHAIN

No notable risks related to the use of child labor (G4-HR5) or forced or compulsory labor (G4-HR6) have been identified in Outotec's own manufacturing units.

The main sustainability-related risks in the supply chain, identified in our internal workshops, include bribery and kickbacks, occupational safety, protecting information, and reporting misconduct. With regard to environmental issues, material toxicity and chemicals were ranked as the greatest risks (G4-EN33, G4-SO10).

In addition, we have identified three countries in our supply chain with potential risks regarding child labor (G4-HR5), hazardous work, or rights to exercise freedom of association or collective bargaining (G4-HR4). These

countries are China, India, and Mexico. In 2016, 5% (3%) of our suppliers were based in China, 2% (2%) in India, and 1% (2%) in Mexico. To mitigate these risks, our dedicated supply personnel in each of our Market Area offices perform Supplier Assessment and Approval Processes carefully and make observations during audits and other visits. Forced or compulsory labor has not been identified as a potential risk in Outotec's supply chain (G4-HR6).

The carbon footprint of our supply chain

An analysis of the carbon footprint of our supply chain conducted in 2016 showed that the biggest sources of CO₂ emissions in Outotec's supply chain were metal products, representing 27% (25%) of the total. In 2016, the carbon footprint of our supply chain, at 360,000 tonnes of CO₂ equivalent (345,000) (G4-EN33), was considerably larger than the footprint of Outotec's own operations, which amounted to 24,847 tonnes of CO₂e (33,584) (G4-EN16, G4-EN17).

Calculations were based on Outotec's spending and supply chain emission factors as defined by the UK Department for Environment, Food and Rural Affairs (DEFRA).

OUR POLICIES

- Supplier Policy
- Supply Policy

Enhancing employee engagement

After several years of restructuring, employee engagement continues to be the key theme for developing our people.

The market situation continued to be very challenging for Outotec, although the market picked up towards the year end. As a result of our EUR 70 million cost structure program, simplifying our operating model and strengthening our focus on customers and services, Outotec also had to reduce altogether 650 jobs in 2016.

Despite actions taken after the previous employee engagement survey, results in both employee engagement and performance enablement continued to weaken. In the Pulse survey conducted in May 2016, the employee engagement index fell to 42% (2015: 56%) and the performance enablement index declined to 54% (2015: 63%).

Based on the survey results and related feedback from our employees, concrete actions that would help to re-build trust and engagement among employees should include:

- Communicating a clear strategy and translating it into concrete actions at all levels to benefit our employees
- Creating clarity and simplifying our ways of working in order to allow our people to focus more on customers
- Ensuring strong leadership presence
- Empowering and engaging our people to make Outotec a better place to work

HIGHLIGHTS IN RELATION TO DEVELOPING OUR PEOPLE

Strategy shaped with employee participation

Employees from our Market Areas and Business Lines participated in strategy revision work realized in spring 2016. The implementation of the strategy was supported by the Outotec 2016 roadshow in major locations, where leaders were engaged in change management planning, and employees had a chance to hear about the strategy and discuss it with their leadership.

Strong focus on leadership development

A global leadership program for 100 leaders was kicked-off in November. The program consists of face-to-face modules, benchmarking group work, 360° feedback and coaching (G4-LA10).

In addition, local leadership programs have been developed in each country, and all Outotec managers and leaders will have an opportunity to join a development program by the end of 2017.

Continuous support for professional growth

A total of 2,391 employees participated in training activities during 2016. We delivered 6,467 training instalments in total, most of which consisted of online courses focusing on technical issues; quality, environment, health and safety (QEHS); or legal and compliance issues. In total 5,855 online courses were completed, of which 1,533 related to QEHS

and 260 to technical issues. Technology-related classroom training was provided for 423 Outotec employees during 2016.

Meanwhile, work started on the development of a certification program for our technical service experts who work with our products and technologies. This certification process features a multi-level training program designed to allow people to develop their technical skills and apply them in on-the-job situations at a Basic, Advanced, and Master level. 50 people were nominated as pilot participants to start the program.

Several groups started their mentoring programs in the areas of solution sales, process, and metallurgy. The program will continue to expand in 2017, with engineering and contract management as new topics.

A Value Selling training program was developed to enhance our sales force's competences in customer interfaces. Through this highly interactive and role-play-based training we are striving to build, communicate and coach value propositions that can be offered to the customers based on their identified needs and values.

PROMOTING EQUAL OPPORTUNITY AND DIVERSITY

As an international company with a global presence, Outotec values diversity at the workplace. We treat people in an equal and fair manner regardless of their ethnic origin, nationality, religion, political views, gender, sexual orientation, disability, family status or age. We follow the principle of equal opportunities.

We continuously monitor diversity and equality within Outotec, and we have set tar-

gets for improvements in these areas. As a company operating in a male-dominated industry, gender equality is a very important topic for Outotec. We already have a relatively good representation of women in senior leadership positions (16% of senior leadership positions are held by women, compared to 18% of all Outotec employees), and we are taking active measures to improve this ratio. We also monitor the number of filed, addressed and resolved grievances about labor practices. In 2016, two reported incidents of discrimination were filed through formal grievance mechanisms within Outotec (G4-HR3, G4-HR12), but no registered cases regarding labor practices (G4-LA16). Our reporting related to equal opportunity and diversity covers Outotec's employees and suppliers.

A decision was made in 2016 that all open positions will be published internally to enable all Outotec employees to apply for positions through a fully transparent recruitment process. We also launched a new employee profile to allow employees to promote their career and let our organization know about their expertise. We encourage our employees to take an active role in their own career development, and we aim to promote new tools to support this target.

FOCUSING ON EMPLOYEES' EXPERIENCES

Outotec's annual Performance Development Dialogue (PDD) process went through a major renewal in 2016, based on feedback received from our managers and employees. A new concept to be launched in 2017 will better support value-adding development discussions at Outotec. Due to these systemic changes, we do not have exact data on the

numbers of employees who underwent regular performance and career development reviews during 2016, but the available data indicates that coverage is about 95 per cent (G4-LA11).

Our Human Resources (HR) function has put a lot of emphasis on implementing global policies and processes and clarifying roles and responsibilities, in order to ensure smooth operations and the equal treatment of our employees in global mobility cases, for instance. To align HR practices globally and drive our One Outotec culture, a new HR handbook was launched for the HR community. This initiative was supported by extensive communications.

OUR POLICIES

- Code of Conduct
- HR Handbook
- Competence Development Policy
- Recruitment and Onboarding Policy
- Compensation Policy
- Global Mobility Policy
- Job Description and Job Title Policy
- Grading Policy



Cases demonstrating our approach to resource efficiency

On the following pages we showcase our approach by describing some concrete cases that illustrate how we put resource efficiency to the forefront in our work with customers.

CASE: Optimal water management for mine sites

Water plays a key role in the mining industry. Our customers face challenges including the need to meet business performance targets and reduce their water consumption. Outotec's solutions offer flexible options for the management of complex, site-specific water streams.

Water has a central role in mineral processing. However, the availability of water can be a major concern for mine operators. Mines are often in remote locations with highly limited natural water reserves. Tightening regulations and increased environmental awareness have recently made it increasingly important to monitor and manage water balances effectively.

Already today, Outotec's customers are facing resource scarcity, particularly when it comes to minerals. As the metal content of ores decreases, more ore must be excavated and processed to produce the desired amounts of metals and end-products. This in turn increases the need for water in these processes.

All this is pushing mine operators to seek new, digital ways to optimize their water usage.

MORE EFFICIENT AND SUSTAINABLE ORE RECOVERY

With proper monitoring, we can ensure that ore grades and recovery rates are not reduced by poor quality water. The chance to keep an eye on water-related KPIs in real time enables our customers to stay informed on busi-

ness-critical information and spot potential issues in good time.

Lower effluent volumes mean that customers also save on operating costs and reduce risks. Dynamic and real-time water balance simulations, risk analyses and forecasts of future scenarios allow our customers to stay more than one step ahead, and tackle challenges related to excess water and flooding.

"We also send out our experts to support customers throughout their daily operations by assessing their water management periodically, and then giving recommendations," says Susanna Horn, Life Cycle Manager. "Our dedicated Operations Support Center is available around the clock to provide optimization and decision-making support within the agreed response time."

Above all, our service concept enables our customers to focus on their core operations.

IMPROVED VISIBILITY THROUGH DIGITALIZATION

By using advanced hardware and software solutions provided by Outotec, it is now possible to monitor water quantities and qualities in real time. We can also calculate scenarios to illustrate the development of the water balance in the coming weeks, or map out the effects of potential process changes on water quantities and quality.

"These digital capabilities form the core of Outotec's offering for water management," says Eija Saari, Service Product Manager, De-watering Solutions. "It's our ability to simulate changes and evaluate scenarios that sets us apart from our competitors."

Above all, our service concept enables our customers to focus on their core operations

SCALABLE CONCEPT OPTIMIZES WATER FOOTPRINT

Outotec has unique industry-relevant water and process expertise which we combine with our online sensing, modeling and automation know-how.

"We know what types of water our customers' plants need, and how this water needs to be treated to stabilize production, reduce water-related business risks, and achieve a sustainable balance of water supply consumption," says Kaj Jansson, Director, Mineral Processing Concentrator.

Our scalable water management concept combines online measurement with dynamic

water balance monitoring. This scalable service has three modules: Monitor, Manage and Predict & Evaluate

Outotec's Dynamic Water Balance with HSC Chemistry is an automatically updated thermodynamic calculation software system, often used in metallurgical modeling, which can also be applied in dynamic water balance modeling.

SECURE DATA MANAGEMENT

Outotec's customers always retain ownership of their data. The information collected by Outotec's sensors to support customers' daily operations is managed securely: only the experts working on the project have access to the customer's data.

Our information security management and practices are based on the ISO/IEC 27001 and 27002 standards.

Monitor	Manage	Predict & Evaluate
Real-time information on water quantities and quality	Forecasts and scenarios for operational conditions	Scenarios to facilitate evaluations of best investment alternatives and options for process optimization
Based on physical instrumentation and online visibility	Able to use customer's water balance and KPIs, as well as data from various sources	The highest level of service
	Visualizes the results	HSC software
	HSC software	

CASE: Innovative technologies for nutrient recycling

Dwindling deposits of mineral phosphorus and eutrophication are major challenges that affect Outotec's customers – and also our whole planet. Outotec offers a wide-ranging portfolio of comprehensive sludge treatment solutions for energy production and nutrient recycling, complemented by partnerships.

The phosphorus fertilizers currently used in agriculture today are a non-renewable resource mined from finite mineral deposits. Mineral phosphorus is becoming increasingly rare, and the food supply in some regions of the world is already completely dependent on imported phosphorus.

We believe that nutrient recycling will help to combat eutrophication and shortages of phosphorus. By using the right technology, it is now possible to recover phosphorus from sewage sludge for use as a fertilizer.

"When municipal energy and sewage treatment companies can recover valuable nutrients and sell them to fertilizer producers, this benefits society as a whole," says Tanja Schaaf, Senior Product Engineer, Thermal Processing.

OLD TECHNOLOGY – FOR A NEW PURPOSE

The basic ASH DEC technology is a thermo-chemical process for separating heavy metals from ash generated during the combustion of industrial and municipal waste. The combustion

of sewage sludge also produces electricity and heat usable for district heating. Combustion also produces ash, from which we can recover phosphorus. In addition to turning waste into new raw materials or even directly into products, ASH DEC can also reduce hazardous landfill volumes and ash-handling costs.

PARTNERSHIPS FOR DRIVING NUTRIENT RECYCLING

In 2016, Outotec partnered with Thermo-System GmbH, a German based global leader in low-energy drying technology. Such technology is mainly used for pre-drying sewage sludge or wet peat before incineration. Part of the resulting pre-dried sludge can now be mixed with incineration ash to produce valuable raw materials rich in phosphorus, nitrogen and potassium.

In May 2016, Outotec and Ecolan, the leading Finnish forest and organic fertilizer producer, won the first prize in a Sitra competition looking for solutions for nutrient recycling. The companies' solution, Fullrec, combines three technical processes: Outotec's DeBugger and ASH DEC processes, and Ecolan's granulation process. Through this tested and proven approach, digested sludge is not burned, but dried and mixed with ash. The resulting mixture is then granulated to create a product that can be transported cost-efficiently.

"Together with Ecolan, we have been developing this concept in the new industry zone ECO 3 in the Finnish city of Nokia," says Ju-

hani Anhava, Director, Energy & Environment Business Development. "The goal is to develop a thermal treatment plant for sewage sludge. The project is currently in the construction phase, and expected to become operational in the first quarter of 2017."

SUPPORT FOR CHALLENGING CONDITIONS

In 2016, Outotec secured a contract with the Italian engineering company Desmet Ball-estra S.p.A Milano, to design and deliver a solvent extraction plant to purify fertilizer phosphoric acid before evaporation.

The customer's operations in a desert area in Egypt face several challenges affecting the viability of fertilizer production, including:

- The isolated location of the plant
- The low phosphate content of the ore body
- The relatively large throughput of the plant
- Impurities created in the process

Outotec's basic design for the solvent extraction facility is based on scalable modules, making it ideal for application to diverse customer needs. Such a modular solution enables the creation of a closed system, reducing emissions of volatile organic compounds (VOCs). The modules are easy to transport and install, which reduces the total delivery time dramatically, and also brings safety benefits. As the life-cycle of the plant comes to its end, the modules can be transported to other locations, avoiding the expenses that characterize conventional plant closures. Outotec

Scalable modules are ideal for diverse customer needs

provides the customer with VSF®X technology, a license, equipment for crud treatment, and a cooling tower.

Outotec will also deliver two sulfuric acid plants for the same project. The technology offered by Outotec improves the sustainability of NCIC's fertilizer plant by:

- Minimizing fugitive emissions of sulfur dioxide from the acid plant
- Generating carbon-free energy by applying our HEROS heat recovery technology
- Reducing the plant's consumption of raw water

CASE: Flotation retrofit boosts performance at Yamana Gold’s mine

At Yamana Gold’s gold and copper mine, the identification of flotation issues led to a turnkey retrofit project that has generated significant improvements in recovery rates, while also reducing energy consumption.

Yamana Gold is a Canadian-based gold producer with mines and operations in Canada, Mexico, Brazil, Argentina and Chile. The company’s Chapada open pit gold and copper mine in Brazil began production in 2007.

When it comes to the efficient mining of precious metals, flotation performance is of the utmost importance. Outotec’s role in improving Yamana Gold’s operational efficiency began with the delivery of a Courier on-stream analyzer, which Yamana’s personnel used to assess the performance of their processes. Their analysis showed that considerable amounts of gold and copper had been ending up in tailings. The flotation cells, provided by another supplier, were prone to sanding, which caused repeated disruptions in the flotation circuit.

Yamana conducted a thorough evaluation of alternative courses of action, and then turned to Outotec, whose metallurgical and mechanical assessments showed large potential for improvement in the flotation process. In March 2016, a turnkey retrofit project of 10 non-Outotec flotation cells with Outotec TankCell® and FloatForce® technology was initiated.

“The Yamana Gold case is a great example of the benefits of paying attention to resource efficiency,” says Miika Tirkkonen, Senior Manager, Service Product Management. “Valua-

ble material was being continuously lost due to inefficiencies in flotation, and recovery was unsatisfactory. By modernizing the equipment, Outotec was able to improve both the productivity and the energy efficiency of the flotation process.”

SAVINGS FROM MINIMIZED SHUTDOWN TIME

The project scope included:

- Computational Fluid Dynamics (CFD) studies
- Basic and detailed engineering
- Shutdown planning
- Delivery of proprietary equipment
- Turnkey installation, commissioning
- Assisted operation
- Advanced training of on-site personnel

Customized steel works were manufactured in Brazil, which enabled short delivery times, contributing to the flexibility and overall efficiency of the project. Outotec also provided all installation and commissioning personnel, except for certain locally contracted electrical specialists. In total, more than 80 Outotec experts took part in the modernization, working in two shifts to ensure the efficient use of the available time.

Minimizing shutdown time and production loss was naturally vital to the customer. Outotec was able to answer this challenge with a tailored concept that took the project’s total cost and return of investment into consideration. The second bank shutdown took only six days, instead of the planned eleven, saving valuable time and allowing Yamana to restart operations sooner than anticipated.

OPERATOR TRAINING PROVIDES ADDED VALUE

In addition to the retrofit, Yamana needed a dependable partner who could help the company improve its operations on a continuous basis, and Outotec was happy to step forward. Outotec provided Yamana with advanced operator training, using its Virtual Experience process to familiarize the mine operators with the technology and instructing them in its efficient use.

“Outotec is best known for its technological solutions, but we also give great importance to our service offering,” says Annami Toukoniitty, Director, Services Business Development. “The skilled operation of a mine’s technological assets can have a profound effect on its profitability as well as its maintenance needs. By offering related training services we can give added value to our customers.”

COOPERATION CONTINUING

Yamana Gold’s flotation issues were successfully resolved, creating major benefits for the mine, including:

- Greater stability and control of flotation cells, allowing for increased process optimization
- Significantly reduced energy consumption, thanks to the use of Outotec cells (40%)
- Minimized sanding, and increasing flotation circuit availability
- Improved flotation performance, enhancing the recovery of both copper and gold

Cooperation between Yamana Gold and Outotec is now continuing with the identification and removal of other potential bottle-

Resource efficiency has resulted in concrete benefits at Yamana Gold

necks, which will further improve the performance of the entire facility.

“The close cooperation between Outotec and Yamana has helped us to plan and implement the retrofit project in an atmosphere of mutual trust, creating a solid base for continued partnership,” explains Miika Tirkkonen.

Yamana Gold retrofit project	
Customer	Yamana Gold
Project site	Chapada open pit gold and copper mine in Brazil
Challenges	unsatisfactory flotation performance; repeated disruptions due to sanding
Solution	retrofit of 10 flotation cells with Outotec technology
Results	improved flotation performance, availability and recovery

CASE: Sustainability Master Class - Diving into customers' operating environment

Launched in December 2016, the Sustainability Master Class is jointly run by the University of Helsinki and Outotec to fuel innovation by activating an interdisciplinary group of 45 young researchers and professionals. Two of Outotec's mentors involved in the program, Susanna Horn, Sustainability Development Manager, and Markku Uoti, Senior Manager – Risk Management, explain the background and goals behind the program.

The Sustainability Master Class is mentored by business and technology experts who define real-life business challenges and opportunities for the class to consider and constantly support participants' co-creation work.

Themes including social license to operate (SLO), technology leapfrogging and disruptive business models create the backbone for the four-month program, as risks and opportunities that characterize our industry.

"Outotec's legacy is widely understood as an equipment supplier," explains Markku Uoti. "However, in recent years our strategy has heavily underlined customer-centricity and service business, so our customers' daily operating challenges are now our challenges too."

The University's entrepreneurial community Helsinki Think Company and the Demos Helsinki think tank are facilitating the process.

FROM COMPLIANCE TO STRATEGIC SUSTAINABILITY

When defining themes for the program, Outotec chose to approach the entire value chain – from minerals to refined metals.

"Focusing only on our own operations and their sustainability might lead only to limited improvements in comparison to the greater potential along our entire value chain," says Susanna Horn. "This is why we broadened the horizon to cover the customer's perspective as well. The participants will become familiar with the sustainability of the whole industry."

Many of Outotec's customers today face sustainability-related concerns, from excessive water and energy consumption to environmental hazards. According to Markku Uoti, who works with risk management issues at Outotec, companies in the mining and metal processing industries are characterized by different maturity levels and attitudes when it comes to handling these risks.

The most advanced companies do not only seek to comply with regulations, since they also want to be forerunners and redeem their SLO – while at the same time benefiting from resource efficiency, and thereby gaining a competitive advantage.

"These customers expect us to be their trusted partners, who can lower their opera-

tional risks and their water and energy consumption," adds Horn. "This means considerable economic savings for them as well as environmental benefits. We at Outotec hope this group will grow in the future."

At the other end of the spectrum there are players – especially in developing countries – who operate at the lowest possible costs, and sustainability may not be their first priority when dealing with water and tailings, for instance. Local communities may consequently suffer from environmental impacts such as bursting dams and contaminated drinking water.

This gap leads to the concept of leapfrogging, which is one of the challenges being addressed by the Sustainability Master Class: Could there be ways to accelerate the development of such negligent operations by enabling them to skip less efficient and more polluting technologies and move directly to more advanced solutions?

One commonly used leapfrogging example is energy production: countries with low development levels should not imitate developed countries by constructing expensive energy infrastructure based on the use of fossil fuels. Instead "jump" directly into a modern energy infrastructure, enabling a wider diversity of energy sources to be used.

OPPORTUNITIES FOR LEAPFROGGING

SLO and leapfrogging often go hand in hand. "Mining companies often justify their investments by promising wealth, jobs and infra-

structure, but locals remain concerned about the environment," explains Uoti.

Technology leapfrogging may help in many ways, but it cannot alone be the solution where problems include the social impacts of business activities, such as low wages, child labor or political issues.

Could the Master Class participants find ways to build a new kind of stakeholder dialogue? Knowing the complexity of these issues, Outotec is looking forward to fresh ideas and out-of-the-box thinking to challenge the status quo. The value of fresh and interdisciplinary thinking on sustainability issues has been a major factor behind our participation in this program.

SUSTAINABILITY FROM DISRUPTIONS?

The best ways to improve sustainability could consist of strategic changes and innovations that may be disruptive in operational terms. The Master Class participants were therefore assigned to think about potentially disruptive business opportunities that could positively shake up the relatively conservative metals and mining industry.

Disruptive business models are innovations that create new markets or make existing ways of doing business obsolete, by being safer, more efficient or less costly, for instance.

In Outotec's field of business, digitalization can loosely be considered disruptive: Plants can be operated remotely without people, and resource efficiency can be increased

About this report

by following the production process automatically in real time. This already enhances both efficiency and operational safety. But the industry is also anticipating further benefits.

In early 2017, the program has already continued with a science camp. It will next move on into a phase of experimentation and ultimately to the pitching phase, where challenge outcomes will be presented in seven-minute sessions in early April. The outcomes will be reported in our Sustainability Report 2017.

"I have been delighted to see how well participants have embraced these topics, and I can't wait to see the outcomes," says Horn.

Challenges:

- Create a new solution (a practice or a model) that will enable companies to earn their social license to operate (SLO) in different contexts.
- Develop a new sustainable business model that would disrupt the mining industry
- Develop a model, practice or service that supports or enables leapfrogging to clean technology in the mining industry in developing countries.

The Sustainability Master Class can also be followed through a blog published at: <http://blogs.helsinki.fi/sustainability-master-class/>

Our reporting corresponds to the 'Core' level of the GRI G4 reporting framework, and describes our progress in addressing the UN Global Compact principles, as well as our commitment to the UN Sustainable Development Goals.

Outotec's Sustainability Report 2016 has been prepared according to the to the "Core" level of the GRI G4 reporting framework and the UN Global Compact principles. However, General Standard Disclosures as specified in the GRI G4 guidelines are presented in a wider scope than required by the Core option. Specific Standard Disclosures, consisting of management approach and indicators, are made with respect to the material aspects defined as applicable to Outotec. Indicators are reported with a somewhat wider scope than required by the Core option.

The reporting period is the calendar year 2016. Some information relating to developments from January to March 2017 has also been included in the report.

This report has been verified by an independent third-party assurance provider. The report is available in English and published online only.

DISCLOSURE ON OUR MANAGEMENT APPROACH

Outotec's generic management approach to sustainability covers all of the aspects of the G4 framework identified as material to our operations. We also report on our management approach with regard to specific aspects in the relevant sections of this report. Re-

spective page references are included in the report's GRI index.

The GRI index also shows which indicators have been used by Outotec to evaluate our progress on the 10 principles of the Global Compact initiative, regarding human rights, labor rights, environment principles and anti-corruption principles, as well as the related Sustainable Development Goals.






MATERIALITY ASSESSMENT





The material aspects identified as most relevant to the company and our stakeholders by a materiality assessment conducted in 2014 continue to form the basis for our sustainability management and reporting. As part of the materiality assessment, we identified our customers, employees, suppliers, investors and financiers, the media, NGOs and local communities as the main users of this report. In a review of key stakeholders conducted during 2016, the academic community was added as a key stakeholder group.




REPORT COVERAGE

We report on our own 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.

Annual targets

Target for 2016	Performance in 2016	Target for 2017	GRI indicator & relevant SDG
1. SAFETY			
New lost-time incident management system implemented globally in major locations	Partly achieved. The system was developed and piloted in 2016 but not implemented globally.	The lost-time incident management system to be integrated into our existing global reporting tools	G4-LA6 
Harmonized product compliance management procedures in use globally	Partly achieved. Harmonized procedures have been implemented in many locations to replace previous local procedures.	Reviewed and simplified harmonized product compliance management procedures to be implemented globally	G4-PR1
2. SUSTAINABLE OFFERING			
Environmental goods and services (EGS) to account for over 90% of order intake	Achieved. EGS accounted for 90% of total order intake	EGS to account for over 90% of order intake	G4-EN27 
20% reduction in CO ₂ emissions achieved through the use of Outotec's metals-related technologies, compared to industry averages	Achieved. 27% reduction in CO ₂ emissions achieved through the use of Outotec's metals-related technologies	20% reduction in CO ₂ emissions to be achieved through the use of Outotec's metals-related technologies, compared to industry averages	G4-EN27 
Implement recently developed water recycling concepts, and start their commercialization	Partly achieved. Our first new water treatment solution based on electrochemistry, which enables water recycling, was piloted with a customer. Our offering included improved water recycling solutions in 15 cases.	The piloting of the water treatment solution to be completed and our offering expanded to encompass the entire water management of a mine site. The safety benefits of our dry stacking alternative to be emphasized.	G4-EN27 
Reductions in the use of fossil fuels by Outotec waste-to-energy plants, amounting to 60 MWe, and by steam boilers amounting to 60 MWth	Not achieved. Plants ordered in 2015 were under design and construction in 2016 but not yet in operation.	Reductions in the use of fossil fuels by Outotec's renewable energy solutions amounting to 12 MWe and/or by steam boilers amounting to 60 MWth	G4-EN27 

Target for 2016	Performance in 2016	Target for 2017	GRI indicator & relevant SDG
3. RESPONSIBLE BUSINESS PRACTICES			
Review Outotec's Code of Conduct, including its coverage and human rights perspectives	Achieved. Code of conduct reviewed and human rights perspectives assessed.	Working conditions to be assessed at Outotec's main manufacturing and service sites, including Code of Conduct training for blue-collar employees	G4-S04 
4. SUSTAINABLE SUPPLY CHAIN			
95% of major suppliers committed to Outotec's Supplier policy	Achieved. All major suppliers committed to Outotec's Supplier policy.	Audits to be run globally to cover 10% of key suppliers where a purchase order has been placed recently, for product quality, with supplier development actions planned (or implemented) according to the audit findings All key suppliers not certified under ISO 14000 and/or ISO 18000 to be audited on health, safety, environmental and social aspects	G4-EC9 G4-HR10 
5. DEVELOPMENT OF OUR PEOPLE			
1% improvement in employee engagement and performance enablement indices compared to the 2013 baseline	Not achieved. A Pulse survey was conducted, but no improvements in employee engagement or performance enablement indices were recorded.	Index improvements of 6% in employee engagement and 4% in performance enablement, compared to Pulse survey results from 2016	G4-26 
100% of employees to go through performance development discussions (PDDs)	Partly achieved. Due to system changes, no exact data is available for 2016. According to the available data, PDD coverage is estimated to be 95% of employees.	-	G4-LA11
6. EQUAL OPPORTUNITIES AND DIVERSITY			
-	-	2% increase in the number of female leaders in senior leadership positions compared to 2016	G4-LA12 

Target for 2016	Performance in 2016	Target for 2017	GRI indicator & relevant SDG
7. COMMUNITY INVOLVEMENT			
One new community project started	Achieved. A new Sustainability Master Class program, run jointly by Outotec and the University of Helsinki, was launched.	One new community project to be started	G4-S01 
8. STAKEHOLDER DIALOGUE			
Based on customer feedback, realize corrective actions and publicize these actions among customers, while also communicating successes through customer cases.	Partly achieved. Short-term corrective actions were specified after each round of quarterly customer surveys. Corrective actions and communications with customers were mostly realized through customer interfaces at local level; follow-up data not fully available.	Continue with existing feedback surveys to measure our performance per customer relationship and initiate a new transactional feedback survey for field service.	G4-PR5 
9. MINIMIZE OUR OWN ENVIRONMENTAL IMPACT			
New energy-saving concept implemented in 5 locations	Achieved. ISO 50001 energy management systems including saving concepts were implemented in 4 locations in Germany. In Finland, Outotec's energy saving agreement was renewed, with new targets set.	ISO 50001 energy management systems, including energy saving concepts, to be implemented in all locations in Finland and a new harmonized quarterly global energy consumption reporting concept to be created and implemented.	G4-EN6 
A 5% decrease in CO ₂ emissions from flights per EUR 1 million sales, to be achieved by increasing virtual working methods	Achieved. A 22% decrease in CO ₂ emissions from flights per EUR 1 million sales, compared to 2015.	Maintain the same lower level of CO ₂ emissions from flights per EUR 1 million sales as recorded in 2016.	G4-EN19

Outotec's metals-related
technologies reduce
CO₂ emissions by 27%

A 22% decrease in
CO₂ emissions from flights
per EUR 1 million sales

Data collection

In 2016 there were no changes in the reporting scope because Outotec did not make any mergers, acquisitions or divestments. 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% (G4-22).

ECONOMIC DATA

The financial 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 have been prepared according to the International Financial Reporting Standard. In addition, some data has been collected manually from Microsoft Excel spreadsheets.

ENVIRONMENTAL DATA

Performance data on environmental aspects has been collected from our major business units for electricity use, heating, owned or leased company cars, flight emissions, water use, paper use, recycled waste, and landfill waste. Some environmental indicators have been recalculated for previous years, because there were significant changes in the general validity of the data.

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. A new database was employed to help us compile environmental data on location-specific data sheets.

Data from Outotec's project site operations was excluded from the data collection. All the local companies 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 data was readily available for Outotec's largest business units. Our smallest offices, which mainly have fewer than 10 persons, were not able to report environmental data because they are located in large office premises together with other companies. They typically pay a monthly lump sum to office space providers, and therefore it is not possible to determine their specific electricity, heat or water consumption.

As of 2016, environmental data has been collected through our health and safety reporting system. Each location's data is compiled on Microsoft Excel spreadsheets and fed into a SAP BO database. The data is then analyzed and combined into a single file to facilitate calculations.

SOCIAL DATA

Data on our social performance 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 SuccessFactor system. Changes were made to this tool in 2016, and for that reason we could not get the exact number of employees who conducted PDDs in 2016.

Training data covers Outotec's global training programs and it has been compiled from different reporting systems. Data on global training programs has been collected from a learning management system, our e-learning platform, and local human resources personnel. Safety training data has been collected from the health and safety reporting system. In addition, name lists were collected in Code of Conduct class-room trainings organized for blue-collar workers, and the number of participants was added in the final calculation when preparing this report. The learning management system was renewed in 2016, which is expected to improve the coverage and quality of our training data as of 2017.

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. It also covers subcontractors on construction sites. Data about employees traveling in high-risk countries was collected from the Travel Tracker system used as part of our Global ISOS service.

Supply data is collected using the Global Supplier Database and from the SIEVO spend management software.

To collect data on human rights and compliance data, a questionnaire in the form of Microsoft Excel sheets was sent to the person responsible for human resources in each location.

Economic data

Our approach to economic responsibility and our related impacts are described in:

- Direct and indirect financial impacts, page 8
- Sustainability agenda 2020, page 13
- Impacts of megatrends on our business, page 10
- Responsible business practices, page 24
- Building a sustainable supplier base, page 27
- Engaging with stakeholders, page 17

Our financial performance in 2016 is described in:

- Financial Statements 2016 at www.outotec.com/investors
- Direct and indirect financial impacts, page 8

Our procurement practices are described in:

- Direct and indirect financial impacts, page 8
- Building a sustainable supplier base, page 27

Environmental data

In line with our strong focus on resource efficiency, we strive to operate with minimum inputs of energy and materials and to closely monitor our consumption of electricity, heating and water.

The bulk of Outotec’s operations involve engineering and business management in offices located in 34 countries. Our operations also include research centers in Finland and Germany; a Dewatering Technology Center, two manufacturing workshops and a ceramic plate production plant in Finland; assembly shops in Brazil, Canada, China, and the USA; spare parts and service workshops in Qatar, United Arab Emirates, Mozambique and South Africa; and several warehouses. Approximately 80% of Outotec’s manufacturing is outsourced.

In 2016, Outotec did not make any acquisitions. The operations of Sinter Plant Services, a service company we acquired in December 2015 in South Africa, have now been included for the first time in our reporting.

The environmental impact of office work is relatively small and is managed through our quality, environment, health and safety (QEHS) management system. Sustainability, pollution prevention and sound environmental management are required in all of our operations. We strive to operate with minimum inputs of energy and materials, and we record our consumption of electricity, heating and water annually. Our reporting of environmental data covers Outotec’s premises and employees as

well as contractors working under our supervision at project sites.

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.

To help reduce our primary energy consumption, we are piloting an energy management system based on ISO 50001 in Germany. Environmental criteria are taken into account whenever we select new office premises. Outotec’s two largest offices, in Espoo, Finland, and Oberursel, Germany, fulfill LEED® Gold requirements. Leadership in Energy and Environmental Design (LEED) is a globally recognized green building certification program.

At our research centers, we record our consumption of electricity and natural gas used for test purposes on a monthly basis. We also have local or unit-specific targets for the energy efficiency of other operations.

Our waste management system provides for the 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.

MATERIALS

Materials used (G4-EN1)

The materials used globally by Outotec operations:

Materials used, tonnes	2016	2015	2014
Paper	49.6	70.4	70.9
Steel	2,097	5,600	6,200
Ceramics	31	109	113
Cardboard packaging	18.3	12.9	13.8
Plastic packaging	3.3	1.1	1.7
Metal packaging	1.2	1.2	1.6
Wood packaging	238.7	210.6	230.1

The use of paper has probably declined due to lower business volumes and digitalization. Steel consumption has significantly dropped since we received fewer large plant orders and had fewer projects under construction in 2016.

We manufacture high-tech ceramics in Turku, Finland, for use in Outotec filters. The consumption of ceramics decreased from 2015 because of lower sales of ceramic filters.

Outotec’s Finnish workshops in Lappeenranta, Turula and Turku report the amount of packaging they use annually to Finnish Packaging Recycling Ltd (RINKI).

ENERGY

Energy consumption within the organization (G4-EN3)

Figures for our total global electricity and fuel consumption from non-renewable sources are shown in the table below. We did not consume any renewable fuels or sell any electricity, heating, cooling or steam in 2016. 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. In 2016, we chose 2015 as a new base year for future comparisons since we entered into new energy saving agreements in 2016.

Energy consumption, TJ	2016	2015	2014
Direct energy consumption:	47.8	48.5	38.8
Propane gas	10.5	11.2	7.9
Light fuel oil	0.7	0.3	0.3
Coal, coke, semi coke	0.1	0.4	0.2
Natural gas	15.9	23.5	22.7
Diesel and gasoline	20.5	13.3	5.7
Indirect energy consumption:	117.6	116.0	116.1
Electricity (incl. cooling)*	71.4	73.7	71.8
District heating	45.2	40.8	43.2
Steam	1.0	1.5	1.1
TOTAL energy consumption	165.5	164.5	152.9

*) to TJ from converted to TJ: 19,837 (2015: 20,482) MWh

Energy intensity (G4-EN5)

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

Energy, TJ/EUR 1 million sales	2016	2015	2014
Energy intensity	0.16	0.14	0.11

The denominator for the energy intensity calculations is:

Denominator	2016	2015	2014
Sales, EUR 1 million	1,059	1,201	1,403

Reduction of energy consumption (G4-EN6)

Our target for 2016 was to implement a new energy-saving concept in five locations. To reduce our primary energy consumption, we implemented a new Energy Management System (EMS) based on ISO 50001 to be applied in four locations in Germany. This system was certified by TÜV Rheinland Cert GmbH in 2016. Following the piloting of this EMS in Germany, other Outotec locations will implement the system in the coming years. Our Finnish units are due to be certified during 2017. In Finland, Outotec renewed its official energy saving agreement, adding new targets.

All our Finnish manufacturing units and our Pori research center remained committed to the Federation of Finnish Technology Industries' energy efficiency agreements for 2008-2016, aiming to save 9% in energy consumption compared to the baseline year 2006. The total savings in energy consumption achieved in these units amounted to 15%, as shown in the below table. The data was collected from each location in the Motiva data collection system used in the Finnish scheme. The consumption figures include different types of fuels, purchased electricity, and district heating. The conversion factors between energy units are taken from Statistics Finland.

Energy consumption in Finnish units, TJ	2016	2015	2014
Pori research center and Turula works			
Energy consumption	38.3	33.4	38.5
Energy saved due to efficiency improvements, TJ compared to base year	9.6	14.4	9.4
Lappeenranta works			
Energy consumption	18.8	18.0	18.3
Energy saved due to efficiency improvements, TJ compared to base year	1.2	2.1	1.8
Turku works			
Energy consumption	13.2	13.0	11.0
Energy saved due to efficiency improvements, TJ compared to base year	3.6	3.8	5.8

In 2016, Outotec entered into a new energy efficiency agreement in Finland, committing to reduce the energy consumption of our Finnish units by 4% by 2020, and 7.5% by 2025 compared to the new base year 2015.

A new energy efficiency plan was made in Germany in 2016, including about 20 measures to be implemented during 2016-2019. The first results will be reported in 2017.

WATER

Water withdrawal (G4-EN8)

We purchase water locally from municipal water suppliers, and channel waste water 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. Outotec's research center in Pori uses river water for cooling purposes in test facilities. After use, this water is channeled back to the river. We also monitor water consumption at our premises.

Water consumption, m³/year	2016	2015	2014
Drinking water	65,138	61,348	53,506
River water for cooling	4,186	2,628	9,548
Total water usage	69,320	63,976	63,054

Our total water usage increased due to more accurate reporting on consumption at locations recently acquired in Southern Africa.

EMISSIONS

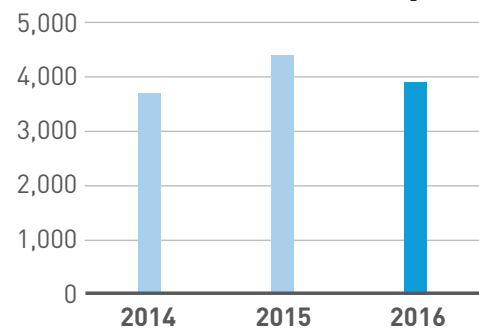
Direct greenhouse gas emissions (scope 1) (G4-EN15)

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 (CO₂e)

emissions released by company cars, excluding vehicles used in site operations at customers' plants. The conversion factors for the fuel specific CO₂e emissions are taken from Statistics Finland. For the company cars, the CO₂e emissions are calculated based partly on the reported gasoline and diesel consumption, and partly on the reports of the leasing companies. Calculations only relate to CO₂, as we do not release emissions of other greenhouse gases.

Direct GHG emissions, tonnes of CO ₂ e	2016	2015	2014
Scope 1 emissions (own fuel combustion, company cars)	3,910	4,431	3,774
Company car emissions in Finland, g CO ₂ e/km	119	121	123
Reduction from 2008, %	38	37	35

SCOPE 1 EMISSIONS, TONNES OF CO₂E



Energy indirect greenhouse gas emissions (Scope 2) (G4-EN16)

Indirect GHG emissions, tonnes of CO ₂ e	2016	2015	2014
Scope 2 emissions (purchased heat and electricity), location-based	7,270	7,646	8,746
Scope 2 emissions (purchased heat and electricity), market-based	7,483	9,669	*

*) In 2014, the market-based and location-based calculation methods were not applicable

In line with the Greenhouse Gas Protocol, we used a Corporate Accounting and Reporting Standard to calculate Scope 1 and Scope 2 emissions. The calculations only relate to CO₂ as we do not release emissions of other greenhouse gases. Country-based emission factors were retrieved from the Protocol's calculation tool 'GHG emissions from purchased electricity'. For the market-based approach, calculations using 'Residual mix based CO₂e emissions' were applied for Finland, Germany and Sweden (Source: http://www.reliable-disclosure.org/documents/161-RE-DISS_2014_Residual_Mix_Results_2015-05-15_corrected2.pdf, European Residual Mixes 2014). 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.

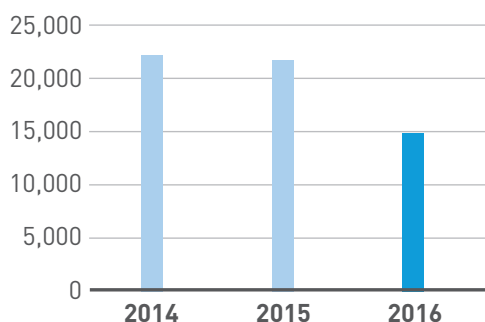
In 2016, Outotec purchased 5,983 MWh of CO₂-free electricity from renewable energy sources in Finland and Germany. We are gradually moving to renewable energy in our major locations in Germany and Finland, excluding the Pori research center.

Market-based Scope 2 emissions decreased by 23%, mainly due to the increased share of renewable energy, but also due to reduced electricity consumption. From 2016 onwards the base year will be 2015.

Other indirect greenhouse gas emissions (Scope 3) (G4-EN17)

Other GHG emissions, tonnes of CO ₂ e	2016	2015	2014
Scope 3 emissions (air travel, train journeys and commuting)	14,952	21,762	22,267

SCOPE 3 EMISSIONS, TONNES OF CO₂E

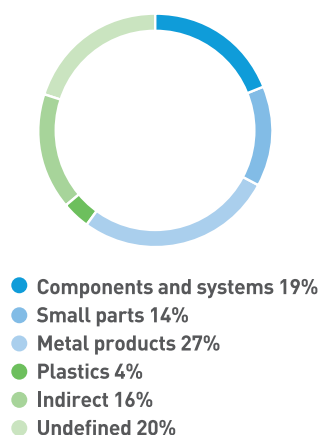


We report Scope 3 emissions only from our own operations and do not include the supply chain since project sites remain outside our reporting scope. However, we have calculated that the carbon footprint of our supply chain amounts to 360,000 tonnes of CO₂ equivalent (345,000), where metal products was the biggest source of CO₂ emissions, representing 27% (25%) of the total. Calculations were based on Outotec's spending and supply chain emission factors as defined by the UK Department for Environment, Food and Rural Affairs (DEFRA). The gas included in the calculations

is CO₂ from fossil fuel sources, excluding bio-based CO₂ emissions. From 2016 onwards the base year will be 2015.

Supply chain GHG emissions, tonnes of CO ₂ e	2016	2015	2014
	360,000	345,000	386,000

CO₂ EMISSIONS BY SUPPLY CATEGORY



Within Scope 3, emissions from air travel are the biggest single source at Outotec (G4-EN30). These emissions decreased by 31% in 2016, due to a decline of 27% in the total length of business-related flights and because our personnel increasingly traveled in economy class on long-haul flights.

The CO₂e calculations for flight emissions are based on guidelines produced in connection with DEFRA's GHG Conversion Factors. Economy class flights result in lower emissions per kilometer than business class travel.

Video conferencing systems are available in all of our major locations. We also use teleconferences and Skype for Business for internal meetings. In 2015, Outotec took a new set of collaboration and information sharing tools, known as Office365, into use, which significantly increased our use of virtual meetings and reduced the need for traveling.

Outotec actively 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 ₂ e	2016	2015	2014
Total GHG emissions, location-based	26,131	33,839	34,768
Total GHG emissions, market-based	26,344	35,862	*

*) In 2014, the market-based and location-based calculation methods were not applicable

GHG emissions intensity (G4-EN18)

Tonnes of CO ₂ e/ EUR 1 million sales	2016	2015	2014
Relative flight emissions	12.8	16.4	14.6
Relative total GHG emissions, market-based	24.7	28.2	24.8
Relative total GHG emissions, based on country-specific electricity mixes in Finland and Germany	24.9	28.9	*

*) In 2014, the market-based and location-based calculation methods were not applicable

Our relative flight emissions per one million euro sales decreased by 22% from 2015. Our target for 2016 was to achieve a 5% decrease in CO₂ emissions from flights per EUR 1 million sales, by favoring virtual ways of working. The relative reduction was, however, smaller than the actual reduction of Scope 3 emissions because Outotec's sales in 2016 decreased by 12%. The gas included in the calculations is CO₂ from fossil fuel sources, excluding bio-based CO₂ emissions.

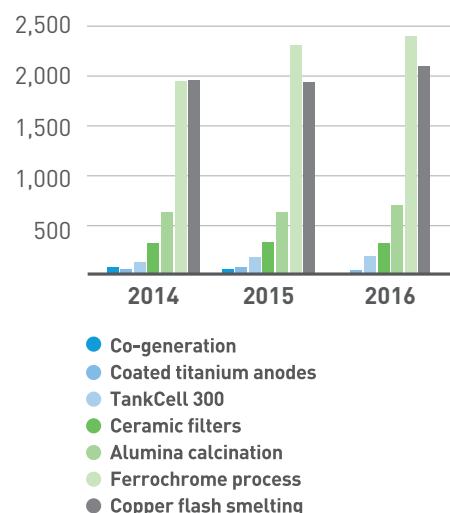
The overall positive impact of Outotec's business travel can be best illustrated by comparing our total annual GHG emissions in 2016 (market-based), which were 26,344 tonnes CO₂e (2015: 35,862), with the emissions avoided by using seven of our key technologies, which amounted to 5,870,000 tonnes of CO₂e (5,469,000).

Emissions avoided

Emissions avoided, thousand tonnes of CO ₂ e	2016	2015	2014
GHG emissions avoided through the use of seven Outotec technologies	5,870	5,469 (6,600)*	5,067 (5,900)*

*] Updated calculations included seven Outotec technologies: Copper flash smelting, Ferrochrome process, Alumina calcination, Ceramic filters, Co-generation, Coated titania anodes and TankCell 300 flotation cells. In early 2017, Outotec purchased a new database for industrial data, according to which the baseline had changed, and we consequently recalculated the figures for 2015 and 2014. Our policy is to recalculate previous years' data when discrepancies exceed 10%.

Emissions avoided by technology, tonnes of CO₂e



WASTE

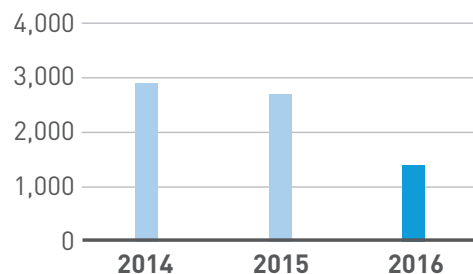
Waste handling is not centrally managed at Outotec. We have instructed our locations to sort waste according to local regulations and the guidelines provided by facility owners.

Total weight of waste by type and disposal method (G4-EN23)

Waste, tonnes	2016	2015	2014
Waste recycled	766	1,013	1,346
Landfill waste and incinerated waste	597	1,484	1,482
Hazardous waste	42	261*	98
Total waste	1,405	2,758	2,926
Paper recycled	97	120	151

*] A large amount of hazardous waste was removed from a workshop acquired in Mozambique.

Total waste produced, tonnes



Waste amounts declined significantly because of lower sales volumes and the reduced number of employees.

No significant spills were reported in Outotec operations and project sites in 2016 (G4-EN24).

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. These hazardous wastes are sent to local hazardous waste treatment facilities.

For more information see:

- Initiatives to mitigate the environmental impacts of our products and services, page 22
- Grievances and non-compliance with environmental laws and regulations, in Responsible business practices, page 24

OUR POLICIES

- Quality, Environment, Health and Safety (QEHS) Policy
- Travel Policy

Social data

Our commitment to the United Nations' Global Compact's principles on human rights, environment, labor, and anti-corruption, and our recognition of the UN's Guiding Principles on Business and Human Rights demonstrate our desire to further advance social responsibility in our business.

Our approach to social responsibility is described in connection with our material themes:

- Safety
- Responsible business practices
- Development of our people
- Equal opportunities and diversity
- Stakeholder dialogue
- Community involvement

EMPLOYEES

Outotec had 4,340 employees on average in 2016 (G4-10). At the end of 2016, Outotec had 667 employees fewer than the previous year-end, due to cost saving actions, related redundancies and job terminations. Our temporary personnel have at the same time been reduced to about five per cent of the total payroll, and the number of full-time equivalent contracted persons working in project execution and services was reduced to 330. We could not report the share of part-time employees of the total workforce because the information has not been included in our HR master data system. Some of the temporary employees are self-employed, typically retired Outotec experts who work for shorter periods

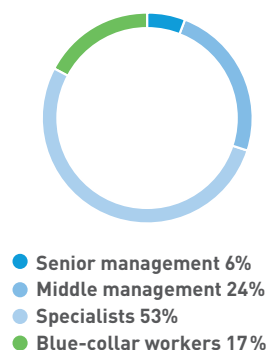
on customer projects. During annual vacation seasons, we hire students as trainees.

In addition to employees, Outotec had 330 (2015: 405) full-time equivalent contracted persons working under our supervision. These contractors are not reported in the employee data.

Employees by employment type	2016	2015	2014
Employees at year end	4,192	4,859	4,571
Employees on average	4,340	4,855	4,776
Permanent employees	3,978	4,534	4,187
Temporary employees, as % of total	5	8	8

n = 4,192 (2015: 4,859), coverage 100%

Employees by category



Employees by region

Employees by region	2016	2015	2014
EMEA	2,824	3,159	2,627
Americas	801	1,012	1,214
APAC	577	688	730
Total	4,192	4,855	4,859

Employees by gender

Employees by gender, %	2016	2015	2014
Share of women among employees	18.7	18.4	18.8
Share of men among employees	81.3	81.6	81.2
Share of women among management*	13.2	13.3	13.1
Share of men among management*	86.8	86.7	86.9

*) n = 1,264 management-level employees, according to Outotec grading

Average age of employees

	2016	2015	2014
	42.0	41.3	41.0

LABOR PRACTICES AND DECENT WORK

Total number and rates of new employee hires and employee turnover by age group, gender and region (G4-LA1)

New employee hires by gender	2016	2016	2015	2015	2014	2014
	#	%	#	%	#	%
Women	101	16	169	18	N/A*	N/A*
Men	545	84	783	82	N/A*	N/A*

*) data is not available due to system change

Employee turnover rate by age group	2016	2016	2015	2015	2014	2014
	#	%	#	%	#	%
<25	68	48	68	27	66	24
26-30	138	27	101	16	104	16
31-35	174	22	121	14	118	14
36-40	133	19	144	19	92	13
41-45	137	23	109	16	76	13
46-50	94	19	82	15	67	13
51-55	86	19	85	17	41	9
56-60	59	19	39	12	33	10
>60	86	43	49	20	71	31
Total	979	23	798	16	668	15

Employee turnover rate by gender	2016	2016	2015	2015	2014	2014
	#	%	#	%	#	%
Women	164	21	147	16	127*	15
Men	815	24	651	16	543*	15

Employee turnover rate by region	2016	2016	2015	2015	2014	2014
	#	%	#	%	#	%
Finland	181	14	132	9	120	9
Germany	47	9	68	12	42	8
Rest of Europe	86	26	72	19	133	35
The Americas	367	46	324	32	216	18
Australia	70	19	74	18	70	15
Rest of the world	228	27	128	13	89	14

The higher employee turnover in 2016 compared to 2015 is partly the result of personnel reductions due to cost saving programs.

Approximately 50% of our employees are covered by collective bargaining agreements. Binding collective agreements are followed in each country where they are applicable to Outotec employees.

COMPENSATION

Total compensation paid out to employees by Outotec in 2016 amounted to EUR 329 million (353). Outotec's compensation policy is described on www.outotec.com/cg.

142 key employees were part of the company's share-based incentive program in 2016 (168). In addition, 933 (1,211) employees equaling 27% (27%) 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 or because operations were only acquired during the year. In May 2016, Outotec paid out a total of 233,160 shares and cash payments to cover estimated taxes to 1,417 employees who participated in the employee share savings plan in 2013.

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.

Compensation	2016	2015	2014
Wages and salaries paid, EUR million	329.1	353.4	362.8
Ratio of annual total compensation of CEO to median compensation of employees	7.9*	10.3	9.7
Change in annual total compensation of CEO, %	-20.2*	-2.9	-40.9
Change in annual median compensation of employees, %	4.2	-2.9	4.4

n = 4,192 (2015: 4,859), coverage 100 %

*) In 2016, Outotec's CEO changed and the compensation covers three different CEOs, one of them acting. CEO's compensation does not include severance payment, compensation for unused vacation, salary for notice period or relocation costs due to the change of CEO.

Benefits provided to full-time employees in 2016 (G4-LA2)

Benefits provided to full-time employees, but not provided to temporary, % FT = Full-time, TEMP = Temporary								
	EMEA		Americas		APAC		Total	
	FT	TEMP	FT	TEMP	FT	TEMP	FT	TEMP
Life insurance	70	42	100	38	0	0	67	36
Health care	84	65	100	38	7	7	77	53
Disability/invalidity coverage	93	64	100	38	20	0	85	52
Maternity/paternity leave	100	95	100	38	100	0	99	75
Retirement provision	36	0	100	38	36	0	49	4
Stock ownership	96	0	100	0	64	0	93	0
n=	2,634	149	780	21	521	29	3,935	199
coverage	99	98	100	100	97	71	99	93

Minimum notice periods for significant operational changes

The minimum notice periods that must be observed in advance of significant operational changes depend on locations and national legislation, and therefore differ significantly. Notice periods range from two weeks to one year (G4-LA4).

OCCUPATIONAL HEALTH AND SAFETY

The reporting of health and safety covers Outotec's premises and employees, contractors working under our supervision and our project sites.

The entire workforce (100%) is represented in formal joint management-worker health and safety committees that help to monitor and provide advice on occupational health and safety programs (G4-LA5). Units that have less than 10 people are represented in the health and safety committees of the closest larger units.

We have found out that there are cultural differences and variation in the categorization between lost time injuries and total recordable injuries in certain countries. To improve transparency we have also reported total recordable injury rates (TRIR) for 2016.

Injury rates and types, occupational diseases, lost days, absenteeism, and work-related fatalities (G4-LA6)

Type of injury and rates of injury, occupational diseases, lost days and absenteeism, and total number of work-related fatalities	2016	2015	2014
Non-fatal injuries arising from or in the course of work	23	41	33
Fatal injuries arising from or in the course of work	0	0	0
Lost-time injury rate (LTIR –per 1 million working hours)	1.8	2.8	1.5
Occupational diseases	1	0	0
Occupational disease rate (per 1 million working hours)	0.0	0	0
Lost days because of occupational accidents or disease	304	512	173
Lost day rate (per 1 million working hours)	24.5	35.1	7.6
Absentee rate, %	1.8	1.2	0.9

n = 6,450 (7,157) including Outotec's employees and subcontractors working under our control on project sites

Total recordable injury rate (TRIR) by region in 2016 (G4-LA6)

Market area	LTIR	TRIR
North & Central America	1.3	8.0
South America	0.8	1.2
Europe & North Africa	1.9	6.9
Eurasia	0	4.7
Sub-Saharan Africa	4.7	10.4
Middle East and India	0	1.4
China	15.1	18.9
SEAP	0.8	6.7
Outotec total	1.8	5.7

Read about workers with high incidence or high risk of diseases related to their occupation in Safety, page 20.

Health and safety topics are not covered in formal agreements with trade unions (G4-LA8) since they are duly addressed by statutory regulations and laws that Outotec complies with.

TRAINING AND EDUCATION

Our reporting of training hours covers Outotec's employees. Our learning management system provides information of Outotec's global training programs excluding blue-collar workers. Training hours on health and safety are compiled from the health and safety reporting system. Average hours of training per year by gender and employee category

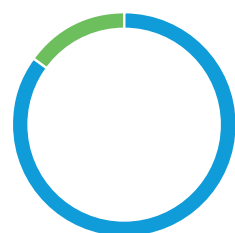
[G4-LA9] is partly reported. It includes vocational training only due to different data management systems in other types of training. For health and safety training, externally pursued training and Code of Conduct classroom training, the information of gender and employee category has not been collected.

Training	2016	2015	2014
Vocational training and instruction			
Number of employees	2,391	2,444	1,301
Hours	12,612	31,788	27,521
Training or education pursued externally and paid for in whole or in part by Outotec			
Number of employees	500*	500*	807
Hours	2,850*	3,000*	6,877
Training on health and safety			
Hours	60,365	55,986	93,843
Training on human rights issues**			
Number of employees	1,223	954	1,104
Hours	673	1,431	3,139
Total training hours			
	76,500	95,499	131,380
All types of training hours/employee			
	18.3	19.7	28.7

*) Training on MS Office365 tools started in December 2015.

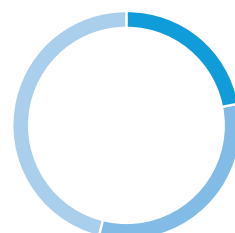
**) Human rights issues were covered in Code of Conduct e-learning and classroom training. In 2016 the number of hours of training declined, even though more employees underwent training, because in previous years there were more classroom training sessions with a longer duration than e-learning sessions.

Vocational training by gender in 2016



● MEN 85%
● WOMEN 15%

Vocational training employee category in 2016



● Senior management 22%
● Middle management 32%
● Specialists 46%
● Blue-collar workers 0%

Read about programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings [G4-LA10] on page 28.

Read about percentage of employees receiving regular performance and career development reviews, by gender and by employee category [G4-LA11] on page 29.

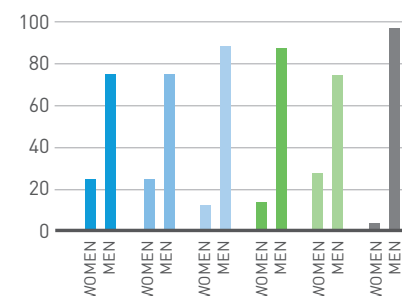
DIVERSITY AND EQUAL OPPORTUNITY

Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity (G4-LA12)

Employees by age group	2016	2015	2014
Executive Board, %			
< 30 years old	0	0	0
30-50 years old	25	31	57
> 50 years old	75	69	43
Senior management, %			
< 30 years old	0	0	0
30-50 years old	56	59	60
> 50 years old	44	41	40
Middle management, %			
< 30 years old	1	3	2
30-50 years old	66	64	66
> 50 years old	33	33	32
Specialists, %			
< 30 years old	26	22	19
30-50 years old	70	59	61
> 50 years old	23	19	20
Blue-collar workers, %			
< 30 years old	28	30	31
30-50 years old	54	54	52
> 50 years old	19	16	15
Board of Directors, %			
< 30 years old	0	0	0
30-50 years old	25	0	0
> 50 years old	75	100	100

n = 4,192, coverage 100%

Share of women by employee category, %



● Board of Directors
● Executive Board
● Senior management
● Middle management
● Specialists
● Blue collar workers

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

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. In 2016, 50% (63%) of our market areas had local leaders. The decrease is due to the fact that a permanent leader for one market area has not yet been appointed and the position is temporarily held by an expatriate.

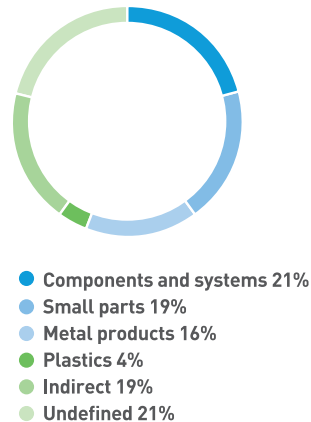
SUPPLIERS

Outotec had approximately 3,300 (3,400) active direct suppliers in 2016. Our total spend on customer-related purchasing in 2016 was EUR 486 million (629 million). The total spend decreased as the company's order intake and sales declined due to the weaker market situation.

The share of indirect spend decreased in 2016 because external services were used less than in the previous year, in line with our cost saving program.

Our spending on local suppliers in 2016 amounted to EUR 310 million (EUR 270 million), equivalent to 64% of our total supply spend (G4-EC9). The largest shares by country – each amounting to EUR 10–50 million – were spent in the USA, China, Australia, the UAE, Sweden, South Africa, Mexico, Chile, and the UK. The remaining local spend was distributed among 45 countries.

Supply spend by category



For more information, see also:



- Building a sustainable supplier base, page 27
- Responsible business practices, page 24
- Safe products for our customers, page 21
- Sustainable offering for customers, page 22
- Surveys measuring customer satisfaction, page 17






GRI, GLOBAL COMPACT, AND SDG CONTENT INDEX


Based on our own assessment, Outotec has declared this report to be compliant with the GRI G4 guidelines in accordance with the core level. Compliance has additionally been checked by a third party, Ecobio Ltd.




In our sustainability reporting for 2016, we have applied the Global Reporting Initiative (GRI) G4 Guidelines' specific standard disclosure indicators, as presented in the table below. The table also indicates our progress on the United Nations' Global Compact principles and Sustainable Development Goals (SDG).



Code	Description	Related webpage and omissions	Global compact principle	SDG
	General Standard Disclosure			
	Strategy and analysis			
G4-1	CEO's statement	CEO's message, p. 3		
	Organizational profile			
G4-3	Name of the organization	This is Outotec, p. 5		
G4-4	Primary brands, products, and/or services	This is Outotec, p. 5		
G4-5	Location of organization's headquarters	This is Outotec, p. 5		
G4-6	Number of countries where the organization operates	This is Outotec, p. 5		
G4-7	Nature of ownership and legal form	This is Outotec, p. 5		
G4-8	Markets served	This is Outotec, p. 5		
G4-9	Scale of the reporting organization	This is Outotec, p. 5 Direct and indirect financial impacts, p. 8		
G4-10	Breakdown of workforce	Social data, p. 8	6	
G4-11	Coverage of collective bargaining agreements	Social data, p. 44	3	
G4-12	Organisation's supply chain	Building a sustainable supply chain, p. 27		
G4-13	Significant changes during the reporting period regarding size, structure, or ownership	This is Outotec, p. 5 Data collection, p. 38		
G4-14	Precautionary approach or principle	Responsible business practices, p. 24		
G4-15	Externally developed sustainability charters, principles or other initiatives which the organization endorses	Commitment to external initiatives at www.outotec.com		
G4-16	Memberships of associations	Commitment to external initiatives at www.outotec.com		
	Identified material aspects and boundaries			
G4-17	All entities included in the organization's consolidated financial statements	Financial Statements 2016 at www.outotec.com/investors		
G4-18	Process for defining report content and the aspect boundaries	Most significant topics, p. 12 Engaging with stakeholders, p. 17		
G4-19	Material aspects	Most significant topics, p. 12		
G4-20	Aspect boundary within the organisation	About this report, p. 34 Most significant topics, p. 12		
G4-21	Aspect boundary outside the organization	About this report, p. 34 Most significant topics, p. 12 The carbon footprint of our supply chain, p. 42		
G4-22	Explanation of re-statements	Data collection, p. 38		
G4-23	Significant changes from previous reporting periods in the scope and aspect boundaries	This is Outotec, p. 5 About this report, p. 34		

Code	Description	Related webpage and omissions	Global compact principle	SDG
Stakeholder engagement				
G4-24-27	Stakeholder engagement	Engaging with stakeholders, p. 17		
OWN	Employee engagement and performance enablement indices	Enhancing employee engagement, p. 28		
Report profile				
G4-28-31	Report profile	About this report, p. 34		
G4-32	'In accordance' option chosen	About this report, p. 34		
G4-33	External assurance	Independent assurance, p. 55		
Governance				
Governance structure and composition				
G4-34	Governance structure	Responsible business practices, p. 24		
Ethics and integrity				
G4-56	Organization's values, principles and codes	Values at www.outotec.com Responsible business practices, p. 24	10	
DISCLOSURES ON MANAGEMENT APPROACH				
DMA	Management approach	Responsible business practices, p. 24		
ECONOMIC RESPONSIBILITY				
DMA	Management approach to economic responsibility	Direct and indirect financial impacts, p. 8		
Economic performance				
G4-EC1	Direct economic value generated and distributed	Direct and indirect financial impacts, p. 8		
G4-EC2	Risks and opportunities due to climate change	Impacts of megatrends on our business, p. 10 Partly reported, taxes by country not reported.	7	
Indirect economic impacts				
G4-EC8	Significant indirect economic impacts	Direct and indirect financial impacts, p. 8		
Procurement practices				
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	Building a sustainable supplier base, p. 27 Direct and indirect financial impacts, p. 8		
ENVIRONMENTAL RESPONSIBILITY				
DMA	Management approach to environmental responsibility	Environmental data, p. 39		
Materials				
G4-EN1	Materials used	Environmental data, p. 39	7,8	

Code	Description	Related webpage and omissions	Global compact principle	SDG
Energy				
G4-EN3	Energy consumption within the organization	Environmental data, p. 40	7,8	
G4-EN5	Energy intensity	Environmental data, p. 40	8	
G4-EN6	Reduction of energy consumption	Environmental data, p. 40	8,9	
Water				
G4-EN8	Water withdrawal	Environmental data, p. 41	7,8	
Emissions				
G4-EN15- G4-EN17	Greenhouse gas emissions (Scope 1, 2, 3)	Environmental data, p. 41-42 Building a sustainable supplier base, p. 27	7,8	
G4-EN18	Greenhouse gas emissions intensity	Environmental data, p. 42	8	
Effluents and waste				
G4-EN23	Waste by type and disposal method	Environmental data, p. 43	8	
G4-EN24	Total number and volume of significant spills	Environmental data, p. 43	8	
Products and services				
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	Sustainability agenda 2020, p. 13 Sustainable offering for customers, p. 22 Safe products for our customers, p. 21	7,8,9	
OWN	Environmental Goods and Services in order intake	Sustainability agenda 2020, p. 13 Sustainable offering for customers, p. 22		
OWN	Percentage of CO ₂ emissions avoided through the use of Outotec's metals-related technologies	Sustainability agenda 2020, p. 13 Environmental data, p. 43		
OWN	Percentage of reduction of fresh water/tonne of ore by non-ferrous metals concentrators using Outotec technology	Sustainability agenda 2020, p. 13 Sustainable offering for customers, p. 22		
OWN	Increase of energy produced using Outotec waste-to-energy solutions	Sustainable offering for customers, p. 22 Sustainability agenda 2020, p. 13		
Compliance				
G4-EN29	Compliance with environmental laws	Responsible business practices, p. 24	8	
G4-EN30	Significant environmental impacts of transporting products/workforce	Environmental data, p. 41		

Code	Description	Related webpage and omissions	Global compact principle	SDG
Supplier environment				
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	Building a sustainable supplier base, p. 27	8	
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain	CO ₂ emissions of our supply chain, p. 42	8	
Environmental grievance mechanisms				
G4-EN34	Number of grievances about environmental impacts	Responsible business practices, p. 24	8	
SOCIAL RESPONSIBILITY				
DMA	Management approach to social responsibility	Social data, p. 44		
Labor practices and decent work				
Employment				
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	Social data, p. 44		
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Social data, p. 46		
Labor / management relations				
G4-LA4	Minimum notice period(s) regarding significant operational changes	Social data, p. 46	3	
Occupational health and safety				
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	Safety, p. 20		
G4-LA6	Rates of injury, occupational diseases, lost days and absenteeism, and total number of work-related fatalities by region	Social data, p. 46		
G4-LA7	Workers with high incidence or high risk of diseases related to occupation	Safety, p. 20		
G4-LA8	Health and safety topics covered in formal agreements with trade unions	Social data, p. 46	1	
Training and education				
G4-LA9	Average hours of training per year per employee category	Social data, p. 47 Partly reported, data does not cover blue-collar workers and classroom trainings	6	
G4-LA10	Programs for skills management and lifelong learning	Enhancing employee engagement, p. 28	1	
G4-LA11	Percentage of employees receiving regular performance and career development reviews	Enhancing employee engagement, p. 28	6	

Code	Description	Related webpage and omissions	Global compact principle	SDG
Diversity and equal opportunity				
G4-LA12	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	Social data, p. 47		
Supplier assessment for labor practices				
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	Building a sustainable supplier base, p. 27		
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken			
Labor practices grievance mechanisms				
G4-LA16	Number of grievances about labor practices	Responsible business practices, p. 24 Enhancing employee engagement, p. 28		
Human rights				
Non-discrimination				
G4-HR3	Total number of incidents of discrimination and actions taken	Responsible business practices, p. 24	6	
Freedom of association				
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be at significant risk	Building a sustainable supplier base, p. 27 Responsible business practices, p. 24	3	
Child labor				
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor	Building a sustainable supplier base, p. 27	5	
Forced or compulsory labor				
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor	Building a sustainable supplier base, p. 27	4	
Supplier human rights				
G4-HR10	Percentage of new suppliers that were screened using human rights criteria	Building a sustainable supplier base, p. 27	2	
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain	Building a sustainable supplier base, p. 27	2	
Human rights grievance mechanisms				
G4-HR12	Number of grievances about human rights impacts	Responsible business practices, p. 24	1	
Society				
Local communities				
G4-S01	Local community engagement, impact assessments, and development programs.	Engaging with stakeholders, p. 17 Partly reported, impact assessments and development plans are missing	1	

Code	Description	Related page and omissions	Global compact principle	SDG
G4-S02	Operations with significant negative impacts on local communities	Responsible business practices, p. 24	1	
	Anti-corruption			
G4-S03	Total number and percentage of operations assessed for risks related to corruption	Responsible business practices, p. 24	10	
G4-S04	Communication and anti-corruption training	Responsible business practices, p. 24	10	
G4-S05	Confirmed incidents of corruption and actions taken	Responsible business practices, p. 24	10	
	Anti-competitive behaviour			
G4-S07	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Responsible business practices, p. 24		
	Compliance			
G4-S08	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	Responsible business practices, p. 24		
	Supplier assessment for impacts on society			
G4-S09	Percentage of new suppliers that were screened using criteria for impacts on society	Building a sustainable supplier base, p. 27		
G4-S010	Significant actual and potential negative impacts on society in the supply chain	Building a sustainable supplier base, p. 27		
	Grievance mechanisms for impacts on society			
G4-S011	Number of grievances about impacts on society	Responsible business practices, p. 24		
	Product responsibility			
	Customer health and safety			
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	Safe products for our customers, p. 21 Annual targets, p. 35		
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services	Safe products for our customers, p. 21		
	Product and service labeling			
G4-PR5	Results of surveys measuring customer satisfaction			
	Compliance			
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	Responsible business practices, p. 24		

Independent Assurance Report – Outotec Sustainability Report 2016

TO THE MANAGEMENT OF OUTOTEC OYJ

Insinööritoimisto 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 2016.

OUTOTEC'S RESPONSIBILITY

Outotec was responsible for the collection, preparation and presentation of the information in the Sustainability Report (hereafter Sustainability Information) according to the Sustainability Reporting Guidelines (GRI G4) 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 2016. The assurance engagement was limited to the non-financial performance data disclosed in the Sustainability Report for the reporting period of January 1st 2016 to December 31st 2016.

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 G4 Sustainability Reporting Guidelines.

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 Global Reporting Initiative Sustainability Reporting Guidelines GRI G4, 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 G4 Guidelines. 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 December 2016 to March 2017. 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 2016 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 2016 compared to the GRI G4 Sustainability Reporting Guidelines.

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 2016 is not fairly stated, in all material respects, or that it would not comply with the Reporting Criteria stated before.

OBSERVATIONS AND RECOMMENDATIONS

Based on our limited assurance engagement we provide the following observations and

recommendations related to GRI Sustainability Reporting principles. These observations and recommendations do not affect the conclusions presented earlier.

- In general, the report is comprehensive, well-structured and claims are reported in a clear and reasonable fashion.
- Outotec presents a good understanding of sustainable development conditions and the reported strategy and performance relate to the understanding of these conditions.
- The materiality assessment is comprehensive taking into account different dimensions of sustainability. The process for defining the report content could though be described more in detail.
- All relevant topics are covered in the report and a shift to a more focused content has been made for the 2016 report. However, if omissions are made they should be clearly stated and preferably on indicator level.
- Stakeholder dialogue is active and relevant topics are well identified. We recommend keeping an active dialogue with stakeholders to maintain a high level on inclusivity in future reporting periods and to ensure that also future reports responds to stakeholder expectations and interests. The report could also support the interactivity between stakeholders and the reporting

organization more by offering means to be in contact with the organization.

- Outotec has made further progress on including the whole value chain within the reporting boundary, which is consistent with the work done during previous reporting periods. This could still be enhanced to even more comprehensively cover impacts outside the organization, as most of the impacts are identified to happen there. This would improve the completeness of the report.
- The documentation of the work processes and the internal guidelines for data gathering has been further improved. This is of importance as to maintain consistency in data gathering and compilation as well as accuracy and reliability in the reporting over time also when organizational changes occur.

PRACTITIONER'S INDEPENDENCE AND QUALIFICATIONS

Ecobio is an independent consulting company that specializes in environmental, health and safety management with over 25 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 assurers are skilled and experienced with in 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 there has been no conflict of interest.

Helsinki, 27th of March 2017
Insinööritoimisto Ecobio Oy



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Outotec provides leading technologies and services for the sustainable use of Earth's natural resources. As the global leader in minerals and metals processing technology, we have developed many breakthrough technologies over the decades for our customers in metals and mining industry. We also provide innovative solutions for industrial water treatment, the utilization of alternative energy sources and the chemical industry. Outotec shares are listed on NASDAQ Helsinki. **www.outotec.com**